STELLENBOSCH

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

Ref no.3/4/2/5

2024-02-09

MAYORAL COMMITTEE MEETING

WEDNESDAY, 2024-02-14 AT 10:00

TO	The Executive Mayor, Ald G Van Deventer
	The Deputy Executive Mayor, Cllr J Fasser
COUNCILLORS	JC Anthony
	R du Toit P Johnson J Joon
	X Kalipa
	L Nkamisa
	R Pheiffer
	C van Wyk
	J Williams

Notice is hereby given that a Mayoral Committee Meeting will be held in the Council Chamber on **Wednesday, 2024-02-14 at 10:00** to consider the attached agenda.

EXECUTIVE MAYOR, ALD GM VAN DEVENTER

CHAIRPERSON

AGENDA

MAYORAL COMMITTEE MEETING

2024-02-14

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APPENDIX 1

Confirmation of Minutes: Mayoral Committee Meeting: 2024-01-17

STELLENBOSCH
STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

Ref no.3/4/2/5

2024-01-17

MINUTES

MAYORAL COMMITTEE MEETING:

2024-01-17 AT 10:00

MINUTES

MAYORAL COMMITTEE MEETING

2024-01-17

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PRESENT: Executive Mayor, Ald GM Van Deventer **(Chairperson)**
Deputy Executive Mayor,J Fasser

Councillors: JC Anthony
R du Toit
P Johnson
J Joon
X Kalipa
L Nkamisa
R Pheiffer
C van Wyk
J Williams

Also Present: Councillor P Crawley (Chief Whip)
Councillor W Pietersen (MPAC Chairperson)
Councillor Q Smit (Speaker)

Officials: Municipal Manager (G Mettler (Ms))
Director: Corporate Services (A de Beer (Ms))
Director: Community & Protection Services (G Boshoff)
Director : Infrastructure Services (S Chandaka)
Chief Financial Officer (K Carolus)
Director: Planning and Economic Development (A Barnes)
Senior Administration Officer (B Mgcushe (Ms))

****

1.	OPENING AND WELCOME

The Chairperson, Deputy Executive Mayor welcomed everyone present at the Mayoral Committee Meeting.

2.	COMMUNICATION BY THE CHAIRPERSON

- Welkom terug aan alle raadslede en amptenare. Hoop almal het ‘n goeie rus gehad, en die Feesgety geniet met familie en vriende. Laat ons die gelenthede en uitdagings van 2024 in die gesig staar, en saamwerk om te verseker dat 2024 nog ‘n beter jaar sal wees. Stellenbosch has always thrived on the strength of its residents, and together, we can build on our successes and face any challenges that may arise.

- I also want to express my deepest gratitude to our dedicated emergency and essential service staff who tirelessly worked through the festive season, ensuring the safety and well-being of our community. Their unwavering commitment, even during the holiday period, reflects the true spirit of service and sacrifice. These individuals are the backbone of our community, and their hard work does not go unnoticed. Let us appreciate and thank our emergency responders, law enforcement officers, disaster management professionals, and essential workers for their selfless dedication to keeping Stellenbosch safe and thriving. Your resilience is truly commendable, and we are indebted to you for your contributions.

- Wishing all learners and teachers all the best for the new school year! Werk hard, leer baie en geniet elke oomblik.

- Wil asseblief alle inwoners en voertuigbestuurders herinner – u kry 21 dae grasie om ‘n motorlisensie te hernu nadat dit verval het. Daarna is u aanspreeklik om boetes en agterstallige lisensiegelde te betaal. Dit is u verantwoordelikheid as voertuigeienaar en bestuurder om te sorg dat u voertuig ‘n geldige lisensie het.

- I want to encourage matrics interested in gaining on-the-job experience in the public sector to look at the Premier’s Advancement of Youth Programme. Applications for the First Work Experience PAY Programme open annually. The programme provides youth between the ages of 17-24 with work experience and training within one of the 13 Western Cape Government Departments from 1 April 2024 till 31 March 2025. All the information is available on the municipal website.

- 2024 is ook die jaar van Provinsiale en Nasionale verkiesings. Kiesersregistrasie naweek is 3 en 4 Februarie 2024. Ek moedig alle nnuwe intrekkers aan om te herregistreer om sodoende in die komende verkiesing te stem. Persone wat ook nog nooit geregistreer het nie moet asseblief gaan registreer om te stem.
  Maak asseblief seker u weet waar u stempunt is en alle nuwe inwoners / intrekkers in Stellenbosch munisipaliteit word aangemoedig om te herregistreer om te verseker u kan in die komende verkiesing van 2024 u stem uitbring.
  Indien u nie weet waar u moet stem en of u dalk moet herregistreer, maak asseblief met u wyksraadslid kontak.
  In die komende verkiesing sal u slegs kan stem in die wyk waar u geregistreer is.

- Neem asseblief kennis van die jaarlikse Oesparade en seëning van die oes wat op Saterdag, 27 Janaurie 2024 voor die stadsaal plaasvind.

- Baie hoë temperature word vir die volgende paaar dae voorspel so neem asseblief die nodige voorsorgmaatreëls om te sorg u en die troeteldiere is veilig, koel en beskud van die warm son.

3.	DISCLOSURE OF INTERESTS

NONE

4.	APPLICATIONS FOR LEAVE OF ABSENCE

NONE

5.	CONFIRMATION OF PREVIOUS MINUTES

The minutes of the Mayoral Committee Meeting held on 2023-11-16 were **confirmed as correct without any amendments.**

6.	STATUTORY MATTERS

6.1	TABLING OF THE DRAFT ANNUAL REPORT 2022/23

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: TABLING OF THE DRAFT ANNUAL REPORT 2022/23

2. PURPOSE

a) To table to Council the Draft Annual Report 2022/23 for consideration and to be released for public comment.
b) Furthermore, it is also the purpose of this submission, after the adoption of the Draft Annual Report 2022/23 by the Council, to refer the Draft Annual Report 2022/23 to the Municipal Public Accounts Committee (MPAC) to fulfil the role of an Oversight Committee and to make a recommendation to Council as contemplated in terms of Section 129(1) of the Local Government: Municipal Finance Management Act, 2003 (Act No. 56 of 2003) (MFMA).

3. DELEGATED AUTHORITY

Council.

4. EXECUTIVE SUMMARY

The annual report must be tabled by the executive mayor within seven months after the end of the financial year. The draft annual report must be made public, and the municipal manager must invite the public to provide input into the draft report. It has become a practice for the MPAC to also invite the public to make verbal representations at meetings where the report is being discussed.

A schedule with proposed dates for the MPAC meetings is also attached hereto as **ANNEXURE A**. The Council resolved that MPAC has, as part of its terms of reference, the role of sitting as the Oversight Committee to consider the Draft Annual Report 2022/23.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.1

(a) that the Council takes note of the draft Annual Report 2022/23;

(b) that the Council takes note that the Municipal Manager will make the draft Annual Report 2022/23 public for comment on the official website of the Stellenbosch Municipality, the local print media, and at the offices of the municipality for 21 days;

(c) that the commencement of the public participation process will be the date the draft Annual Report 2022/23 is published on the municipal website;

(d) that the Council refer the draft Annual Report 2022/23 **(ANNEXURE B)** to the MPAC to consider the draft Annual Report 2022/23 and to make a recommendation to the Council as contemplated in terms of Section 129(1) of the MFMA;

(e) that the Council takes note of the proposed dates for the MPAC meetings where the draft Annual Report 2022/23 will be discussed, as detailed in **ANNEXURE A**. These dates are subject to change. The final dates will be published on the municipality's website and in the local media;

(f) that the Council approves the MPAC's mandate to co-opt two members of the public with expertise in specific fields to assist and advise the MPAC; and

(g) that the Council approves that the co-opted members can be remunerated in line with the recommendations of National Treasury Regulation in this regard.

Rates for additional nominated community members as per Treasury Regulation 20.2.2. The once-off preparation tariff was used as a guide since the National Treasury does not have guidance in that regard. Consultation must take place to decide if the rate will remain the same.

Tariff	Number of co-opted Members	Not exceeding no. of hours	Remuneration
Per-hour tariff for attendance of meeting as a member	2	45 hours	R 337.00 per hour
Once-off Tariff for duties performed in preparation	2	6 hours	R 2 698 (for six hours)

NAME	Geraldine Mettler
POSITION	Municipal Manager
DIRECTORATE	Office of the Municipal Manager
CONTACT NUMBERS	021 808 8025
E-MAIL ADDRESS	mm@stellenbosch.gov.za
REPORT DATE	09 January 2024

6.2	MID-YEAR ADJUSTMENTS BUDGET FOR 2023/2024

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: MID-YEAR ADJUSTMENTS BUDGET FOR 2023/2024

2. PURPOSE

To table the adjustments budget as envisaged by section 28 of the Municipal Finance Management Act (Act No.56 of 2003), for the 2023/2024 financial year, for approval. The Western Cape Adjustments Appropriation Act, 2023, was enacted on 28 November 2023 and arising from this, grant allocations were amended for Stellenbosch Municipality, for the 2023/24 financial year.

3. DELEGATED AUTHORITY

Approval is required by the Municipal Council.

4. EXECUTIVE SUMMARY

Attached as **APPENDIX 1** is an executive summary by the Accounting Officer.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.2

(a) that the Adjustments Budget for 2023/2024 as set out in **APPENDIX 1**, be approved;

(b) that the following capital projects be adjusted over the MTREF (2023 - 2026) as follows:

Project	2024/2025
Housing Projects (Social housing planning)	1 130 000
Flats: Interior Upgrading - Kayamandi	1 650 000
Expansion of the landfill site (New cells)	30 000 000
Landfill Gas to Energy	22 000 000
Transfer Station: Stellenbosch Planning and Design	1 029 000
Waste Minimization Projects	800 000
Alternative Energy	40 984 801
Bien don 66/11kV substation new	47 420 700
Bien don 66/11kV substation new	847 227
General Systems Improvements - Stellenbosch	872 000
Jan Marais Upgrade: Remove Existing Tx and replace with 20MVA	2 359 587
Uninterupted Power Supply for buildings	2 872 000
Bulk Water Supply Pipe and Reservoir: Stellenbosch	2 219 352
Bulk Water Supply Pipe and Reservoir: Kayamandi	298 093
Bulk Water Supply Pipe Line & Pumpstations: Franschhoek	10 000 000

Project	2024/2025
Bulk Water Supply Pipe: Idas Valley/Papegaaiberg and Network Upgrades	2 000 000
Bulk Water Supply Pipeline & Reservoir - Jamestown	13 716 870
Dwarsriver Bulk Supply Augmentation and Network Upgrades	7 320 153
New Reservoir & Pipeline: Vlottenburg	5 630 324
Reservoirs and Dam Safety	1 950 000
Water Treatment Works: Franschhoek	2 500 000
Water Treatment Works: Idasvalley	1 174 131
Waterpipe Replacement	8 700 000
Franschhoek Sewer Network Upgrade (Langrug/Mooiwater)	272 213
Industrial Effluent Monitoring	1 500 000
Refurbish Plant & Equipment - Raithby WWTW	8 500 000
Sewerpipe Replacement	5 750 000
Upgrade Auto-Samplers	200 000
Upgrade of WWTW Wemmershoek	57 000 000
Upgrade of WWTW: Klapmuts	48 000 000
Bridge Assessment and Design	1 000 000
Lanquedoc Access road and Bridge	13 609 906
River Rehabilitation Implementation	2 600 000
Upgrade Stormwater Retention Facilities	1 200 000
Bird Street Dualling - Adam Tas to Kayamandi	5 500 000
Main road intersection improvements: Helshoogte rd/La Colline	400 000
Stellenbosch Tour Bus Parking	600 000
Kayamandi: Upgrading of Makapula Hall	3 000 000
Structural Maintenance/Upgrade: Beltana	4 000 000
Structural Upgrade: Jamestown Ward Office and Library	3 900 000

(c) that that the Adjustments Budget Tables as prescribed by the Budgeting and Reporting Regulations, as set out in **APPENDIX 2**, be approved; and

(d) that the Service Delivery and Budget Implementation Plan be adjusted accordingly inclusive of the non-financial information (performance measurement).

FOR FURTHER DETAILS CONTACT:

NAME	**MONIQUE STEYL**
POSITION	***SENIOR MANAGER: FINANCIAL MANGEMENT SERVICES***
DIRECTORATE	***FINANCIAL SERVICES***
CONTACT NUMBERS	***021 808 8512***
E-MAIL ADDRESS	***Monique.Steyl@stellenbosch.gov.za***
REPORT DATE	***11 January 2024***

6.3	REVISED TOP LAYER SERVICE DELIVERY AND BUDGET IMPLEMENTATION PLAN 2023/24

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: REVISED TOP LAYER SERVICE DELIVERY AND BUDGET IMPLEMENTATION PLAN 2023/24

2. PURPOSE

To obtain the Council's approval for the revisions made to the Top Layer (TL) Service Delivery and Budget Implementation Plan (SDBIP) 2023/24.

3. DELEGATED AUTHORITY

Council

4. EXECUTIVE SUMMARY

The TL SDBIP 2023/24 was approved by the Executive Mayor on 27 June 2023. It is common practice for a municipality, as provided for in the Local Government: Municipal Finance Management Act, 2003 (Act No. 56 of 2003) (MFMA), to review its performance indicators and targets after approving the adjustments budget.

All the necessary changes, which must be deleted or amended, are indicated with a strikethrough and an underline, respectively (for ease of reference). It should be noted that the TL SDBIP 2023/24 is the in-year plan of the municipality, and amendments made to the TL SDBIP 2023/24 must be read in conjunction with the Integrated Development Plan (IDP). Therefore, changes made in the Revised TL SDBIP 2023/24 are considered to be made in the IDP as well.

The reasons for the amendments to the following KPIs are as follows:

a) KPI004 – Editorial change made.

b) KPI010 – The wording of the deliverable was revised.

c) KPI049 – The target date of the deliverable was revised from 01 July to 31 March.

d) KPI060 – The wording of the deliverable was revised.

e) KPI061 – The KPI was removed as it was achieved in the previous financial year.

f) KPI062 – The wording of the deliverable was revised.

Any detected spelling, grammatical and or alignment errors in the document were also corrected where needed.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.3

(a) that the Revised TL SDBIP 2023/24 be approved;

(b) that the Revised TL SDBIP 2023/24 be published on the Municipal Website; and

(c) that the Revised TL SDBIP 2023/24 be submitted to:

i. Internal Audit Unit (for notification);
ii Department of Local Government: Western Cape;
iii Provincial Treasury: Western Cape;
iv Auditor General of South Africa; and
v. National Treasury.

FOR FURTHER DETAILS CONTACT:

NAME	Geraldine Mettler
POSITION	Municipal Manager
DIRECTORATE	Office of the Municipal Manager
CONTACT NUMBERS	021 – 808 8025
E-MAIL ADDRESS	mm@stellenbosch.gov.za
REPORT DATE	11 January 2024

6.4	OVERSIGHT ROLE OF COUNCIL: SUPPLY CHAIN MANAGEMENT POLICY-REPORT ON THE IMPLEMENTATION OF THE SUPPLY CHAIN MANAGEMENT POLICY OF STELLENBOSCH MUNICIPALITY: QUARTER 2 (01 OCTOBER 2023 – 31 DECEMBER 2023)

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: OVERSIGHT ROLE OF COUNCIL: SUPPLY CHAIN MANAGEMENT POLICY-REPORT ON THE IMPLEMENTATION OF THE SUPPLY CHAIN MANAGEMENT POLICY OF STELLENBOSCH MUNICIPALITY: QUARTER 2 (01 OCTOBER 2023 – 31 DECEMBER 2023)

2. PURPOSE

To submit to Management a report for the period 01 October 2023 – 31 December 2023 on the implementation of Council's Supply Chain Management Policy. The report covers the performance of the various delegated functions and the implementation thereof.

3. FOR DECISION BY MUNICIPAL COUNCIL

Section 6 (3) & 4 of the SCM Policy 2023/2024, determines that the Accounting Officer must within 10 days at the end of each quarter; submit a report on the implementation of the SCM Policy to the Executive Mayor. This report must be made public in accordance with section 21A of the Municipal Systems Act (32 of 2000).

4. EXECUTIVE SUMMARY

On a quarterly basis the Accounting Officer must submit a report on the implementation of the Supply Chain Management Policy to the Executive Mayor. In terms of the SCM Regulations and Council's SCM Policy the SCM unit has been delegated to perform powers and functions that related to the procurement of goods and services, disposal of goods no longer needed, the selection of contractors to aid in the provision of municipal services.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.4

(a) that Council approves this report and **ANNEXURE A** attached to the report, and

(b) that the report be made public in accordance with section 21A of the Municipal Systems Act.

NAME	*Dalleel Jacobs*
CONTACT NUMBERS	*021 808 8137*
E-MAIL ADDRESS	*Dalleel.Jacobs@stellenbosch.gov.za*
DIRECTORATE	*Financial Services*
REPORT DATE	*03 January 2024*

6.5	MANAGEMENT OF CONTRACTS OR AGREEMENTS AND CONTRACTOR PERFORMANCE AS AT 01 JULY 2023 – 31 DECEMBER 2023 MFMA S116(2)(d) REPORT

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: MANAGEMENT OF CONTRACTS OR AGREEMENTS AND CONTRACTOR PERFORMANCE AS AT 01 JULY 2023 – 31 DECEMBER 2023 MFMA S116(2)(d) REPORT

2. PURPOSE

To report in accordance with MFMA, Section 116(2)(d) on the management of contracts or agreements and the performance of contractors.

3. DELEGATED AUTHORITY

None

4. EXECUTIVE SUMMARY

The report indicates the performance of service providers who were active on contracts secured by means of a competitive bidding process for the period 01 July 2023 to 31 December 2023.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.5

that the MFMA S116(2)(d) report on the management of contracts or agreements and contractor performance from 01 July 2023 to 31 December 2023 be noted.

6.6	MONTHLY FINANCIAL STATUTORY REPORTING: DEVIATIONS FOR NOVEMBER AND DECEMBER 2023

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: MONTHLY FINANCIAL STATUTORY REPORTING: DEVIATIONS FOR NOVEMBER AND DECEMBER 2023

2. PURPOSE

To comply with Regulation 36(2) of the Municipal Supply Chain Management Regulations and Section 36 of the Supply Chain Management Policy 2023/2024 to report the deviations to Council.

3. DELEGATED AUTHORITY

Council

FOR NOTING.

4. EXECUTIVE SUMMARY

Regulation 36(2) of the Municipal Supply Chain Management Regulations and Section 36 of the Supply Chain Management Policy (2023/2024) stipulate that SCM deviations be reported to Council. In compliance thereto, this report presents to Council the SCM deviations that occurred during November and December 2023.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 6.6

that Council notes the deviations as listed for the months of November and December 2023.

FOR FURTHER DETAILS CONTACT:

NAME	Dalleel Jacobs
POSITION	**Senior Manager: Supply Chain Management**
DIRECTORATE	**Financial Services**
CONTACT NUMBERS	**021 808 8137**
E-MAIL ADDRESS	**Dalleel.Jacobs@stellenbosch.gov.za**
REPORT DATE	03 January 2023

7.	CONSIDERATION OF ITEMS BY THE EXECUTIVE MAYOR: [ALD G VAN DEVENTER]

7.1	PROTECTION SERVICES: (PC: CLLR R PHEIFFER)

NONE

7.2	SPORTS, YOUTH AND CULTURE: [PC: CLLR JC ANTHONY]

NONE

7.3	CORPORATE SERVICES: (PC: CLLR L NKAMISA)

7.3.1	RENEWAL OF LEASE AGREEMENT: STELLENBOSCH ANIMAL HOSPITAL: ERVEN 2498 AND 2499, STELLENBOSCH

Collaborator No: **761555**
IDP KPA Ref No: **Good Governance**
Meeting Date: **17 January 2024**

1. SUBJECT: RENEWAL OF LEASE AGREEMENT: STELLENBOSCH ANIMAL HOSPITAL: ERVEN 2498 AND 2499, STELLENBOSCH

2. PURPOSE

To consider the application from Dr. GA Giliomee on behalf of Stellenbosch Animal Hospital for the renewal of their lease agreement for a period of 9 years 11 months.

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated Authority to consider applications for Lease Agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

The Municipal Manager has approved delegations to enter into agreements on behalf of the municipality.

EXECUTIVE MAYORAL COMMITTEE: 2024-01-17: ITEM 7.3.1

RESOLVED

(a) that erven 2498 and 2499 be identified as land not needed for the delivery of minimum basic municipal services;

(b) that the application for renewal of the lease for a further period of 9 years 11 months be approved in principle;

(c) that the monthly rental be determined by a valuator;

(d) that the municipality follow a public participation process advertising the intention to lease the property for 9 years 11 months for alternative proposals/comments or objections;

(e) that the item be brought back to Mayco for final determination after the public participation process; and

(f) that the applicant be allowed to lease the property whilst the renewal process runs its course at the current rental of R29 586.61 per month.

FOR FURTHER DETAILS CONTACT:

NAME	***Annalene de Beer***
POSITION	***Director: Corporate Services***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088018***
E-MAIL ADDRESS	***annalene.debeer@stellenbosch.gov.za***
REPORT DATE	**2024- 01 -11**

7.3.2	POSSIBLE DISPOSAL OF ERF 5 WEMMERSHOEK

Collaborator No: **761556**
IDP KPA Ref No: **Good Governance**
Meeting Date: **17 January 2023**

1. SUBJECT: POSSIBLE DISPOSAL OF ERF 5 WEMMERSHOEK

2. PURPOSE

To obtain Council's in principle approval for the disposal of Erf 5 Wemmershoek.

3. DELEGATED AUTHORITY

For decision by Municipal Council.

4. EXECUTIVE SUMMARY

In 2007 the Cape Winelands Municipality donated several properties in La Motte and Wemmershoek to the Stellenbosch Municipality. Erf 5 Wemmershoek was one of the properties donated in the Deed of Donation and was registered in the name of the Municipality in 2012.

The current zoning of the erf is "Local Business Zone" and the property is situated next to the Community Hall in Wemmershoek.

The erf has always been vacant and several enquiries have been received from the public about the intentions of council with this property. In 2021 the ward councillor for Wemmershoek made a request that this property, amongst others, be considered for disposal by way of tender or public auction. Council must therefore consider the way forward for the erf.

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 7.3.2

(a) that Council confirms that the property is not needed to provide the minimum basic municipal services;

(b) that Council in principle approve the disposal of erf 5 Wemmershoek through a public auction; and

(c) that a valuation be obtained to be used as the reserve price for the auction process.

NAME	**Annalene de Beer**
POSITION	***Director***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088018***
E-MAIL ADDRESS	***annalene.debeer@stellenbosch.gov.za***
REPORT DATE	***11/01/2024***

7.3.3	REQUEST FOR POSSIBLE WAIVER OF PRE-EMPTIVE RIGHT: ERF 756 KAYAMANDI

Collaborator No: **761557**
IDP KPA Ref No: **Good Governance**
Meeting Date: **17 January 2023**

1. SUBJECT: REQUEST FOR POSSIBLE WAIVER OF PRE-EMPTIVE RIGHT: ERF 756 KAYAMANDI

2. PURPOSE

To obtain Council's in principle approval to waive council's pre-emptive right to buy-back Erf 756 Kaya Mandi and consent to the property being sold to a third party.

3. DELEGATED AUTHORITY

For decision by Municipal Council.

4. EXECUTIVE SUMMARY

Erf 756 Kaya Mandi was allocated to Mister KI Monaheng in 1996. An agreement of sale was entered into between the municipality and Mr Monaheng which was signed on 15 August 1996. The original agreement was misplaced and a new agreement with the same terms and conditions was signed in 2023.

The purchaser paid the purchase price and all outstanding debt due to the Municipality during 2019, however the purchaser only appointed an attorney to attend to the transfer in 2023.

In terms of the agreement of sale the municipality has a pre-emptive right to buy-back the property for the same purchase price it was sold, in the event that the purchaser wants to sell same. In the case of the municipality not exercising this pre-emptive right, the plot can be sold to any third party who will also be bound by the terms as set out in the agreement of sale.

Mr KI Monaheng has now, through his attorneys, requested that the Municipality waives it's pre-emptive rights to buy-back the property as he is of the intention of selling same to a third party, Mr Baleni.

EXECUTIVE MAYORAL COMMITTEE: 2024-01-17: ITEM 7.3.3

RESOLVED

(a) that this item be referred back for further interrogation and information; and

(b) that a letter be written to the applicant to find out how the erf was allocated to the applicant, and to provide a motivation why should Council waive this right.

7.3.4	APPLICATION: OUTDOOR DINING LEASE: ERF 1238 (CNR CHURCH AND ADRINGA STREET), STELLENBOSCH: STELLENBOSCH WINE BAR

Collaborator No: **761558**
IDP KPA Ref No: **Good Governance**
Meeting Date: **17 January 2024**

1. SUBJECT: APPLICATION: OUTDOOR DINING LEASE: ERF 1238 (CNR CHURCH AND ADRINGA STREET), STELLENBOSCH: STELLENBOSCH WINE BAR

2. PURPOSE

To consider an application from Stellenbosch Reserve (Pty) Ltd t/a Stellenbosch Wine Bar, to enter into a Lease Agreement with Stellenbosch Municipality, in terms whereof they would be able to use a portion of the sidewalk for outdoor dining purposes (Erf 1238).

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated Authority to consider applications for Lease Agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

The Municipal Manager has the delegated authority to enter into lease agreements under three (3) years.

4. EXECUTIVE SUMMARY

An application to use a portion of the street reserve for Outdoor Dining purposes has been received from the owner of Stellenbosch Wine Bar trading on erf 1238, Stellenbosch. The current area being used is not in line with the provisions / requirements of the Outdoor Dining Policy. There isn't sufficient walkway left for the public as it does not provide a 1.5m area for pedestrian use. Under 6.2.1 are photographs of the current area being used by the establishment. The photos were taken by the department. The applicant does not have a lease agreement or previous encroachment agreement with the municipality and is therefore currently not paying any rent for use of the area. We served the applicant with several letters requesting that they apply for the outdoor dining lease to ensure compliance.

They have not specified a requested time for the lease and the area they are interested in and currently using is 28㎡. They have filed a diagram with the application indicating the area and furniture placement. The above information is also evident from the photographs.

EXECUTIVE MAYORAL COMMITTEE: 2024-01-17: ITEM 7.3.4

RESOLVED

(a) that the land as indicated on Fig 1and 2, measuring approximately 28m² in extent, be identified as land not needed to provide the minimum level of basic municipal services during the period that the rights are awarded;

(b) that the in-principle approval be considered for an initial period of 3 years with the option of a renewal subject to the following conditions:

5.2.1 That no permanent structure or deck be erected without the prior written consent of council, including approved building plans and approval from the Heritage Advisory Committee.

5.2.2 A 1.5m unobstructed walk area be left open for pedestrian use, preferably adjacent to the street. In the event that the 1.5m is not adjacent to the street a further 0.8m to be left open adjacent to the street in order for cars to open their doors.

5.2.3 The demarcation of the area to be used be done in agreement with council. Preferably a natural demarcation such as plants, where possible. If a natural demarcation is not possible an agreement to be reached with council on a line to be used and in the event that the outdoor dining spills over the demarcated area the furniture will be confiscated.

5.2.4 No advertising signs to be placed on the sidewalk or displayed against the building without the prior approval of council.

5.2.5 All umbrellas to be used has to be at least 2.2m high and cannot have any signage on them.

5.2.6 Any awnings will require pre-approval from council.

5.2.7 Council is indemnified against all possible 3rd party claims.

5.2.8 The municipality or other public service providers must not be prohibited from maintaining, repairing, upgrading and / or installing new public services within the leased area. For planned maintenance and repairs, upgrades or new installations, the applicant will be provided with a 5-day written notice to remove all furniture for the municipality and any other public service provider to gain access. For emergency work the applicant will be required to remove everything immediately for the municipality or other public service providers to gain access.

5.2.9 The municipality reserves the right to end the lease agreement when the need arises, i.e. when the leased area is required for municipal or other public services purposes or when the applicant refuses the municipality or other public service providers access if required. The lease agreement may also be terminated if the lessee does not adhere to the provisions of the lease.

(c) that the rental amount be determined by the Municipal Manager in terms of the approved tariffs and an escalation of CPI per annum applies; and

(d) that the applicant be informed that should they transgress the provisions of the lease, the lease may be terminated and any furniture outside the demarcated area be confiscated.

FOR FURTHER DETAILS CONTACT:

NAME	**Annalene de Beer**
POSITION	***Director: Corporate Services***
DIRECTORATE	***CORPORATE SERVICES***
CONTACT NUMBERS	***021-8088073***
E-MAIL ADDRESS	***Annalene.debeer@stellenbosch.gov.za***
REPORT DATE	***2024-01-11***

7.3.5	OUTDOOR DINING: PROPOSED LEASE AGREEMENT: ERF 15713 (13 RYNEVELD STREET), STELLENBOSCH: BOOTLEGGER

Collaborator No: 761559
IDP KPA Ref No: Good Governance
Meeting Date: 17 January 2024

1. SUBJECT: OUTDOOR DINING: PROPOSED LEASE AGREEMENT: ERF 15713 (13 RYNEVELD STREET), STELLENBOSCH: BOOTLEGGER

2. PURPOSE

To consider an application from Bootlegger, to enter into a Lease Agreement with Stellenbosch Municipality, in terms whereof they would be able to use a portion of Council-owned property (Erf 15713) for outdoor dining purposes.

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated Authority to consider applications for Lease Agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

The Municipal Manager has the delegated authority to enter into lease agreements under three (3) years.

4. EXECUTIVE SUMMARY

An application to use a portion of the street reserve for Outdoor Dining purposes has been received from the owner of Bootlegger trading from erf 15713, Stellenbosch. The current area being used is in line with the provisions / requirements of the Outdoor Dining Policy. There is sufficient walkway left for the public in that the seating does provide a 1.5m area for sidewalk users. Under 6.2.1 are photographs of the current area being used by the establishment. The photos were taken by the property management department. The applicant does not have a lease agreement or previous encroachment agreement with the municipality and is therefore currently not paying any rent for use of the area. We served the applicant with several letters requesting that they apply for the outdoor dining lease to ensure compliance.

They have not specified a requested time for the lease and the area they are interested in and currently using is 14㎡. They have failed to file a diagram with the application indicating the area, furniture to be used and how the area of 1.5m will be left open for pedestrian use. The above information is however evident from the photographs. The pedestrian area is next to the shopfront. That is in line with the two restaurants adjacent namely” The Wine glass” and “Beyerskloof”.

EXECUTIVE MAYORAL COMMITTEE: 2024-01-17: ITEM 7.3.5

RESOLVED

(a) that the land as indicated on Fig 1and 2,(erf 15713) measuring approximately 14m² in extent, be identified as land not needed to provide the minimum basic municipal services during the period that the rights are awarded;

(b) that the in-principle approval be considered for an initial period of 3 years with the option of a renewal subject to the following conditions:

5.2.1 That no permanent structure or deck be erected without the prior written consent of council, including approved building plans and approval from the Heritage Advisory Committee.

5.2.2 A 1.5m unobstructed walkway be left open for pedestrian use, preferably adjacent to the street. In the event that the 1.5m is not adjacent to the street a further 0.8m to be left open adjacent to the street in order for cars to open their doors.

5.2.3 The demarcation of the area to be used be done in agreement with council. Preferably a natural demarcation such as plants, where possible. If a natural demarcation is not possible an agreement to be reached with council on a line to be used and in the event that the outdoor dining spills over the demarcated area the furniture will be confiscated.

5.2.4 No advertising signs to be placed on the sidewalk or displayed against the building without the prior approval of council.

5.2.5 All umbrellas to be used has to be at least 2.2m high and cannot have any signage on them.

5.2.6 Any awnings will require pre-approval from council.

5.2.7 Council is indemnified against all possible 3rd party claims.

5.2.8 The municipality or other public service providers must not be prohibited from maintaining, repairing, upgrading and / or installing new public services within the leased area. For planned maintenance and repairs, upgrades or new installations, the applicant will be provided with a 5-day written notice to remove all furniture for the municipality and any other public service provider to gain access. For emergency work the applicant will be required to remove everything immediately for the municipality or other public service providers to gain access.

5.2.9 The municipality reserves the right to end the lease agreement when the need arises, i.e. when the leased area is required for municipal or other public services purposes or when the applicant refuses the municipality or other public service providers access if required.

(c) that the rental amount be determined by the Municipal Manager in terms of the approved tariffs and an escalation of CPI per annum applies; and

(d) that the applicant be informed that should they transgress the provisions of the lease, the lease may be terminated and any furniture outside the demarcated area be confiscated.

FOR FURTHER DETAILS CONTACT:

NAME	**Annalene de Beer**
POSITION	***Director: Corporate Services***
DIRECTORATE	***CORPORATE SERVICES***
CONTACT NUMBERS	***021-8088073***
E-MAIL ADDRESS	***Annalene.debeer@stellenbosch.gov.za***
REPORT DATE	***2024-01-11***

7.4	**FINANCIAL SERVICES: (PC: CLLR J FASSER)**

NONE

7.5	**HUMAN SETTLEMENTS: (PC: CLLR R DU TIOT)**

NONE

7.6	**INFRASTRUCTURE SERVICES : (PC : CLLR P JOHNSON)**

NONE

7.7	**PARKS, OPEN SPACES AND ENVIRONMENT: (PC: J WILLIAMS)**

NONE

7.8	**PLANNING AND LOCAL ECONOMIC DEVELOPMENT AND TOURISM :(PC: CLLR C VAN WYK)**

NONE

7.9	**COMMUNITY SERVICES:(PC: CLLR X KALIPA)**

NONE

7.10	**RURAL MANAGEMENT: (PC: CLLR J JOON)**

NONE

7.11	MUNICIPAL MANAGER

7.11.1	MUNICIPAL PARTNERSHIP FOR HUMAN RIGHTS: PROGRESS REPORT BY THE MUNICIPAL MANAGER

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **17 January 2024**

1. SUBJECT: MUNICIPAL PARTNERSHIP FOR HUMAN RIGHTS: PROGRESS REPORT BY THE MUNICIPAL MANAGER

2. PURPOSE

2.1 To report to Council in terms of Council Item 11.11.1 of the 17th Council meeting of 25 October 2023 . See attached **ANNEXURE 1**, in particular reference to resolution and resolution (g), respectively of the minutes of this meeting.

Resolution (d): *"*that Council take note of the Municipal Manager's progress report / feedback *."*

Resolution (g): *"That Council re-evaluate and confirm the delegates / representatives from Stellenbosch Municipality that will serve on the Steering Group created by the multi-year agreement, by no later than end January of every calender year*."

To report on the procedure as suggested by ICLD on how to implement Resolution (g) See attached **ANNEXURE 2.**

2.2 To bring to Council's attention the proposed pilot project for the upgrading / re-imagining of the Upper George Blake Avenue area.

3. DELEGATED AUTHORITY

Council.

4. EXECUTIVE SUMMARY

Stellenbosch Municipality entered into a partnership agreement with Jönköping Municipality on the topic of Human Rights on 17 December 2020, which culminated in a multi-year agreement in December 2022. Therefore, and in accordance with the reporting standards created in the preceding years, the Municipal Manager must provide an annual report and / or alternatively an interim progress report to Council (as and when required), detailing the relevant activities undertaken during the reporting period.

The feedback to Council will deal with the following:

4.1 Visit by representatives from Stellenbosch Municipality to Jönköping Municiplity;

4.2 Report on Steering Group / Committee meetings and activities;

4.3 Proposals for the multi-year programme;

4.4 The conclusion of the International Training Programme of Swedish International Centre for Local Democracy;

4.5 The alignment of the municipal partnership programme with the; Stellenbosch Municipality's Employee Wellness Programme; and

4.6 Pilot Project – Upper George Blake Avenue - Urban and Social Revitalisation Project

RECOMMENDATIONS FROM THE EXECUTIVE MAYOR, IN CONSULTATION WITH THE EXECUTIVE MAYORAL COMMITTEE, TO COUNCIL: 2024-01-17: ITEM 7.11.1

(a) that Council take note of the visit by representatives of Stellenbosch Municipality to Jönköping Municipality during December 2023;

(b) that Council take note of the Municipal Manager's progress report / feedback dated 25 October 2023;

(c) that Council take note of the integration between the Employee Wellness Programme (EWP) and the Municipal Partnership Programme (MPP);

(d) that Council take note of the guidelines by ICLD for changing Steering Group members;

(e) that Council re-evaluate and confirm the delegates / representatives from Stellenbosch Municipality that will serve on the Steering Group created by the multi-year agreement, by no later than end January of every calendar year;

(f) that Council take cognizance that the ICLD requires an annual inter-partnership visit, i.e. that Stellenbosch Municipality visits Jönköping Municipality in Sweden once a year for the duration of the multi-year programme; and

(g) that Council take note of the proposed pilot project for upgrading / re-imagining of the Upper George Blake Avenue (RUGBA) area.

FOR FURTHER DETAILS CONTACT:

NAME	**Geraldine Mettler**
POSITION	**Municipal Manager**
DIRECTORATE	**Municipal Manager**
CONTACT NUMBERS	**021- 808 8025**
E-MAIL ADDRESS	**municipal.manager@stellenbosch.gov.za**
REPORT DATE	**2024-01-04**

8.	REPORTS SUBMITTED BY THE EXECUTIVE MAYOR

NONE

9.	URGENT MATTERS

NONE

10.	MATTERS TO BE CONSIDERED IN-COMMITTEE

NONE

The meeting adjourned at 11:25

CHAIRPERSON: ……………………………………….

DATE: ……………………………………….

Confirmed on ……………………………………….

APPENDIX 2

Confirmation of Minutes: Special Mayoral Committee Meeting: 2023-12-06

STELLENBOSCH

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

Ref no.3/4/2/5

2023-12-06

MINUTES

SPECIAL MAYORAL COMMITTEE MEETING:

2023-12-06 AT 10:00

MINUTES

SPECIAL MAYORAL COMMITTEE MEETING

2023-12-06

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PRESENT: Executive Mayor, Ald GM Van Deventer **(Chairperson)**
Deputy Executive Mayor,J Fasser

Councillors: JC Anthony
R du Toit
P Johnson
J Joon
X Kalipa
L Nkamisa
R Pheiffer
C van Wyk
J Williams

Also Present: Councillor P Crawley (Chief Whip)
Councillor W Petersen (MPAC Chairperson)
Councillor Q Smit (Speaker)

Officials: Municipal Manager (G Mettler (Ms))
Director: Corporate Services (A de Beer (Ms))
Acting Director: Community & Protection Services (C Kitching)
Director : Infrastructure Services (S Chandaka)
Chief Financial Officer (K Carolus)
Director: Planning and Economic Development (A Barnes)
Yolande van Berg(Contract Management)
Senior Administration Officer (B Mgcushe)

****

1.	**OPENING AND WELCOME**

The Chairperson, Deputy Executive Mayor welcomed everyone present at the Mayoral Committee Meeting.

2.	**COMMUNICATION BY THE CHAIRPERSON**

NONE

3.	**DISCLOSURE OF INTERESTS**

NONE

4.	APPLICATIONS FOR LEAVE OF ABSENCE

The following application for leave of absence was approved in terms of the Rules and Order By-law of Council: -

Director: Community Protection (G Boshoff)

5.	CONSIDERATION OF ITEMS BY THE EXECUTIVE MAYOR: [ALD G VAN DEVENTER]

5.1	LEASE AGREEMENT APPLICATION: USE OF COUNCIL-OWNED LAND FOR PARKING PURPOSES: ATTERBURY: PORTION OF LEASE FARM 369P

Collaborator No: **759383**
IDP KPA Ref No: **Good Governance**
Meeting Date: **06 December 2023**

1. SUBJECT: LEASE AGREEMENT APPLICATION: USE OF COUNCIL-OWNED LAND FOR PARKING PURPOSES: ATTERBURY: PORTION OF LEASE FARM 369P

2. PURPOSE

To consider the application from Atterbury to lease a portion Farm 369P (also known as Trumali parking) for parking purposes for a period of 9 Years and 11 months.

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated Authority to consider applications for Lease Agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

The approval of the lease agreement of three (3) years and less has been delegated to the Municipal Manager.

4. EXECUTIVE SUMMARY

When this property (Farm 961/3) was previously owned by Medi Clinic, they had an Encroachment Agreement with Council to use the portion of Farm 369P for parking purposes. This area was excluded from the K.W.V Lease Agreement. This agreement, however, lapsed when they sold the property and relocated their offices to the ex-BAT property in Stellenbosch.

Council on 2020-11-25 considered a request from Attebury to lease Farm 369P (also known as Trumali parking) for parking purposes and inter alia resolved :

- that council in principle approves the lease agreement with Atterbury, to enable them to use a portion of Lease Farm 369P, consisting of 100 parking bays;

- provided that Council's intention to conclude a lease Agreement with Atterbury for a period of 12 months be advertised for public comments/inputs/objections, where after a Council will consider any inputs and then make a final determination in this regard;

- that council lease the land based on the "encroachment" parking tariffs as approved in the latest tariff book; and

- that the applicants be allowed to use the parking bays until council can make a final determination provided that the tariff set out in the tariff book is paid on a monthly basis".

The notice was published, and no objections were received.

The matter served again before Mayco in May 2021 **EXECUTIVE MAYORAL COMMITTEE: 2021-05-19: ITEM 7.2.3**

RESOLVED

(a) that Council takes note of the fact that no comments/inputs or objections were received on the advertisement indicating an intention to lease the property for 12 months;

(b) that Council approves the lease agreement for 12 months;

(c) that the Municipal Manager be delegated to determine a market-related rental amount; and

(d) that the new request of Atterbury follows the normal process after the Task Team completed the process on the assessment of Council properties.

No record can be found that the previous Manager Property Management concluded the agreement with Attebury for the parking area.

Attebury when informed about the in-principle council resolution in 202o however, requested that the term of Lease be for a period of 9 years and 11 months. This request could not be considered at that stage as the public participation process was dealt with based on a 12-month lease agreement. Council also requested the Municipal Manager to follow a process to assess council properties and report back by December 2021.

Atterbury has again applied to lease the already developed parking area consisting of 100 parking bays for additional parking bays for their staff.

The application served before Mayco on 16 November and the item was referred to the Special Mayoral meeting of December 2023.

SPECIAL MAYORAL COMMITTEE MEETING:2023-12-06: ITEM 5.1

RESOLVED

(a) that the portion of Lease Farm 369P, consisting of 100 parking bays be identified as land not needed for any basic municipal service;

(b) that a lease agreement be concluded with Atterbury for the lease of the parking area for a period of three (3) years;

(c) that the monthly rental payable will be determined by the prescribed tariffs as published on a yearly basis;

(d) that the escalation be determined as 6% per annum from 1 July 2024;

(e) that Atterbury needs to obtain approval from the Municipality before any building work or fencing is done on the property and that building plans need to be submitted and approved before construction commences; and

(f) that the applicants maintain the parking area.

FOR FURTHER DETAILS CONTACT:

NAME	***Annalene de Beer***
POSITION	***Director: Corporate Services***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088018***
E-MAIL ADDRESS	***annalene.debeer@stellenbosch.gov.za***
REPORT DATE	***2023-11- 30***

DIRECTOR: CORPORATE SERVICES

5.2	**RENEWAL OF LEASE AGREEMENT APPLICATION: USE OF COUNCIL-OWNED LAND FOR TELECOMMUNICATIONS BASE STATION ON THE REMAINDER OF ERF 2149 STELLENBOSCH**

Collaborator No:
IDP KPA Ref No: **Good Governance**
Meeting Date: **06 December 2023**

1. SUBJECT: RENEWAL OF LEASE AGREEMENT APPLICATION: USE OF COUNCIL-OWNED LAND FOR TELECOMMUNICATIONS BASE STATION ON THE REMAINDER OF ERF 2149 STELLENBOSCH

2. PURPOSE

For Council-to consider the request from Helios Towers (Pty) Ltd for the lease of a portion of Council-owned land for an existing Telecommunications Base Station (previously leased by Eagle Towers).

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated authority to consider applications for Lease agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

4. EXECUTIVE SUMMARY

A lease agreement was entered into between the Municipality and Eagle Towers on 15 June 2018 for a period of 9 years 11 months where the initial period will be 5 years with the option to renew for a further 4 years and 11 months. This lease agreement was ceded over to Helios Towers by Eagle Towers and the lease is up for renewal as from July 2023 for a further period of 4 years and 11 months. The property Management Department was informed about the cession agreement between Eagle Towers and Helios Towers during May 2020. Helios Towers has brought an application for lease of municipal land and they have also provided a lease agreement subject to the approval of Council. It must be noted that their proposal is for 9 years and 11 months and not just for the remainder of the period as per the 2018 agreement and the cession agreement that was signed in 2020.The current agreement does not comply with the Asset transfer regulations as it did not go through a public participation process. Before Council agrees to a renewal for the rest 4 years and 11 months such public participation process must take place.

The department does not support a lease outside the current agreed period in the lease agreement as concluded in 2018. The tower is situated on the same property as the Lapland flats.

SPECIAL MAYORAL COMMITTEE MEETING:2023-12-06: ITEM 5.2

RESOLVED

(a) that the Remainder of Erf 2149 Stellenbosch where the tower is situated be identified as land not needed to provide basic municipal services;

(b) that Helios Towers be allowed to in principle to lease the existing Telecommunication base station for the additional period of 4 years 11 months from 1 July 2023 subject to Council advertising the intention for public input and comment;

(c) that the applicant continues to pay rent for the current structure 'lease on a month -to month basis until a final decision is taken and a renewal agreement has been signed; and

(d) that the item be returned to Mayco after the public participation process for a final decision.

FOR FURTHER DETAILS CONTACT:

NAME	***Annalene de Beer***
POSITION	***Director: Corporate Services***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088073***
E-MAIL ADDRESS	***annalene.debeer@stellenbosch.gov.za***
REPORT DATE	***30.11.23***

5.3	POSSIBLE DISPOSAL OF A PORTION OF ERF 9190 PROTEA HOTEL

Collaborator No:
IDP KPA Ref No: **Good Governance**
Meeting Date: **06 December 2023**

1. SUBJECT: POSSIBLE DISPOSAL OF A PORTION OF ERF 9190 PROTEA HOTEL

2. PURPOSE

To obtain Council's approval for the disposal of a portions of erf 9190, Technopark, to Protea Hotel.

3. DELEGATED AUTHORITY

For decision by Municipal Council.

4. EXECUTIVE SUMMARY

Protea Hotel constructed a building on their property, encroaching onto erf 9190 (municipal property). Plans were approved and occupation certificates were provided.

They have tried to rectify the situation by proposing a land swap. This application, however, was turned down by the Planning Tribunal, based on planning principles **(APPENDIX 1).**

They suggested that Protea Hotel request the adjustment of the common boundary and purchase the land from the Municipality that they are currently encroaching on. The extent of the municipal land is currently encroaching on is indicated they would need to purchase is 3505m² and is discussed under 6.2.2 below – fig 3. An application has been received from Protea Hotel – **APPENDIX 2 and 3**. The department has appointed a valuer to determine the fair market value and we are waiting for the response.

SPECIAL MAYORAL COMMITTEE MEETING:2023-12-06: ITEM 5.3

RESOLVED

that this item be referred back to administration for refinement and more information.

NAME	**Annalene de Beer**
POSITION	***Director***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088018***
E-MAIL ADDRESS	***Annalene de Beer***
REPORT DATE	***2023 – 11-29***

The meeting adjourned at 11:45

CHAIRPERSON: ………………………………………

DATE: ………………………………………

Confirmed on ………………………………………

6.	STATUTORY MATTERS

6.1	MONTHLY FINANCIAL STATUTORY REPORTING: DEVIATIONS FOR JANUARY 2024

Collaborator No: **762914**
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **14 February 2024**

1. SUBJECT: MONTHLY FINANCIAL STATUTORY REPORTING: DEVIATIONS FOR JANUARY 2024

2. PURPOSE

To comply with Regulation 36(2) of the Municipal Supply Chain Management Regulations and Section 36 of the Supply Chain Management Policy 2023/2024 to report the deviations to Council.

3. DELEGATED AUTHORITY

Council

FOR NOTING.

4. EXECUTIVE SUMMARY

Regulation 36(2) of the Municipal Supply Chain Management Regulations and Section 36 of the Supply Chain Management Policy (2023/2024) stipulate that SCM deviations be reported to Council. In compliance thereto, this report presents to Council the SCM deviations that occurred during January 2024.

5. RECOMMENDATION

that Council notes the deviations as listed for the month of January 2024.

6. DISCUSSION / CONTENTS

6.1. Background/Legislative Framework

The regulation applicable is as follows:

GNR.868 of 30 May 2005: Municipal Supply Chain Management Regulations

Deviation from and ratification of minor breaches of, procurement processes

36. (1) A supply chain management policy may **allow the accounting officer**—
(*a*) To **dispense with the official procurement processes** established by the policy and to procure any required goods or services through any convenient process, which may include direct negotiations, but only—
(i) in an emergency.
(ii) if such goods or services are produced or available from a single provider only.

(iii) for the acquisition of special works of art or historical objects where specifications are difficult to compile.
(iv) acquisition of animals for zoos; or
(v) in any other exceptional case where it is impractical or impossible to follow the official procurement processes; and
(*b*) to ratify any minor breaches of the procurement processes by an official or committee acting in terms of delegated powers or duties which are purely of a technical nature.

(2) The accounting officer must record the reasons for any deviations in terms of sub regulation (1) (*a*) and (*b*) and **report them to the next meeting of the council**, or board of directors in the case of a municipal entity and include as a note to the annual financial statements.

6.2. Discussion

Reporting the deviations as approved by the Accounting Officer for January:

The following deviations were approved with the reasons as indicated below:

DEVIATION NUMBER	CONTRACT DATE	NAME OF CONTRACTOR	CONTRACT DESCRIPTION	REASON	SUBSTANTIATION WHY SCM PROCESS COULD NOT BE FOLLOWED	TOTAL CONTRACT PRICE R
D/SM 11/24	2024/01/02	Microsoft Corporation (Ireland)	Appointment of Microsoft Ireland for the provision of Microsoft Azure Services from 01 January 2024 to December 2024	Exceptional case and it is impractical or impossible to follow the official procureme nt processes. Goods or services are produced or available from a single provider.	An enterprise agreement was entered into with the Microsoft Corporation for the provision of Microsoft Office applications but not cloud services. During the financial year 2019/2020, the ICT steering committee approved the implementation of Office 365 including all the components of 365 applications such as MS Teams, One Drive and SharePoint to best enable the organisation access to municipal systems and services from anywhere and anytime. With the lockdown that followed the Covid-19 outbreak in March 2020 it was important to enable staff to work from home and for the Municipality find a way to communicate with the community and stakeholders, especially around the IDP and Budget processes. The Azzure Application, also known as the Citizen App, was seen as the perfect	**R 4 564 332 (Estimate)**

					solution and as the municipality had an agreement with Microsoft. The municipality has been paying the license fees ever since and the solution is still used for IDP purposes. The traffic department also uses the application for the renewal of car licenses and for residents to make appointments for learner licenses and drivers licence renewals. The municipality is in the process to procure a new comprehensive app for various services for the municipality, but in the interim cannot stop the usage of the Azzure application and payment for the services as it is still in use. It is an exceptional case, and it is impractical or impossible to follow the official procurement processes and Microsoft is also the sole provider of this solution.	
D/SM 12/24	2024/01/26	Western Cape Economic Development Partnership ("EDP")	Provision of professional services for the establishment, implementation and continuous monitoring and evaluation of the institutional arrangements and partnering solutions for the ADAM TAS CORRIDOR project – professional fee proposal for the appointment	Exceptional case and it is impractical or impossible to follow the official procurement processes	The Western Cape Economic Development Partnership ("EDP") was appointed by Western Cape Government ("WCG") and specifically the now retired Head of Department: Environmental Affairs & Development Planning ("DEA&DP"), to assist the Municipality to develop and realize the Municipality's Catalytic Project, the Adam Tas Corridor (ATC) as contained in the 4th and the current 5th Generation Integrated Development Plan (IDP). EDP was appointed in a letter dated 28 February 2021 by DEA&DP to assist the Interim ATC Steering Committee to perform the following tasks: 1.	**R 633 000,00 (Estimate)**

			of Western Cape Economic Development Partnership (“EDP”)		Design and facilitate a process to get stakeholder agreement on governance framework and partnering arrangements for the ATC Project, including vision, strategic objectives, core approach and shared obligations. 2. Recommend how the ATC Project’s LSDF public participation process can support relationship building and stakeholder partnering arrangements. 3. Recommend interim partnering arrangements for lead projects and precincts. The appointment was extended by WCG and it is further noted that EDP during this period assisted the Municipality to obtain buy-in from the major landowners within the ATC, which culminated in the signing of a Memorandum of Understanding (“MOU”) and the establishment of the ATC Landowners Collective (“LOC”), the latter was endorsed by Council at its 7th Council Meeting dated 24 August 2022. EDP further assisted the Municipality to obtain buy-in from I&APs through the public participation process which ultimately resulted in the approval of the ATC Local Spatial Development Framework (“LSDF”) and Development Guidelines at the 8th Council Meeting dated 26 October 2022 and ultimately the approval of the ATC Overlay Zone at its 14th Council Meeting dated 24 May 2023 and promulgated in the Provincial Gazette dated	

					17 November 2023. During this period the funding for EDP from WCG has been ended, and a significant portion of the work to enable and implement the ATC Project was still ongoing. This phase of the work involved the Establishment and Implementation of the ATC Institutional Arrangements which was contained in the Overlay Zone, and it was further required that such institutional arrangements be implemented within three (3) months from the promulgation of the overlay zone, which occurred on 17 November 2023. It is therefore impractical to undertake or follow official procurement processes, as the above motivation clearly show that EDP has performed most of the partnering work and has also established trust relationship with the landowners in the ATC, stakeholders and all I&APs, which include PRASA, National Department of Public Works, and other SOE's within the ATC. EDP has also completed most of the phases through their appointment by WCG. EDP is a public benefit collaborative intermediary organization that supports diverse stakeholders to garner partnership to realize a collective impact and change. It must be noted that EDP indicated in writing that the work, although provided at an hourly rate of R1500.00 will be further discounted, which would be to the	

					benefit of the broader Stellenbosch Municipality and its residents.	

6.4 Legal Implications

The regulation applicable is:

GNR.868 of 30 May 2005: Municipal Supply Chain Management Regulations: Deviations from and ratification of minor breaches of, procurement processes.

6.5 Staff Implications:

No staff implications

6.6 Previous / Relevant Council Resolutions:

None

6.7 Risk Implications

That the market may not be tested.

The measures in place to deal with deviations mitigate the risk to an acceptable level. The auditor general also audit the deviations during the yearly audit.

6.8 Comments from Senior Management:

The item was not circulated for comment except to Municipal Manager.

6.8.1 Municipal Manager

Supports the recommendations.

FOR FURTHER DETAILS CONTACT:

NAME	**Dalleel Jacobs**
POSITION	***Senior Manager: Supply Chain Management***
DIRECTORATE	***Finance***
CONTACT NUMBERS	***021 808 8137***
E-MAIL ADDRESS	***Dalleel.Jacobs@stellenbosch.gov.za***
REPORT DATE	**06 February 2024**

7.	**CONSIDERATION OF ITEMS BY THE EXECUTIVE MAYOR: [ALD G VAN DEVENTER]**

7.1	**PROTECTION SERVICES: (PC: CLLR R PHEIFFER)**

NONE

7.2	**SPORTS, YOUTH AND CULTURE: [PC: CLLR JC ANTHONY]**

NONE

7.3	CORPORATE SERVICES: (PC: CLLR L NKAMISA)

7.3.1	STAFF RENTAL HOUSING OPPORTUNITY POLICY 2023

Collaborator No:
IDP KPA Ref No: **Good Governance**
Meeting Date: **14 February 2024**

1. SUBJECT: STAFF RENTAL HOUSING OPPORTUNITY POLICY 2023

2. PURPOSE

To submit the consulted Staff Rental Housing Opportunity Policy that was consulted at the Local Labour Forum and to request that said policy be approved by Council. .

3. DELEGATED AUTHORITY

The delegated authority for the approval of policies is Council.

4. EXECUTIVE SUMMARY

The Staff Rental Housing Allocation Policy was first submitted to the Local Labour Forum on 26 October 2020 and was referred to the Human Resources Development Sub-Committee for consultation. Unfortunately, during 2020 there were no Local Labour Forum Meetings until the end of 2020 due to the COVID-19 pandemic. The Human Resources Development Sub-Committee re-convened between 2021/2022 but other policy matters that took preference above this policy were first dealt with at the Committee.

On 13 February 2023 at the Human Resources Development Sub-Committee the policy was discussed the parties were informed that the user department will rewrite the policy completely and will resubmit the new policy to the Local Labour Forum. This was also decided at the Local Labour Forum meeting of 27 February 2023. Subsequently, and after receipt of the new Staff Rental Housing Opportunity Policy, the Human Resources Development Sub-Committee met on 15 August 2023, 21 August 2023 and 26 August 2023 to discuss the policy and made changes to it. The unions requested to get a final mandate from their members. At the subcommittee meeting on 26 October 2023 the labour unions did not submit the final inputs from their members and requested extension of until the 10th of November 2023. This request was granted on condition that should not inputs be received, the Employer may proceed to submit the policy to MAYCO and Council for approval. The item was supposed to be discussed on 29 January but the meeting did not conclude due to a dispute with SAMWU regarding the competent person.

IMATU indicated to the employer they have no further inputs and SAMWU as to date have not indicated that they have any further inputs

The policy is therefore submitted for approval as the consultation is regarded as completed.

5. RECOMMENDETION

that the consulted Staff Rental Housing Opportunity Policy be adopted for approval by Council.

6. BACKGROUND/DISCUSSION

6.1 Background:

On 13 February 2023 at the Human Resources Development Sub-Committee where the parties were informed that the user department will rewrite the policy completely and will resubmit same to the Local Labour Forum. This was also decided at the Local Labour Forum meeting of 27 February 2023. Subsequently, and after receipt of the new Staff Rental Housing Policy, the Human Resources Development Sub-Committee met on 15 August 2023, 21 August 2023 and 26 August 2023.

At the Human Resources Development Sub-Committee meeting held on the 21st of August 2023 the policy was consulted in its entirety, but the labour unions requested that they be granted an opportunity to obtain final inputs from their members. They were then granted until the nest meeting of the Human Resources Development Sub-Committee which was held on the 26th of October 2023. At this meeting the labour unions did not submit the final inputs from their members and requested extension of until the 10th of November 2023. This request was granted on condition that should not inputs be received; the Employer may proceed to submit the policy to MAYCO and Council for approval.

6.2 Discussion

The Human Resources Development Sub-Committee initially granted the labour unions two months and 11 days (26 August 2023 until 10 November 2023) to make their final submissions and unfortunately no submissions were received. The decision of the Human Resources Development Sub-Committee of 21 August 2023 that the policy be submitted to MAYCO and Council for approval should the labour unions fail to submit their final inputs, is herewith implemented.

6.3 Financial implications

As per approved budget.

6.4 Legal implications

The policy was duly consulted and is in line with applicable legislation.

6.5 Staff implications

Preference will be granted to essential services staff and market related rates will be applied to all staff occupying Council housing/flats/units.

6.6 Risk implications

Council may use revenue if the correct market related rates are not implemented in line with Council approved tariffs.

6.7 Previous council resolutions

None

6.8 Comments from Senior management

The Staff Rental Housing Opportunity Policy was duly consulted with Senior Management and all inputs included.

ANNEXURES

Appendix 1: Staff Rental Housing Opportunity Policy

FOR FURTHER DETAILS CONTACT:

NAME	*Annalene De Beer*
POSITION	*Director Corporate Services*
DIRECTORATE	*Corporate Services*
CONTACT NUMBERS	*021-808 8018*
E-MAIL ADDRESS	*Annalene.debeer@stellenbosch.gov.za*
REPORT DATE	*16 January 2024*

APPENDIX 1

STELLENBOSCH
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STAFF RENTAL HOUSING OPPORTUNITY POLICY

2023.

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1. PURPOSE

To put in place a policy for the allocation and management of various municipal immovable properties identified specifically for rental by current employees of Stellenbosch Municipality for housing purposes only, and to provide for the applicable principles and criteria for the application thereof.

2. LEGISLATIVE FRAMEWORK

In terms of Section 152(1) (b) of the Constitution of the Republic of South Africa, 1996, one of the main objectives of local government is to ensure the provision of services to communities in a sustainable manner. It is, therefore, incumbent upon Stellenbosch Municipality to ensure that essential and the minimum level of basic municipal services are maintained and that it has sufficient skilled and trained personnel to guarantee the uninterrupted delivery of the services to the residents of the Greater Stellenbosch Municipal area.

Section 111 of the Municipal Finance Management Act, 56 of 2003 ("MFMA") provides that each municipality must have and implement a supply chain management policy which gives effect to the provisions of Chapter 11. In terms of clause 5.3.1 of the Stellenbosch Municipality Supply Chain Management Policy ("Policy") immovable property may only be let at market-related rates except when the public interest or plight of the poor demands otherwise.

Regulation 40(1) of the Municipal Supply Chain Management Regulations provides that a supply chain management policy must provide for an effective system of disposal management for the disposal or letting of assets, subject to section 14 and 90 of the MFMA.

Regulation 40(2)(b) of the Municipal Supply Chain Management Regulations provides that the supply chain management policy must stipulate that: -

(i) Immovable property may be sold only at market-related prices except when the public interest or the plight of the poor demands otherwise.

Regulation 40(2)(c) of the Municipal Supply Chain Management Regulations provides further that: –

(i) Immovable property is let at market-related rates except when the public interest or the plight of the poor demands otherwise; and
(ii) All fees, charges, rates, tariffs, scales of fees or property are annually reviewed.

There are no South African laws which obligates Stellenbosch Municipality to provide housing for its employees. The provision of staff rental housing is therefore a privilege and not a right and its continuation will be determined by Council from time to time.

There are, however, various South African laws which is indicative of how Stellenbosch Municipality shall manage its immovable assets.

Chapter 4 of the Asset Transfer Regulations ("ATR") deals with the granting of rights to use, control, or manage municipal capital assets where section 14 of the MFMA is not applicable. In other words, where the granting of such rights does not amount to the transfer or the permanent disposal of the asset, for example when a right is acquired through a leasing, letting or hiring out arrangement.

In terms of regulation 34 of the ATR, a municipality may grant a right to use, control or manage a capital asset only after –

(a) The accounting officer has, in terms of regulation 35, conducted a public participation process regarding the proposed granting of the right; and
(b) The municipal council has approved in principle that the right may be granted.

Regulation 34(2) of the ATR provides that sub-regulation 34(1) (a) must be complied with only if –

(a) The capital asset in respect of which the proposed right is to be granted has a value in excess of R10 million; and
(b) A long-term right is proposed to be granted in respect of the capital asset.

The following must be considered by the municipal council when considering the granting of a right to use, control and management of a capital asset:

(a) whether the capital asset may be required for the municipality's own use during the period for which the right is to be granted;
(b) the extent to which any compensation to be received for the right, together with the estimated value of any improvements or enhancements to the capital asset that the private sector party or organ of state to whom the right is granted will be required to make, will result in a significant economic or financial benefit to the municipality;
(c) the risks and rewards associated with the use, control or management of the capital asset in relation to the municipality's interests;
(d) any comments or representations on the proposed granting of the right received from the local community and other interested persons;
(e) any written views and recommendations on the proposed granting of the right by the National Treasury and the relevant provincial treasury;
(f) the interest of any affected organ of state, the municipality's own strategic, legal and economic interests and the interest of the local community; and
(g) compliance with the legislative regime applicable to the proposed granting of the right.

Regulation 35 of the ATR provides that, if the municipal council has, in terms of regulation 34(3) (a), authorised the accounting officer to conduct a public participation process in connection with any proposed granting of a long term right to use, control or manage a capital asset with a value in excess of R10 million, the accounting officer must, at least 60 days before the meeting of the municipal council at which the decision referred to in regulation 34(1) (b) is to be considered –

(a) in accordance with section 21A of the Municipal Systems Act-
  (i) make public the proposal to grant the relevant right together with the information statement referred to in regulation 34(3)(b); and
  (ii) invite the local community and other interested representations in respect of the proposed granting of the right; and
(b) solicit the views and recommendations of the National Treasury and the relevant provincial treasury on the matter.

Regulation 40 of the ATR provides that approval in principle in terms of regulation 34(1)(b) that a right to use, control or manage a capital asset may be granted, given subject to any conditions, including conditions specifying-

(a) the type of right that may be granted, the period for which it is to be granted and the way in which it is to be granted;
(b) the minimum compensation to be paid for the right; and
(c) a framework within which direct negotiations for the granting of the right must be conducted, if granting of the right is subject to direct negotiations.

Regulation 41 of the ATR provides that if approval in principle has been given in terms of regulation 34(1)(b) that a right to use, control or manage a capital asset may be granted, the relevant municipality may grant the right only in accordance with the disposal management system of the municipality, irrespective of –

(a) the value of the asset;
(b) the period for which the right is to be granted; or
(c) whether the right is to be granted to a private-sector party or an organ of state.

3. INTRODUCTION

The Stellenbosch Municipality currently has a significant amount of (approximately 134) immovable properties Annexure A (made up of a combination of flats and houses) which were identified and are being utilised for staff rental purposes, notwithstanding the fact that there is no legal obligation on the Municipality to provide housing accommodation to staff members.

The intention of this policy is to put in place the principles, criteria, process, and conditions associated with the application for and allocation of these identified properties for staff rental accommodation purposes and to provide for the management thereof.

This policy, once accepted and approved by Council, will be implemented and all existing lease agreements with persons in this regard will be brought in accord with this policy.

4. DEFINITIONS

4.1. **Anti-Social behaviour:** Acting in a manner that causes or is likely to cause harassment, alarm or distress to one or more persons including alcohol abuse, drug and substance misuse and dealing, possession of drugs, illegal possession of firearms, intimidation, harassment, gangsterism, vandalism, abuse and sexual harassment

4.2 **Approving Authority:** The Municipal Manager will be the approving authority for the purposes of this policy.

4.3. **Dependants:** A spouse or life partner of an employee; child or adopted child, parent, adoptive parent, grandparent, grandchild or sibling of an employee who is still dependent on the employee;

4.4. **Dwelling:** The immovable property leased to the employee; which includes dwelling houses, apartments/flats and the term “capital asset” has a corresponding meaning.

4.5. **Employee/s**: An individual who is appointed by Stellenbosch Municipality on a permanent basis and the terms “official” or “member of staff” have a corresponding meaning.

4.6. **Essential Services:** Employees who deliver essential services who are always required to be available at or near their work centres.

4.7. **Functional Necessity**: Where the employee is required by virtue of occupying an identified post to be accommodated at or within the direct environment of his/her work centre. The employee must occupy specific accommodation at or within the direct environment of the work centre – Such position will be indicated through the provision of functions in the Job Description.

4.8. **Staff Rental Screening Committee:** A committee comprising of the Director: Planning and Economic Development, the Director: Corporate Services, and the Manager: Housing Administration will consider applications received for Staff Rental Housing Accommodation and make recommendations to Municipal Manager.

4.9. **Lessee:** An employee who has been allocated staff rental accommodation in terms of this policy.

4.10. **Lessor**: Stellenbosch Municipality a local authority established in terms of section 12 of the Local Government: Municipal Structures Act 117 of 1998 by Provincial Notice 489/2000 (Establishment of the Stellenbosch Municipality (WCO24)) promulgated in the Provincial Gazette dated 22 September 2000, as amended by Provincial Notice PN675/2000 (Stellenbosch Municipality (WCO24) Establishment Amendment Notice) promulgated and the term “Municipality” has a corresponding meaning.

4.11. **Lease agreement:** Refers to a contract or agreement between a lessor and lessee to use the property.

4.12. **Operational Preference:** An employee who renders an operational service that makes it obligatory for him/her having to reside in the immediate area;

4.13. **Staff Rental Housing:** The dwelling, including buildings, outbuildings, structures, land that is made available to employees of Stellenbosch Municipality for residential purposes in accordance with this policy.

4.14. **Rent:** Market related rental made monthly in terms of the rental agreement

5. ROLES AND RESPONSIBILITIES

In terms of this policy, Stellenbosch Municipality has a responsibility to:

5.1. Implement the Staff Rental Housing Policy as approved by Council;
5.2. Ensure that the staff rental policy is reviewed at least on a bi-annual basis;
5.3. Ensure that the staff rental policy is available to all employees;
5.4. Ensure appropriate records are kept and maintained, in terms of this policy, so that reporting requirements in terms of this policy can be met;
5.5. Manage the implementation of the staff rental policy so that the expected outcomes are achieved;
5.6. Affected employees will be provided a written notice prior to any decision to terminate an individual agreement.

In terms of this policy, Stellenbosch Municipality employees/staff have a responsibility to:

5.7. Be familiar with the contents of the approved staff rental policy and the associated principles, criteria, processes and conditions;
5.8. Apply on a prescribed form for consideration to be allocated a staff rental housing opportunity.
5.9. Ensure that no person who is not allowed in terms of the approval given to occupy the rental housing opportunity is staying in the allocated staff rental housing opportunity.
5.10. Ensure that the conduct of the occupants of the staff rental opportunity is such that it does not create a health or fire hazard or nuisance or interfere with the rights of other residents in the area;

5.11. Give prompt and appropriate notice of change of circumstances and get approval for any additional occupants.

6. PRINCIPLES GOVERNING STAFF RENTAL HOUSING ALLOCATION

6.1 Except as provided for below, the provision of housing accommodation is a personal responsibility, and it remains the responsibility of every employee to provide for their own housing accommodation needs. Under the circumstances as listed below, the Stellenbosch Municipality may make staff rental housing opportunities available, from time to time, as the need arises, for the accommodation of employees and preference will be given to essential services rendered, or functional or operational necessity, or as an attraction to facilitate the acceptance of a job offer, or where there are excess staff rental housing opportunities available and any other applying staff, that meet the general criteria requirements as determined by Council in this policy;

6.1.1 The employee renders an essential service and where his/her residential proximity to the work centre would be preferable to both the applicant and the municipality;

6.1.2 The employee is required by virtue of occupying an identified post to be accommodated at, or within, the direct environment of his/her work centre and/or must occupy specific accommodation at, or within, the direct environment of the work centre, based on functional necessity as assessed by the approving authority;

6.1.3 The employee renders a critical operational service or standby duty after hours that makes it preferable for him/her to be accommodated within the immediate area in which services need to be rendered;

6.1.4 The applicant lives appreciably far from his/her work centre (lives at least more than 40km from the work centre);

6.1.5 The municipality will retain a few units for staff rental accommodation use as may be required for the attraction of identified skills or individuals.

6.1.6 In all instances mentioned above the staff member must meet the general criteria for allocation of a staff rental opportunity as set out below.

6.2 Applications for staff rental housing opportunities can only be considered and allocated if the applicant meets all the requirements and there is a suitable staff rental housing opportunity available.

6.3 Staff rental housing accommodation must be occupied by the employee, his/her spouse/life partner and his/her dependents only for the period of his/her employment with the municipality, and in terms of the lease agreement and all occupants of the dwelling must vacate the dwelling within the notice period provided after the employee who the dwelling was allocated to leaves the employment of the Stellenbosch Municipality. If the employee gets divorced or separated from the partner/spouse and leaves the accommodation all occupants of the dwelling must vacate the dwelling within the notice period provided after the employee who the dwelling was allocated leaves the accommodation.

6.4 A written lease agreement must be entered between the Municipality and every employee who is allocated a staff rental housing accommodation opportunity. A copy of the Lease Agreement is set out in Annexure B.

6.5 A staff rental housing accommodation opportunity may not be sub-let or assigned by the employee or his/her dependants to any other person under any circumstances.

6.6 The Agreement of Lease between the Municipality and the staff member will terminate upon the employee leaving the service of the Municipality, whether through resignation/dismissal/death or due to retirement of the employee. A 3-month notice period will be applicable in all instances from the date on which notice of termination was given (resignation/dismissal/retirement/death) or the last day of employment.

6.7 Staff members allocated staff rental housing accommodation should agree in writing to have their monthly rental fee and service charges deducted directly from their monthly salary.

6.8 Should the employee pass away whilst being in service of the Municipality or should he/she become medically incapacitated and his/her employment is subsequently terminated as a result thereof, the employee and/or any family members residing in the staff rental housing opportunity may be allowed to extend his/her lease agreement for a maximum period of 3 months after the said occurrence.

7. STAFF RENTAL HOUSING ALLOCATION CRITERIA

Any applicant for a staff rental housing opportunity must:

7.1. Be a permanent employee of the Stellenbosch Municipality;

7.2. Not own property (employee or his/her spouse or partner) or have received a housing subsidy for a dwelling within the WC024, except as set out in 7.8 below;

7.3. Be able to afford the set monthly rental fee for the staff rental housing opportunity applied for. In this regard the applicant must pass an affordability means test – the monthly rental and associated municipal service fees of the rental housing opportunity must not exceed 30% of the nett monthly income of the staff member and his/her spouse combined;

7.4. Have a family size which is in accord with the size of the staff rental housing opportunity available;

7.5. Must reside more than 30 km from his/her work workplace if applying because of standby duty that needs to be performed;

7.6. Not have a record of anti-social behaviour or workplace disciplinary issues for a period of 12 months prior to application for a staff rental housing opportunity;

Commented [ADB1]: How is the municipality going to know this?

Commented [ADB2R1]: Amendment to application form to be affected.

7.7. Agree to comply with all aspects of the rental agreement including paying the monthly rental fee and municipal service charges in full and must agree to having the rental fee and municipal service charges deducted directly from his/her monthly salary;

7.8. In the case of employees who are allocated a staff rental accommodation opportunity as a requirement of the post in which he/she has been appointed shall not be precluded from owning or purchasing a private dwelling or receiving a housing subsidy.

7.9. Live, at least, greater than 40 km from their work centre, to be considered on the grounds that they live far from their work centres.

In considering applications for staff rental housing opportunities preference will be given as follows:

- Date of initial application (first come, first serve principle applies). The Housing Administration Department must keep and update a Staff Rental Housing Opportunity Demand Database of employees who have applied for staff housing rental opportunities. The nomination of a potential staff rental beneficiaries will be according to the "first come first serve principle" as and when a vacant rental unit becomes available;
- Employees, where both members of the marriage/union are in the employ of the Municipality;
- Employees who have a dependant family;
- Employees who pass the affordability means test.

8. PROCEDURES FOR THE APPLICATION AND ALLOCATION OF STAFF RENTAL HOUSING OPPORTUNITIES

Application for staff rental housing accommodation opportunities shall be made on a prescribed application form, as amended from time to time.

8.1. The application for a staff rental accommodation opportunity must include a motivation by the Director of the relevant Directorate in which the applicant works, endorsing the following: -

8.1.1. Post occupied by the applicant;
8.1.2. Where applicable, confirmation that the position is on the approved list of essential services and/or functionally necessary services;
8.1.3. Conduct of the applicant.

8.2. The prescribed application form must be obtained from the Housing Administration Department and will also be made available on the municipality's intranet.

8.3. The responsibility for the assessment of staff rental housing accommodation applications will rest with the Staff Rental Housing Accommodation Opportunity Screening Committee who will make a recommendation, based on the criteria and preferences as set out above to the Municipal Manager, who will be the final decision-making authority.

8.4. Subsequent to the decision to approve an allocation by the Municipal Manager, the Housing Administration Department must enter into a written lease agreement with the employee and no occupation of the rental accommodation shall be permitted until the lease agreement has been signed by BOTH parties.

8.5. The Housing Administration Department shall be responsible for all the administration associated with the implementation and management of the Staff Rental Housing Opportunity Policy.

9 MONTHLY RENTAL FEE OF STAFF RENTAL HOUSING OPPORTUNITIES

9.1 The monthly rental fee charged shall be as determined by the Municipal Manager (Accounting Officer), after consultation with the Chief Financial Officer, and approved by Council on an annual basis and be implemented as of 1 July of the said year;

Commented [ADB3]: How practical is this? What is the role of the Accounting officer in this?

Commented [ADB4R3]: Talk to CFO and market related rental.

9.2 The employee/lessee shall pay a deposit equivalent 1 monthly rental fee on first occupation;

9.3 The deposit is refundable at termination of the accommodation agreement. The municipality, as the lessor, is however entitled to retain the deposit or part thereof in the event where the lessee is responsible for damage to the property;

9.4 The employee/lessee shall, in all instances, be responsible for the payment of all municipal services pertaining to the dwelling. Should the staff rental opportunity not have separate meters for the municipal services, the basic fees as stipulated in each year's budget shall be levied on the employee's municipal account;

9.5 Employee/Lessee is responsible for the maintenance of all dwellings on the inside as per the lease agreement as well as the outside recreation areas attached to a dwelling or used by a dwelling at the lessee's cost. Where during an inspection it is found that the dwelling has not been maintained properly the lessee will be put on terms and if maintenance is not undertaken within the stipulated period and as required in the lease agreement, the lease agreement will be cancelled, and the lessee must vacate the rental unit within the notice period provided.

10 REQUIREMENT TO VACATE STAFF RENTAL HOUSING ACCOMMODATION

10.1 Persons who are occupying staff rental housing opportunity without a contractual agreement or lease shall be given notice to vacate such premises within a period of 3 months from date of adoption of this policy, except where it is in the municipality's interest that the building remains occupied by the same persons. In such cases, the Municipality must enter into an agreement with such persons.

10.2 All persons, including employees, who do not occupy posts of functional necessity and who are occupying a rental housing unit by contractual agreement or written lease, shall be given notice to vacate such premises within a period of 3 months upon receipt of a written notice to that effect, should it be required for accommodation for an employee occupying a post of functional necessity or any other given reason.

10.3 Employees or their dependants occupying staff rental housing accommodation whose status in terms of this policy has changed by virtue of:

10.3.1 Retrenchment, retirement, disablement (such as to preclude the exercise of the job or functional necessity) or death of the employee;

10.3.2 Promotion, new appointment, transfer or demotion to post not of functional necessity in respect of the applicable service unit in which the staff rental housing accommodation is located;

10.3.3 A new employee who was given staff rental accommodation opportunity as interim accommodation;

Will vacate such accommodation within a period not exceeding 3 months from the effective date of such change or notice given to the employee.

10.4 Employees and their dependants shall vacate staff rental accommodation upon expiry of the lease agreement.

11 RESPONSIBILITY UPON VACATING STAFF RENTAL HOUSING OPPORTUNITY

11.1 Upon vacating a staff rental housing opportunity, it shall be the responsibility of the employee or lessee to ensure:

11.1.1 That all services with the exception of sewerage be discontinued and all meters are read, failing which the employee/lessee shall be held responsible for any wastage, damage or loss which may take place between the date of vacating of the staff rental housing opportunity and the date of re-occupation;

11.1.2 That the staff rental housing opportunity is left in a clean and neat state to the satisfaction of the Housing Administration Department;

11.1.3 That the property is inspected jointly by the municipality and the employee/lessee to determine the condition of the property and to list all defects or damage. Such inspection shall take place before the employee or lessee takes occupation and within a week from the tenant vacating the property.

11.2 That the employee or lessee who is vacating the staff rental housing opportunity shall remove all personal effects and ensure that all windows, outside doors, gates and other access points are closed and locked, all taps are closed, switches are off and that the said accommodation and surrounds are as far as possible secure against trespass and damage. The municipality shall not be held liable for any loss and/or damage to personal effects/property of the employee/lessee during the occupation of the staff rental housing opportunity or during moving into or out of the said accommodation.

12 DATE OF COMMENCEMENT

The policy shall be known as the **STAFF RENTAL HOUSING OPPORTUNITY POLICY** and will come into effect at the date to be determined by Council.

ANNEXURE A

MUNICIPAL PROPERTIES RESERVED FOR STAFF RENTAL HOUSING PURPOSES

AREA	NUMBER OF UNITS	USER DEPARTMENTS	COMMENTS
Franschhoek houses	14	Various	Situated in Jaftasingel, Park, Santa Rosa, Hermitage, Reservoir, Boonzaaier and Wilhelmina Streets.
Stellenbosch Quarters	18	Fire Services	Situated in Idas Valley
Kayamandi Apartments	45	Various	Part of the 142 units in Kayamandi
Stellenbosch houses	14	Various	Tintinkie, Swawellaan, Hoep-hoep streets, Hoffman Street and Simonsberg
Devon Valley	19	Sewerage Works	These were intended to house shift workers who are required to work on the plant. Although all the units are occupied, many occupants are no longer employed at the Treatment Works. Council resolution granted usufruct to contract employees who had been precluded from joining a pension scheme.
Stellenbosch Apartments	12	Various	Teen die Bult
Stellenbosch Apartments	25	Various	Bellrive
Jamestown, Onderpapagaaiberg; Ida's Valley and Cloetesville	5	Community Services	Cemetery, sports fields, and swimming baths
Cloetesville and Ida's valley	20	Various	Eike Street and Aan Het Pad; Botmaskop, Dahlia and Comice Streets.
Total	187		

ANNEXURES TO THE POLICY

Annexure B – Lease agreement

7.3.2	UPDATED REPORT ON OUTDOOR DINING AND CONSIDERATION OF GENERAL CONDITIONS FOR OUTDOOR DINING

Collaborator No:
IDP KPA Ref No: **Good Governance**
Meeting Date: **14 February 2024**

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1. SUBJECT: UPDATED REPORT ON OUTDOOR DINING AND CONSIDERATION OF GENERAL CONDITIONS FOR OUTDOOR DINING

2. PURPOSE

To provide feedback on the Outdoor Dining Applications as well as to submit General Conditions for Outdoor Dining for consideration and approval.

3. DELEGATED AUTHORITY

In terms of the approved System of Delegations the Executive Mayor, in consultation with the Executive Mayoral Committee, has the delegated Authority to consider applications for Lease Agreements, up to a contract value not exceeding R5M and not exceeding a period of 10 years.

The approval of lease agreements of three (3) years and less has been delegated to the Municipal Manager. Council approves all policies.

4. EXECUTIVE SUMMARY

During the Council Meeting of June 2022, it was resolved that communication was to be handed to all restaurants and businesses indicating that they need to apply for lease agreements in order to comply with the Outdoor Dining Policy of the municipality.

The department delivered the communication (letters requesting all restaurants that are using council property for outdoor dining to apply for a lease) and the municipality received applications from a number of restaurants and businesses and items have been prepared for consideration by the Mayoral Committee. 40 applications have served before the Mayoral Committee since August 2023 and 35 other establishments have received the communication to apply but have failed to file applications. Attached hereto as **APPENDIX 1** is an update on all establishments who have received formal notifications.

Council further needs to consider the general conditions for Outdoor Dining attached hereto as **APPENDIX 2** for approval. If the conditions are approved Council may withdraw approval for outdoor dining if establishments do not comply within a specific time period of if they do not meet the provisions of their lease agreements.

A further meeting was held with the Hermitage Advisory Committee on Monday 29 January 2024, and they undertook revert back to the department within a week. We have to date not received inputs.

5. RECOMMENDATIONS

(a) that Council takes note of the report; and

(b) that Council consider the General Conditions for Outdoor Dining.

6. DISCUSSION / CONTENT

6.1 Background

In 2022 Council approved formal communication to be delivered to all restaurants and businesses making use of road reserved for Outdoor Dining purposes. This included businesses making use of the sidewalk.

In February 2023 the communication was hand delivered to most restaurants and businesses in the Stellenbosch CBD. As a result, applications for lease of municipal land was received from several institutions and items have been prepared for consideration, with the intention of successful applicants to enter into lease agreements with the municipality.

40 Applications have served before the Mayoral Committee and Council now needs to consider the General Conditions prepared by the Department for Outdoor Dining purposes.

6.2 DISCUSSION

During February 2023 the property management administration team, together with law enforcement, hand delivered 65 letters in the Stellenbosch CBD requesting businesses to apply for the lease of municipal land in order to be compliant with the Outdoor Dining Policy. To date, the municipality has received 40 applications which have all served before the Mayoral Committee.

A list of the restaurants and businesses that received notification letters, as well as a summary of applications received and items is attached hereto marked as **APPENDIX 1**.

Attached as **APPENDIX 2** are the General Conditions for Outdoor Dining for approval by Council.

6.2.2 Legal requirements

6.2.2.1 Municipal Asset Transfer Regulations

In terms of Section 36 of the Municipal Asset Transfer Regulation, when considering an application for an approval of a right to use municipal property, the following needs to be taken into account, *inter alia-*:

a) whether the capital asset may be required for the municipality's own use during the period for which the right is to be granted;

b) the extent to which any compensation to be received for the right, together with the estimated value of improvements or enhancements to the asset, will result in a significant financial benefit to the municipality;

c)the (possible) risks and rewards associated with the use in relation to the municipality's interests;

d)Any comments received from the local community, and

e) compliance with the legislative regime applicable to the proposed granting of the right.

6.2.2.2 Stellenbosch **By-Law on Roads and Streets**

In terms of section 4 of the Stellenbosch By-Law on Roads and Streets, no person may, **without prior written permission of the Municipality**, cause an encroachment on a street, sidewalk or road reserve forming part thereof.

6.2.2.3 Property Management policy

Section 9 2.2 deals with deviations from the competitive process, and reads as follows:

The Municipal Council **may dispense with the competitive processes** established in this policy and may enter into a Private Treaty Agreement through any convenient process, which may include direct negotiations, including in response to an unsolicited application, but only in the following circumstances, and only after having advertised Council's intention so to act. Should any objections be received as a consequence of such a notice, such objections first be considered before a final decision is taken to dispense with the competitive process established in this policy. However, should any objections, be received from potential, competitive bidders, then a public competitive process must be followed. The advertisement referred to above should also be served on adjoining landowners, where the Municipal Manager is of the opinion that such transaction may have a detrimental effect on such adjoining landowner(s):

(h)where encroachment applications are received from adjoining owners, including applications for outdoor dining permits, subject to approved tariff structure.

6.2.2.4 Outdoor Dining Policy

6.2.2.4.1 Policy Objective

To regulate the use of sidewalks or road reserves for the purpose of outdoor dining and trading, and the temporary use of Public Places for commercial ventures and displays.

6.2.2.4.2 Suitable Locations

Outdoor cafes, restaurants and traders may apply for lease where local conditions are favorable for their operation, including areas of Council e.g. road reserves, sidewalks, Public Open Spaces. All applications in locations of a high pedestrian usage, e.g. a retail center, will be required to take pedestrian needs into consideration.

6.2.2.4.3 Assessment Criteria

The most important local conditions to be considered when an application for encroachment of the road reserve area is received will be those issues pertaining to pedestrian (including pedestrians who are using wheelchairs, baby prams or are visually impaired) and vehicular circulation, convenience and safety of patrons and the general public, existing streetscape elements and residential amenity.

The ground surface must be sufficiently level to support a proper layout and safe use.

6.2.2.4.4 Layout

The style, layout and orientation of furniture should be chosen according to the extent and shape of the available space of the encroachment area.

The size of an outdoor cafe or placement of any object on the sidewalk will depend on the width of the sidewalk.

6.2.2.4.5 Defined Area

The applicant will be required to define the area with appropriate markers. (ie a single galvanized steel nail inserted in between the pavers, or a paint spot no larger than 5cm in diameter placed at the corners of the defined area in a semi- permanent paint) to the satisfaction of Council.

6.2.2.4.6 Lease Conditions

The applicant must comply with the conditions set out in the lease agreement and this policy. The lease will be for a period of not more than 5 years with an option to renew. These conditions would also generally require that the local environmental factors be reviewed annually and adjustments to the lease agreement may be required.

If the lease agreement that is entered into is seen as not providing long term rights, there is no need to advertise the proposed agreement for public input/comments or objections. Should the municipality receive any complaints the lease agreement may be terminated due to the objections.

6.3 Financial Implications

In terms of the current, approved tariff structure for outdoor dining lease agreements a fee of R150 per m² is charged monthly. The financial implications will therefore be determined by the size and area that each applicant has applied for. This tariff is amended on a yearly basis during the approval of the budget and a new fee is then automatically implemented from 1 July every year.

6.4 Legal Implications

The legal implications are discussed under 6.2.2 above. As the proposed term of the lease agreement is three (3) years and when the value of the lease and property is taken into account the asset transfer regulations are not applicable as it is not seen as long-term rights on council property that are being given.

6.5 Staff Implications

The letters must be delivered by the property management unit and the filling of the admin positions in the unit is a priority to assist with the administration that flows from the process.

6.6 Previous / Relevant Council Resolutions

SPECIAL COUNCIL MEETING: 2002-06-22: ITEM 9.2.5 RESOLVED (nem con)

(a) That council takes note of the intended communication to the public;

(b) That Council takes note that all restaurants and business will be given notice to apply / re-apply for a lease to use council property for outdoor dining purposes; and

(c) That the approval of the leases of three (3) years and less be delegated to the Municipal Manager for approval.

There has been a number of resolutions at the Mayco since June 2022 as the items served before Mayco under delegation.

6.7 Risk Implications

Restaurants ignore the decisions taken by Council and refuse to sign lease agreements. This will lead to further illegal use of the council property for outdoor dining and complaints from residents that they are unable to use the sidewalks due to restaurants not adhering to the rules.

6.8 Comments from Senior Management

6.8.1 Director: Infrastructure Services

Users must ensure adherence to the provisions of the Sidewalk Accessibility Bylaw.

6.8.2 Director: Planning and Economic Development

No additional inputs.

6.8.3 Chief Financial Officer

No additional inputs

6.8.4 Director: Community and Protection Services

No inputs received**.**

6.8.5 Municipal Manager

Supports the contents of the report.

ANNEXURES: 1. Updated report on outdoor dining applications.

2. General Conditions for Outdoor Dining

FOR FURTHER DETAILS CONTACT:

NAME	**Yolande van den Berg**
POSITION	***Contract Management Property Management department***
DIRECTORATE	***CORPORATE SERVICES***
CONTACT NUMBERS	***021-8088073***
E-MAIL ADDRESS	***Yolande.vandenBerg@stellenbosch.gov.za***
REPORT DATE	***2024-02-06***

APPENDIX 1

RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
DECAMERON RESTAURANT	23/02/2023	YES	Item served at Mayco in August 2023	Approved. Compliant. New lease agreement to be provided upon acceptance of general terms and conditions by council.
VADAS	23/02/2023	YES	Item served at Mayco in November 2023	Approved in principle. Compliant. To sign new lease agreement when general terms and conditions are accepted by council.
FIDDERS	23/02/2023	YES	Item served at Mayco in November 2023	Approved in principle. To do an investigation at premises for current compliance and serve outcome letter.
MANOUSHE	23/02/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 6 September 2023. Currently paying in terms of old encroachment agreement and new lease agreement to be entered into upon acceptance of general term and conditions by council.
MORO	23/02/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 6 September 2023. To sign new lease agreement when general terms and conditions are accepted by council.
STELLENBOSCH WINE BAR	23/02/2023	YES	Item Served at Mayco In January 2024	Approved in principle. Not compliant. To serve outcome letter.
LYNNE	23/02/2023	NO	Moved - no longer making use of sidewalk	
JARDINE	23/02/2023	YES	Closed	
COGNITO	23/02/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 10 October 2023

				wherein it is indicated that they need to provide details for POA to lodge building plans. No requests received from them, so no building plans submitted for approval. Heritage Advisory Committee has indicated that they are very unhappy with this deck and there is no Heritage approval.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
RYKAARTS	23/02/2023	YES	Establishment closed down	
BRAMPTON WINE STUDIO	23/02/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 6 September 2023. Lease to be entered into on acceptance of general terms and conditions by council.
HYGGE HYGGE	23/02/2023	YES	Item served at Mayco in November 2023	Approved in principle. Not compliant. Outcome letter to be served on establishment.
JAVA BISTRO	23/02/2023	YES	Item served at Mayco in November 2023	Not compliant. Matter referred to Heritage Advisory Committee. Waiting for minutes of January 2024 meeting whereafter the outcome letter will be served on the establishment.
BASIC BISTRO	23/02/2023	YES	Item served at Mayco in August 2023	Referred back. Not compliant. Letter not served as guidance is needed on the way forward with the long standing deck which is only 1.4m from road, not 1.5m.
LIRA & FYNN	23/02/2023	NO	No longer using sidewalk	
DE STOMME JONGE	23/02/2023	NO	Closed	

THE WINE GLASS STELLENBOSCH	23/02/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served in September 2023 wherein it was indicated that they need to submit building plans. No Power of Attorney has been requested, so no building plans have been submitted. New lease agreement to be entered into when the general terms and conditions are accepted by council.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
VIDA E CAFÉ	23/02/2023	YES	Item served at Mayco in August 2023	Plein street approved in principle, Ryneveld street referred back. Not compliant. Outcome letter served on 6 September 2023. New lease agreement to be entered into upon acceptance of general terms and conditions by council.
DE WARENMARKET	23/02/2023	YES	Item served at Mayco in August 2023	Plein street approved in principle, wooden deck not approved and referred back. Not compliant. Outcome letter served on 6 September 2023. Illegal building work took place and matter currently being considered by Legal Department.
KAPSTADT BRAUHAUS		YES	Item served at Mayco in August 2023	Referred back for further administration. Not compliant. There has been several engagements with the establishment over the last year in terms of the illegal structure. Attorneys appointed to bring application to breakdown the illegal

				building of the deck. Busy with the drafting of notice of motion.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
SHIFT EXPRESSO		YES	Old application, to obtain new application form	
LE GRAND DOMAINE		YES	Item served at Mayco in August 2023	Referred back. Not compliant. Outcome letter served on 6 September 2023.
JULIAN'S CAFÉ BAR	14/03/2023	YES	Item served at Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 6 September 2023 however they need guidance from the Heritage Department for demarcation purposes. No decision has been taken on specific demarcation. Currently paying in terms of old encroachment agreement.
CIOVITA	14/03/2023	YES	Item served at Mayco in August 2023	No longer using area. Area now being used by Seattle Coffee Co who has not filed an application.
HUDSONS	14/03/2023	YES	To determine erf line before submitting to Mayco	Not using municipal land
THE WAFFLE MILL	14/03/2023	YES	Item served at Mayco in August 2023	Approved in principle, however demarcation was referred back. Not compliant. Outcome letter served on 6 September 2023. Awaiting guidance from Heritage department in terms of acceptable demarcation.
ART WICKER MALAWI	14/03/2023	NO	No longer using sidewalk	
ADAM & EVE COLAB	14/03/2023	YES	Item served at Mayco in August 2023	Not approved. Not compliant. A meeting was held with Danneel during the end of 2023

				at our offices. He indicated that the area will no longer be used for Outdoor Dining but as a shop front for a clothing store. No new application received.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
GOCHU GANG		YES	Item served before Mayco in August 2023.	Approved in principle. Outcome letter served on 6 September 2023. The applicant was initially compliant however they have changed the demarcation and placement of furniture and is currently not compliant as approved by council.
DE VLEISPALEIS	14/03/2023	YES	Item served before Mayco in November 2023	Referred back. Not compliant. Outcome letter to be served and awaiting guidance from Heritage Advisory Committee on way forward with illegal structure.
BLIX	14/03/2023	YES	Item served at Mayco in August 2023	Approved. Compliant. Outcome letter served in September 2023. New lease agreement to be entered into upon acceptance of general terms and conditions by council.
MILL COFFEE HOUSE	14/03/2023	YES	Item served at Mayco in August 2023	Dorp street approved in principle. Not compliant. To determine erf line on the one side of the property and then serve outcome letter.
JACKS BAGELS	14/03/2023	YES	Item served at Mayco in August 2023	Approved in principle. Compliant. Outcome letter served on 6 September 2023. New lease agreement to be signed after general

				terms and conditions approved by council.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
GARY ROM MAN	14/03/2023	YES	Item served before Mayco in November 2023	Approved in principle. Compliant. To sign new lease agreement when general terms and conditions are accepted by council.
COL CACHIO FRANSCHHOEK		YES	Item served at Mayco in November 2023	Currently compliant with requirements for Outdoor Dining. Waiting for instructions on way forward in terms of area being used, possibly parking spaces. Old encroachment agreement still in place. Will only be able to provide new lease agreement once finalised.
TAISHAN RESTAURANT		YES	Application withdrawn, unhappy about fees	Still using outdoor area
ROME IN A BITE		YES	Item served before Mayco in September 2023	Referred back. Not compliant. Outcome letter served in December 2023.
CAFÉ SOFIA		YES	Item served before Mayco in September 2023	Approved in principle but referred to Heritage Advisory committee. Not compliant. Awaiting guidance and minutes from Heritage Advisory Committee from January 2024 before serving outcome letter.
TOEBROODJIE		YES	Item served before Mayco in September 2023	Approved in principle. Not compliant. To serve outcome letter.
BEYERSKLOOF WINE BAR		YES	Item served before Mayco in September 2023	Referred back. Not compliant. Several meetings with establishment during the erection of illegal structure. Matter currently with legal department for

				consideration on way forward.
RESTAURANT	DATE RECEIVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
BAE-GOALS		YES	Item served before Mayco in November 2023.	Approved in principle. Compliant. Outcome letter to be served.
WIJNHUIS		YES	Item served before Mayco in August 2023.	Approved. Compliant. Outcome letter served. New lease agreement to be entered into upon acceptance of general terms and conditions by council.
THE POTTERY		YES	Item served before Mayco in August 2023	Approved in principle. Not compliant. Outcome letter served on 6 September 2023 indicating that they need to apply for building plans. No application for building plans received.

NOTICES SERVED – NO RESPONSE

RESTAURANT	NOTICE SERVED	SECOND NOTICE.	COMMENTS:	CURRENT STATUS
MOJI	23/02/2023	06/09/2023	No response	
TASTE	23/02/2023	06/09/2023	No response	
STUD	23/02/2023	06/09/2023	No response	
LA COCO	23/02/2023	06/09/2023	No response	
COFFEE AT JUSTICE	23/02/2023		No response	
LEGADO ANDRING	23/02/2023		No response	
JUVENATE	23/02/2023		No response	
LEGADO	23/02/2023		No response	
MOOD COFFEE BAR	23/02/2023	06/09/2023	No response	
STELLENBOSCH KITCHEN	23/02/2023		No response	
TUTTI	23/02/2023		No response	
CRÈME DE LEVAIN	23/02/2023		No response	
SWIRL'N	23/02/2023		No response	
CRAFT WHEAT AND HOPS	23/02/2023		No response	

CRÈME DE LEVAIN	23/02/2023		No response	
KOOPMANHUIJS	23/02/2023		No response	
RESTAURANT	NOTICE SERVED	APPLICATION RECEIVED	COMMENTS:	CURRENT STATUS
SKEP	23/02/2023		No response	
ADDRES WHAT TO WEAR	23/02/2023		No response	
MILIEU	23/02/2023		No response	
STARBUCKS	14/03/2023		No response	
MUGG & BEAN	14/03/2023	06/09/2023	No response	
SUSHI GURU	14/03/2023		No response	
EMMA'S FRESHLY BAKED	14/03/2023	06/09/2023	No response	
BOOBABEAUTEA	14/03/2023	06/09/2023	No response	
LE SIEMMA CAFÉ BISTROT	14/03/2023		Application withdrawn, unhappy about fees	
DE AKKER	14/03/2023	06/09/2023	No response	
ROCOMAMAS	14/03/2023	06/09/2023	Large outstanding debt, no response	
SEATTLE COFFEE CO	14/03/2023	06/09/2023	No response	
SIMPLY GREEK	14/03/2023	06/09/2023	No response	
POST AND PEPPER	06/12/2023		No response	
DE VREIJEBURGER	06/12/2023		No response	
ASTA LA PASTA	06/09/2023		No response	
GELATO LAB	06/09/2023		No response	
DREW'S KITCHEN BAR	06/09/2023		No response	

APPENDIX 2

GENERAL CONDITIONS FOR OUTDOOR DINING

5.1. That the land……………………., measuring approximately ……..m² in extent, be identified as land not needed to provide the minimum level of basic municipal services during the period that the rights are awarded;

5.2 That the application for outdoor dining be approved for an initial period of 3 years with the option of a renewal subject to the following conditions:

5.2.1 That no permanent structure or deck be erected without the prior written consent of council, including approved building plans and approval from the Heritage Advisory Committee.

5.2.2 A minimum of 1.5m (unobstructed walkway) be left open for pedestrian use, adjacent to the street kerb. In exceptional circumstances, a 1.5m unobstructed walkway adjacent to a shop front, may be allowed, in these instances a further 0.8m must be left open adjacent to the street kerb.

The impact of proposed outdoor dining on pedestrian movements, is subject to an assessment in terms of the Municipality's Sidewalk Accessibility Policy and the Municipal Manager is mandated to amend the layout and demarcation of the area when assessing applications.

5.2.3 That a site development plan be submitted for approval which must address at least the following requirements:

(a) Demarcation of the lease area relative to its abutting context with the street, the user property, and neighbouring properties. The demarcation of the outdoor dining area should preferably where possible be demarcated by natural features like for example plants. If such demarcation is not possible the delimitation must be indicated on the plan with lines and applicable measurements. A line indicating the area for outdoor dining may also be used. In the event that the outdoor dining spills over the demarcated area the furniture will be confiscated.

(b) Indicate the accurate location of all existing infrastructure, landscaping features and street furniture. The layout of all furniture and features that will be used for the outdoor dining activity.

5.2.4 Demarcation must be provided and maintained by the lessee.

5.2.5 No advertising signs(including A- frames) to be placed on the sidewalk or displayed against the building without the prior approval of council and if such signs is displayed it must be within the demarcated area. All signs and outdoor dining furniture outside the demarcated area can be confiscated and repeated offences may result therein that the lease be cancelled forthwith.

5.2.6 All umbrellas to be used has to be at least 2.2m high and may not have any signage on them.

5.2.7 Any awnings will require pre-approval from council.

5.2.8 Council is indemnified against all possible 3*rd* party claims.

5.2.9 The municipality or other public service providers must not be prohibited from maintaining, repairing, upgrading and / or installing new public services within the leased area. For planned maintenance and repairs, upgrades or new installations, the applicant will be provided with a 5-day written notice to remove all furniture for the municipality and any other public service provider to gain access. For emergency work the applicant will be required to remove everything immediately for the municipality or other public service providers to gain access.

5.2.10 The municipality reserves the right to end the lease agreement when the need arises, i.e. when the leased area is required for municipal or other public services purposes or when the applicant refuses the municipality or other public service providers access if required.

5.3 That the rental amount be determined by the Municipal Manager in terms of the approved tariffs and an escalation of CPI per annum applies.

5.4 Where the establishments do not comply with the conditions attach to their leases within 30 days after receipt of the approval, the approval will be withdrawn and the lease ended. Such establishment will not be allowed to trade on Municipal Property until they comply and then re-apply for approval.

5.5 The lease agreement with the municipality must be signed within 30 days after receipt of the letter of approval and the draft agreement.

5.6 Where Establishments put furniture or signs outside the demarcated agreed areas such furniture and signs will be removed by Law Enforcement without further notice.

5.7 Establishments who have not applied for permission and have been given a letter putting them to terms, must apply within 30 days of receipt of the letter. Should they fail they will no longer be allowed to do outdoor dining trading on municipal land.

7.3.3	**CONSIDERATION OF THE REQUEST FROM THE DEPARTMENT OF WASTE MANAGEMENT TO USE THE BUILDING ON A PORTION OF FARM 1653, LA MOTTE ALSO KNOWN AS LA REFUGE FOR OFFICE SPACE**

Collaborator No:
IDP KPA Ref No: **Good Governance**
Meeting Date: **14 February 2024**

1. SUBJECT: CONSIDERATION OF THE REQUEST FROM THE DEPARTMENT OF WASTE MANAGEMENT TO USE THE BUILDING ON A PORTION OF FARM 1653, LA MOTTE ALSO KNOWN AS LA REFUGE FOR OFFICE SPACE

2. PURPOSE

Is for Council to consider the request from the Department of Waste Management to use the building on a portion of Farm 1653, La Motte for office space given that Council already resolved in February 2023 to sell the property on auction.

3. DELEGATED AUTHORITY

Council.

4. EXECUTIVE SUMMARY

The property known as Farm 1653 La Motte was initially sold to the Stellenbosch Municipality by the Cape Winelands Municipality. One of the properties on this farm is a building where an NGO known as La Refuge requested to use the building as a safe house for abused women and children.

On 31 March 2021, after a public participation process was followed, a decision was made by the Mayoral Committee that the property can be leased out for 12 months to the non-profit organisation, subject to certain conditions. The non-profit organisation was unable to implement the centre due to financial issues. The organisation was unable to provide the municipality with any plan or acceptance of the council resolution and for this reason never took possession of the property.

In February 2023 the future use of the property served Council again as an in-committee item where it was decided that the property is no longer needed to provide basic municipal services and that the property should be sold by way of auction.

The department started the process to appoint the auctioneer and prepared the terms of reference for the auction and requested a valuation of the property to be used as the reserve price at the auction. The latter has recently been provided and we were awaiting dates for the auction.

On 23 January 2024 a memorandum was received from Infrastructure Directorate indicating that they have an interest in using the property for the Waste Management Department and Roads and Storm Water Department who are both looking for offices in the area. (**ANNEXURE A)**. Since this property was initially used as offices by the Cape Winelands Municipality no assessment was done by the property maintenance department on what is it required to be able to use it as offices. The premises are currently vacant and can be occupied as offices immediately if Council agrees. There is no money on the budget of properties to deal with any renovations in this building nor are their capacity with the project manager to handle the project. Should the request be approved the Infrastructure department will have to take full responsibility for the renovations, costs and future maintenance.

Should council consider the request favourably the Council resolution of February 23 should be revied and rescinded.

5. RECOMMENDATION

For consideration.

6. DISCUSSION / CONTENT

6.1 Background

6.1.1 Council resolution

On 22 February 2023 an In Committee resolution was passed to confirm that a portion of Farm 1653, La Motte is no longer required to provide minimum services and that the property had to be sold on auction. After the auction the matter should be returned to Council for final approval.

6.2 DISCUSSION

On 23 January 2024 a memorandum was received from Infrastructure Directorate indicating that they have an interest in using the property for the Waste Management Department and Roads and Storm Water Department who are both looking for offices in the area.

Since this property was initially used as offices by the Cape Winelands Municipality no assessment was done by the property maintenance department on what is it required to be able to use it as offices. The premises are currently vacant and can be occupied as offices immediately if Council agrees. There is no money on the budget of properties to deal with any renovations in this building nor are their capacity with the project manager to handle the project. Should the request be approved the Infrastructure department will have to take full responsibility for the renovations, costs and future maintenance.

Farm 1653, La Motte is registered in the name of Stellenbosch Municipality. It is a large property with several buildings and the building in question, which has not been subdivided from the main Farm is more commonly known as “La Refuge”.

Fig 1. Location

Fig 2. Building "La Refuge".

6.3 Financial Implications

A market value of the property has been determined by a valuator and was set at R1.5 million, therefore the minimum price if sold on auction will be R1.5 million. It should however be taken into consideration that in that event the Infrastructure Department will have to build a new office which will be far more than the R1.5 million.

There is no money on the budget of properties to deal with any renovations in this building nor are their capacity with the project manager at property management to handle the project. Should the request be approved the Infrastructure department will have to take full responsibility for the renovations, costs and future maintenance.

6.4 Legal Implications

The legal implications are addressed in the item.

6.5 Staff Implications

In the event that Council decides to rescind the previous resolution then the property will be used as offices for two different departments under the Infrastructure directorate, who can start using the premises immediately. There is no money on the budget of properties to deal with any renovations in this building nor are their capacity with the project manager capital projects under property management to handle the project. Should the request be approved the Infrastructure department will have to take full responsibility for the renovations, costs and future maintenance.

6.6 Previous / Relevant Council Resolutions

11TH COUNCIL [IN-COMMITTEE] MEETING: 2023-02-22: ITEM 22.1

RESOLVED (majority vote with 1 abstention)

(a) that Council confirms that the property **Portion of Farm 1653, La Motte** is not needed to provide minimum services as required in terms of the asset transfer regulations; and
(b) that Council in principal approves the disposal of the property by public auction to the highest bidder at the auction at a market related price with a reserve set price determined through a valuation;
(c) that the buyer be responsible for the payment of the costs for the transfer should council decide to dispose of the property;
(d) that the item be returned to council for a final decision after the auction is concluded;
(e) that the new buyer be requested to take occupation of the erven as soon as warranties have been provided, but not later than 30 days after the warranties was provided;
(f) that the Municipal Manager be authorised to conclude the sale agreement after the auction provided that the sale price is not lower than the reserve price; and
(g) that the risk be transferred to the buyer on taking occupation.

6.7 Risk Implications

The risks are addressed in the item.

6.8 Comments from Senior Management.

Comments was not requested yet.

FOR FURTHER DETAILS CONTACT:

NAME	**Yolande van den Berg**
POSITION	***Contract Management Property Management***
DIRECTORATE	***Corporate Services***
CONTACT NUMBERS	***021-8088073***
E-MAIL ADDRESS	***Yolande.vandenBerg@stellenbosch.gov.za***
REPORT DATE	***2024 – 02- 06***

ANNEXURE A

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Directorate: Infrastructure Services

DOCUMENT ROUTE FORM *Including "For noting" Reports*										
DOCUMENT TYPE										
ITEM		DEVIATION (EXCLUDING COUNCILLORS)		CONTRACT (EXCLUDING COUNCILLORS)		REPORT (COUNCILLORS INPUT)		SERVICE LEVEL AGREEMENT		TERMINATION AGREEMENT

FARM No. 1653, LA MOTTE (ALSO KNOWN AS "LA REFUGE"

REQUESTED SIGNATORY	SUPPORTED/ NOT SUPPORTED/ APPROVED	SIGNATURE/COMMENTS	DATE
SNR MANAGER: WASTE MANAGEMENT Clayton Hendricks	SUPPORTED		23/01/2024
DIRECTOR INFRASTRUCTURE SERVICES Preshane Chandaka	Supported		23/01/24
MUNICIPAL MANAGER Geraldine Mettler	Approved.		23/01/24

STELLENBOSCH MUNICIPALITY
24 JAN 2024

STELLENBOSCH

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MEMORANDUM

DIRECTORATE: INFRASTRUCTURE SERVICES

DIREKTORAAT: INFRASTRUKTUUR DIENSTE

To ▫ Aan	**: Municipal Manager**
Att ▫ Aandag	**: Geraldine Mettler**
From ▫ Van	**: Waste Management Clayton Hendricks**
Date ▫ Datum	**: 23 January 2024**
Re ▫ Insake	**: To express interest in using portion of Farm no. 1653, La Motte (also known as "La Refuge")**

Purpose

To express interest in using Farm No. 1653, La Motte, Franschhoek, as an Area Cleaning depot in Franschhoek.

Background

The Area Cleaning function was previously part of Directorate: Community Services and when the function moved to the Directorate: Infrastructure Services, no provision was made to accommodate staff. The Area Cleaning staff in Stellenbosch was accommodated at the refuse collection offices at Beltana Depot and the staff in Franschhoek was provided one office at the Park's depot in Reservoir Street, Franschhoek. The Area Cleaning: Franschhoek staff compliment has grown over the years with 7x permanent staff and fleet consisting of 4x trucks, 1x LDV and 1x digger loader. The current office also needs to support 140 EPWP workers that are employed in the Franschhoek, Dwars River and Klapmuts area.

Office space has overtime become a critical issue for staff and various alternatives have been explored. Capital funding has been requested however has been declined by the Chief Financial Officer because of available Municipal office space in Franschhoek. Farm No. 1653, La Motte is ideal for Area Cleaning because it has sufficient space to accommodate all staff, the fleet and EPWP workers.

Recommendation

Portion of Farm no. 1653, La Motte (also known as "La Refuge") be made available to Infrastructure Services to use as office space for Area Cleaning.

Supported/ ~~not supported~~

Shane Chandaka
Director: Infrastructure Services

Approved/ not approved

Geraldine Mettler
Municipal Manager

after discussion with mayor we can use for office accomodation as previous sale fell through it need be new item to be prepared. for this purpose please move it.

7.4	**FINANCIAL SERVICES: (PC: CLLR J FASSER)**

NONE

7.5	**HUMAN SETTLEMENTS: (PC: CLLR R DU TOIT)**

NONE

7.6	INFRASTRUCTURE SERVICES : (PC : CLLR P JOHNSON)

7.6.1	STATUS REPORT ON ALTERNATIVE ENERGY PROGRAMMES

Collaborator No:
IDP KPA Ref No: **Green & Sustainable Valley**
Meeting Date: **14 February 2024**

1. SUBJECT: STATUS REPORT ON ALTERNATIVE ENERGY PROGRAMMES

2. PURPOSE

To inform Council about the progress from the Municipality as well as Provincial initiatives regarding the loadshedding mitigation initiatives underway, in order to ultimately reduce the impact of electricity loadshedding in the Municipality.

3. DELEGATED AUTHORITY

Municipal Council.

4. EXECUTIVE SUMMARY

4.1 Eskom advised the Municipality to prepare an application to serve at their Loadshedding Committee, for the Municipality to be considered as curtailment customer. Upon receipt of the said application, Eskom then rejected the application. The matter has been escalated to Province for intervention with Eskom as well.

4.2 The Municipality has advertised a tender on 03rd February 2024, for the possible purchase of 20MW of electricity from an Independent Power Producer (IPP), which closes on 02nd March 2024.

4.3 The Supervisory Control and Data Acquisition (SCADA) project is continuing with implementation and the fitting of main substations with the additional equipment.

4.4 Municipal Court Building: Contractor is on site busy with the completion of the snag list for the retrofitting of solar installation.

4.5 The Generator tender has been concluded and orders for 5 generators have been placed for critical infrastructure locations and the LaMotte Fire Station with available funding.

4.6 The Department has developed further strategies and estimates have been developed with respect to the upgrades of the existing network which for example R80 million for the substation upgrade and R22 million per megawatt of battery storage, pending positive outcomes from the above items.

5. RECOMMENDATION

that Council notes the Alternative Energy Generation strategies identified by the AEG Committee and the progress with the Alternative Energy Generation projects initiated.

6. DISCUSSION / CONTENTS

6.1 Background

Under previous circumstances, the Constitution, did not allow Local Government to enter into the generation of electricity and the Electricity Regulation Act did not allow municipalities to purchase electricity from any company other than Eskom. Through the promulgation of Electricity Regulation Act Regulations, on 16 October 2020, this changed, and municipalities are now allowed to generate electricity and purchase electricity from other electricity providers other than Eskom.

6.2. Discussion

Progress to date on the various initiatives are as follows:

6.2.1 Outcome of Eskom Engagements

Various meetings and interactions have taken place with Eskom.

The following feedback has been received from Eskom so far:

- Application for load curtailment has not been granted by Eskom. Eskom has formally responded on 19 January 2024 indicating that the application cannot be considered since the Municipality's load curtailment application seems to be interpreted by Eskom as not in line with the NRS 048-9 principles. A follow up meeting with Eskom has been scheduled for 7 February 2024 for clarification. Purposes.

- As an immediate objective and for the proposed strategies to materialize, an agreement with Eskom on curtailment is still required. The Municipality is continuously engaging with Eskom to persuade Eskom to consider the Municipality as a load curtailment customer. A follow up meeting with Eskom is scheduled for 7 February 2024.

- As part of the long term loadshedding mitigation strategy, the municipality will be initiating self loadshedding but for this to take place it necessitates the installation of a Supervisory Control and Data Acquisition (SCADA) system and a fully operational control room.

- The objective is still to obtain approval from Eskom and sign an agreement as soon as possible. This strategy is dependent on the approval from Eskom. Without the approval from Eskom, the Municipality is at risk of not being able to implement any of the strategies to mitigate the impact of loadshedding.

- The matter has also been escalated to Province for intervention with Eskom as well and they are conducting high level engagements (on behalf of a few municipalities).

6.2.2 Loadshedding Mitigation Investigations Concluded to Date

Extensive analysis has been undertaken and the following conclusions were reached:

1. Various strategies were investigated at the Alternative Energy Steering Committee:

   - Installation of big renewable plants via Independent Power Producers (IPPs).

   - Mass roll-out of consumer Small Scale Embedded Generation (SSEG) Photovoltaic (PV) systems.

   - Energy switching by consumers.

   - Energy efficiency of municipal facilities including streetlights.

2. Various strategies that would qualify as load shedding mitigation were also investigated including the following:

   - Use of batteries to store electricity in order to provide the required load during load shedding. This has been found to be not financially viable.

   - Use of batteries plus a Solar (PV) station with batteries to curtail the required load to mitigate the impact of loadshedding were investigated and found to be not financially viable,

3. Extensive analysis has shown that it would be easier to mitigate the impact of load shedding by becoming a load curtailment consumer rather than being a self-load shedding consumer. The following strategies have been analysed, and found to be affordable and qualify for load curtailment:

3.1 Large consumer load curtailment strategies together with own generation facilities.

- To enable load curtailment, the Municipality will have to have to design and implement tariffs to encourage participation by large consumers.

3.2 Using the geyser remote control system.

- Extensive communication and engagement with the municipality's customers will be required as the implementation of this strategy will result in some instances to customers being without hot water for extended periods especially during peak hours.

6.2.3 **Proposed Load Curtailment Strategy**

Taking the above into consideration the following load shedding mitigation strategy is proposed:

6.2.3.1 Load curtailment

- Load Curtailment is usually for 8 hours from 14h00 to 18h00.

- The large load curtailment consumers will be used to reduce the load by 10% from 14h00 to 18h00 during the majority of load curtailment days.

6.2.3.2 The geyser control system

- The geyser control system will be used to curtail the load by 10% from 18h00 to 22h00.

  In cases where curtailment is required for more than 8 hours per day or for higher stages of load shedding, the following will apply:

6.2.4 The maximum amount of load curtailment / geyser control will be used to meet the requirements. This may incur additional costs to the municipality in order to compensate the customer for the extended period they would be without hot water.

6.2.5 When all possible curtailment has been applied and the requirements are still not met, the municipality will have to apply self loadshedding. To enable to self loadshedding the following is required:

- A SCADA remote control facility equipped network
- A proper operating system control room.
- A minimum staff complement of x4 System network operators with Administrative support

Due to the costs involved in above load curtailment strategies, it is also proposed to contract with an Independent Power Producer (IPP) with renewable power to supply 20 MW of power to the Stellenbosch Main substation. This will not assist with loadshedding mitigation but will reduce the Eskom bulk purchase expenditure and may thus reduce the total cost of load shedding mitigation strategies.

6.2.6 **Municipal Initiatives**

6.2.6.1 **Appoint Alternative Energy Independent Power Producers (IPP's)**

Three sites were identified by Stellenbosch Municipality with the view to establishing IPP's. The Municipality is continuing to facilitate a tender process to procure IPP's as follows:

- Erf RE/119 Idas Valley for possible Biomass.

- Erf 181/0 Stellenbosch (below reservoir) for possible photovoltaic site.

- Erf 279/0 Stellenbosch (Droëdyke site opposite landfill) for possible photovoltaic site.

As a result of extensive investigations that is still required to be conducted to ensure that the tender specifications adhere to the Municipality's needs and ensuring the responsiveness of bidders, this tender will be the second tender to be issued. The Municipality is continuously engaging with other Municipalities who are also following the same process to learn from their experiences.

The AEG Committee has therefore decided to expedite the RFQ for an IPP 20MW supply that would be absorbed into the network at the Stellenbosch Main substation.

6.2.6.2 **Implementation of Supervisory Control and Data Acquisition (SCADA)**

The completion of Phase 1 which is the remote **monitoring** of seven main substations is scheduled for completion by 30 June 2024. The total cost estimate for this phase R12 600 051.28 (VAT incl). To date 47% of this phase has been completed.

The total estimated cost to complete Phase 2 (implementation of remote **switching** at the 7 main substations) and Phase 3 (remote monitoring of the 11 kV substations is R35 916 310.15 (VAT incl). These phases are proposed for implementation in the 2024/25 financial year.

6.2.6.3 **Municipal Critical Buildings and Plants**

The investigation for the most suitable alternative energy for the key infrastructure (water- and wastewater plants) to ensure continued service delivery is underway.

The progress on the four municipal buildings identified for business continuity is;

Municipal Court – Contractor is on site busy with the completion of the snag list.

Fire Station – Procurement process for a service provider has been initiated

NPK Building – Investigation to the most feasible option is underway

Main Building – Detailed planning for the most suitable option is underway.

6.2.6.4 **Provincial Initiative to Establish a 50MW Solar Plant**

Provincial Government Western Cape (PGWC) has appointed a Project Manager and Transactional Advisory Consultancy Team to facilitate the 50 MW IPP project.

The following deliverables have been concluded

- Inception report has been completed by the Project Team.
- Feasibility Study now underway.
- The service level agreement between the Project Manager and the Municipality has been provided by PGWC and commented on by the Municipality.
- The Memorandum of Understanding between PGWC and Stellenbosch Municipality for the Energy Resilience programme has been signed.

6.2.7 Decisions taken by the AEG Committee on prioritized projects

- The Department to drive the process to get the geyser load control system fully operational and integrated into the control room.

- The Department to continue with the discussions with bulk consumers and develop details of the product to become load curtailment consumers.

- The Department to continue with finalization of the IPP RFQ and going out on tender for 20 MW IPP at Main substation and the signing of a (Power Purchase Agreement (PPA) to deliver power within 2 years after signing of the PPA.

- The Department undertakes the tariff study and get the cost of supply study and
- tariffs approved by NERSA.

- The Department to continue with investigations into the Small Scale Embedded Generation (SSEG) impact and possible strategies and option to use SSEG consumer batteries as load shedding mitigation.

- The Municipality continues participating in the Provincial 50 MW IPP project

- The Municipality continues participating in the Provincial Pool Buying project

- The Department facilitates projects for the upgrading of the substations to enable self loadshedding

- The Department conduct investigations on possible affordable network upgrades to absorb more than 20 MW into the network.

6.3 **Financial Implications**

This report has further financial implications to the municipality than what has been mentioned in this report, but the exact impact will only become known once all the investigations have been concluded.

6.4. **Legal Implications**

The recommendations in this report comply with Council's policies and all applicable legislation.

6.5. **Staff Implications**

It is foreseen that 4 staff members would be required operate the control room which is required to manage self loadshedding..

A minimum staff complement of x 4 System Network Operators with Administrative support for the Network systems control room.

Further to the above, specialized technical staff would be required to facilitate and implement the loadshedding initiatives. The department has identified vacancies that need to be funded and filled in order to enable the loadshedding initiatives.

6.6. **Previous / Relevant Council Resolutions**

"40TH COUNCIL MEETING: 2021-01-27: ITEM 11.5.1

RESOLVED (nem con)

(a) that Council approves the investigation into alternate methods of electricity generation and purchases;

(b) that Council approves the joint investigation to be done by University of Stellenbosch, Council for Scientific and Industrial Research (CSIR), and the Western Cape Government;

(c) that Council accepts the initiating of the following processes as may be required:

i. Municipal Systems Act, Section 78(1) processes

ii. Municipal Finance Management Act, Section 33 investigation processes

iii. Electricity Regulation Act, Section 13; and

(d) that Council considers the funding of such investigations and implementation of completed investigations within the determination of the 2021/22 budget process.

16TH COUNCIL MEETING: 2023-08-23: ITEM 11.6.3

NOTED

the progress of the Alternate Energy Generation initiatives and studies.

6.7. <u>Risk Implications</u>

- Eskom has not granted approval for load curtailment which would have had an immediate mitigating effect on loadshedding.
- To enable self loadshedding, a vast capital investment is required therefore self loadshedding cannot be considered by the Municipality as an immediate mitigating strategy.
- Should the identified resources (vacancies and equipped operational control room) not be funded, the strategies and initiatives cannot be realized.

6.8. <u>Comments from Senior Management</u>:

6.8.1 <u>Director: Community and Protection Services</u>

No comment received.

6.8.2 <u>Director: Corporate Services</u>

The financial implication for additional staff is not addressed and should be costed and given through for the next financial year cycle.

6.8.3 <u>Chief Financial Officer</u>

Note the report.

6.8.4 <u>Municipal Manager</u>

Note the report. I monitor the process very closely.

7.6.2	ELECTRICITY BULK CONTRIBUTION LEVY

Collaborator No: **762679**
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **14 February 2024**

1. SUBJECT: ELECTRICITY BULK CONTRIBUTION LEVY

2. PURPOSE

To inform Council on the progress of the review of the Electricity Bulk Infrastructure Contribution Levy calculation. The basis upon which development charges will be determined i.t.o. electricity will be as per NRS 069: Code of practice for the recovery of capital costs for distribution network assets.

3. DELEGATED AUTHORITY

The Municipality must adjust the unit cost for each municipal infrastructure service on an annual basis during the budget preparation process referred to in Section 21 of the Local Government: Municipal Finance Management Act 56 of 2003, to take account of inflationary impacts and must publish the adjusted unit costs within two months of approving the municipal budget. The Municipality will use the Contract Price Adjustment Factor as prescribed in the SAICE General Conditions of Contract for Construction Works (as amended) to determine the annual effect of inflation.

Where possible, unit costs for each municipal infrastructure service should be recalculated every five years to take into account the current and planned capacity for each municipal infrastructure service at the date of re-calculation, and any other relevant factors.

4. EXECUTIVE SUMMARY

A Development Charge (‘DC’) also known as Development Contribution Levy is a once-off capital charge to recover the actual cost of external infrastructure required to accommodate the additional impact of a new development on engineering services. A DC calculation is triggered by a land use change/ development application that will, if approved, intensify the municipal infrastructure demand. The threshold is the level up to which a new land use is deemed to have the same infrastructure impact as the existing permissible use and is determined based on a technical assessment.

5. RECOMMENDATIONS

(a) that the content of this report be noted; and

(b) that the current valid Electricity Development Charge (DC) also known as Development Contribution Levy be replaced by the updated Development Contribution Levy calculation 27/06/2023 dated detailed in **ANNEXURE A**, be noted and approved as stipulated by the legislation stipulated in point 6.4 below.

6. DISCUSSION / CONTENTS

6.1 Background

A Development Charge (DC) also known as Development Contribution Levy is a once-off capital charge to recover the actual cost of external infrastructure required to accommodate the additional impact of a new development on engineering services. A Development Charge (DC) calculation is triggered by a land use change/ development application that will, if approved, intensify the municipal infrastructure demand. The threshold is the level up to which a new land use is deemed to have the same infrastructure impact as the existing permissible use and is determined based on a technical assessment.

6.2 Discussion

Municipal Development Charges also known as Development Contribution Levy complement these sources of capital finance, by providing a direct charge to beneficiaries of existing and planned infrastructure installed to enable an intensification of land use. Development charges are thus an additional source of capital finance, which enhance the efficiency and volume of municipal capital financing through:

- ensuring that the beneficiaries of infrastructure pay a fair share of the
- costs of installing it, relative to other residents;
- releasing resources that a municipality would otherwise have
- dedicated to meeting these needs to be spent on other development
- priorities;
- and providing an additional revenue stream to support municipal borrowing programmes, where applicable.

A Development Charge (DC) also known as Development Contribution Levy is a once-off capital charge to recover the actual cost of external infrastructure required to accommodate the additional impact of a new development on engineering services. A Development Charge (DC) calculation is triggered by a land use change/ development application that will, if approved, intensify the municipal infrastructure demand. The threshold is the level up to which a new land use is deemed to have the same infrastructure impact as the existing permissible use and is determined based on a technical assessment.

Attention is invited to the provisions of the following legislation.

- The National Constitution.
- Local Government: Municipal Systems Act, 32 of 2000 – (‘MSA’).
- Stellenbosch Municipality: Zoning Scheme By-Law 2019 – (‘Zoning Scheme’).
- Municipal Fiscal Powers and Functions Act, 12 of 2007 – (‘Fiscal Powers Act’).
- The Spatial Planning and Land Use Planning Act, 16 of 2013; (SPLUMA)

- The Western Cape Land Use Planning Act, 2014, Act. 3 of 2014 (PN 99/2014 of 7 April 2014); (LUPA)

The basis upon which development charges will be determined i.t.o. electricity will be as per NRS 069: Code of practice for the recovery of capital costs for distribution network assets.

The Municipality must adjust the unit cost for each municipal infrastructure service on an annual basis during the budget preparation process referred to in Section 21 of the Local Government: Municipal Finance Management Act 56 of 2003, to take account of inflationary impacts and must publish the adjusted unit costs within two months of approving the municipal budget. The Municipality will use the Contract Price Adjustment Factor as prescribed in the SAICE General Conditions of Contract for Construction Works (as amended) to determine the annual effect of inflation.

Where possible, unit costs for each municipal infrastructure service should be recalculated every five years to take into account the current and planned capacity for each municipality.

6.3 Financial Implications

The budgeted amount is R350 000 which is the estimated cost for the Electricity Bulk Infrastructure Contribution Levy calculation study.

6.4 Legal Implications

The recommendations in this report comply with Council's policies and all applicable legislation.

Attention is invited to the provisions of the following legislation.

- The National Constitution.
- Local Government: Municipal Systems Act, 32 of 2000 – ('MSA').
- Stellenbosch Municipality: Zoning Scheme By-Law 2019 – ('Zoning Scheme').
- Municipal Fiscal Powers and Functions Act, 12 of 2007 – ('Fiscal Powers Act').
- The Spatial Planning and Land Use Planning Act, 16 of 2013; (SPLUMA)
- The Western Cape Land Use Planning Act, 2014, Act. 3 of 2014 (PN99/2014 of 7 April 2014); (LUPA)

6.5 Staff Implications

This report has no staff implications for Stellenbosch Municipality.

6.6 Previous / Relevant Council Resolutions:

There are none.

6.7 Risk Implications

This report has no risk implications for Stellenbosch Municipality.

6.8 Comments from Senior Management:

6.8.1 *Chief Financial Officer:*

To be included in the 2024/25 Budget

RECOMMENDATIONS FROM INFRASTRUCTURE COMMITTEE MEETING:2024-02-06: ITEM 5.1.2

(a) that the content of this report be noted; and

(b) that the current valid Electricity Development Charge (DC) also known as Development Contribution Levy be replaced by the updated Development Contribution Levy calculation 27/06/2023 dated detailed in **ANNEXURE A**, be noted and approved as stipulated by the legislation stipulated in point 6.4 below.

ANNEXURES

Annexure A: Electricity Bulk Infrastructure Contribution Levy calculation report.

FOR FURTHER DETAILS CONTACT:

NAME	***Shane Chandaka***
POSITION	***Director***
DIRECTORATE	***Infrastructure Services***
CONTACT NUMBERS	***021 808 8215***
E-MAIL ADDRESS	***shane.chandaka@stellenbosch.gov.za***
REPORT DATE	***2024 – 01 - 24***

ANNEXURE A

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Report

Electricity Bulk Infrastructure Contribution Levy calculation

Stellenbosch Municipality

Submission date: 2023/06/27

Document control record

Document prepared by:

Zutari (Pty) Ltd

Reg No 1977/003711/07

1 Century City Drive
Waterford Precinct
Century City
Cape Town

South Africa

PO Box 494
Cape Town
8000
Docex: DX 204

T +27 21 526 9400

E capetown@zutari.com

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Author signature		Approver signature	
Name	Jaysen Pillay	Name	A Zwiegers
Title	Electrical Technician	Title	Electrical Engineer

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Abbreviations

SBM	Stellenbosch Municipality
BICL	Bulk Infrastructure Contribution Levy
NRS	National Rationalization Specification
kVA	Kilo Volt Ampere
SLD	Single Line Diagram
PILC	Paper Insulated Lead Covered
OLTC	On Load Tap Changer
HV	High Voltage
MV	Medium Voltage
LV	Low Voltage
GIS	Geographical Information System
NMD	Notified Maximum Demand

1 Introduction

1.1 Terms of Reference

Zutari (Pty) Ltd was appointed by Stellenbosch Municipality (SBM) to provide Professional Electrical Engineering Services for SBM to update their Bulk Infrastructure Contribution Levy (BICL) for electricity in accordance with the National Rationalization Specification (NRS) 069: 2004.

1.2 Objective

The objective of this project is to calculate the Bulk Infrastructure Contribution Levy based on the electricity infrastructure information received from SBM. The BICL is calculated at the various voltage and voltage transformation levels referred to as network segments in Table 1.

2 Scope of Works

The following tasks are required to meet the objective of SBM:

(a) Kick-off meeting to establish requirements of SBM, stakeholders, information required and other agreed sources of information
(b) Liaison with agreed sources for SBM electricity network information and pricing
(c) Obtain equipment budget pricing from OEM
(d) Calculation of the kVA per network segment based on the NRS069:2004 standard
(e) Zutari's calculation review by SBM stakeholders
(f) Updating of the calculation based on the review in (d) above

The scope of work shall include relevant Statutory regulations, National Standards and Municipal By-Laws.

2.1 Deliverables

- Report detailing the calculation of the cost per kVA at the various network segments

2.2 Exclusions

The following exclusions are noted for reference

- Site visits to verify information provided by the Municipality
- Verification of information provided by SBM
- Land acquisition and servitude costs

3 Standards

The standard for electrical networks as accepted by the Council of Stellenbosch Municipality is the NRS 069:2004 Edition 1, Code of practice for the recovery of capital costs for distribution network assets.

The standard is generic to include all network configurations in South Africa and Table C1 on page 29 of the standard was identified as the fit for the Municipality and is shown in Table 4 below.

- The **network** is divided into **segments** to illustrate the various available voltage levels and capacity of connection.
- The table requires two sets of values for each network segment to calculate the contribution levy, namely capital replacement costs and standard capacity.
  - **Capital replacement costs** from recent tender documents is best suited for equipment rates as they will include costs for location and environment. These tenders will not cover the full range of equipment therefore other tenders and rates from suppliers is used.
  - The **standard capacity** is calculated based on the topology of the network and n-1 contingency is frequently evident in electrical networks.
- **Tariff Capital Allowance** to be provided by SBM. Refer to Annex C of NRS 069
- **Cumulative Contribution Due** to be provided by SBM. Refer to Annex C of NRS 069

Table 1 | Table C1 on Page 29 of NRS 069

Network Segment	Replacement Cost [R]	Standard Capacity [kVA]	Cost/kVA per segment [R]	Cumulative Contribution [R]	Cumulative Contribution Due [R]	Tariff Capital Allowance per segment [R]
N0 [EHV]						
N1 [EHV/HV]						
N2 [HV]						
N3 [HV/MV]						
N4 [MV]						
N5 [MV/LV]						
N6 [LV]						
TOTAL						

4 Information received

A SharePoint folder was created by Zutari where SBM shared documentation. The following relevant information received was used for the project:

- Single Line Diagrams
- Various Substation, Miniature Substations and Transformer lists
- Electrical Database 2017
- Map of Electrical network in pdf format
- SBM Customer Classification for Metering

There were discrepancies in the information provided between the various sources. The GIS information or shape files and Single Line Diagram were considered as the main source of information. These were used for high voltage and medium voltage equipment. There was incomplete or limited data for low voltage networks on the GIS database. The calculation is based entirely on the information provided by SBM.

Further information after our review on the 24 May 2023 was received on Monday 29 May 2023 and Friday 02 June 2023 namely:

- GIS network information in shape files
- Tender documents for Enkanini and La Terra

The matching of the old and new information especially the GIS was not possible therefore the GIS information for cables and lines were redone.

5 Methodology

The methodology based on NRS 069 is available in Appendix A.

6 Application of NRS069

A kick-off meeting was held at Stellenbosch Municipality Electricity Department boardroom on 23 January 2023 at 10h00. The minutes of the meeting are included in Appendix B. This was followed up with a Request for Information (RFI) from Zutari dated 14 February 2023 and further emails.

The Municipality electricity network information was made available by the 24 March 2023 after which Zutari was able to schedule and execute the calculation of the Bulk Contribution Levy.

The review of the BICL calculation was held on the 24 May 2023 at Stellenbosch Municipality Electricity Department boardroom. The GIS information used was rejected and the Municipality was to supply the latest update. Further discussion confirmed the standard capacity values.

An update meeting was held online on the 02 June 2023 at 2pm. The low voltage estimation was revised to a sampling and extrapolation methodology based on the Consumer types and quantities.

6.1 Assets captured from information received

The SLDs were used to create an excel spreadsheet database of HV and MV assets which was followed by MV cable and overhead line lengths from a GIS database which Zutari had produced on a previous project for SBM. This was later updated with GIS information made available by the SBM. The SLDs had marked notes showing changes and was not signed. The Municipality also provided excel spreadsheets of transformers which did not correspond to the SLD. The SLD was used as the primary source of information for transformers and switches and the updated GIS information was used for underground cables and overhead lines. Samples of LV infrastructure were used from Enkanini, Tennantville, Arbeidslus, Die Boord and Papegaai Industrial Park.

Table 2 | Information received from SBM and used in the study

Information source	Information used
Single Line Diagrams	Main source of information and all assets were captured into the database
Various Substation, Miniature Substations and Transformer lists	Used to check SLD info however there were discrepancies and the SLD was used as the main source of information
Electrical Database 2017	Used for 66kV assets and auxiliaries
Map of Electrical network in pdf format	This info was unusable and therefore did not assist in the study
GIS shape file	GIS shape files were provided after the review meeting which was used for cable and line types and quantities Sample areas were used to capture LV assets
SBM Customer Classification for Metering	The sample areas of LV assets were used by extrapolating to the quantities in the Metering spreadsheet.

The consumer connection cable and consumer connection meter are excluded from this exercise and shall be priced based on Consumer requirements' as per NRS069.

The sources of information as detailed above contains a risk for SBM and Zutari is not able to comment on the accuracy and completeness of the information received.

6.2 Network Segments

As described in the Methodology the relevant network segments to SBM are N2, N3, N4, N5 and N6.

Table 3 | Description of network segments

Network Segment	Description
N2	66kV cable network and equipment in six 66kV Substations
N3	66/11kV power transformers x15
N4	11kV cable and overhead line network, 11kV switchgear and ring main units
N5	11/0.4kV transformers
N6	400V cable and OHL networks and distribution kiosks

6.3 Capital Replacement Costs

Capital replacement costs to be based on current SBM tender pricing, budget quotes from OEMs and other relevant tender pricing.

The following additional costs as a percentage was added as agreed at the kick-off meeting

- Preliminary and General 5%
- Commissioning 2.5%
- Engineering Fees 10%

Miniature Substations comprise of N4, N5 and N6 assets and the replacement costs need to be split accordingly. The breakdown is as follows

- 11kV switch being N4,
- 11/0.4kV transformation being N5 and
- LV compartment being N6.

The information received from the OEM was used to for the following price breakdown.

Table 4 | Breakdown of miniature substation capital costs

Miniature Substation	N4 [R]	N5 [R]	N6 [R]	Amount [R]
315kVA	R282,000	R424,175	R139,825	R846,000
500kVA	R282,000	R506,425	R139,825	R928,250

The assets unit pricing is available in Appendix C.

6.4 Standard Capacity

6.4.1 Network Segment N2

The 66kV network as shown on the SLD is sketched in Figure 1 below including the cable capacity values (taken from the SLD).

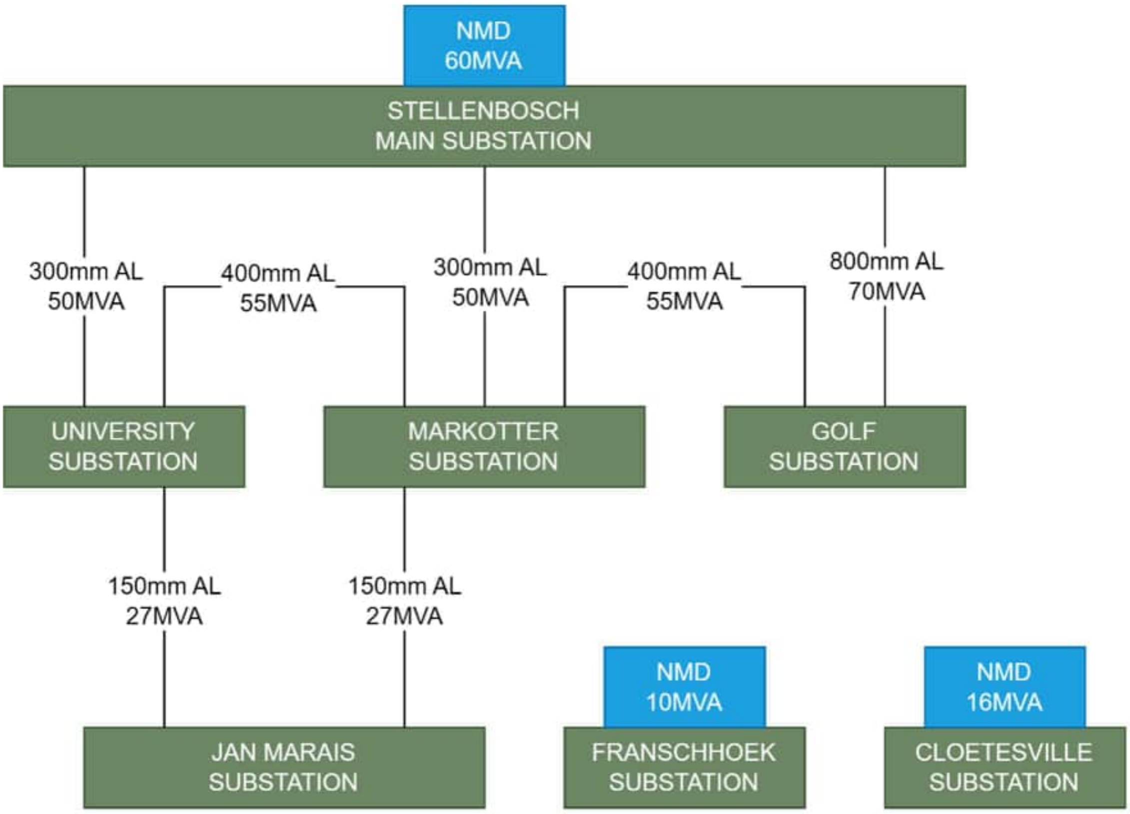


Figure 1 | Sketch of 66kV network

The following methodology may be used for the standard capacity determinations

(a) n-1 contingency
(b) highest cable capacity

(c) lowest cable capacity
(d) incomer cable capacity only
(e) Notified Maximum Demand (NMD)

It is recommended that a blended approach be used, apply n-1 contingency with lowest capacity incomer and NMD for all Eskom incomers.

Table 5 | Determination of network segment N2 capacities per substation

66/11kV Substation	Incoming feeders	Standard Capacity [kVA]
Main	• Eskom incomer - the NMD is used	60 000
Markotter	• 300mm^2 Al oil filled cable from Main Substation and • 400mm^2 Al XLPE cable from University Substation • 400mm^2 Al XLPE cable from Golf Substation • n-1 with lowest cable is the 300mm^2 Al oil filled cable	50 000
Jan Marais	• 150mm^2 Al oil filled cable from Markotter Substation and • 150mm^2 Al oil filled cable from University Substation • n-1 contingency 150mm^2 Al oil filled cable	27 000
University	• 300mm^2 Al oil filled cable from Main Substation and • 400mm^2 Al XLPE cable from Markotter Substation • n-1 with lowest cable is the 300mm^2 Al oil filled cable	50 000
Golf	• 800mm^2 Al XLPE cable from Main Substation and • 400mm^2 Al XLPE cable from Markotter Substation • n-1 with lowest cable will be 400mm^2 Al XLPE cable	55 000
Cloetesville	• Eskom incomer - the NMD is used	16 000
Franschoek	• Eskom incomer - the NMD is used	10 000

6.4.2 Network Segment N3

The capacity of the N3 network segment is determined by the installed transformers however as confirmed by the SBM, they have a n-1 contingency factor at every substation. Therefore the firm capacity values as shown in Table 6 below are used for Standard Capacity.

Table 6 | Determination of network segment N3 capacities per substation

66/11kV Substation	Installed 66/11 kV transformers [kVA]	Installed Capacity [kVA]	Standard Capacity [kVA]
Main	3 x 7 500	22 500	15 000
Markotter	3 x 7 500	22 500	15 000
Jan Marais	2 x 10 000	20 000	10 000
University	3 x 15 000	45 000	30 000
Golf	2 x 20 000	40 000	20 000
Cloetesville	2 x 20 000	40 000	20 000
Franschoek	2 x 20 000	40 000	20 000

6.4.3 Network segment N4

The N4 network segment for the SBM network is built on the installed capacity of the 66/11 kV transformers, where 11kV primary cables are used to provide contingency at secondary, 11kV switching stations fed directly from another 66/11kV Substation.

Table 7 | N4 network segment capacity methodology

66/11kV Substation	Installed 66/11 kV transformers	Standard Capacity [kVA]
Main	3 x 7.5 MVA	22 500
Markotter	3 x 7.5 MVA	22 500
Jan Marais	2 x 10 MVA	20 000
University	3 x 15 MVA	45 000
Cloetesville	2 x 20 MVA	40 000
Golf	2 x 20 MVA	40 000
Franschoek	2 x 20 MVA	20 000[a]

[a] As the Franschhoek network has no contingency on the 11kV network, the firm capacity will be used

6.4.4 Network Segment N5

Network segment N5 is determined by the sum capacity of all 11/0.4kV transformers on the network which includes miniature substations, pole and ground mounted transformers. This information was available on the SLD.

Table 8 | Network segment 5 installed 11/0.4kV transformer capacity

66/11kV Substation	Standard Capacity [kVA]
Main	19 150
Markotter	20 440
Jan Marais	25 730
University	25 665
Golf	28 521
Cloetesville	54 010
Franschoek	6 446
Dwarsrivier	11 160

6.4.5 Network segment N6

The low voltage network capacity is based on the N5 network segment due to incomplete information. Normally the capacity of the LV network is higher (due to diversity) than the transformer capacity if the transformer is utilised optimally.

Based on the N6 asset information available as explained in Section 6.5.5 the standard capacity for the N6 level is the sum of the N5 standard capacities for each Substation/ Area.

Table 9 | Network segment N6 standard capacity

66/11kV Substation	Standard Capacity [kVA]
Main	19 150
Markotter	20 440
Jan Marais	25 730
University	25 665
Golf	28 521
Cloetesville	54 010
Franschoek	6 446

66/11kV Substation	Standard Capacity [kVA]
Dwarsrivier	11 160
Standard Capacity for N6	191 122

6.5 Capital Replacement Costs

The Capital Replacement Costs were calculated based on available information from the Municipality. The data supplied was classified into assets and the asset was assigned to a network segment.

The following data sources were identified by SBM as a reflection of the network:

- GIS files from SBM labelled 2023 for Stellenbosch and Franschoek
- SLD from SBM
    - 66kV interconnection diagram
    - Main Substation
    - Markotter Substation
    - Jan Marais Substation
    - University Substation
    - Cloetesville Substation
    - Golf Substation
    - Franschoek Substation
- Stellenbosch Electrical Databasefinal2017.xls
- Pniel Master planning Single Line Diagram Existing Network
- Customer Data_14July202.xls

The various sources of information did not match however the differences were not substantial. The GIS was used as the base and additional information was added. Refer to Appendix D.

The current capital replacement values were calculated using the following resources:

- Budget prices from OEMs
    - Aberdare for MV and LV cables
    - ABB for MV Switchgear and Ring Main Units
    - SGM Smit for Miniature Substations and Distribution Transformers
    - Actom for Power Transformers
- Tender pricing from Stellenbosch Municipality and Zutari
    - Enkanini for informal housing
    - Msenge Wind Farm substation tender pricing for 66kV equipment

6.5.1 N2 Assets

The 66kV Interconnection SLD was used to determine the 66kV cable network assets and quantities were extracted from the GIS database. All incoming cable were assigned to the relevant 66kV Substation and linking cables divided between Substations. 66kV assets were found in the excel spreadsheet” Stellenbosch Electrical Databasefinal2017.xls”.

On the 66kV cable network incomer and linking cables were identified. The capital replacement cost of incoming cables was assigned to the Substation being fed and the linking cable which could be used to feed in either direction was split between the connected Substation e.g. the cost of the feeder from Main Substation to University Substation is assigned to University Substation. The link cable from University Substation to Markotter Substation is divided between the two Substations.

6.5.2 N3 Assets

The N3 assets are the 66/11kV Power Transformers found on the 66kV Interconnection SLD.

6.5.3 N4 Assets

These assets consist of 11kV cable network, ring main units and 11kV Switching Stations. The information for each Substation was found in the Substation SLDs and theses were updated using the GIS especially for cable and line assets where lengths were required.

6.5.4 N5 Assets

The N5 assets or 11/0.4kV transformation assets are the miniature substation (which are split in N4, N5 and N6 discussed above), ground and pole mount transformers. These assets were found on the GIS however their power or capacity was found on the SLDs. The discrepancies between these two sources must be addressed by the Municipality.

6.5.5 N6 Assets

Typically as in most Municipalities little or no information is available on LV assets. After much discussion with SBM the following methodology was used. It was agreed that the Bulk Contribution Levy for N6 could only be calculated for the entire SBM due to the absence of information.

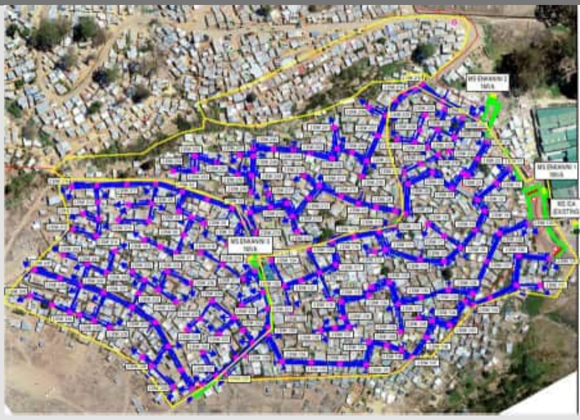
- ► The metering information was made available by SBM which provided the various consumer metering categories. It was agreed that each category was representative of a LV network.
- ► Example:
  - The Domestic **Lifeline 01 Informal Indigent** has 7 703 consumers (from metering info supplied by SBM) will is typically a LV overhead network.
  - Available network information for Informal housing was sourced form the recently completed Enkanini electrification project of 1300 consumers.
  - The available information for the 1300 consumers was agreed to be a fair representation for the 7703 consumers
  - The assets for the overhead line LV network were aerial bundle conductor and pole mounted kiosks.
  - The assets for 1300 consumers was extrapolated to represent the 7 703 consumers i.e. multipled by the ratio of $\frac{7703}{274}$

Table 10 | Extrapolation of N6 assets based on number of consumers for Domestic Lifeline 01 Informal Indigent

Asset	Unit	Qty for Sample 1300 consumers	Qty extrapolated to 7703 consumers
LV Pole Mounted Kiosk/6 Way	No.	274	1,624
LV ABC Conductor/70mm 3c + 54,6 +25 mm	M	4,050	23,998
LV Cable Network/120mm 4c Cu	m	481	2,850

- This methodology was repeated for:

Table 11 | N6 Assets using sampling and extrapolation method

Consumer Category and number of consumers	Sample area and number of consumers	Map
Domestic Lifeline 01 Informal Indigent (7,703 consumers)	Enkanini All LV assets from tender drawings and pricing (1300 consumers)	
Domestic Lifeline 01 Formal Indigent (5,183 consumers)	Tennantville All LV assets connected to Noble m/s 400kVA from GIS (173 consumers)	
Domestic Low (14,840 consumers)	Arbeidslus All LV assets connected to Assegaai m/s 200kVA and Pendoring m/s 315kVA from GIS (200 consumers)	

Consumer Category and number of consumers	Sample area and number of consumers	Map
Domestic Regular (2,082 consumers)	Die Boord All LV assets connected to Marina m/s and Culemborg m/s from GIS (141 consumers)	
Commercial Lifeline/Low (99 consumers)	Average of cable from miniature substations to consumers from GIS	Various isolated consumers
Commercial Regular 03 (1,165 3ph. consumers)	Papegaai Industrial Park Average of cable from miniature substations to consumers from GIS (15 consumers)	

Refer to Appendix E for the assets for the N6 sample areas. These assets were extrapolated and added to the asset database. Refer to Appendix D.

Table 12 below is a summary of the sample areas, the cost per kVA listed is not used in the final cost per kVA for the N6 network segment. For commercial consumers an average length of cable was calculated and therefore the sample is for a consumer, which is not shown in Table 12.

Table 12 | Summary of LV Samples

Consumer metering	Sample area	Feeder	Feeder capacity (kVA)	Number of Consumers	Calculated kVA per Consumer	Calculated Cost per kVA
Domestic Lifeline 01 Formal Indigent	Tennantville	Noble m/s	400	173	2.31	R6,267.23*
Domestic Lifeline 01 Informal Indigent	Enkanini	1 x 1 MVA Enkanini minisubs	3,000	1,300	2.31	R1,999.46
Domestic Low	Arbeidslus	Assegaai m/s	200 315	200	2.58	R4,952.58

Consumer metering	Sample area	Feeder	Feeder capacity (kVA)	Number of Consumers	Calculated kVA per Consumer	Calculated Cost per kVA
		Pendoring m/s				
Domestic Regular	Die Boord	12 minisubs	3,975	595	6.68	R4,064.20

*It is evident that the calculated contribution (R/kVA) for the Domestic Lifeline for Formal Indigent is not aligned however the calculated kVA per consumer is aligned with the Domestic Lifeline for Informal Indigent.

The assets of the sample areas in Table 12 above were extrapolated based on the total number of consumers i.e. number of consumers in the sample to total number of consumers in the metering data supplied by SBM. (the metering data includes all towns of SBM, Stellenbosch, Pniel and Franschoek)

Table 13 | Number of consumers for LV sample assets and total consumers for SBM

Consumer metering	Sample area	Number of Consumers in sample	Total Number of Consumers (SBM metering data)
Domestic Lifeline 01 Formal Indigent	Tennantville	173	5,183
Domestic Lifeline 01 Informal Indigent	Enkanini	1,300	7,703
Domestic Low	Arbeidslus	200	14,840
Domestic Regular	Die Boord	595	2,082
Commercial Lifeline and Low (1 phase)	Various	1	99
Commercial Regular (3 phase)	Papegaai Industrial Park	1	1,165

6.6 Assumptions

- All 66/11kV Power Transformers have an OLTC
- All N5 transformers are 11/0.4kV
- All information provided by SBM seen as a true record of the installed infrastructure.

6.7 Conclusion

The results for the kVA calculations are as follows

Table 14 | Bulk contribution levy calculated results per Substation

Town / Location	Network Segment	Description	Total Network Segment Cost	Standard Capacity [kVA]	Cost per kVA	Accumulated Cost per kVA
Main Substation	N2	66kV Network	R16,336,260	48,000	R340	R340
Main Substation	N3	66/11kV Transformation	R20,462,093	15,000	R1,364	R1,704
Main Substation	N4	11kV Network	R114,730,932	22,500	R5,099	R6,804
Main Substation	N5	11/0.4kV Transformation	R35,425,595	19,150	R1,850	R8,654
Markotter Substation	N2	66kV Network	R31,620,103	50,000	R632	R632
Markotter Substation	N3	66/11kV Transformation	R20,462,093	15,000	R1,364	R1,997
Markotter Substation	N4	11kV Network	R101,939,756	22,500	R4,531	R6,527
Markotter Substation	N5	11/0.4kV Transformation	R42,682,921	20,440	R2,088	R8,615
Jan Marais Substation	N2	66kV Network	R26,158,854	27,000	R969	R969
Jan Marais Substation	N3	66/11kV Transformation	R16,945,756	10,000	R1,695	R2,663
Jan Marais Substation	N4	11kV Network	R98,233,877	20,000	R4,912	R7,575
Jan Marais Substation	N5	11/0.4kV Transformation	R53,501,842	25,730	R2,079	R9,654
University Substation	N2	66kV Network	R30,605,183	50,000	R612	R612
University Substation	N3	66/11kV Transformation	R30,077,253	30,000	R1,003	R1,615
University Substation	N4	11kV Network	R199,055,843	45,000	R4,423	R6,038
University Substation	N5	11/0.4kV Transformation	R46,801,014	25,665	R1,824	R7,862
Cloetesville Substation	N2	66kV Network	R9,672,424	16,000	R605	R605
Cloetesville Substation	N3	66/11kV Transformation	R21,747,069	20,000	R1,087	R1,692
Cloetesville Substation	N4	11kV Network	R173,985,112	40,000	R4,350	R6,042
Cloetesville Substation	N5	11/0.4kV Transformation	R123,012,941	54,010	R2,278	R8,319

Town / Location	Network Segment	Description	Total Network Segment Cost	Standard Capacity [kVA]	Cost per kVA	Accumulated Cost per kVA
Golf Substation	N2	66kV Network	R59,437,740	55,000	R1,081	R1,081
Golf Substation	N3	66/11kV Transformation	R21,747,069	20,000	R1,087	R2,168
Golf Substation	N4	11kV Network	R119,325,914	40,000	R2,983	R5,151
Golf Substation	N5	11/0.4kV Transformation	R63,601,678	28,521	R2,230	R7,381
Franschoek	N2	66kV Network	R8,298,085	10,000	R830	R830
Franschoek	N3	66/11kV Transformation	R21,747,069	20,000	R1,087	R1,917
Franschoek	N4	11kV Network	R105,727,070	40,000	R2,643	R4,560
Franschoek	N5	11/0.4kV Transformation	R6,196,950	6,446	R961	R5,522
Dwarsrivier Substation	N4	11kV Network	R26,432,697	7,904	R3,344	R3,344
Dwarsrivier Substation	N5	11/0.4kV Transformation	R15,615,054	11,160	R1,399	R4,743
SBM	N6	400V Network	R533,888,408	191,122	R2,793	

Note:

The Suburb of Pniel is connected at the Dwarsrivier Substation and is supplied by via two 11kV feeders. Dwarsriver Substation is the property of Drakenstein Municipality.

6.8 Recommendations

The Bulk Contribution Levy calculation is an exercise undertaken by Zutari however it is entirely based on the information provided by Stellenbosch Municipality. It is recommended that Stellenbosch Municipality capture their network information such that future calculations can be more accurately and readily calculated.

Based on discussion on Standard Capacity with SBM it was agreed that the BICL is calculated per 66/11 kV Substation. The calculation for N6 was not done per 66/11 kV substation but rather for a specific area as agreed with SBM with a single "average" result.

For comparison, Table 15 shows the calculated kVA per Substation for each Network Segment and the total calculated kVA.

Table 15 | Calculated kVA per network segment for each Substation

Substation	N2	N3	N4	N5	N6	Total
Main	R340.34	R1,364.14	R5,099.15	R1,849.90	R2,793.44	R11,446.97
Markotter	R632.40	R1,364.14	R4,530.66	R2,088.21	R2,793.44	R11,408.85
Jan Marias	R968.85	R1,694.58	R4,911.69	R2,079.36	R2,793.44	R12,447.92
University	R612.10	R1,002.58	R4,423.46	R1,823.53	R2,793.44	R10,655.12
Cloetesville	R604.53	R1,087.35	R4,349.63	R2,277.60	R2,793.44	R11,112.55
Golf	R1,080.69	R1,087.35	R2,983.15	R2,229.99	R2,793.44	R10,174.63
Franschoek	R829.81	R1,087.35	R2,643.18	R961.36	R2,793.44	R8,315.15
Dwarsrivier			R3,344.22	R1,399.20	R2,793.44	R7,536.86

It is the prerogative of the SBM Council to evaluate the calculated Bulk Contribution Levy and find a suitable balanced Bulk Contribution Levy value that would encourage development and economic growth for the Municipality.

Appendix A - Methodology

The methodology for the update of the Bulk Infrastructure Contribution Levy for the Municipality will be based on NRS069 Table C1.

Table 16 | Table C1 on Page 29 of NRS 069

Network Segment	Replacement Cost [R]	Standard Capacity [kVA]	Cost/kVA per segment [R]	Cumulative Contribution [R]	Cumulative Contribution Due [R]	Tariff Capital Allowance per segment [R]
N0 [EHV]						
N1 [EHV/HV]						
N2 [HV]						
N3 [HV/MV]						
N4 [MV]						
N5 [MV/LV]						
N6 [LV]						
TOTAL						

The infrastructure assets of the electricity network are tabulated into excel format (hereafter referred to as "database") based on the information provided by the Municipality. The information must be substantial enough to represent the entire network of the Municipality. Thereafter we proceed with Table C1.

Table C1 of NRS069 is based on the following:

- Network Segment
- Replacement cost
- Standard capacity
- Cost per kVA
- Cumulative cost per kVA
- Cumulative contribution due (not part of the calculation)
- Tariff capital allowance per segment (not part of the calculation)

After considering the above factors and populating Table C1 of NRS069, the outcome will provide the Bulk Infrastructure Contribution Levy at the various network segments.

Network Segment

The standard divides the electricity network into segments based on the voltage level which is shown in Table 1 below.

Table 17 | Network Segments of Table C1 of NRS069

Network Segment	Description	Voltage Range	Applicable to SBM
N0			Typically Eskom
N1			Typically Eskom
N2	HV	>33kV to 132kV	66kV network
N3	HV/MV Transformation		66/11kV transformers
N4	MV	>1kV to 33kV	11kV network

N5	MV/LV Transformation		11/0.4kV transformers
N6	LV	<1kV	400V network

N0 labelled EHV is the transmission grid exclusively provided by Eskom in South Africa and is therefore not applicable to the Municipality.

N1 labelled EHV/HV is the transmission grid exclusively provided by Eskom in South Africa and is therefore not applicable to the Municipality.

N2 labelled HV is the 66kV network connecting the Primary Substation of the Municipality, this will include the 66kV Outdoor/Indoor Substation.

N3 labelled HV/MV is the 66/11kV transformers found in the 66/11kV Primary Substations.

N4 labelled MV is the 11kV network of the Municipality comprising all 11kV switchgear and cables. The 11kV switchgear in miniature substations are included here.

N5 labelled MV/LV is the 11/0.4kV transformers found in miniature substations and pole and ground mounted transformers.

N6 labelled LV is the 400V cables and distribution boards and kiosks. The consumer connection cable and meter are excluded as this is regarded as a service connection cost.

The next step is allocating each asset captured in the database to a network segment based on the criteria above. The miniature substation is divided into N4 - 11kV switchgear, N5 - 11/0.4kV transformer and N6 - 400V circuit breakers. This is further expanded in the Replacement Costs and Standard Capacity sections.

Replacement costs

The replacement cost for each asset is calculated based on material, labour and all costs deemed necessary for a functional asset. The following source for costing is acceptable:

(a) Municipality capital works tenders are the best source for costing as they include geographical and environmental factors, however this is a limited source based on availability.
(b) Municipality yearly tenders for equipment available at the Stores
(c) Budget prices from OEM suppliers where no other information is available. This includes assumptions based on technical expertise for labour and accessories.

The following additional cost relevant for Municipality projects to be added:

- Preliminary and General
- Commissioning
- Engineering (Consultant) Fees

The replacement cost for miniature substations shall be divided among the N4, N5 and N6 network segments in accordance with relevant assets and related costing.

Standard Capacity

The topology of the electricity network is investigated to determine the standard capacity of each segment. The Single Line Diagrams of the entire HV and MV network is needed to determine the standard capacity of each segment. The standard capacity for each network segment is discussed below. The N0 and N1 network segments are not applicable.

Network Segment N2

Each 66/11kV Primary Substation is supplied by one or more 66kV cable or overhead line. There following options are to be discussed with the Municipality to determine the optimal solution:

(a) The lowest capacity cable/ line is noted as the capacity of the N3 network segment.

(b) N-1 firm capacity of all incomers (cable/line) capacity

(c) The Notified Maximum Demand (NMD) where the incomer supplies various Substations

Network Segment N3

The capacity of the 66/11kV transformers for each Substation are summed to determine installed capacity. Most substations are built with n-1 contingency so the standard capacity is based on the firm capacity i.e. a 2 x 20MA Substation based on n-1 contingency will have a firm capacity of 20MVA. The Municipality shall indicate all substation contingencies.

Network Segment N4

The network capacity for segment N3, the 66/11kV transformation can be attributed to the network segment N3 as this is the allowable import capacity of the 11kV network.

Alternatively the 11kV network is designed with diversity and therefore the capacity is determined by the capacity of all feeders emanating from the 66/11kV Primary Substation's 11kV switchboard.

The method shall be confirmed by the Municipality.

Network Segment N5

The capacity of network segment N5 is the sum of all 11/0.4kV transformers installed on the 11kV network. This includes miniature substations and ground and pole mounted transformers.

Network Segment N6

The network capacity for segment N5, the 11/0.4kV transformation can be attributed to the network segment N6 as this is the allowable import capacity of the 11kV network. Further N6 network information is normally incomplete or unavailable for a complete evaluation.

Calculations

The calculation for cost per kVA is determined by the calculated total replacement cost of the network segment divided by the standard capacity of the network segment

Cumulative cost per kVA for a segment is the sum of costs of per kVA of all upstream segments necessary to supply the network segment.

Appendix B - Minutes of Meetings

B1 Kick-off Meeting

ZUTARI
IMPACT. ENGINEERED.

T +27 21 526 9400 **E** capetown@zutari.com

A 1 Century City Drive
Waterford Precinct
Century City
Cape Town
South Africa

P PO Box 494
Cape Town
8000
Docex: DX 204

zutari.com

Meeting record

Project number	1002525	Meeting date	2023-01-23
Project name	**SBM Electricity Development Contribution Levy**	Recorded by	**JP**
Meeting/subject	**Kick-off meeting**	Total pages	**6**

Present	Apology	Copy	Name	Organisation	Contact details
☑	☐	☐	Mark Benson [MB]	Stellenbosch Municipality	Mark.Benson@stellenbosch.gov.za
☑	☐	☐	Andries Zwiegers [AZ]	Zutari Pty Ltd	andries.zwiegers@zutari.com
☑	☐	☐	Jaysen Pillay [JP]	Zutari Pty Ltd	jaysen.pillay@zutari.com

Item	Topic	Action by
1	Welcome and introduction of Stakeholders	
	Mark Benson welcomed and greeted everyone	
2	Safety moment	
	My Safety Rules #2 Land Transport While operating a vehicle, I must: • Be fit for driving and free from impairments, including fatigue, drugs and alcohol, • Always wear a seat belt and not accepting transport in vehicles where one is not available, • Focus on the task of driving and avoid distractions - hands on the wheel, eyes on the road, • Drive to the weather and road conditions, including speed limits, and adjust behaviour accordingly, • Always have a journey management plan for non-routine journeys, and • Inspect the vehicle and verify it is fit for purpose. If you are a passenger, intervene if your driver is failing to comply with the above.	
3	Scope of works	
	The agreed scope of work was agreed by all present	

Item	Topic	Action by
3.1	The development contribution levy is to be calculated using NRS 069 for the relevant network segments. One value is required for the entire Municipality including Stellenbosch and Franschhoek networks.	ALL
3.2	Thereafter Zutari is to update the Electricity Development Contribution Policy	ALL
4	The methodology was presented by Jaysen Pillay and Andries Zwiegers and agreed by Mark Benson on behalf of Stellenbosch Municipality. The updated presentation is included as Annexure 1.	
5	The following information is to be provided by SBM. See Annexure 4	
5.1	SBM Electricity network single line diagrams	MB
5.2	Single Line Diagrams and Site Plans / General Arrangement of all Substations	MB
5.3	Master Plan	MB
5.4	Contingency for each network segment; refer to presentation	MB
5.5	Current Material and Labour pricing for all equipment; to be compared with supplier pricing	MB
5	MB requested that the Deliverables must be submitted before financial year-end i.e. 30 June 2023. The deliverables are:	
	a) Report detailing calculation of levy	Zutari
	b) Updated paragraphs of Electricity Development Contribution Policy	Zutari
6	Program – the program submitted for the proposal is still relevant and will be shifted to start as soon as the information from the Municipality has been received. Refer to Annexure 2	MB/ JP
7	Cashflow – refer to Annexure 3	Zutari
8	Closeout, the meeting was closed at 15h45	ALL

Next meeting: TBC

Annexure 1 Presentation

See attached

Annexure 2 Program

Week Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Stage 1																			
Stage 2																			
Stage 3																			
Stage 4																			
Stage 5																			
Stage 6																			
Stage 7																			
	Jan	**Feb**					**Mar**					**Apr**				**May**			
Weekending	**27**	**3**	**10**	**17**	**21**	**24**	**3**	**10**	**17**	**24**	**31**	**7**	**14**	**21**	**28**	**5**	**12**	**19**	**26**

	Work
	Waiting for feedback

Annexure 3 Cashflow

Task / Description	Feb 2023	Mar 2023	Apr 2023	May 2023
Stage 1: Planning, investigations and assessments; investigate current policy and provide NRS069 methodology	✓			
Stage 2A: Inception Workshop at municipality with relevant stakeholders	✓			
Stage 2B: Concept and Viability (Preliminary Design) Compile concept report	✓			
Stage 2C: Design Development (Detailed Design) Compile report and execute calculation		✓		
Stage 2D: Documentation and Procurement; Review by munic and update of document			✓	
Stage 2E: Contract administration and inspection				✓
Stage 2F: Closeout				✓
Total	R 95,322	R 110,217	R 29,788	R 59,577

Annexure 4 Information required

The following information is required for the calculation of the capital recoverable costs for Drakenstein Municipality. Information should ideally be in drawing format and preferably in electronic format.

Network Segment	Equipment	Information required
HV – 66kV network	Lines	Conductor type and configuration Structure details
	Cables	Type and configuration Trenching details typical section
HV/MV – 66/11kV	HV Substations	All civil, electrical and mechanical drawings for each of the six substations including protection, control and automation details.
MV – 11kV network	Switching Stations	Typical switching substation detailed layout of building, mv switchgear, metering, protection, control and automation.
	Cables and Lines	Single line diagram showing cable and/or line types and lengths
MV/LV – 11kV/400V		List of all miniature substations, ground and pole mounted transformers including capacity (kVA) rating.
LV – 400V		Typical layouts and SLD for a. Rural b. Urban c. Low cost housing

Appendix B - Minutes of Meetings

B2 Presentation of Levy Calculation

T +27 21 526 9400 **E** capetown@zutari.com

A 1 Century City Drive
Waterford Precinct
Century City
Cape Town
South Africa

P PO Box 494
Cape Town
8000
Docex: DX 204

zutari.com

Meeting record

Project number	1002525	Meeting date	2023-05-24
Project name	**SBM Bulk Contribution Levy**	Recorded by	**JPillay**
Meeting/subject	**Presentation of Levy Calculation**	Total pages	**3**

Present	Apology	Copy	Name	Organisation	Contact details
☑	☐	☑	Mark Benson	SBM	mark.benson@stellenbosch.gov.za
☑	☐	☑	Lourens de Lange	SBM	lourens.delange@stellenbosch.gov.za
☑	☐	☑	Victor Dyusha	SBM	victor.dyusha@stellenbosch.gov.za
☐	☑	☑	Nombulelo Zwane	SBM	nombulelo.zwane@stellenbosch.gov.za
☑	☐	☑	Andries Zwiegers	Zutari	andries.zwiegers@zutari.com
☑	☐	☑	Jaysen Pillay	Zutari	jaysen.pillay@zutari.com
☐	☐	☑	Bernine Kwago	SBM	bernine.kwago@stellenbosch.gov.za

Item	Topic	Action by
1	The meeting was opened by Mark Benson [MB] and Andries Zwiegers [AZ] at 8h30	
2	AZ confirmed that Zutari had calculated the bulk contribution levy based on information provided by SBM and would present the methods used which was in accordance with NRS069 and the final decision and or approval of the methodology was to ratified by SBM	
3	The exclusions listed in the report were raised by MB. He advised that SBM is busy with land acquisition and servitudes for a new Substation. JP questioned if SBM had data for the existing Substations which were more than 20 yrs old. MB to investigate and provide feedback	SBM [MB]
4	Jaysen Pillay [JP] presented the methodology and subsequent calculation of the Bulk Contribution Levy	
5	The objective for the meeting was the review of the calculation by SBM stakeholders	
	The calculation is based on NRS069 Table C1 on page 29	
	Column 1 The network is divided into segments	

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Item	Topic	Action by
	Column 2 Replacement costs of current assets was calculated	
	Column 3 The standard capacity of each network segment is determined	
	Column 4 Cost per kVA is calculated for each segment [Replacement Costs/Standard Capacity]	
	Column 5 Cumulative Contribution costs are calculated	

Network Segment	Replacement Cost [R]	Standard Capacity [kVA]	Cost/kVA per segment [R]	Cumulative Contribution [R]	Cumulative Contribution Due [R]	Tariff Capital Allowance per segment [R]
N0 [EHV]						
N1 [EHV/HV]						
N2 [HV]						
N3 [HV/MV]						
N4 [MV]						
N5 [MV/LV]						
N6 [LV]						
TOTAL						

Item	Topic	Action by
6	The network segments as described below was agreed by SBM	

Network Segment	Description
N2	66kV cable network and equipment in six 66kV Outdoor Substationsl
N3	66/11kV power transformers
N4	11kV network including cables, overhead line,, primary and secondary switchgear including ring main units.
N5	11/0.4kV transformers
N6	400V network including cables,distribution boards and distribution kiosks

Item	Topic	Action by
7	Replacement costs provided by Zutari must be updated using SBM tender pricing, to be provided by Lourens De Lange (LdL) and Victor Dyusha [VD]	SBM [LdL / VD] 26/05/2023
8	Standard Capacity	
8.1	**N2**, the methodology in principle was accepted however the NMD should be used for Eskom incomers • Main Substation (Stellenbosch) 60MVA • Cloetesville Substation 16MVA (application for 20MVA to be actioned) • Franschoek Substation 10MVA (application for 12MVA in process) Increase in NMD for BICLs calculation to be actioned when completed	

66/11kV Substation	Capacity [kVA]
Main	60 000[a]
Markotter	50 000
Jan Marais	27 000
University	50 000
Cloetesville	16 000[a]
Golf	55 000
Franschoek	10 000[a]

[a] The NMD provided by SBM shall be used as standard capacity

8.2

N3, the n-1 contingency was accepted; error on presentation Main Substation 3 x 7.5MVA => 15MVA firm capacity

66/11kV Substation	Installed 66/11 kV transformers [kVA]	Installed Capacity [kVA]	Firm Capacity (n-1) [kVA]
Main	3 x 7 500	22 500	15 000
Markotter	3 x 7 500	22 500	15 000
Jan Marais	2 x 10 000	20 000	10 000
University	3 x 15 000	45 000	30 000
Cloetesville	2 x 20 000	40 000	20 000
Golf	2 x 20 000	40 000	20 000
Franschoek	2 x 20 000	40 000	20 000

Item	Topic	Action by
8.3	**N4** was discussed in detail, • Zutari proposed sum capacity of all outgoing 11kV feeders from the primary substations (rejected) • Firm capacity (n-1) of N3 level was rejected • Installed capacity at N3 level was accepted	
8.4	**N5** sum of installed 11/0.4kV transformer capacity was agreed	
8.5	**N6** due to available information is also based on the installed 11/0.4kV transformer capacity was agreed	
9	The methodology used for low voltage cable network: • 8 x 1 Phase meters per LV kiosk • 100m cables between LV 1Phase kiosk with 4 kiosk per minisub circuit • 3 x 3 Phase meters per LV kiosk • 50m cables between LV 3Phase kiosk with 3 kiosk per minisub circuit MB to provide feedback on methodology	SBM [MB] 26/05/2023
10	Zutari [JP] discussed the information provided and used in the calculation of the replacement costs. SBM stakeholders agreed that the GIS information provided in pdf format must be made available in a geodatabase as the information used for the study did not include new developments. It was also agreed that the SLD will be checked and updated as required.	SBM [MB] 26/05/2023
11	SBM Bulk Contribution Levy to be calculated for discussion on online meeting	Zutari [JP] 29/05/2023

Next meeting: 2023-05-29

This minutes is noted as a true reflection of the decisions on methodology and outstanding information from SBM

For Stellenbosch Municipality (please sign)

Mark Benson --

Lourens De Lange --

Victor Dyusha --

Appendix C - Replacement costs unit pricing

								45,061.00	5%	3%	10%		Tracking	Tracking
Asset Code	Network No.	Description	Unit	Capacity (A)	Capacity (kVA)	Material	Labour	Subtotal	P&G	Commissioning	Eng Fees	TOTAL	Source	Comment
1	N2	66kV Network/150 mm² Al Oil	m	235	27,000	2,605.32	560.00	3,165.32	158.27	79.13	316.53	3,719.25	OEM	Aberdare
2	N2	66kV Network/350 mm² Al Oil	m	437	50,000	2,709.12	560.00	3,269.12	163.46	81.73	326.91	3,841.22	OEM	Aberdare
3	N2	66kV Network/350 mm² Al XLPE	m	437	50,000	2,709.12	560.00	3,269.12	163.46	81.73	326.91	3,841.22	OEM	Aberdare
4	N2	66kV Network/400 mm² Al XLPE	m	480	55,000	2,709.12	560.00	3,269.12	163.46	81.73	326.91	3,841.22	OEM	Aberdare
5	N2	66kV Network/800 mm² Al XLPE	m	700	70,000	3,461.10	560.00	4,021.10	201.06	100.53	402.11	4,724.79	OEM	Aberdare
6	N2	66kV Outdoor Substation/Building	m2			24,500.00		24,500.00	1,225.00	612.50	2,450.00	28,787.50	Tender	Zutari
7	N4	66kV Outdoor Substation/Battery tripping unit	No			600,000.00		600,000.00	30,000.00	15,000.00	60,000.00	705,000.00	Tender	Zutari
8	N2	66kV Outdoor Substation/Feeder	No			300,000.00		300,000.00	15,000.00	7,500.00	30,000.00	352,500.00	Tender	Zutari
9	N2	66kV Outdoor Substation/check meter	No			135,000.00		135,000.00	6,750.00	3,375.00	13,500.00	158,625.00	Tender	Zutari
10	N2	66kV Outdoor Substation/OLTC	No			250,000.00		250,000.00	12,500.00	6,250.00	25,000.00	293,750.00	Tender	Zutari
11	N2	66kV Outdoor Substation/Quality of Supply meters	No			125,000.00		125,000.00	6,250.00	3,125.00	12,500.00	146,875.00	Tender	Zutari
12	N2	66kV Outdoor Substation/Telemetry	No			1,250,000.00		1,250,000.00	62,500.00	31,250.00	125,000.00	1,468,750.00	Tender	Zutari
13	N2	66kV Outdoor Substation/Transformer	No			300,000.00		300,000.00	15,000.00	7,500.00	30,000.00	352,500.00	Tender	Zutari
14	N2	66kV Outdoor Substation/Transformer with OLTC	No			600,000.00		600,000.00	30,000.00	15,000.00	60,000.00	705,000.00	Tender	Zutari
15	N2	66kV Outdoor Substation/Earthmat	m2			359.00		359.00	17.95	8.98	35.90	421.83	Tender	Zutari
16	N2	66kV Outdoor Substation/Bulk Earthworks	m2			627.00		627.00	31.35	15.68	62.70	736.73	Tender	Zutari
17	N2	66kV Outdoor Substation/Fencing - perimeter	m			3,100.00		3,100.00	155.00	77.50	310.00	3,642.50	Tender	Zutari
18	N2	66kV Outdoor Substation/Fencing - internal	m			2,300.00		2,300.00	115.00	57.50	230.00	2,702.50	Tender	Zutari
19	N4	11kV Indoor Substation/Feeder	No			580,000.00		580,000.00	29,000.00	14,500.00	58,000.00	681,500.00	OEM	ABB
20	N2	66kV Outdoor Substation/Busbar	m			18,461.12		18,461.12	923.06	461.53	1,846.11	21,691.82	Tender	Zutari
21	N2	66kV Outdoor Substation/Circuit breaker	No			372,500.00		372,500.00	18,625.00	9,312.50	37,250.00	437,687.50	Tender	Zutari
22	N2	66kV Outdoor Substation/Clamps per bay	sum			100,000.00		100,000.00	5,000.00	2,500.00	10,000.00	117,500.00	Tender	Zutari
23	N2	66kV Outdoor Substation/Conductors	m			200.00		200.00	10.00	5.00	20.00	235.00	Tender	Zutari
24	N2	66kV Outdoor Substation/CT set of 3	No			327,500.00		327,500.00	16,375.00	8,187.50	32,750.00	384,812.50	Tender	Zutari
25	N2	66kV Outdoor Substation/Isolator	No			218,000.00		218,000.00	10,900.00	5,450.00	21,800.00	256,150.00	Tender	Zutari
26	N2	66kV Outdoor Substation/Surge Arrestors set of 3	No			127,600.00		127,600.00	6,380.00	3,190.00	12,760.00	149,930.00	Tender	Zutari
27	N2	66kV Outdoor Substation/VT set of 3	No			275,000.00		275,000.00	13,750.00	6,875.00	27,500.00	323,125.00	Tender	Zutari
28	N2	66kV Outdoor Substation/Yardstone	m2			113.00		113.00	5.65	2.83	11.30	132.78	Tender	Zutari
29	N3	66kV Outdoor Substation/20MVA	No		20,000	8,842,072.00	412,000.00	9,254,072.00	462,703.60	231,351.80	925,407.20	10,873,534.60	OEM	Actom
30	N3	66kV Outdoor Substation/15MVA	No		15,000	8,120,554.00	412,000.00	8,532,554.00	426,627.70	213,313.85	853,255.40	10,025,750.95	OEM	Actom
31	N3	66kV Outdoor Substation/10MVA	No		10,000	6,798,960.00	412,000.00	7,210,960.00	360,548.00	180,274.00	721,096.00	8,472,878.00	OEM	Actom
32	N3	66kV Outdoor Substation/7.5MVA	No		7,500.0	5,392,849.00	412,000.00	5,804,849.00	290,242.45	145,121.23	580,484.90	6,820,697.58	OEM	Actom
33	N4	11kV Indoor Substation/Bus Section	No			920,000.00		920,000.00	46,000.00	23,000.00	92,000.00	1,081,000.00	OEM	ABB
34	N4	11kV Indoor Substation/Incomer	No			600,000.00		600,000.00	30,000.00	15,000.00	60,000.00	705,000.00	OEM	ABB
35	N4	66kV Outdoor Substation/NER	No			800,000.00		800,000.00	40,000.00	20,000.00	80,000.00	940,000.00	Tender	Zutari
36	N4	11kV Cable Network/16mm 3C Cu	m			563.16	280.00	843.16	42.16	21.08	84.32	990.71	OEM	Aberdare
37	N4	11kV Cable Network/16mm 3C Cu PILC	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare
38	N4	11kV Cable Network/16mm 3C Cu XLPE	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare
39	N4	11kV Cable Network/25mm 3C Cu	m			563.16	280.00	843.16	42.16	21.08	84.32	990.71	OEM	Aberdare
40	N4	11kV Cable Network/25mm 3C Cu PILC	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare
41	N4	11kV Cable Network/25mm 3C Cu XLPE	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare
42	N4	11kV Cable Network/35mm 3C Cu	m			563.16	280.00	843.16	42.16	21.08	84.32	990.71	OEM	Aberdare
43	N4	11kV Cable Network/35mm 3C Cu PILC	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare

Asset Code	Network No.	Description	Unit	Capacity (A)	Capacity (kVA)	Material	Labour	Subtotal	P&G	Commissioning	Eng Fees	TOTAL	Source	Comment
44	N4	11kV Cable Network/35mm 3C Cu XLPE	m			293.00	64.90	357.90	17.90	8.95	35.79	420.53	OEM	Aberdare
45	N4	11kV Cable Network/50mm 3C Cu	m			850.63	280.00	1,130.63	56.53	28.27	113.06	1,328.49	OEM	Aberdare
46	N4	11kV Cable Network/50mm 3C Cu PILC	m			390.00	64.90	454.90	22.75	11.37	45.49	534.51	OEM	Aberdare
47	N4	11kV Cable Network/50mm 3C Cu XLPE	m			390.00	64.90	454.90	22.75	11.37	45.49	534.51	OEM	Aberdare
48	N4	11kV Cable Network/70mm 3C Cu	m			850.63	280.00	1,130.63	56.53	28.27	113.06	1,328.49	OEM	Aberdare
49	N4	11kV Cable Network/70mm 3C Cu PILC	m			1,575.00	280.00	1,855.00	92.75	46.38	185.50	2,179.63	OEM	Aberdare
50	N4	11kV Cable Network/70mm 3C Cu XLPE	m			1,575.00	280.00	1,855.00	92.75	46.38	185.50	2,179.63	OEM	Aberdare
51	N4	11kV Cable Network/95mm 3C Cu	m			1,046.36	280.00	1,326.36	66.32	33.16	132.64	1,558.47	OEM	Aberdare
52	N4	11kV Cable Network/95mm 3C Cu PILC	m			509.00	66.00	575.00	28.75	14.38	57.50	675.63	OEM	Aberdare
53	N4	11kV Cable Network/95mm 3C Cu XLPE	m			509.00	66.00	575.00	28.75	14.38	57.50	675.63	OEM	Aberdare
54	N4	11kV Cable Network/120mm 3C Cu	m			1,542.31	280.00	1,822.31	91.12	45.56	182.23	2,141.21	OEM	Aberdare
55	N4	11kV Cable Network/120mm 3C Cu PILC	m			737.00	68.20	805.20	40.26	20.13	80.52	946.11	OEM	Aberdare
56	N4	11kV Cable Network/120mm 3C Cu XLPE	m			737.00	68.20	805.20	40.26	20.13	80.52	946.11	OEM	Aberdare
57	N4	11kV Cable Network/185mm 3C Cu	m			1,785.84	280.00	2,065.84	103.29	51.65	206.58	2,427.36	Tender	CES04/2023 Paarl
58	N4	11kV Cable Network/185mm 3C Cu PILC	m			1,575.00	280.00	1,855.00	92.75	46.38	185.50	2,179.63	Tender	CES04/2023 Paarl
59	N4	11kV Cable Network/185mm 3C Cu XLPE	m			1,575.00	280.00	1,855.00	92.75	46.38	185.50	2,179.63	Tender	CES04/2023 Paarl
60	N4	11kV OHL Network/Gopher	m			12.00	300.00	312.00	15.60	7.80	31.20	366.60		
61	N4	11kV OHL Network/50mm 5C Al ABC	m			119.00		119.00	5.95	2.98	11.90	139.83	Drakenstein	
62	N4	11kV OHL Network/70mm 3C Al ABC	m			720.00		720.00	36.00	18.00	72.00	846.00	Drakenstein	
63	N4	11kV OHL Network/70mm 3C Al ABC	m			720.00		720.00	36.00	18.00	72.00	846.00	Drakenstein	
64	N4	11kV OHL Network/95mm 3C Al ABC	m			790.00		790.00	39.50	19.75	79.00	928.25	Drakenstein	
65	N4	11kV OHL Network/95mm 5C Al ABC	m			890.00		890.00	44.50	22.25	89.00	1,045.75	Drakenstein	
66	N4	11kV OHL Network/35mm 5C Al ABC	m			240.00		240.00	12.00	6.00	24.00	282.00	Drakenstein	
68	N4	11kV OHL Network/Hare	m			8.00	300.00	308.00	15.40	7.70	30.80	361.90		
69	N4	11kV OHL Network/Mink	m			12.00	300.00	312.00	15.60	7.80	31.20	366.60		
70	N4	11kV Indoor Substation/Building	m2			10,000.00	2,500.00	12,500.00	625.00	312.50	1,250.00	14,687.50	Tender	Zutari
71	N4	11kV Indoor Substation/Battery Tripping unit	No			75,000.00	5,000.00	80,000.00	4,000.00	2,000.00	8,000.00	94,000.00	Tender	Zutari
72	N4	11kV Cable Network/50mm 3C Al	m			396.57	280.00	676.57	33.83	16.91	67.66	794.97	OEM	Aberdare
73	N4	11kV OHL Network/Fox	m			8.00	300.00	308.00	15.40	7.70	30.80	361.90		
75	N4	11kV Auto Recloser/	No.			35,000.00	5,000.00	40,000.00	2,000.00	1,000.00	4,000.00	47,000.00	Jaysen	
76	N4	11kV Indoor Substation/Telemetry	No			50,000.00		50,000.00	2,500.00	1,250.00	5,000.00	58,750.00	Tender	Msenge WF
77	N4	11kV Ring Main Unit/1 Way	No			200,000.00	5,000.00	205,000.00	10,250.00	5,125.00	20,500.00	240,875.00	OEM	ABB
78	N4	11kV Ring Main Unit/2 Way	No			250,000.00	5,000.00	255,000.00	12,750.00	6,375.00	25,500.00	299,625.00	OEM	ABB
79	N4	11kV Ring Main Unit/3 Way	No			300,000.00	5,000.00	305,000.00	15,250.00	7,625.00	30,500.00	358,375.00	OEM	ABB
80	N4	11kV Ring Main Unit/4 Way	No			850,000.00	7,500.00	857,500.00	42,875.00	21,437.50	85,750.00	1,007,562.50	OEM	ABB
81	N4	11kV Ring Main Unit/5 Way	No			600,000.00	10,000.00	610,000.00	30,500.00	15,250.00	61,000.00	716,750.00	OEM	ABB
82	N5	11kV Miniature Substation/100kVA	No		100	398,515.00	35,000.00	433,515.00	21,675.75	10,837.88	43,351.50	509,380.13	OEM	SGB Smit
83	N5	11kV Miniature Substation/100kVA	No		100	638,515.00	35,000.00	673,515.00	33,675.75	16,837.88	67,351.50	791,380.13	OEM	SGB Smit
84	N5	11kV Miniature Substation/150kVA	No		150	385,250.00	35,000.00	420,250.00	21,012.50	10,506.25	42,025.00	493,793.75	OEM	SGB Smit
85	N5	11kV Miniature Substation/150kVA	No		150	625,250.00	35,000.00	660,250.00	33,012.50	16,506.25	66,025.00	775,793.75	OEM	SGB Smit
86	N5	11kV Miniature Substation/160kVA	No		160	591,140.00	35,000.00	626,140.00	31,307.00	15,653.50	62,614.00	735,714.50	OEM	SGB Smit
87	N5	11kV Miniature Substation/200kVA	No		200	317,030.00	35,000.00	352,030.00	17,601.50	8,800.75	35,203.00	413,635.25	OEM	SGB Smit
88	N5	11kV Miniature Substation/200kVA	No		200	557,030.00	35,000.00	592,030.00	29,601.50	14,800.75	59,203.00	695,635.25	OEM	SGB Smit
89	N5	11kV Miniature Substation/250kVA	No		250	511,550.00	35,000.00	546,550.00	27,327.50	13,663.75	54,655.00	642,196.25	OEM	SGB Smit

Asset Code	Network No.	Description	Unit	Capacity (A)	Capacity (kVA)	Material	Labour	Subtotal	P&G	Commissioning	Eng Fees	TOTAL	Source	Comment
90	N5	11kV Miniature Substation/300kVA	No		300	454,700.00	35,000.00	489,700.00	24,485.00	12,242.50	48,970.00	575,397.50	OEM	SGB Smit
91	N5	11kV Miniature Substation/315kVA	No		315	720,000.00	35,000.00	755,000.00	37,750.00	18,875.00	75,500.00	887,125.00	OEM	SGB Smit
92	N5	11kV Miniature Substation/315kVA	No		315	720,000.00	35,000.00	755,000.00	37,750.00	18,875.00	75,500.00	887,125.00	OEM	SGB Smit
93	N5	11kV Miniature Substation/400kVA	No		400	631,600.00	35,000.00	666,600.00	33,330.00	16,665.00	66,660.00	783,255.00	OEM	SGB Smit
94	N5	11kV Miniature Substation/400kVA	No		400	871,600.00	35,000.00	906,600.00	45,330.00	22,665.00	90,660.00	1,065,255.00	OEM	SGB Smit
95	N5	11kV Miniature Substation/500kVA	No		500	669,500.00	35,000.00	704,500.00	35,225.00	17,612.50	70,450.00	827,787.50	OEM	SGB Smit
96	N5	11kV Miniature Substation/500kVA	No		500	909,500.00	35,000.00	944,500.00	47,225.00	23,612.50	94,450.00	1,109,787.50	OEM	SGB Smit
97	N5	11kV Miniature Substation/630kVA	No		630	718,770.00	35,000.00	753,770.00	37,688.50	18,844.25	75,377.00	885,679.75	OEM	SGB Smit
98	N5	11kV Miniature Substation/630kVA	No		630	958,770.00	35,000.00	993,770.00	49,688.50	24,844.25	99,377.00	1,167,679.75	OEM	SGB Smit
99	N5	11kV Miniature Substation/800kVA	No		800	1,023,200.00	35,000.00	1,058,200.00	52,910.00	26,455.00	105,820.00	1,243,385.00	OEM	SGB Smit
100	N5	11kV Ground Mount Transformer/25kVA	No		25	40,000.00	2,000.00	42,000.00	2,100.00	1,050.00	4,200.00	49,350.00	OEM	SGB Smit
101	N5	11kV Ground Mount Transformer/50kVA	No		50	60,000.00	4,000.00	64,000.00	3,200.00	1,600.00	6,400.00	75,200.00	OEM	SGB Smit
102	N5	11kV Ground Mount Transformer/100kVA	No		100	66,500.00	5,000.00	71,500.00	3,575.00	1,787.50	7,150.00	84,012.50	OEM	SGB Smit
103	N5	11kV Ground Mount Transformer/1000kVA	No		1,000	533,000.00	12,500.00	545,500.00	27,275.00	13,637.50	54,550.00	640,962.50	OEM	SGB Smit
104	N5	11kV Ground Mount Transformer/150kVA	No		150	90,000.00	7,500.00	97,500.00	4,875.00	2,437.50	9,750.00	114,562.50	OEM	SGB Smit
105	N5	11kV Ground Mount Transformer/160kVA	No		160	90,000.00	8,000.00	98,000.00	4,900.00	2,450.00	9,800.00	115,150.00	OEM	SGB Smit
106	N5	11kV Ground Mount Transformer/200kVA	No		200	100,000.00	2,500.00	102,500.00	5,125.00	2,562.50	10,250.00	120,437.50	OEM	SGB Smit
107	N5	11kV Ground Mount Transformer/250kVA	No		250	125,000.00	3,125.00	128,125.00	6,406.25	3,203.13	12,812.50	150,546.88	OEM	SGB Smit
108	N5	11kV Ground Mount Transformer/300kVA	No		300	135,000.00	3,750.00	138,750.00	6,937.50	3,468.75	13,875.00	163,031.25	OEM	SGB Smit
109	N5	11kV Ground Mount Transformer/315kVA	No		315	135,000.00	3,937.50	138,937.50	6,946.88	3,473.44	13,893.75	163,251.56	OEM	SGB Smit
110	N5	11kV Ground Mount Transformer/400kVA	No		400	250,000.00	5,000.00	255,000.00	12,750.00	6,375.00	25,500.00	299,625.00	OEM	SGB Smit
111	N5	11kV Ground Mount Transformer/500kVA	No		500	266,500.00	6,250.00	272,750.00	13,637.50	6,818.75	27,275.00	320,481.25	OEM	SGB Smit
112	N5	11kV Ground Mount Transformer/600kVA	No		600	320,000.00	7,500.00	327,500.00	16,375.00	8,187.50	32,750.00	384,812.50	OEM	SGB Smit
113	N5	11kV Ground Mount Transformer/630kVA	No		630	335,790.00	7,875.00	343,665.00	17,183.25	8,591.63	34,366.50	403,806.38	OEM	SGB Smit
114	N5	11kV Ground Mount Transformer/750kVA	No		750	400,000.00	9,375.00	409,375.00	20,468.75	10,234.38	40,937.50	481,015.63	OEM	SGB Smit
115	N5	11kV Ground Mount Transformer/800kVA	No		800	426,400.00	10,000.00	436,400.00	21,820.00	10,910.00	43,640.00	512,770.00	OEM	SGB Smit
116	N5	11kV Pole Mount Transformer/10kVA	No		10	20,000.00	1,500.00	21,500.00	1,075.00	537.50	2,150.00	25,262.50		
117	N5	11kV Pole Mount Transformer/15kVA	No		15	30,000.00	1,500.00	31,500.00	1,575.00	787.50	3,150.00	37,012.50		
118	N5	11kV Pole Mount Transformer/16kVA	No		16	32,000.00	1,500.00	33,500.00	1,675.00	837.50	3,350.00	39,362.50		
119	N5	11kV Pole Mount Transformer/20kVA	No		20	35,000.00	2,000.00	37,000.00	1,850.00	925.00	3,700.00	43,475.00		
120	N5	11kV Pole Mount Transformer/25kVA	No		25	43,750.00	2,000.00	45,750.00	2,287.50	1,143.75	4,575.00	53,756.25		
121	N5	11kV Pole Mount Transformer/30kVA	No		30	45,000.00	2,000.00	47,000.00	2,350.00	1,175.00	4,700.00	55,225.00		
122	N5	11kV Pole Mount Transformer/50kVA	No		50	50,000.00	3,000.00	53,000.00	2,650.00	1,325.00	5,300.00	62,275.00		
123	N5	11kV Pole Mount Transformer/75kVA	No		75	60,000.00	3,000.00	63,000.00	3,150.00	1,575.00	6,300.00	74,025.00		
124	N5	11kV Pole Mount Transformer/100kVA	No		100	66,500.00	3,500.00	70,000.00	3,500.00	1,750.00	7,000.00	82,250.00		
125	N5	11kV Pole Mount Transformer/150kVA	No		150	90,000.00	3,500.00	93,500.00	4,675.00	2,337.50	9,350.00	109,862.50		
126	N5	11kV Pole Mount Transformer/160kVA	No		160	90,000.00	3,500.00	93,500.00	4,675.00	2,337.50	9,350.00	109,862.50		
127	N5	11kV Pole Mount Transformer/200kVA	No		200	100,000.00	4,000.00	104,000.00	5,200.00	2,600.00	10,400.00	122,200.00		
128	N5	11kV Pole Mount Transformer/315kVA	No		315	135,000.00	6,750.00	141,750.00	7,087.50	3,543.75	14,175.00	166,556.25		
129	N6	LV Cable Network/2.5mm 4c Cu	m			48.00	200.00	248.00	12.40	6.20	24.80	291.40	Tender	Zutari
130	N6	LV Cable Network/4mm 4c Cu	m			67.00	200.00	267.00	13.35	6.68	26.70	313.73	Tender	Zutari
131	N6	LV Cable Network/6mm 4c Cu	m			91.00	200.00	291.00	14.55	7.28	29.10	341.93	Tender	Zutari
132	N6	LV Cable Network/10mm 4c Cu	m			138.00	200.00	338.00	16.90	8.45	33.80	397.15	Tender	Zutari
133	N6	LV Cable Network/16mm 4c Cu	m			192.00	200.00	392.00	19.60	9.80	39.20	460.60	Tender	Zutari

Asset Code	Network No.	Description	Unit	Capacity (A)	Capacity (kVA)	Material	Labour	Subtotal	P&G	Commissioning	Eng Fees	TOTAL	Source	Comment
134	N6	LV Cable Network/25mm 4c Cu	m			298.00	200.00	498.00	24.90	12.45	49.80	585.15	Tender	Zutari
135	N6	LV Cable Network/35mm 4c Cu	m			399.00	200.00	599.00	29.95	14.98	59.90	703.83	Tender	Zutari
136	N6	LV Cable Network/50mm 4c Cu	m			515.00	200.00	715.00	35.75	17.88	71.50	840.13	Tender	Zutari
137	N6	LV Cable Network/70mm 4c Cu	m			717.00	200.00	917.00	45.85	22.93	91.70	1,077.48	Tender	Zutari
138	N6	LV Cable Network/95mm 4c Cu	m			1,070.00	200.00	1,270.00	63.50	31.75	127.00	1,492.25	Tender	Zutari
139	N6	LV Cable Network/120mm 4c Cu	m			1,327.00	200.00	1,527.00	76.35	38.18	152.70	1,794.23	Tender	Zutari
140	N6	LV Cable Network/150mm 4c Cu	m			1,614.00	200.00	1,814.00	90.70	45.35	181.40	2,131.45	Tender	Zutari
141	N6	LV Cable Network/185mm 4c Cu	m			2,044.00	200.00	2,244.00	112.20	56.10	224.40	2,636.70	Tender	Zutari
142	N6	LV Cable Network/240mm 4c Cu	m			2,774.00	200.00	2,974.00	148.70	74.35	297.40	3,494.45	Tender	Zutari
143	N6	LV Cable Network/300mm 4c Cu	m			3,855.00	200.00	4,055.00	202.75	101.38	405.50	4,764.63	Tender	Zutari
144	N5	66kV Outdoor Substation/630mm 1C Cu	m			1,850.00	280.00	2,130.00	106.50	53.25	213.00	2,502.75	OEM	Aberdare
145	N5	11kV Miniature Substation/1000kVA	No		1,000	1,099,000.00	35,000.00	1,134,000.00	56,700.00	28,350.00	113,400.00	1,332,450.00	OEM	SGB Smit
146	N5	11kV Miniature Substation/1600kVA	No		1,600	1,326,400.00	35,000.00	1,361,400.00	68,070.00	34,035.00	136,140.00	1,599,645.00	OEM	SGB Smit
147	N4	11kV Ring Main Unit with Metering/3 Way	No			600,000.00	5,000.00	605,000.00	30,250.00	15,125.00	60,500.00	710,875.00	OEM	ABB
148	N4	11kV Cable Network/150mm 3C Al	m			623.43	280.00	903.43	45.17	22.59	90.34	1,061.53	OEM	Aberdare
149	N4	11kV Cable Network/300mm 3C Al	m			1,246.86	280.00	1,526.86	76.34	38.17	152.69	1,794.06	OEM	Aberdare
150	N4	11kV Cable Network/2 x 150mm 3C Al	m			1,246.86	280.00	1,526.86	76.34	38.17	152.69	1,794.06	OEM	Aberdare
151	N6	400V Consumer Network/9 Way	No.			22,500.00	2,500.00	25,000.00	1,250.00	625.00	2,500.00	29,375.00	Tender	Zutari
152	N6	LV ABC Conductor/70mm 3c + 54,6 +25 mm	m			762.26		762.26	38.11	19.06	76.23	895.66	Enkanini Tender	SBM
153	N6	LV Pole Mounted Kiosk/6 Way	No.			5,503		5,503.45	275.17	137.59	550.35	6,466.55	Enkanini Tender	SBM
154	N6	LV Pole Mounted kiosk/1 Way	No.			5,503		5,503.45	275.17	137.59	550.35	6,466.55	Enkanini Tender	SBM

Appendix D – Assets database

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Franschoek	Franschoek	66kV Outdoor Substa	11kV Switching Static	11kV Feeder	No.	7					8	N2	0	66kV Outdoor Substa	352,500	2,467,500
Franschoek	Franschoek	66kV Outdoor Substa	66kV Earth Connector		No.	2					25	N2	0	66kV Outdoor Substa	256,150	512,300
Franschoek	Franschoek	66kV Outdoor Substa	66kV Outdoor Circuit	SF6	No.	2					21	N2	0	66kV Outdoor Substa	437,688	875,375
Franschoek	Franschoek	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	6					24	N2	0	66kV Outdoor Substa	384,813	2,308,875
Franschoek	Franschoek	66kV Outdoor Substa	66kV Outdoor Isolato	2500A	No.	5					25	N2	0	66kV Outdoor Substa	256,150	1,280,750
Franschoek	Franschoek	66kV Outdoor Substa	Control Panel	Transformer	No.	2					13	N2	0	66kV Outdoor Substa	352,500	705,000
Franschoek	Franschoek	66kV Outdoor Substa	Small Building		m^2	1					6	N2	0	66kV Outdoor Substa	28,788	28,788
Franschoek	Franschoek	66kV Outdoor Substa	Yardstone		m^2	900					28	N2	0	66kV Outdoor Substa	133	119,498
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	2					21	N2	0	66kV Outdoor Substa	437,688	875,375
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	2					24	N2	0	66kV Outdoor Substa	384,813	769,625
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	66kV Outdoor Isolator		No.	2					25	N2	0	66kV Outdoor Substa	256,150	512,300
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Civil works	Building	m2	180					6	N2	0	66kV Outdoor Substa	28,788	5,181,750
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Civil works	Fencing - perimeter	m	100					17	N2	0	66kV Outdoor Substa	3,643	364,250
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Civil works	Yardstone	m2	450					28	N2	0	66kV Outdoor Substa	133	59,749
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Control Panel	Incomer	No.	1					8	N2	0	66kV Outdoor Substa	352,500	352,500
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Control Panel	Transformer	No.	2					14	N2	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Ground Mount	500 kVA	No.	1			GM Kayamandi Switching Station		11	N2	0	66kV Outdoor Substa	146,875	146,875
Stellenbosch	Golf Substation	66kV Network	66kV Power Cable	400 mm² Al XLPE	m	1,141	Markotter Substation	Golf Substation			4	N2	55000	66kV Network/400 m	3,841	4,382,827
Stellenbosch	Golf Substation	66kV Network	66kV Power Cables	800 mm² Al XLPE	m	4,739	Main Substation	Golf Substation			5	N2	70000	66kV Network/800 m	4,725	22,390,792
Stellenbosch	Golf Substation	66kV Outdoor Substa	66kV Earth Switch		No.	15					25	N2	0	66kV Outdoor Substa	256,150	3,842,250
Stellenbosch	Golf Substation	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	3					21	N2	0	66kV Outdoor Substa	437,688	1,313,063
Stellenbosch	Golf Substation	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	2					24	N2	0	66kV Outdoor Substa	384,813	769,625
Stellenbosch	Golf Substation	66kV Outdoor Substa	66kV Outdoor Isolator		No.	10					25	N2	0	66kV Outdoor Substa	256,150	2,561,500
Stellenbosch	Golf Substation	66kV Outdoor Substa	Civil works	Building	m2	720					6	N2	0	66kV Outdoor Substa	28,788	20,727,000
Stellenbosch	Golf Substation	66kV Outdoor Substa	Civil works	Yardstone	m2	104					28	N2	0	66kV Outdoor Substa	133	13,809
Stellenbosch	Golf Substation	66kV Outdoor Substa	Control Panel	Bus Zone	No.	3					11	N2	0	66kV Outdoor Substa	146,875	440,625
Stellenbosch	Golf Substation	66kV Outdoor Substa	Control Panel	Feeder	No.	3					8	N2	0	66kV Outdoor Substa	352,500	1,057,500
Stellenbosch	Golf Substation	66kV Outdoor Substa	Control Panel	OLTC	No.	3					10	N2	0	66kV Outdoor Substa	293,750	881,250
Stellenbosch	Golf Substation	66kV Outdoor Substa	Control Panel	Transformer	No.	3					13	N2	0	66kV Outdoor Substa	352,500	1,057,500
Stellenbosch	Jan Marais Substatio	66kV Network	66kV Power Cable	150 mm² Al Oil	m	1,778	University Substation	Jan Marais Substation			1	N2	27000	66kV Network/150 m	3,719	6,612,828
Stellenbosch	Jan Marais Substatio	66kV Network	66kV Power Cable	150 mm² Al Oil	m	3,033	Markotter Substation	Jan Marais Substation			1	N2	27000	66kV Network/150 m	3,719	11,280,488
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	4					21	N2	0	66kV Outdoor Substa	437,688	1,750,750
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	6					24	N2	0	66kV Outdoor Substa	384,813	2,308,875
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	66kV Outdoor Isolator		No.	2					25	N2	0	66kV Outdoor Substa	256,150	512,300
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	Small Building		m2	90					6	N2	0	66kV Outdoor Substa	28,788	2,590,875
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	Small Building		m2	36					6	N2	0	66kV Outdoor Substa	28,788	1,036,350
Stellenbosch	Jan Marais Substatio	66kV Outdoor Substa	Yardstone		m2	500					28	N2	0	66kV Outdoor Substa	133	66,388
Stellenbosch	Main Substation	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	7					21	N2	0	66kV Outdoor Substa	437,688	3,063,813
Stellenbosch	Main Substation	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	7					24	N2	0	66kV Outdoor Substa	384,813	2,693,688
Stellenbosch	Main Substation	66kV Outdoor Substa	66kV Outdoor Isolator		No.	9					25	N2	0	66kV Outdoor Substa	256,150	2,305,350
Stellenbosch	Main Substation	66kV Outdoor Substa	66kV Outdoor Voltage Transformer		No.	2					27	N2	0	66kV Outdoor Substa	323,125	646,250
Stellenbosch	Main Substation	66kV Outdoor Substa	66kV Surge Arresters		No.	1					26	N2	0	66kV Outdoor Substa	149,930	149,930
Stellenbosch	Main Substation	66kV Outdoor Substa	Control Panel	66/11kV Transformer	No.	3					14	N2	0	66kV Outdoor Substa	705,000	2,115,000
Stellenbosch	Main Substation	66kV Outdoor Substa	Control Panel	66kV Incomer/ Feede	No.	5					8	N2	0	66kV Outdoor Substa	352,500	1,762,500
Stellenbosch	Main Substation	66kV Outdoor Substa	Control Panel	Metering	No.	1					9	N2	0	66kV Outdoor Substa	158,625	158,625
Stellenbosch	Main Substation	66kV Outdoor Substa	Small Building		m2	90					6	N2	0	66kV Outdoor Substa	28,788	2,590,875
Stellenbosch	Main Substation	66kV Outdoor Substa	Small Building		m2	24					6	N2	0	66kV Outdoor Substa	28,788	690,900
Stellenbosch	Main Substation	66kV Outdoor Substa	Yardstone		m2	1200					28	N2	0	66kV Outdoor Substa	133	159,330
Stellenbosch	Markotter Substation	66kV Network	66kV Power Cable	400 mm² Al XLPE	m	1,445	University Substation	Markotter Substation			4	N2	55000	66kV Network/400 m	3,841	5,550,557
Stellenbosch	Markotter Substation	66kV Network	66kV Power Cable	400 mm² Al XLPE	m	1,141	Markotter Substation	Golf Substation			4	N2	55000	66kV Network/400 m	3,841	4,382,827

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Markotter Substation	66kV Network	66kV Power Cables	350 mm² Al Oil	m	3,225	Main Substation	Markotter Substation			3	N2	50000	66kV Network/350 mı	3,841	12,387,922
Stellenbosch	Markotter Substation	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	5					21	N2	0	66kV Outdoor Substa	437,688	2,188,438
Stellenbosch	Markotter Substation	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	5					24	N2	0	66kV Outdoor Substa	384,813	1,924,063
Stellenbosch	Markotter Substation	66kV Outdoor Substa	66kV Outdoor Isolator		No.	6					25	N2	0	66kV Outdoor Substa	256,150	1,536,900
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Civil works	Fencing - perimeter	m	150					17	N2	0	66kV Outdoor Substa	3,643	546,375
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Civil works	Yardstone	m2	990					28	N2	0	66kV Outdoor Substa	133	131,447
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Control Panel	66/11kV Transformer	No.	3					13	N2	0	66kV Outdoor Substa	352,500	1,057,500
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Control Panel	66kV Incomer	No.	2					8	N2	0	66kV Outdoor Substa	352,500	705,000
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Switching Static	Small Building	m2	42					6	N2	0	66kV Outdoor Substa	28,788	1,209,075
Stellenbosch	University Substation	66kV Network	66kV Power Cable	400 mm² Al XLPE	m	1,445	University Substation	Markotter Substation			4	N2	55000	66kV Network/400 mı	3,841	5,550,557
Stellenbosch	University Substation	66kV Network	66kV Power Cables	350 mm² Al XLPE	m	4,455	Main Substation	University Substation			4	N2	55000	66kV Network/400 mı	3,841	17,112,617
Stellenbosch	University Substation	66kV Outdoor Substa	66kV Outdoor Circuit Breaker		No.	5					21	N2	0	66kV Outdoor Substa	437,688	2,188,438
Stellenbosch	University Substation	66kV Outdoor Substa	66kV Outdoor Current Transformer		No.	2					24	N2	0	66kV Outdoor Substa	384,813	769,625
Stellenbosch	University Substation	66kV Outdoor Substa	66kV Outdoor Isolator		No.	6					25	N2	0	66kV Outdoor Substa	256,150	1,536,900
Stellenbosch	University Substation	66kV Outdoor Substa	Civil works	Fencing - perimeter	m	160					17	N2	0	66kV Outdoor Substa	3,643	582,800
Stellenbosch	University Substation	66kV Outdoor Substa	Control Plant	Incomer	No.	2					8	N2	0	66kV Outdoor Substa	352,500	705,000
Stellenbosch	University Substation	66kV Outdoor Substa	Control Plant	Metering	No.	1					9	N2	0	66kV Outdoor Substa	158,625	158,625
Stellenbosch	University Substation	66kV Outdoor Substa	Control Plant	Transformer	No.	2					14	N2	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	University Substation	66kV Outdoor Substation		Small Building	m2	20					6	N2	0	66kV Outdoor Substa	28,788	575,750
Stellenbosch	University Substation	66kV Outdoor Substation		Yardstone	m2	112					28	N2	0	66kV Outdoor Substa	133	14,871
Franschoek	Franschoek	66kV Outdoor Substa	20 MVA Power Transformer		No.	2					29	N3	20000	66kV Outdoor Substa	10,873,535	21,747,069
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Power Transformer w	20 MVA	No.	2					29	N3	20000	66kV Outdoor Substa	10,873,535	21,747,069
Stellenbosch	Golf Substation	66kV Outdoor Substa	66/11kV Power Trans	20 MVA	No.	2					29	N3	20000	66kV Outdoor Substa	10,873,535	21,747,069
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Power Transformer w	10 MVA	No.	2				Loop-in Loop-out Uni	31	N3	10000	66kV Outdoor Substa	8,472,878	16,945,756
Stellenbosch	Main Substation	66kV Outdoor Substa	Power Transformer w	7.5 MA	No.	3					32	N3	7500	66kV Outdoor Substa	6,820,698	20,462,093
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Power Transformer w	7.5 MA	No.	3					32	N3	7500	66kV Outdoor Substa	6,820,698	20,462,093
Stellenbosch	University Substation	66kV Outdoor Substa	Power Transformer w	15 MVA	No.	3					30	N3	15000	66kV Outdoor Substa	10,025,751	30,077,253
Franschoek	Franschoek	66kV Outdoor Substa	11kV NER		No.	2					35	N4	0	66kV Outdoor Substa	940,000	1,880,000
Franschoek	Franschoek	66kV Outdoor Substa	11kV Switching Static	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Franschoek	Franschoek	66kV Outdoor Substa	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Franschoek	Franschoek	66kV Outdoor Substa	Battery Tripping Unit	110V	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	25mm 3C Cu	m	30			25CU TO GM15		39	N4	0	11kV Cable Network/2	991	29,721
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	458	Groendal Switching Station		70CU SS GROENDAL OL LTD		48	N4	0	11kV Cable Network/7	1,328	608,449
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	60	Groendal Switching Station		70CU TO MS55 CHAMONIX		48	N4	0	11kV Cable Network/7	1,328	79,709
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	951	Groendal Switching Station		70CU SS GROENDAL TO RMU HOOF STR		48	N4	0	11kV Cable Network/7	1,328	1,263,394
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	4451	Groendal Switching Station		70CU SS GROENDAL FEEDER MS LP		48	N4	0	11kV Cable Network/7	1,328	5,913,110
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	751	Groendal Switching Station		70CU RMU LA MONTAGE TO PM132		48	N4	0	11kV Cable Network/7	1,328	997,696
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	630	Groendal Switching Station		70CU RMU HAUMAN		48	N4	0	11kV Cable Network/7	1,328	836,949
Franschoek	Franschoek	Groendal Switching S	11kV Cable Network	70 mm 3C Cu	m	363	Groendal Switching Station		70CU TO GM13		48	N4	0	11kV Cable Network/7	1,328	482,242
Franschoek	Franschoek	Groendal Switching S	11kV OHL Network	Mink	m	8388	Groendal Switching Station		OHL SS GROENDAL FEEDER OL LTD		69	N4	0	11kV OHL Network/M	367	3,075,041
Franschoek	Franschoek	Groendal Switching S	11kV OHL Network	Mink	m	510	Groendal Switching Station		OHL RMU BAUMAN		69	N4	0	11kV OHL Network/M	367	186,966
Franschoek	Franschoek	Groendal Switching S	11kV Primary Cables	185 mm 3C Al	m	863	Franschoek Substatio	Groendal Switching Station			57	N4	0	11kV Cable Network/	2,427	2,094,813
Franschoek	Franschoek	Groendal Switching S	11kV Primary Cables	185 mm 3C Al	m	863	Franschoek Substatio	Groendal Switching Station			57	N4	0	11kV Cable Network/	2,427	2,094,813
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Dassenberg RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Hugo RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			La Terra de Luc RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			J.C. RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Mount Rochelle SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Langrug Reservoir RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Keerom RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Les Chance RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Haumann SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Dennegeur RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			La Montage RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Ring Main Unit	3 Way	No.	1			Harmony SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Groendal Switching S	11kV Switching Statio	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Franschoek	Franschoek	Groendal Switching S	11kV Switching Statio	11kV Feeders	No.	6					19	N4	0	11kV Indoor Substatio	681,500	4,089,000
Franschoek	Franschoek	Groendal Switching S	11kV Switching Statio	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatio	705,000	1,410,000
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	16mm 3C Cu	m	39			16CU TO GM16		36	N4	0	11kV Cable Network/	991	38,638
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	16mm 3C Cu	m	152			16CU TO MS60 LA VIE		36	N4	0	11kV Cable Network/	991	150,588
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	16mm 3C Cu	m	380			16CU TO GM06/7		36	N4	0	11kV Cable Network/	991	376,471
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	25mm 3C Cu	m	149			25CU TO GM17		39	N4	0	11kV Cable Network/2	991	147,616
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	25mm 3C Cu	m	143			25CU TO MS38 LA ROCHELLE		39	N4	0	11kV Cable Network/2	991	141,672
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	534	Hugenote Switching Station		70CU RMU JC/LES-CH		48	N4	0	11kV Cable Network/7	1,328	709,414
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	1489	Hugenote Switching Station		70CU SS HUGENOTE FEEDER KR		48	N4	0	11kV Cable Network/7	1,328	1,978,122
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	1863	Hugenote Switching Station		70CU SS HUGENOTE FEEDER NGK		48	N4	0	11kV Cable Network/7	1,328	2,474,977
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	852	Hugenote Switching Station		70CU SS HUGENOTE FEEDER FAB		48	N4	0	11kV Cable Network/7	1,328	1,131,874
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	1879	Hugenote Switching Station		70CU SS HUGENOTE FEEDER LB		48	N4	0	11kV Cable Network/7	1,328	2,496,233
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	70mm 3C Cu	m	3447	Hugenote Switching Station		70CU SS HUGENOTE FEEDER UITK		48	N4	0	11kV Cable Network/7	1,328	4,579,306
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	95mm 3C Cu	m	1282	Hugenote Switching Station		95CU SS HUGENOTE FEEDER ABSA		51	N4	0	11kV Cable Network/9	1,558	1,997,962
Franschoek	Franschoek	Hugenote Switching S	11kV Cable Network	95mm 3C Cu	m	706	Hugenote Switching Station		95CU SS HUGENOTE FEEDER WK		51	N4	0	11kV Cable Network/9	1,558	1,100,282
Franschoek	Franschoek	Hugenote Switching S	11kV Primary Cables	70mm 3C Cu	m	1969	Hugenote Switching Station		70CU RMU MONUMENT TO SS MONUMENT		48	N4	0	11kV Cable Network/7	1,328	2,615,797
Franschoek	Franschoek	Hugenote Switching S	11kV Primary Cables	185 mm 3C Al	m	5236	Franschoek Substatio	Hugenote Switching Station			57	N4	0	11kV Cable Network/	2,427	12,709,667
Franschoek	Franschoek	Hugenote Switching S	11kV Primary Cables	185 mm 3C Al	m	5236	Franschoek Substatio	Hugenote Switching Station			57	N4	0	11kV Cable Network/	2,427	12,709,667
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			La Vie RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Monument RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Hampton Square RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Pakstoor SafeRing (Metering)		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Skool RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Skool SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Wyn Kelder RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Bagatelle RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Workshop RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Ring Main Unit	3 Way	No.	1			Parklane SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Hugenote Switching S	11kV Switching Statio	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Franschoek	Franschoek	Hugenote Switching S	11kV Switching Statio	11kV Feeders	No.	8					19	N4	0	11kV Indoor Substatio	681,500	5,452,000
Franschoek	Franschoek	Hugenote Switching S	11kV Switching Statio	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatio	705,000	1,410,000
Franschoek	Franschoek	Monument Switching	11kV Cable Network	70mm 3C Cu	m	572	Monument Switching Station		70CU SS MONUMENT FEEDER OL LTD		48	N4	0	11kV Cable Network/7	1,328	759,896
Franschoek	Franschoek	Monument Switching	11kV Cable Network	70mm 3C Cu	m	711	Monument Switching Station		70CU TO RMU BAGATELLE		48	N4	0	11kV Cable Network/7	1,328	944,557
Franschoek	Franschoek	Monument Switching	11kV Cable Network	70mm 3C Cu	m	10	Monument Switching Station		70CU TO MS52 CLOS CABRIER		48	N4	0	11kV Cable Network/7	1,328	13,285
Franschoek	Franschoek	Monument Switching	11kV Cable Network	70mm 3C Cu	m	13	Monument Switching Station		70CU TO MS56 DASSENBERG		48	N4	0	11kV Cable Network/7	1,328	17,270
Franschoek	Franschoek	Monument Switching	11kV OHL Network	Mink	m	6008	Hugenote Switching Station		OHL RMU DASSENBERG/MONUMENT		69	N4	0	11kV OHL Network/M	367	2,202,533
Franschoek	Franschoek	Monument Switching	11kV OHL Network	Mink	m	2415	Hugenote Switching Station		OHL PM201 TO RMU DASSENBERG		69	N4	0	11kV OHL Network/M	367	885,339
Franschoek	Franschoek	Monument Switching	11kV OHL Network	Mink	m	2419	Monument Switching Station		OHL SS MONUMENT OL LTD		69	N4	0	11kV OHL Network/M	367	886,805
Franschoek	Franschoek	Monument Switching	11kV Primary Cables	95mm 3C Cu	m	1799	Monument Switching	Hugenote Switching S	95CU SS HUGENOTE FEEDER SS MON		51	N4	0	11kV Cable Network/9	1,558	2,803,693
Franschoek	Franschoek	Monument Switching	11kV Ring Main Unit	3 Way	No.	1			La Avenue RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Monument Switching	11kV Ring Main Unit	3 Way	No.	1			Waterval SafeRing		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Franschoek	Franschoek	Monument Switching	11kV Switching Statio	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Franschoek	Franschoek	Monument Switching	11kV Switching Statio	11kV Feeders	No.	5					19	N4	0	11kV Indoor Substatio	681,500	3,407,500
Franschoek	Franschoek	Monument Switching	11kV Switching Statio	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatio	705,000	1,410,000

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Franschoek	Franschoek	Monument Switching	11kV Switching Static	Battery Tripping Unit	No.	1					71	N4	0	11kV Indoor Substatic	94,000	94,000
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	11kV NER		No.	2					35	N4	0	66kV Outdoor Substa	940,000	1,880,000
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Battery tripping unit	110Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Primary Cable	185 mm 3C Cu	m	318	Cascade Switching St	SDR Kliniek Switching Station			57	N4	0	11kV Cable Network/	2,427	771,901
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Ring Main Unit	2 Way	No.	1			Rem / Bird		78	N4	0	11kV Ring Main Unit/2	299,625	299,625
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Ring Main Unit	3 Way	No.	1			SDRDepot RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Switching Static	Feeder	No.	5					35	N4	0	66kV Outdoor Substa	940,000	4,700,000
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Ring Main Unit	3 Way	No.	1			Mount Simon Estate RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Ring Main Unit	4 Way	No.	1			Rhode RMU		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Switching Static	Feeder	No.	15					19	N4	0	11kV Indoor Substatic	681,500	10,222,500
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Switching Static	Incomer	No.	2			SBV4		34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	Costa Switching Stati	11kV Ring Main Unit	3 Way	No.	1			Watergang RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Costa Switching Stati	11kV Switching Static	Feeder	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	Cloetesville Substatio	Curry Switching Static	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Curry Switching Static	11kV Switching Static	Feeder	No.	9					19	N4	0	11kV Indoor Substatic	681,500	6,133,500
Stellenbosch	Cloetesville Substatio	Curry Switching Static	11kV Switching Static	Incomer	No.	3					34	N4	0	11kV Indoor Substatic	705,000	2,115,000
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Ring Main Unit	3 Way	No.	1			Sabosela RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Switching Static	Feeder	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Switching Static	Feeder	No.	5					19	N4	0	11kV Indoor Substatic	681,500	3,407,500
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	LandStrSuid Switchin	11kV Switching Static	Feeder	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Indoor Substatic	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ring Main Unit	3 Way	No.	1			Maritech RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ring Main Unit	3 Way	No.	1			Simonsberg Cheese MU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ring Main Unit	3 Way	No.	1			Vrugtepakkers RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Switching Static	Feeder	No.	8					19	N4	0	11kV Indoor Substatic	681,500	5,452,000
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Primary Cable	185 mm 3C Cu	m	652	SDR Kliniek Switching	Hofman Switching Station			57	N4	0	11kV Cable Network/	2,427	1,582,640
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Ring Main Unit	3 Way	No.	1			Naveau RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Switching Static	Feeder	No.	3					19	N4	0	11kV Indoor Substatic	681,500	2,044,500
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Primary Cable	185 mm 3C Cu	m	792	Tennant Switching Sta	Cascade Switching Station			57	N4	0	11kV Cable Network/	2,427	1,922,471
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Primary Cable	35 mm 3C Cu	m	1030	Tennant Switching Sta	Nietvoorby RMU			42	N4	0	11kV Cable Network/3	991	1,020,434
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Ring Main Unit	3 Way	No.	1			Nietvoorby RMU	JS	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Ring Main Unit	4 Way	No.	1			DuToit RMU		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Switching Static	Bus Section	No.	1				GIS	33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Switching Static	Feeder	No.	6				GIS	19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Cloetesville Substatio	Tennant Switching Sta	11kV Switching Static	Incomer	No.	3				GIS	34	N4	0	11kV Indoor Substatic	705,000	2,115,000
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Switching Static	Feeder	No.	9					19	N4	0	11kV Indoor Substatic	681,500	6,133,500
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Switching Static	Feeder	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Cloetesville Substation		11kV Cable Network	120mm 3C Al	m	811	0	0	Orlean Lang/Williams 11 kV feeder	390	55	N4	0	11kV Cable Network/	946	767,295

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1266	0	0	Tennant Curry No 2 11 kV feeder	260	57	N4	0	11kV Cable Network/	2,427	3,073,040
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1267	0	0	Tennant Curry No 1 11 kV feeder	261	57	N4	0	11kV Cable Network/	2,427	3,075,468
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1135	0	0	Cloetesville Welgevonden fdr 2	270	57	N4	0	11kV Cable Network/	2,427	2,755,056
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1152	0	0	Cloetesville Welgevonden Fdr1	548	57	N4	0	11kV Cable Network/	2,427	2,796,321
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1261	0	0	Tennant Curry No 3 11 kV feeder	555	57	N4	0	11kV Cable Network/	2,427	3,060,903
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1227			Curry-Kayamandi 11kV Cable Feeder 1	597	57	N4	0	11kV Cable Network/	2,427	2,978,373
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	995			Curry-Kayamandi 11kV Cable Feeder 2	598	57	N4	0	11kV Cable Network/	2,427	2,415,225
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	1261			Curry-Kayamandi 11kV Cable Feeder 2	606	57	N4	0	11kV Cable Network/	2,427	3,060,903
Stellenbosch	Cloetesville Substation		11kV Cable Network	185mm 3C Cu	m	2404			Cloet-Watergang 11kVfeeder	730	57	N4	0	11kV Cable Network/	2,427	5,835,378
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	270	0	0	Kayamandi Bassi 4 11 kV feeder	14	42	N4	0	11kV Cable Network/	991	267,493
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	695	0	0	Kayamandi Monde Crescent 11 kV feeder	15	42	N4	0	11kV Cable Network/	991	688,546
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	301	0	0	Curry Crombi 11 kV feeder	108	42	N4	0	11kV Cable Network/	991	298,205
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	178	0	0	Mdala 2 Mdala End 12 11 kV feeder	187	42	N4	0	11kV Cable Network/	991	176,347
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	126	0	0	School Crescent 9 10th Street 8 11 kV feeder	188	42	N4	0	11kV Cable Network/	991	124,830
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	178	0	0	10 th Street 8 Vineyard 7 11 kV feeder	189	42	N4	0	11kV Cable Network/	991	176,347
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	152	0	0	Long 6 Bassie/Long 14 11 kV feeder	190	42	N4	0	11kV Cable Network/	991	150,588
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	81	0	0	Makapula 3 Monde Crescent 11 11 kV feeder	192	42	N4	0	11kV Cable Network/	991	80,248
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	276	0	0	Bassi 4 Masitandane 1 11 kV feeder	193	42	N4	0	11kV Cable Network/	991	273,437
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	202	0	0	Lappan Alley 11 kV feeder	195	42	N4	0	11kV Cable Network/	991	200,124
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	121	0	0	Noble Lappan 11 kV feeder	196	42	N4	0	11kV Cable Network/	991	119,876
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	366	0	0	Langstraat Suid Lakay 1 11 kV feeder	197	42	N4	0	11kV Cable Network/	991	362,601
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	674	0	0	Langstraat Suid Lakay 2 11 kV feeder	198	42	N4	0	11kV Cable Network/	991	667,741
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	318	0	0	Lakay 2 Lakay 1 11 kV feeder	199	42	N4	0	11kV Cable Network/	991	315,047
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	91	0	0	Dawidse Cupido 11 kV feeder	202	42	N4	0	11kV Cable Network/	991	90,155
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	259	0	0	Oliphant Cupido 11 kV feeder	203	42	N4	0	11kV Cable Network/	991	256,595
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	308	0	0	Crombi Oliphant 11 kV feeder	204	42	N4	0	11kV Cable Network/	991	305,140
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	304	0	0	Luyolo 10 Makapula 3 11 kV feeder	219	42	N4	0	11kV Cable Network/	991	301,177
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	938	0	0	Kayamandi 6th Avenue 5 11 kV feeder	220	42	N4	0	11kV Cable Network/	991	929,289
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	214	0	0	Anthony Dawidse 11 kV feeder	241	42	N4	0	11kV Cable Network/	991	212,013
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	187	0	0	Hani Mdala feeder	255	42	N4	0	11kV Cable Network/	991	185,263
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	118	0	0	DW Kayamandi Corridor 11 kV feeder	273	42	N4	0	11kV Cable Network/	991	116,904
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	140			Mdala 2 Corridor 11kV Feeder	274	42	N4	0	11kV Cable Network/	991	138,700
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	111	0	0	Curry Anthony 11 kV feeder	282	42	N4	0	11kV Cable Network/	991	109,969
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	278	0	0	Tennant Noble 11 kV feeder	314	42	N4	0	11kV Cable Network/	991	275,418
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	543	0	0	Masitandane 1 Kayamandi 15 11 kV feeder	372	42	N4	0	11kV Cable Network/	991	537,957
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	167	0	0	Kayamandi 16 Luyolo 10 11 kV feeder	373	42	N4	0	11kV Cable Network/	991	165,449
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	299	0	0	Langstraat Suid Langstraat Woonstelle 11 kV feed	388	42	N4	0	11kV Cable Network/	991	296,223
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	313	0	0	Bassi/Long 14 7th Avenue 13 11 kV feeder	394	42	N4	0	11kV Cable Network/	991	310,093
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	317	0	0	7th Avenue 13 6th Avenue 5 11 kV feeder	395	42	N4	0	11kV Cable Network/	991	314,056
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	105	0	0	13 th Street 17 to School 9	404	42	N4	0	11kV Cable Network/	991	104,025
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	113	0	0	Tennant to Lappan 2	409	42	N4	0	11kV Cable Network/	991	111,951
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	98	0	0	Lappan 2 to Tennant	410	42	N4	0	11kV Cable Network/	991	97,090
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	238	0	0	Costa to Kayamandi 16	434	42	N4	0	11kV Cable Network/	991	235,790
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	407	0	0	Vineyard to Snakevalley	453	42	N4	0	11kV Cable Network/	991	403,220
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	316	0	0	Snake Valley to 6 Long	454	42	N4	0	11kV Cable Network/	991	313,065
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	190			Hani Kayamandi 11kV Feeder	467	42	N4	0	11kV Cable Network/	991	188,235
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	268	0	0	Tennant Daghospitaal 11 kV feeder	558	42	N4	0	11kV Cable Network/	991	265,511
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	347	0	0	KM Sport to 13 th Street 17	563	42	N4	0	11kV Cable Network/	991	343,777
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	207			Water tower (vodacom) Gabriels	581	42	N4	0	11kV Cable Network/	991	205,078
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	292			SnakeValley -School 11kV feedrer	582	42	N4	0	11kV Cable Network/	991	289,288

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	35			Costa to Kayamandi M/S15	605	42	N4	0	11kV Cable Network/	991	34,675
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	49				645	42	N4	0	11kV Cable Network/	991	48,545
Stellenbosch	Cloetesville Substation		11kV Cable Network	35mm 3C Cu	m	16			Masitandane 1 Kayamandi 15 11 kV feeder	655	42	N4	0	11kV Cable Network/	991	15,851
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	681	0	0	Last Te Huis 11 kV feeder	182	49	N4	0	11kV Cable Network/	2,180	1,484,325
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	612	0	0	Langstraat Suid North End 11 kV feeder	200	49	N4	0	11kV Cable Network/	2,180	1,333,931
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	175	0	0	Tehuis Ortell 11 kV feeder	207	49	N4	0	11kV Cable Network/	2,180	381,434
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	501	0	0	Gabriels Rhode 11 kV feeder	208	49	N4	0	11kV Cable Network/	2,180	1,091,992
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	342	0	0	Stellita Park Gabriels 11 kV feeder	280	49	N4	0	11kV Cable Network/	2,180	745,432
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	282	0	0	Rhode Ortell 11 kV feeder	281	49	N4	0	11kV Cable Network/	2,180	614,654
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	157	0	0	North End Fir 11 kV feeder	283	49	N4	0	11kV Cable Network/	2,180	342,201
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	308	0	0	Lang/Williams Fir 11 kV feeder	389	49	N4	0	11kV Cable Network/	2,180	671,325
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	232	0	0	New Cloetesville Stasie Fdr	428	49	N4	0	11kV Cable Network/	2,180	505,673
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	429	0	0	Cloetesville Seger	433	49	N4	0	11kV Cable Network/	2,180	935,059
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	854	0	0	Stasie Last 11 kV feeder	480	49	N4	0	11kV Cable Network/	2,180	1,861,400
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Al	m	351	0	0	Seger Stellita Park 11 kV feeder	483	49	N4	0	11kV Cable Network/	2,180	765,048
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	571	0	0	Kayamandi Du Toit 11 kV feeder	16	48	N4	0	11kV Cable Network/	1,328	758,568
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	241	0	0	DW Small Holding Mount Silver feeder	166	48	N4	0	11kV Cable Network/	1,328	320,166
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	349	0	0	Holly Oaks Chestnut 11 kV feeder	205	48	N4	0	11kV Cable Network/	1,328	463,643
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	322	0	0	Melkhout Waaierpalm 11 kV feeder	206	48	N4	0	11kV Cable Network/	1,328	427,774
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	232	0	0	Waaierpalm Essenhout 11 kV feeder	209	48	N4	0	11kV Cable Network/	1,328	308,210
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	219	0	0	Essenhout Bergsipres 11 kV feeder	212	48	N4	0	11kV Cable Network/	1,328	290,939
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	601	0	0	Tennant Kayamandi 11 kV feeder	221	48	N4	0	11kV Cable Network/	1,328	798,423
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	303	0	0	Bergsipres Waterboom 11 kV feeder	240	48	N4	0	11kV Cable Network/	1,328	402,533
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	498	0	0	Protea (A3) Sour Fig (A2A) 11kF feeder	256	48	N4	0	11kV Cable Network/	1,328	661,588
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	429	0	0	Rankels (A2) Sour Fig (A2A) ms	257	48	N4	0	11kV Cable Network/	1,328	569,922
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	205	0	0	Katbos (A1) Rankels (A2) ms	264	48	N4	0	11kV Cable Network/	1,328	272,341
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	441	0	0	Katbos (A1) Welgevonden m/s	265	48	N4	0	11kV Cable Network/	1,328	585,864
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	185			Cherry Wood Smal Holding 11kV Feeder	275	48	N4	0	11kV Cable Network/	1,328	245,771
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	326	0	0	Waterboom to Mountain Silver	413	48	N4	0	11kV Cable Network/	1,328	433,088
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	720	0	0	Cloetesville Holly Oak 11kV feeder	431	48	N4	0	11kV Cable Network/	1,328	956,513
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	405	0	0	Cloetesville Melkhout fdr	432	48	N4	0	11kV Cable Network/	1,328	538,039
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	196	0	0	Boulevard Gate feeder	462	48	N4	0	11kV Cable Network/	1,328	260,384
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	67	0	0	Welgevonden S/S to C9 M/S	463	48	N4	0	11kV Cable Network/	1,328	89,009
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	875	0	0	Curry Costa cable 1	500	48	N4	0	11kV Cable Network/	1,328	1,162,429
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	1217	0	0	Curry Costa cable 2	501	48	N4	0	11kV Cable Network/	1,328	1,616,773
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	155	0	0	Welgevonden C1 cable	522	48	N4	0	11kV Cable Network/	1,328	205,916
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	176	0	0	Welgewvonden Perdevy (A4) 11kV feeder	546	48	N4	0	11kV Cable Network/	1,328	233,814
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	122	0	0	Protea (A4) Boulevard (A3) 11kV feeder	547	48	N4	0	11kV Cable Network/	1,328	162,076
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	94	0	0	Gate Entrance 70 Cu cable	549	48	N4	0	11kV Cable Network/	1,328	124,878
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	233	0	0	MS C4 to M/S C7 cable 70 Cu	550	48	N4	0	11kV Cable Network/	1,328	309,538
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	156	0	0	C4 Hendriks Feeder	551	48	N4	0	11kV Cable Network/	1,328	207,244
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	679	0	0	Hendrikz Bella Donna C3 Ring	552	48	N4	0	11kV Cable Network/	1,328	902,045
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	280	0	0	Bella Donna Olive m/s	553	48	N4	0	11kV Cable Network/	1,328	371,977
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	133	0	0	Olive Sonnedou 70 Cu cable	554	48	N4	0	11kV Cable Network/	1,328	176,689
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	168	0	0	Cherrywood Chestnut 11kV feeder	561	48	N4	0	11kV Cable Network/	1,328	223,186
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	927			Costa RMU to Watergang SS 11kV feeder	577	48	N4	0	11kV Cable Network/	1,328	1,231,510
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	222			Watergang SS to MS 3	578	48	N4	0	11kV Cable Network/	1,328	294,925
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	692			Mount Simon_Cloetesville	588	48	N4	0	11kV Cable Network/	1,328	919,315
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	217			WaterGang_Emergency	592	48	N4	0	11kV Cable Network/	1,328	288,282
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	778			Nuutgevonden 11kV Feeder	604	48	N4	0	11kV Cable Network/	1,328	1,033,565

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	61				618	48	N4	0	11kV Cable Network/	1,328	81,038
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	142			DW Small Holding Mount Silver feeder	620	48	N4	0	11kV Cable Network/	1,328	188,646
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	142			Cherry Wood Smal Holding 11kV Feeder	621	48	N4	0	11kV Cable Network/	1,328	188,646
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	215			WaterSS-MS1 11kV Feeder	642	48	N4	0	11kV Cable Network/	1,328	285,625
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	23				643	48	N4	0	11kV Cable Network/	1,328	30,555
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	22				644	48	N4	0	11kV Cable Network/	1,328	29,227
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	199			Emergincy SS-MS3 11kV Feeder	664	48	N4	0	11kV Cable Network/	1,328	264,370
Stellenbosch	Cloetesville Substation		11kV Cable Network	70mm 3C Cu	m	313			Emergincy SS-MS2 Watergang 3 11kV Feeder	665	48	N4	0	11kV Cable Network/	1,328	415,817
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	121	0	0	Skool Cloetesville Sentraal 11 kV feeder	201	51	N4	0	11kV Cable Network/	1,558	188,575
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	701	0	0	Tennant Skool 11 kV feeder	259	51	N4	0	11kV Cable Network/	1,558	1,092,490
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	766	0	0	Tennant Langstraat Suid 11 kV feeder	262	51	N4	0	11kV Cable Network/	1,558	1,193,790
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	1064	0	0	Cloetesville Curry 1 fdr	429	51	N4	0	11kV Cable Network/	1,558	1,658,215
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	1048	0	0	Cloetescille Curry 2 Fdr	430	51	N4	0	11kV Cable Network/	1,558	1,633,280
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	1065	0	0	Cloetesville Curry 11kV feeder 3	481	51	N4	0	11kV Cable Network/	1,558	1,659,774
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	1048	0	0	Cloetesville Curry 11kV feeder 4	482	51	N4	0	11kV Cable Network/	1,558	1,633,280
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	791	0	0	Jacaranda Orlean 11 kV feeder	556	51	N4	0	11kV Cable Network/	1,558	1,232,752
Stellenbosch	Cloetesville Substation		11kV Cable Network	95mm 3C Cu	m	225	0	0	Cloetesville Jacaranda 11kV feeder	557	51	N4	0	11kV Cable Network/	1,558	350,656
Pniel	Dwarsrivier Substatio	Boschendal	11kV Cable Network	185mm 3C Cu	m	40					57	N4	0	11kV Cable Network/	2,427	97,094
Pniel	Dwarsrivier Substatio	Boschendal	11kV Cable Network	35mm 3C Cu	m	30					42	N4	0	11kV Cable Network/	991	29,721
Pniel	Dwarsrivier Substatio	Boschendal	11kV Cable Network	35mm 3C Cu	m	20					42	N4	0	11kV Cable Network/	991	19,814
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	95mm 3C Al ABC	m	175					64	N4	0	11kV OHL Network/9	928	162,444
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	60					60	N4	0	11kV OHL Network/G	367	21,996
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	110					60	N4	0	11kV OHL Network/G	367	40,326
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	310					60	N4	0	11kV OHL Network/G	367	113,646
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	385					60	N4	0	11kV OHL Network/G	367	141,141
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	75					60	N4	0	11kV OHL Network/G	367	27,495
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	60					60	N4	0	11kV OHL Network/G	367	21,996
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Gopher	m	100					60	N4	0	11kV OHL Network/G	367	36,660
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	60					68	N4	0	11kV OHL Network/H	362	21,714
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	55					68	N4	0	11kV OHL Network/H	362	19,905
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	150					68	N4	0	11kV OHL Network/H	362	54,285
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	810					68	N4	0	11kV OHL Network/H	362	293,139
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	315					68	N4	0	11kV OHL Network/H	362	113,999
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	240					68	N4	0	11kV OHL Network/H	362	86,856
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	150					68	N4	0	11kV OHL Network/H	362	54,285
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	390					68	N4	0	11kV OHL Network/H	362	141,141
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	110					68	N4	0	11kV OHL Network/H	362	39,809
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Hare	m	525					68	N4	0	11kV OHL Network/H	362	189,998
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Mink	m	30					69	N4	0	11kV OHL Network/M	367	10,998
Pniel	Dwarsrivier Substatio	Boschendal	11kV OHL Network	Mink	m	150					69	N4	0	11kV OHL Network/M	367	54,990
Pniel	Dwarsrivier Substatio	Boschendal	11kV Auto Recloser		m	1					75	N4	0	11kV Auto Recloser/	47,000	47,000
Pniel	Dwarsrivier Substatio	Boschendal	11kV Ring Main Unit v	3 Way	m	1			HSM Boschendal Workers Homes		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Boschendal	11kV Ring Main Unit v	3 Way	m	1			HSM Boschendal Cellar		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Boschendal	11kV Ring Main Unit v	3 Way	m	1			HSM Boschendal Restaurant		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Boschendal	11kV Ring Main Unit v	3 Way	No.	1			HSM Boschendal Line		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Cable Network	35mm 3C Cu	m	170					42	N4	0	11kV Cable Network/	991	168,421
Pniel	Dwarsrivier Substatio	Delta Crest	11kV OHL Network	Gopher	m	1400			Delta Crest		60	N4	0	11kV OHL Network/G	367	513,240
Pniel	Dwarsrivier Substatio	Delta Crest	11kV OHL Network	Gopher	m	2645			AM Farms		60	N4	0	11kV OHL Network/G	367	969,657
Pniel	Dwarsrivier Substatio	Delta Crest	11kV OHL Network	Mink	m	2690			Delta Crest		69	N4	0	11kV OHL Network/M	367	986,154
Pniel	Dwarsrivier Substatio	Delta Crest	11kV OHL Network	Mink	m	1120			AM Farms		69	N4	0	11kV OHL Network/M	367	410,592

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Cable Network	25mm 3C Cu	m	25					39	N4	0	11kV Cable Network/2	991	24,768
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Cable Network	25mm 3C Cu	m	125					39	N4	0	11kV Cable Network/2	991	123,839
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	440				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	161,304
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	585				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	214,461
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	80				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	29,328
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	150				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	54,990
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	240				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	87,984
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	30				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	10,998
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	145				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	53,157
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	10				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	3,666
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	275				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	100,815
Pniel	Dwarsrivier Substatio	Delta Meer	11kV OHL Network	Gopher	m	330				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	120,978
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	185mm 3C Cu	m	30					57	N4	0	11kV Cable Network/	2,427	72,821
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	35mm 3C Cu	m	210					42	N4	0	11kV Cable Network/3	991	208,050
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	35mm 3C Cu	m	56					42	N4	0	11kV Cable Network/3	991	55,480
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	35mm 3C Cu	m	60					42	N4	0	11kV Cable Network/3	991	59,443
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	35mm 3C Cu	m	5					42	N4	0	11kV Cable Network/3	991	4,954
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	35mm 3C Cu	m	170					42	N4	0	11kV Cable Network/3	991	168,421
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	70mm 3C Cu	m	425					48	N4	0	11kV Cable Network/7	1,328	564,608
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Cable Network	95mm 3C Cu	m	32					51	N4	0	11kV Cable Network/9	1,558	49,871
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Gopher	m	20				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	7,332
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Gopher	m	85				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	31,161
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Gopher	m	15				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	5,499
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Gopher	m	280					60	N4	0	11kV OHL Network/G	367	102,648
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	25				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	9,048
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	35				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	12,667
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	25				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	9,048
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	200				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	72,380
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	50				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	18,095
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	65				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	23,524
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	170				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	61,523
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	430				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	155,617
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	440				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	159,236
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Hare	m	25				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	9,048
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Mink	m	325				35mm Cu OHL	69	N4	0	11kV OHL Network/M	367	119,145
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV OHL Network	Mink	m	215				35mm Cu OHL	69	N4	0	11kV OHL Network/M	367	78,819
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Ring Main Unit	5 Way	No.	1			RMU Groot Drakenstein	2x Decommissioned	81	N4	0	11kV Ring Main Unit/5	716,750	716,750
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Ring Main Unit v	3 Way	m	1			HSM Rhodes Offices		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Ring Main Unit v	3 Way	m	1			MV Metering	Decommissioned	147	N4	0	11kV Ring Main Unit v	710,875	710,875
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Cable Network	35mm 3C Cu	m	105	Moores End	Gopher			42	N4	0	11kV Cable Network/3	991	104,025
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Cable Network	70mm 3C Cu	m	920	Gopher	MS Mentoor			48	N4	0	11kV Cable Network/7	1,328	1,222,211
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Cable Network	70mm 3C Cu	m	155	Gopher	Tie-in			48	N4	0	11kV Cable Network/7	1,328	205,916
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	35mm 5C Al ABC	m	355	Gopher	MS Johannesdal 304			66	N4	0	11kV OHL Network/3	282	100,110
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	160	TEE	Seven Oaks			60	N4	0	11kV OHL Network/G	367	58,656
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	225	Kykindiepot 2	Kykindiepot 1			60	N4	0	11kV OHL Network/G	367	82,485
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	50	Kykindiepot 1	TEE			60	N4	0	11kV OHL Network/G	367	18,330
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	125	TEE	Moores End			60	N4	0	11kV OHL Network/G	367	45,825
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	35		Rosendal			60	N4	0	11kV OHL Network/G	367	12,831
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	80	TEE	Johannesdal			60	N4	0	11kV OHL Network/G	367	29,328
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	160	Johannesdal	Johannesdal			60	N4	0	11kV OHL Network/G	367	58,656

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	95	Johannesdal	Johannesdal			60	N4	0	11kV OHL Network/G	367	34,827
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	5	Johannesdal 3	MS Johannesdal 304			60	N4	0	11kV OHL Network/G	367	1,833
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	5	MS Johannesdal 304	MS Mentoor			60	N4	0	11kV OHL Network/G	367	1,833
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	35	MS Mentoor	Tie-in			60	N4	0	11kV OHL Network/G	367	12,831
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	15	TEE	Mountain Woods			60	N4	0	11kV OHL Network/G	367	5,499
Pniel	Dwarsrivier Substatio	Johannesdal	11kV OHL Network	Gopher	m	520	TEE	Kykindiepot 2			60	N4	0	11kV OHL Network/G	367	190,632
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	25mm 3C Cu	m	25	Gopher	Pniel RMU			39	N4	0	11kV Cable Network/2	991	24,768
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	35mm 3C Cu	m	265	Pniel RMU	MS Silwermyn str 347			42	N4	0	11kV Cable Network/3	991	262,539
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	35mm 3C Cu	m	305	MS Silwermyn str 347	MS Panorama str 305			42	N4	0	11kV Cable Network/3	991	302,167
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	35mm 3C Cu	m	95	MS Panorama str 305	TRF Cyster			42	N4	0	11kV Cable Network/3	991	94,118
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	35mm 3C Cu	m	170	MS Pniel Council Offi	MS Pniel Main Road 301			42	N4	0	11kV Cable Network/3	991	168,421
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	70mm 3C Cu	m	55	Gopher	RMU Pniel			48	N4	0	11kV Cable Network/7	1,328	73,067
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	70mm 3C Cu	m	245	Gopher	TRF Pniel			48	N4	0	11kV Cable Network/7	1,328	325,480
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	70mm 3C Cu	m	260	Pniel RMU	MS Pniel Council Offices			48	N4	0	11kV Cable Network/7	1,328	345,407
Pniel	Dwarsrivier Substatio	Pniel	11kV Cable Network	95mm 3C Cu	m	25	MS Pniel Main Road 3	Hare			51	N4	0	11kV Cable Network/9	1,558	38,962
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Fox	m	300					73	N4	0	11kV OHL Network/F	362	108,570
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	140	Tie-in	Sunburgh Inn hotel			60	N4	0	11kV OHL Network/G	367	51,324
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	300	Sunburgh Inn hotel	Pniel RMU			60	N4	0	11kV OHL Network/G	367	109,980
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	145	MS Panorama str 305	TRF Cyster			60	N4	0	11kV OHL Network/G	367	53,157
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	115	Pniel RMU	MS Pine str			60	N4	0	11kV OHL Network/G	367	42,159
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	305	MS Pine str	RMU Pniel			60	N4	0	11kV OHL Network/G	367	111,813
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	5	RMU Pniel	TRF Pniel			60	N4	0	11kV OHL Network/G	367	1,833
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	30					60	N4	0	11kV OHL Network/G	367	10,998
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Gopher	m	180					60	N4	0	11kV OHL Network/G	367	65,988
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	280	MS Pniel Main Road 3	TRF Pniel			68	N4	0	11kV OHL Network/H	362	101,332
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	290	TRF Pniel	TRF Pniel			68	N4	0	11kV OHL Network/H	362	104,951
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	115	TRF Pniel	Fox			68	N4	0	11kV OHL Network/H	362	41,619
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	210	Fox	TRF Pniel School			68	N4	0	11kV OHL Network/H	362	75,999
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	95	TRF Pniel School	TEE			68	N4	0	11kV OHL Network/H	362	34,381
Pniel	Dwarsrivier Substatio	Pniel	11kV OHL Network	Hare	m	60					68	N4	0	11kV OHL Network/H	362	21,714
Pniel	Dwarsrivier Substatio	Pniel	11kV Ring Main Unit	3 Way	No.	1			Pniel RMU	RMU-350	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Pniel	Dwarsrivier Substatio	Pniel	11kV Ring Main Unit	3 Way	No.	1			RMU Pniel	RMU-004	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Pniel	Dwarsrivier Substatio	RFG	11kV Cable Network	185mm 3C Cu	m	5					57	N4	0	11kV Cable Network/	2,427	12,137
Pniel	Dwarsrivier Substatio	RFG	11kV Cable Network	185mm 3C Cu	m	30					57	N4	0	11kV Cable Network/	2,427	72,821
Pniel	Dwarsrivier Substatio	RFG	11kV Cable Network	35mm 3C Cu	m	20					42	N4	0	11kV Cable Network/3	991	19,814
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Gopher	m	45				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	16,497
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Gopher	m	30				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	10,998
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Gopher	m	120				16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	43,992
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	60				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	21,714
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	200					68	N4	0	11kV OHL Network/H	362	72,380
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	155				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	56,095
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	115					68	N4	0	11kV OHL Network/H	362	41,619
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	1200					68	N4	0	11kV OHL Network/H	362	434,280
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	60				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	21,714
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	815				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	294,949
Pniel	Dwarsrivier Substatio	RFG	11kV OHL Network	Hare	m	60				70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	21,714
Pniel	Dwarsrivier Substatio	RFG	11kV Ring Main Unit \	3 Way	m	1			HSM Food Group		147	N4	0	11kV Ring Main Unit \	710,875	710,875
Pniel	Dwarsrivier Substatio	RFG	11kV Ring Main Unit \	3 Way	m	3			RMU Stellenbosch Municipality	Metering Point	147	N4	0	11kV Ring Main Unit \	710,875	2,132,625
Pniel	Dwarsrivier Substatio	RFG	11kV Ring Main Unit \	3 Way	m	1			Werda MV Metering		147	N4	0	11kV Ring Main Unit \	710,875	710,875
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Cable Network	185mm 3C Cu	m	30					57	N4	0	11kV Cable Network/	2,427	72,821

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Cable Network	25mm 3C Cu	m	25			Victor Verster		39	N4	0	11kV Cable Network/2	991	24,768
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Cable Network	25mm 3C Cu	m	96			Victor Verster		39	N4	0	11kV Cable Network/2	991	95,108
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Cable Network	25mm 3C Cu	m	315			Victor Verster		39	N4	0	11kV Cable Network/2	991	312,075
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Cable Network	35mm 3C Cu	m	35			Victor Verster		42	N4	0	11kV Cable Network/3	991	34,675
Pniel	Dwarsrivier Substatio	Victor Verster	11kV OHL Network	Gopher	m	2230			Victor Verster		60	N4	0	11kV OHL Network/G	367	817,518
Pniel	Dwarsrivier Substatio	Victor Verster	11kV OHL Network	Gopher	m	430			Victor Verster	16mm Cu OHL	60	N4	0	11kV OHL Network/G	367	157,638
Pniel	Dwarsrivier Substatio	Victor Verster	11kV OHL Network	Hare	m	2675			Victor Verster	70mm Cu OHL	68	N4	0	11kV OHL Network/H	362	968,083
Pniel	Dwarsrivier Substatio	Victor Verster	11kV OHL Network	Mink	m	2235			Victor Verster	35mm Cu OHL	69	N4	0	11kV OHL Network/M	367	819,351
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Auto Recloser		No.	1					75	N4	0	11kV Auto Recloser/	47,000	47,000
Stellenbosch	Golf Substation	66kV Outdoor Substa	11kV NER		No.	2					35	N4	0	66kV Outdoor Substa	940,000	1,880,000
Stellenbosch	Golf Substation	66kV Outdoor Substa	Battery Tripping Unit	110Vdc	No.	2					7	N4	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Ring Main Unit	2 Way	No.	1			Medi Kliniek RMU		78	N4	0	11kV Ring Main Unit/2	299,625	299,625
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Ring Main Unit	3 Way	No.	1			Die Werf RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Ring Main Unit	3 Way	No.	1			Shopping Centre RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Switchgear	Bus Section	No.	1					33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Switchgear	Feeder	No.	11					19	N4	0	11kV Indoor Substatio	681,500	7,496,500
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Switchgear	Incomer	No.	4					34	N4	0	11kV Indoor Substatio	705,000	2,820,000
Stellenbosch	Golf Substation	Golf Switching Statior	11kV Cable Network	70 mm 3C Cu	m	50	Golf Switching Statior	MS Golf Club			48	N4	0	11kV Cable Network/	1,328	66,425
Stellenbosch	Golf Substation	Golf Switching Statior	11kV Switchgear	Bus Section	No.	2					33	N4	0	11kV Indoor Substatio	1,081,000	2,162,000
Stellenbosch	Golf Substation	Golf Switching Statior	11kV Switchgear	Feeder	No.	13					19	N4	0	11kV Indoor Substatio	681,500	8,859,500
Stellenbosch	Golf Substation	Golf Switching Statior	11kV Switchgear	Incomer	No.	3					34	N4	0	11kV Indoor Substatio	705,000	2,115,000
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Ring Main Unit	3 Way	No.	1			Blouklippen RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Ring Main Unit	3 Way	No.	1			Paradyskloof RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Ring Main Unit	3 Way	No.	1			Brandway aan rivier RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Ring Main Unit	4 Way	No.	1			Parmalat RMU		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Ring Main Unit	4 Way	No.	1			MS Trumali		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Switchgear	Bus Section	No.	2			Paradyskloof Switching Station		33	N4	0	11kV Indoor Substatio	1,081,000	2,162,000
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Switchgear	Feeder	No.	10			Paradyskloof Switching Station		19	N4	0	11kV Indoor Substatio	681,500	6,815,000
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Switchgear	Incomer	No.	4			Paradyskloof Switching Station		34	N4	0	11kV Indoor Substatio	705,000	2,820,000
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Ring Main Unit	2 Way	No.	1			Electron House RMU		78	N4	0	11kV Ring Main Unit/2	299,625	299,625
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Ring Main Unit	3 Way	No.	1			Datavoice RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Switchgear	Bus Section	No.	1			Techno Park Switching Station		33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Switchgear	Feeder	No.	6			Techno Park Switching Station		19	N4	0	11kV Indoor Substatio	681,500	4,089,000
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Switchgear	Incomer	No.	3			Techno Park Switching Station		34	N4	0	11kV Indoor Substatio	705,000	2,115,000
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	147	25	0	Rokewood Pomp Rokewood/Marina 11 kV feeder		55	N4	0	11kV Cable Network/	946	139,078
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	381	26	0	Elberta Lovell 3 11 kV feeder		55	N4	0	11kV Cable Network/	946	360,468
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	211	27	0	Bon Cgretien Elberta 11 kV feeder		55	N4	0	11kV Cable Network/	946	199,629
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	211	28	0	Rokewood Blenheim 11 kV feeder		55	N4	0	11kV Cable Network/	946	199,629
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	302	31	0	Blenheim Oewerpark 11 kV feeder		55	N4	0	11kV Cable Network/	946	285,725
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	87	32	0	Medi Kliniek Culemborg 11 kV feeder		55	N4	0	11kV Cable Network/	946	82,312
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	700	33	0	Culemborg Marina/Rokewood 11 kV feeder		55	N4	0	11kV Cable Network/	946	662,277
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	314	124	0	Boord Rokewood 11 kV feeder		55	N4	0	11kV Cable Network/	946	297,079
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	129	336	0	Oewerpark De Oewer 11 kV feeder		55	N4	0	11kV Cable Network/	946	122,048
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	354	356	0	De Oewer Medi Kliniek 11 kV feeder		55	N4	0	11kV Cable Network/	946	334,923
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	392	443	0	Boord Bon Chretien 11 kV feeder		55	N4	0	11kV Cable Network/	946	370,875
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	823	468	0	DW Lovell 3 La Bosch 11 kV feeder		55	N4	0	11kV Cable Network/	946	778,649
Stellenbosch	Golf Substation		11kV Cable Network	120mm 3C Al	m	217	469		Rokewood La Bosch 11kV Feeder		55	N4	0	11kV Cable Network/	946	205,306
Stellenbosch	Golf Substation		11kV Cable Network	185mm 3C Cu	m	1350	129	0	Boord Dalsig Oos 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,276,939
Stellenbosch	Golf Substation		11kV Cable Network	185mm 3C Cu	m	2337	253	0	Tegnopark Feeder 2		57	N4	0	11kV Cable Network/	2,427	5,672,745
Stellenbosch	Golf Substation		11kV Cable Network	185mm 3C Cu	m	313	662		Tegnopark_Golf feeder		57	N4	0	11kV Cable Network/	2,427	759,764

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	973	126	0	Boord Wingerd 11 kV feeder		42	N4	0	11kV Cable Network/3	991	963,964
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	918	127	0	Boord Klein Geluk 11 kV feeder		42	N4	0	11kV Cable Network/3	991	909,475
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	449	155	0	Blaauklippen Repens 11 kV feeder		42	N4	0	11kV Cable Network/3	991	444,830
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	151	156	0	Blaauklippen Padstal 11 kV feeder		42	N4	0	11kV Cable Network/3	991	149,598
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	761	158	0	Padstal Serurria 11 kV feeder		42	N4	0	11kV Cable Network/3	991	753,933
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	47	226	0	Mediclinic Parmalat 11 kV feeder		42	N4	0	11kV Cable Network/3	991	46,564
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	424	227	0	Cyneroides Repens 11 kV feeder		42	N4	0	11kV Cable Network/3	991	420,062
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	317	228	0	Eden Florida 11 kV feeder		42	N4	0	11kV Cable Network/3	991	314,056
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	860	250	0	Paradyskloof m/s Canterburry 11 kV feeder		42	N4	0	11kV Cable Network/3	991	852,013
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	321	251	0	Paradyskloof Schuilplaats 11 kV feeder		42	N4	0	11kV Cable Network/3	991	318,019
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	338	296	0	Trf 3807/792 to R/M Paradyskloof 35 cu cable		42	N4	0	11kV Cable Network/3	991	334,861
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	522	337	0	Klein Geluk Werf 11 kV feeder		42	N4	0	11kV Cable Network/3	991	517,152
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	442	338	0	Florida Cyneroides 11 kV feeder		42	N4	0	11kV Cable Network/3	991	437,895
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	1065	339	0	Paradyskloof Eden 11 kV feeder		42	N4	0	11kV Cable Network/3	991	1,055,109
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	414	355	0	Werf Wingerd 11 kV feeder		42	N4	0	11kV Cable Network/3	991	410,155
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	130	358	0	Canterbury Blaauklippen 11 kV feeder		42	N4	0	11kV Cable Network/3	991	128,793
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	1017	375	0	Paradyskloof Erf 3807/792 35 Cu Cable		42	N4	0	11kV Cable Network/3	991	1,007,555
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	541	408	0	Serruria to Stellenbosch 101		42	N4	0	11kV Cable Network/3	991	535,976
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	258	446	0	Paradyskloof Golfcourse feeder		42	N4	0	11kV Cable Network/3	991	255,604
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	72	459	0	Cable to Golf course		42	N4	0	11kV Cable Network/3	991	71,331
Stellenbosch	Golf Substation		11kV Cable Network	35mm 3C Cu	m	24	479	0	Paradyskloof Paradyskloof m/s 11 kV feeder		42	N4	0	11kV Cable Network/3	991	23,777
Stellenbosch	Golf Substation		11kV Cable Network	50mm 3C Al	m	456	125	0	Boord Lovell 2 11 kV feeder		46	N4	0	11kV Cable Network/5	535	243,735
Stellenbosch	Golf Substation		11kV Cable Network	50mm 3C Al	m	640	128	0	Boord Rhodes 11 kV feeder		46	N4	0	11kV Cable Network/5	535	342,085
Stellenbosch	Golf Substation		11kV Cable Network	50mm 3C Al	m	428	152	0	Lovell 1 Lovell 2 11 kV feeder		46	N4	0	11kV Cable Network/5	535	228,769
Stellenbosch	Golf Substation		11kV Cable Network	50mm 3C Al	m	304	223	0	Rhodes Lovell 1 11 kV feeder		46	N4	0	11kV Cable Network/5	535	162,490
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	501	134	0	Paradyskloof Paradyskloof Villas 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	665,574
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	59	135	0	Technopark Technopark 2 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	78,381
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	259	136	0	Technopark Polytwine 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	344,079
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	242	137	0	Technopark ESD 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	321,495
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	364	224	0	Paradyskloof Villas LeMontier 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	483,570
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	715	225	0	Anesta LeHermitage 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	949,871
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	357	229	0	Technopark NOK 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	474,271
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	118	230	0	Electron House Times square 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	156,762
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	79	231	0	Tegnopark 1 Data Voice 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	104,951
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	4640	254	0	Tegnopark Feeder 1		48	N4	0	11kV Cable Network/7	1,328	6,164,195
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	188	258	0	Elektron Termo 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	249,756
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	266	266	0	Brandwag na Trumali feeder		48	N4	0	11kV Cable Network/7	1,328	353,378
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	275	269	0	MS Tegnopark 1 to MS ISS International cable		48	N4	0	11kV Cable Network/7	1,328	365,335
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	314	277	0	LaPastorale Mont Blanc 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	417,146
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	223	290	0	Termo Proton 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	296,253
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	29	297	0	Cable to Mediclinic		48	N4	0	11kV Cable Network/7	1,328	38,526
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	60	374	0	Supply Cable for OH Line		48	N4	0	11kV Cable Network/7	1,328	79,709
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	640	400	0	LeHermitage LaPastorale 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	850,234
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	153	411	0	Polytwine to Neutron		48	N4	0	11kV Cable Network/7	1,328	203,259
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	384	444	0	Parmalat to Brandwag B supply cable		48	N4	0	11kV Cable Network/7	1,328	510,140
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	741	445	0	New Paradyskloof to Trimali cable		48	N4	0	11kV Cable Network/7	1,328	984,411
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	169	477	0	Data Voice Quantum 2 cable		48	N4	0	11kV Cable Network/7	1,328	224,515
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	285	478	0	Quabtum to Caroe Di Em cable		48	N4	0	11kV Cable Network/7	1,328	378,620
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	230	503	0	MS ISS International to MS Reutech cable		48	N4	0	11kV Cable Network/7	1,328	305,553
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	102	508	0	Electron House Electron 2 Feeder		48	N4	0	11kV Cable Network/7	1,328	135,506

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	258	509	0	Electron 2 Carpedi-Em feeder		48	N4	0	11kV Cable Network/	1,328	342,750
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	143	524	0	Quantum 3 to Quantum cable		48	N4	0	11kV Cable Network/	1,328	189,974
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	92	525	0	Quantum2 Quantum3 feeder		48	N4	0	11kV Cable Network/	1,328	122,221
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	553	529	0	Tegnopark Pump RMU Tegnopark Pump feeder		48	N4	0	11kV Cable Network/	1,328	734,655
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	30	530	0	Proton Tegnopark Pump RMU 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	39,855
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	238	531	0	Nok Electron 3 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	316,181
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	189	534	0	Tegnopark Pump RMU CTPLACE11kV feeder		48	N4	0	11kV Cable Network/	1,328	251,085
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	89	535	0	Electron 3 CT Place Feeder		48	N4	0	11kV Cable Network/	1,328	118,236
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	35	538	0	Times Square Electron 11kV feeder		48	N4	0	11kV Cable Network/	1,328	46,497
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	320	544	0	LeMontier Three Fountains 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	425,117
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	174	545	0	3 Fountains Anesta 11kV feeder		48	N4	0	11kV Cable Network/	1,328	231,157
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	396	568		River1 _River2 11kV feedre		48	N4	0	11kV Cable Network/	1,328	526,082
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	1153	569		River1_Par_Golf 11kV Feerder		48	N4	0	11kV Cable Network/	1,328	1,531,749
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	1185	570		RIver1_Elsie_RMU 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	1,574,261
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	251	571		RV2 _11 kV Feeder		48	N4	0	11kV Cable Network/	1,328	333,451
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	170	572		RV1_11kV Feeder		48	N4	0	11kV Cable Network/	1,328	225,843
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	4	573		feeder		48	N4	0	11kV Cable Network/	1,328	5,314
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	91	574		feeder		48	N4	0	11kV Cable Network/	1,328	120,893
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	134	575		feeder		48	N4	0	11kV Cable Network/	1,328	178,018
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	295	576		feeder		48	N4	0	11kV Cable Network/	1,328	391,905
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	227	636		OctoTech1 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	301,567
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	70	638		Afri_Neutrn 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	92,994
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	5	639		Prindtel MS 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	6,642
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	81	649		Brandwacht B_Brandwacht RMU 11kVFeeder		48	N4	0	11kV Cable Network/	1,328	107,608
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	24	650		RIver1_Elsie_RMU 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	31,884
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	560	659		Afriland_Stellen park 11Feeder		48	N4	0	11kV Cable Network/	1,328	743,955
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	677	660		Stellenpark Neutron 1kV feeder		48	N4	0	11kV Cable Network/	1,328	899,388
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	128	661		Tegnopark Stellenbosch Hotel Feeder		48	N4	0	11kV Cable Network/	1,328	170,047
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	136	668		Mont Blanc Paradyskloof r/m 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	180,675
Stellenbosch	Golf Substation		11kV Cable Network	70mm 3C Cu	m	29	669		MT Bl_Past2 11KV feeder		48	N4	0	11kV Cable Network/	1,328	38,526
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	350	252	0	Golf Club Paradyskloof ss No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	545,466
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	349	464	0	Golf Club Paradyskloof ss No 4 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	543,907
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	352	465	0	Golf Club Paradyskloof SS No 1 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	548,582
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	354	466	0	Golf Club Paradyskloof ss No 2 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	551,699
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	1593	600		Boord Golf Club No4 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	2,482,647
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	1601	601		Boord Golf Club No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	2,495,115
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	277	622		Boord Golf Club No 1 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	431,697
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	1280	623		Boord Golf Club No 1 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	1,994,845
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	52	624		Boord Golf Club No 1 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	81,041
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	275	625		Boord Golf Club No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	428,580
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	51	626		Boord Golf Club No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	79,482
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	1274	627		Boord Golf Club No 2 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	1,985,495
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	275	628		Boord Golf Club No 2 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	428,580
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	51	629		Boord Golf Club No 2 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	79,482
Stellenbosch	Golf Substation		11kV Cable Network	95mm 3C Cu	m	1278	630		Boord Golf Club No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	1,991,728
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	50	298	0	Portion of o/h line west		69	N4	0	11kV OHL Network/M	367	18,330
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	339	299	0	Portion of O/H line		69	N4	0	11kV OHL Network/M	367	124,277
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	200	300	0	O/H line East		69	N4	0	11kV OHL Network/M	367	73,320
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	111	301	0	O/H line East		69	N4	0	11kV OHL Network/M	367	40,693
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	131	302	0	O/H Line East		69	N4	0	11kV OHL Network/M	367	48,025

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	275	378	0	O/H line		69	N4	0	11kV OHL Network/M	367	100,815
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	79	379	0	O/H Line		69	N4	0	11kV OHL Network/M	367	28,961
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	53	380	0	O/H line to Vriesenhof		69	N4	0	11kV OHL Network/M	367	19,430
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	192	381	0	O/H Line		69	N4	0	11kV OHL Network/M	367	70,387
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	162	382	0	O/H Line		69	N4	0	11kV OHL Network/M	367	59,389
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	50	383	0	O/H Line		69	N4	0	11kV OHL Network/M	367	18,330
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	106	384	0	O/H Line		69	N4	0	11kV OHL Network/M	367	38,860
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	99	385	0	O/H Line		69	N4	0	11kV OHL Network/M	367	36,293
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	39	386	0	O/H Line		69	N4	0	11kV OHL Network/M	367	14,297
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	287	387	0	O/H Line		69	N4	0	11kV OHL Network/M	367	105,214
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	189	414	0	O/H line to Golf course		69	N4	0	11kV OHL Network/M	367	69,287
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	370	458	0	O/H line to Waterwerke		69	N4	0	11kV OHL Network/M	367	135,642
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	392	470	0	O/H line to Kaapzicht		69	N4	0	11kV OHL Network/M	367	143,707
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	588	471	0	O/H line East		69	N4	0	11kV OHL Network/M	367	215,561
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	89	472	0	O/H Line to Groeneweide		69	N4	0	11kV OHL Network/M	367	32,627
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	1034	473	0	O/H line East		69	N4	0	11kV OHL Network/M	367	379,064
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	311	474	0	O/H Line East		69	N4	0	11kV OHL Network/M	367	114,013
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	1183	475	0	O/H line to Waterwerke		69	N4	0	11kV OHL Network/M	367	433,688
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	69	476	0	O/H line		69	N4	0	11kV OHL Network/M	367	25,295
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	268	498	0	Line to Trf Opgaardam		69	N4	0	11kV OHL Network/M	367	98,249
Stellenbosch	Golf Substation		11kV Cable Network	Mink	m	1057	499	0	Line to Trf Opgaardam T-Off		69	N4	0	11kV OHL Network/M	367	387,496
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	11kV NER		No.	2					35	N4	0	66kV Outdoor Substa	940,000	1,880,000
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Battery Tripping Unit	110Vdc	No.	2					7	N4	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Battery Tripping Unit	32Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Control Plant	Incomer	No.	2					7	N4	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Control Plant	Tap Changer	No.	2					7	N4	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	Control Plant	Transformer	No.	2					7	N4	0	66kV Outdoor Substa	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Cable Network	35 mm 3C Cu	m	480	Jan Marais Switching	HuisduPreez RMU			42	N4	0	11kV Cable Network/	991	475,542
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Primary Cable	70 mm 3C Cu	m	788	Jan Marais Switching	Maraispark Switching Station			48	N4	0	11kV Cable Network/	1,328	1,046,850
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ring Main Unit	3 Way	No.	1			Simonswyk RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ring Main Unit	3 Way	No.	1			Helshoogte RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ring Main Unit	3 Way	No.	1			7/11 RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Switching Static	Feeder	No.	10					19	N4	0	11kV Indoor Substatic	681,500	6,815,000
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Ring Main Unit	3 Way	No.	1			BIDrifPomp RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Ring Main Unit	3 Way	No.	1			Rowan RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Ring Main Unit	3 Way	No.	1			HuisDuPreez RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Ring Main Unit	3 Way	No.	1			Stellenbosch Hoerskool RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Switching Static	Feeder	No.	3					19	N4	0	11kV Indoor Substatic	681,500	2,044,500
Stellenbosch	Jan Marais Substatior	Karendal Switching St	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	Maraispark Switching	11kV Switching Static	Feeder	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	Jan Marais Substatior	Maraispark Switching	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Ring Main Unit	3 Way	No.	1			Hospitaal RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Switching Static	Feeder	No.	2					19	N4	0	11kV Indoor Substatic	681,500	1,363,000
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Switching Static	Metering Unit	No.	1					147	N4	0	11kV Ring Main Unit v	710,875	710,875
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Ring Main Unit	3 Way	No.	1			Glenelie RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Switching Static	Feeder	No.	5					19	N4	0	11kV Indoor Substatic	681,500	3,407,500
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Switching Static	Metering Unit	No.	1			Infruitec (NIVV)		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Switching Static	Feeder	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Switching Static	Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Ring Main Unit	3 Way	No.	1			IdasValleySport RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Switching Static	Feeder	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ring Main Unit	3 Way	No.	1			2Pieke RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ring Main Unit	3 Way	No.	1			Morkel RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ring Main Unit	3 Way	No.	1			RozPomp RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Switching Static	Feeder	No.	7					19	N4	0	11kV Indoor Substatic	681,500	4,770,500
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	561	60	0	Morkel Karindal 11 kV feeder		36	N4	0	11kV Cable Network/	991	555,790
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	163	64	0	Huis Du Preez Stellenbosch Hoerskool		36	N4	0	11kV Cable Network/	991	161,486
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	149	68	0	DW Stias Maraispark 11 kV feeder		36	N4	0	11kV Cable Network/	991	147,616
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	187	69		Van Der Stel Stias 11kV Feeder		36	N4	0	11kV Cable Network/	991	185,263
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	143	163	0	Glen Elley Lelie 11 kV feeder		36	N4	0	11kV Cable Network/	991	141,672
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	403	167	0	Zwaanswyk Blakesdrift Pomp 11 kV feeder		36	N4	0	11kV Cable Network/	991	399,257
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	645	441	0	Sonneblom Glen Elley 11 kV feeder		36	N4	0	11kV Cable Network/	991	639,010
Stellenbosch	Jan Marais Substation		11kV Cable Network	16mm 3C Cu	m	585	513	0	Karendal na MS Zwaanswyk		36	N4	0	11kV Cable Network/	991	579,567
Stellenbosch	Jan Marais Substation		11kV Cable Network	185mm 3C Cu	m	824	333	0	Tindal Stone 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,000,146
Stellenbosch	Jan Marais Substation		11kV Cable Network	185mm 3C Cu	m	1529	334	0	Jan Marais Tindal 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,711,436
Stellenbosch	Jan Marais Substation		11kV Cable Network	185mm 3C Cu	m	851	347	0	Jan Marais Uniepark No2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,065,685
Stellenbosch	Jan Marais Substation		11kV Cable Network	185mm 3C Cu	m	1499	412	0	Sonnebloem to Stone		57	N4	0	11kV Cable Network/	2,427	3,638,616
Stellenbosch	Jan Marais Substation		11kV Cable Network	185mm 3C Cu	m	352	635		SonnB-Hellshoogte 11kV Feeder		57	N4	0	11kV Cable Network/	2,427	854,431
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	302	61	0	Karindal 2 Pieke 11 kV feeder		42	N4	0	11kV Cable Network/3	991	299,195
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	468	63	0	Huis Du Preez Jannasch 11 kV feeder		42	N4	0	11kV Cable Network/3	991	463,654
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	509	65	0	Jan Marais Huis du Preez 11 kV feeder		42	N4	0	11kV Cable Network/3	991	504,273
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	109	72	0	Idasvallei Sport r/m Bloekom/Adendorf 11 kV feeder		42	N4	0	11kV Cable Network/3	991	107,988
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	268	74	0	AP Venter Van Copenhagen 11 kV feeder		42	N4	0	11kV Cable Network/3	991	265,511
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	195	75	0	Van Copenhagen Waterweg 11 kV feeder		42	N4	0	11kV Cable Network/3	991	193,189
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	135	76	0	Waterweg Uitsig 11 kV feeder		42	N4	0	11kV Cable Network/3	991	133,746
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	474	77	0	Provinsie Rozendal Pomp 11 kV feeder		42	N4	0	11kV Cable Network/3	991	469,598
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	366	79	0	Merton Woodman 11 kV feeder		42	N4	0	11kV Cable Network/3	991	362,601
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	231	80	0	Hector Bartlett 11 kV feeder		42	N4	0	11kV Cable Network/3	991	228,855
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	365	81	0	Stone Hector 11 kV feeder		42	N4	0	11kV Cable Network/3	991	361,610
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	164	161	0	Khaler Protea 11 kV feeder		42	N4	0	11kV Cable Network/3	991	162,477
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	203	242	0	Packham Merton 11 kV feeder		42	N4	0	11kV Cable Network/3	991	201,115
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	329	263	0	Uniepark Unielaan 11 kV feeder		42	N4	0	11kV Cable Network/3	991	325,945
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	128	271		Jannash 1 to Jannasch 2 11kV Feeder		42	N4	0	11kV Cable Network/3	991	126,811
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	116	272	0	DW Jannasch 2 Rowan 11 kV feeder		42	N4	0	11kV Cable Network/3	991	114,923
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	744	293	0	Stone Assegaai 11 kV feeder		42	N4	0	11kV Cable Network/3	991	737,090
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	347	319	0	Rozendal Pomp Uitsig 11 kV feeder		42	N4	0	11kV Cable Network/3	991	343,777
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	367	330	0	Stone Gorridon 11 kV feeder		42	N4	0	11kV Cable Network/3	991	363,592
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	197	332	0	Stone Bloekom/Adendorf 11 kV feeder		42	N4	0	11kV Cable Network/3	991	195,170
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	517	335	0	7-11 Tindal 11 kV feeder		42	N4	0	11kV Cable Network/3	991	512,199
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	294	346	0	Uniepark Endler 11 kV feeder		42	N4	0	11kV Cable Network/3	991	291,270
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	408	348	0	Uniepark AP Venter 11 kV feeder		42	N4	0	11kV Cable Network/3	991	404,211
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	350	359	0	Bartlett Packham 11 kV feeder		42	N4	0	11kV Cable Network/3	991	346,750
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	209	360	0	Assegaai Pendoring 11 kV feeder		42	N4	0	11kV Cable Network/3	991	207,059

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	369	361	0	Gorridon Woodman 11 kV feeder		42	N4	0	11kV Cable Network/3	991	365,573
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	340	437	0	Tindal Khaler 11 kV feeder		42	N4	0	11kV Cable Network/3	991	336,842
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	273	438	0	Protea Lelie 11 kV feeder		42	N4	0	11kV Cable Network/3	991	270,465
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	894	491	0	Jan Marais to Unielaan (ex Uniepark cable)		42	N4	0	11kV Cable Network/3	991	885,697
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	541	492	0	UniePark 2Pieke feeder		42	N4	0	11kV Cable Network/3	991	535,976
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	520	542	0	Endler Jonkershoek 11 Kv feeder		42	N4	0	11kV Cable Network/3	991	515,171
Stellenbosch	Jan Marais Substation		11kV Cable Network	35mm 3C Cu	m	221	543	0	Jonkershoek Morkel 11kv feeder		42	N4	0	11kV Cable Network/3	991	218,948
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	386	2	0	JC Smuts Morrislaan 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	512,797
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	192	3	0	Hospitaal Morrislaan 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	255,070
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	228	4	0	Simonsberg Hospitaal 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	302,896
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	610	5	0	Jan Marais Soetewyde 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	810,379
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	98	58	0	Beltana Helshoogte 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	130,192
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	410	59	0	Jan Marais Simonswyk 11 kV		48	N4	0	11kV Cable Network/7	1,328	544,681
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	345	62	0	Du Plessis Rowan 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	458,329
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	477	67	0	Tindal Bloekom 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	633,690
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	464	70	0	Bloekom Idasvallei Sport r/m 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	616,419
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	85	71	0	Idasvallei Sport r/m Idasvallei Sport s/s 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	112,922
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	1265	73	0	Uniepark Waterwerke 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	1,680,540
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	321	78	0	Uniepark Provinsie 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	426,445
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	151	82	0	LaDauphine Mc Donald 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	200,602
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	26	111	0	Stone Stone m/s 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	34,541
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	173	160	0	Maraispark Ladauphine 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	229,829
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	807	216	0	Jan Marais Marais Park 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	1,072,092
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	421	218	0	Soeteweide Simonsberg 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	559,294
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	41	243	0	Helshoogte 7-11 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	54,468
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	526	331	0	Waterwerke Stone 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	698,786
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	1272	442	0	Sonneblom Tindal 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	1,689,840
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	215	510	0	Simonsrust 1 Beltana Feeder		48	N4	0	11kV Cable Network/7	1,328	285,625
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	477	512	0	Simonswyk Simonsrust 11kV feeder		48	N4	0	11kV Cable Network/7	1,328	633,690
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	4	564	0	SOETEWEIDE 11kV feeder		48	N4	0	11kV Cable Network/7	1,328	5,314
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	5	579		Jonker Zight to Marais Park		48	N4	0	11kV Cable Network/7	1,328	6,642
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	66	587		Soeteweide_ Simonsberg		48	N4	0	11kV Cable Network/7	1,328	87,680
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	323	633		Pendooring-Amoi 11kV feeder		48	N4	0	11kV Cable Network/7	1,328	429,102
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	283	634		Amoi_Spur cap		48	N4	0	11kV Cable Network/7	1,328	375,963
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	414	641		Karindal Du Plessis 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	549,995
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	817	717		karendal-Unipark 11kV		48	N4	0	11kV Cable Network/7	1,328	1,085,377
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	295	718		Uni-Karen 11kV		48	N4	0	11kV Cable Network/7	1,328	391,905
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	485	719		Endler-Morkel 11kV		48	N4	0	11kV Cable Network/7	1,328	644,318
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	497	720		Jokers-Karendal 11kV		48	N4	0	11kV Cable Network/7	1,328	660,260
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	519	721		Stone-Idas2 11kV		48	N4	0	11kV Cable Network/7	1,328	689,486
Stellenbosch	Jan Marais Substation		11kV Cable Network	70mm 3C Cu	m	289	722		Idas2-Idas1 11kV		48	N4	0	11kV Cable Network/7	1,328	383,934
Stellenbosch	Main Substation	66kV Outdoor Substa	11kV Switching Static	11kV Bus Section	No.	2					33	N4	0	11kV Indoor Substatic	1,081,000	2,162,000
Stellenbosch	Main Substation	66kV Outdoor Substa	11kV Switching Static	11kV Feeders	No.	7					19	N4	0	11kV Indoor Substatic	681,500	4,770,500
Stellenbosch	Main Substation	66kV Outdoor Substa	11kV Switching Static	11kV Incomer	No.	3					34	N4	0	11kV Indoor Substatic	705,000	2,115,000
Stellenbosch	Main Substation	66kV Outdoor Substa	Battery Tripping Unit	110Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	Main Substation	66kV Outdoor Substa	Battery Tripping Unit	32Vdc	No.	3					7	N4	0	66kV Outdoor Substa	705,000	2,115,000
Stellenbosch	Main Substation	66kV Outdoor Substa	NER	11kV	No.	3					35	N4	0	66kV Outdoor Substa	940,000	2,820,000
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Ring Main Unit	3 Way	No.	1			Begraafplaas RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Ring Main Unit \	3 Way	No.	1			Mondi Timbers RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Switching Static	11kV Bus Section	No.	2					33	N4	0	11kV Indoor Substatic	1,081,000	2,162,000

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Switching Static	11kV Feeders	No.	8					19	N4	0	11kV Indoor Substatic	681,500	5,452,000
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Main Substation	Bison Board Switchin	11kV Switching Static	11kV Feeders	No.	2					19	N4	0	11kV Indoor Substatic	681,500	1,363,000
Stellenbosch	Main Substation	Bison Board Switchin	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Main Substation	Bison Board Switchin	11kV Switching Static	11kV Metering	No.	1					147	N4	0	11kV Ring Main Unit v	710,875	710,875
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Ring Main Unit	3 Way	No.	1			Sandhagen RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Ring Main Unit	3 Way	No.	1			Geluksoord RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Switching Static	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Switching Static	11kV Feeders	No.	5					19	N4	0	11kV Indoor Substatic	681,500	3,407,500
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Main Substation	Distell Switching Stati	11kV Switching Static	11kV Feeders	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	Main Substation	Distell Switching Stati	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Main Substation	Distell Switching Stati	11kV Switching Static	11kV Metering	No.	1					147	N4	0	11kV Ring Main Unit v	710,875	710,875
Stellenbosch	Main Substation	Industrial Switching S	11kV Switching Static	11kV Bus Section	No.	2					33	N4	0	11kV Indoor Substatic	1,081,000	2,162,000
Stellenbosch	Main Substation	Industrial Switching S	11kV Switching Static	11kV Feeders	No.	8					19	N4	0	11kV Indoor Substatic	681,500	5,452,000
Stellenbosch	Main Substation	Industrial Switching S	11kV Switching Static	11kV Incomer	No.	3					34	N4	0	11kV Indoor Substatic	705,000	2,115,000
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ring Main Unit	3 Way	No.	1			Stellentia RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ring Main Unit	3 Way	No.	1			WillingPark RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ring Main Unit	3 Way	No.	1			OudeMolen RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Switching Static	11kV Bus Section	No.	2					33	N4	0	11kV Indoor Substatic	1,081,000	2,162,000
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Switching Static	11kV Feeders	No.	7					19	N4	0	11kV Indoor Substatic	681,500	4,770,500
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Switching Static	11kV Incomer	No.	4					34	N4	0	11kV Indoor Substatic	705,000	2,820,000
Stellenbosch	Main Substation	Polkadraai Switching	11kV Ring Main Unit	3 Way	No.	1			W/Winkel RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Polkadraai Switching	11kV Ring Main Unit	3 Way	No.	1			RioolGeset RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	Main Substation	Polkadraai Switching	11kV Switching Static	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Main Substation	Polkadraai Switching	11kV Switching Static	11kV Feeders	No.	7					19	N4	0	11kV Indoor Substatic	681,500	4,770,500
Stellenbosch	Main Substation	Polkadraai Switching	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Main Substation	Polkadraai Switching	11kV Switching Static	11kV Metering	No.	1			Kwarentyn 11 kV Metering		147	N4	0	11kV Ring Main Unit v	710,875	710,875
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Switching Static	11kV Feeders	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Main Substation		11kV Cable Network	150mm 3C Al	m	1262	141	0	SFW Polkadraai 11 kv feeder		148	N4	0	11kV Cable Network/	1,062	1,339,651
Stellenbosch	Main Substation		11kV Cable Network	150mm 3C Al	m	432	143	0	Main (Industry) Polkadraai 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	458,581
Stellenbosch	Main Substation		11kV Cable Network	150mm 3C Al	m	1179	236	0	Mondi Timbers Begraafplaas 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	1,251,544
Stellenbosch	Main Substation		11kV Cable Network	150mm 3C Al	m	248	245	0	Devonvalley Mondi Timbers 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	263,260
Stellenbosch	Main Substation		11kV Cable Network	150mm 3C Al	m	579	246	0	Main(Industry) Devonvalley 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	614,626
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	262	30	0	Selfords Sandhagen 11 kV feeder		36	N4	0	11kV Cable Network/	991	259,567
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	221	34	0	Begraafplaas Oude Libertas 11 kV feeder		36	N4	0	11kV Cable Network/	991	218,948
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	220	150	0	Sandhagen Behuising/Riool 11 kV feeder		36	N4	0	11kV Cable Network/	991	217,957
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	382	151	0	Behuising/Riool Kompos 11 kV feeder		36	N4	0	11kV Cable Network/	991	378,452
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	608	235	0	Begraafplaas Papegaai/Pomp 11 kV feeder		36	N4	0	11kV Cable Network/	991	602,354
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	239	244	0	Devonvalley Geluksoord 11 kV feeder		36	N4	0	11kV Cable Network/	991	236,780
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	619	294	0	SFW Vredenburg Plaas 11 kV feeder		36	N4	0	11kV Cable Network/	991	613,251
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	420	354	0	Geluksoord Selfords 11 kV feeder		36	N4	0	11kV Cable Network/	991	416,099
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	419	391	0	Jan Frederik Loerie 11 kV feeder		36	N4	0	11kV Cable Network/	991	415,109
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	309	392	0	Hamerkop 1 Jan Frederik 11 kV feeder		36	N4	0	11kV Cable Network/	991	306,130
Stellenbosch	Main Substation		11kV Cable Network	16mm 3C Cu	m	538	393	0	Tortelduif Flamingo 11 kV feeder		36	N4	0	11kV Cable Network/	991	533,004
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	1919	139	0	Main (Industry) Begraafplaas No 1 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	4,658,108
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	1772	340	0	Main (Industry) Begraafplaas No 2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	4,301,285
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	275	595		Weidenhof to Lower dorp cable		57	N4	0	11kV Cable Network/	2,427	667,525
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	820	609		Begraafplaas Lower Dorp No 2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,990,437

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	792	615		Begraafplaas Lower Dorp 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,922,471
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	399	619		Polka_Main 11kV feeder		57	N4	0	11kV Cable Network/	2,427	968,517
Stellenbosch	Main Substation		11kV Cable Network	185mm 3C Cu	m	2899	729		Longlands-Polka 11kV feeder		57	N4	0	11kV Cable Network/	2,427	7,036,922
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	104	24	0	Gilbeys Kantore FBC 11 kV feeder		42	N4	0	11kV Cable Network/	991	103,034
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	252	29				42	N4	0	11kV Cable Network/	991	249,660
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	353	35	0	Landelike Stigting Stellenoord 2 11 kV feeder		42	N4	0	11kV Cable Network/	991	349,722
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	345	36	0	SFW Vineyard 11 kV feeder		42	N4	0	11kV Cable Network/	991	341,796
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	414	142	0	Polkadraai Rooldamme 11 kV feeder		42	N4	0	11kV Cable Network/	991	410,155
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	195	148	0	Riooldam Riool Kragopwekker 11 kV feeder		42	N4	0	11kV Cable Network/	991	193,189
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	110	149	0	Riool Werkswinkel Riool Kragopwekker 11 kV feeder		42	N4	0	11kV Cable Network/	991	108,978
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	510	247	0	Polkadraai Riool Werkswinkel 11 kV feeder		42	N4	0	11kV Cable Network/	991	505,264
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	812	504	0	Begraafplaas to Liberte cable		42	N4	0	11kV Cable Network/	991	804,459
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	41	505	0	Liberte to Landelike stigting		42	N4	0	11kV Cable Network/	991	40,619
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	240	518	0	Rupert Museum Gilbeys Kantore 11 kV feeder		42	N4	0	11kV Cable Network/	991	237,771
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	351	523	0	Blersch Rupert Museum 11kV feeder		42	N4	0	11kV Cable Network/	991	347,740
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	170	613				42	N4	0	11kV Cable Network/	991	168,421
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	438	616		Lower Dorp FBC 11 kV feeder		42	N4	0	11kV Cable Network/	991	433,932
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	288	617		Lower Dorp Blersch feeder		42	N4	0	11kV Cable Network/	991	285,325
Stellenbosch	Main Substation		11kV Cable Network	35mm 3C Cu	m	98	632		Stell_oord 1_ Stell_oord2		42	N4	0	11kV Cable Network/	991	97,090
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	244	37	0	Hamerkop 2 Hamerkop 1 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	324,152
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	572	38	0	Flamingo Klein Vallei 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	759,896
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	217	39	0	Loerie Klein Vallei 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	288,282
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	60	144	0	Devonvalley Hoep-Hoep 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	79,709
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	501	217	0	Tortelduif Hamerkop 2 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	665,574
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	443	267	0	Begraafplaas Bosman Crossings11 kV feeder		48	N4	0	11kV Cable Network/	1,328	588,521
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	115	268	0	KWV Bosman Crossings 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	152,776
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	386	289	0	Devonvalley Tortelduif 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	512,797
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	127	353	0	Polkadraai Kwarentyn 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	168,718
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	110	447	0	Sonop KWV Cable		48	N4	0	11kV Cable Network/	1,328	146,134
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	90	448	0	Sonop WPK cable		48	N4	0	11kV Cable Network/	1,328	119,564
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	263	516	0	Hoep Hoep SWAWEL 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	349,393
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	220	517	0	Swawel Tortelduif 11kV feeder		48	N4	0	11kV Cable Network/	1,328	292,268
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	168	596		Lower Dorp Gilbeys Werkswinkel 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	223,186
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	123	611		Lower Dorp Wesgraan 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	163,404
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	160	614		Lower Dorp Gilbeys Werkswinkel 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	212,558
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	122	631		The-Vineyard_Stellen_Oord1		48	N4	0	11kV Cable Network/	1,328	162,076
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	623	640		Polka SUB- Recycle plant 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	827,649
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	287	670		Onderpapagaai ring 1		48	N4	0	11kV Cable Network/	1,328	381,277
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	253	671		Onderpapagaai ring 2		48	N4	0	11kV Cable Network/	1,328	336,108
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	170	672		Onderpapagaai ring 3		48	N4	0	11kV Cable Network/	1,328	225,843
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	245	673		Onderpapagaai ring 4		48	N4	0	11kV Cable Network/	1,328	325,480
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	20	674		Onderpapagaai ring 5		48	N4	0	11kV Cable Network/	1,328	26,570
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	301	675		Onderpapagaai ring 6		48	N4	0	11kV Cable Network/	1,328	399,876
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	155	676		Onderpapagaai ring 7		48	N4	0	11kV Cable Network/	1,328	205,916
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	204	677		Onderpapagaai ring 8		48	N4	0	11kV Cable Network/	1,328	271,012
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	310	678		Onderpapagaai ring 9		48	N4	0	11kV Cable Network/	1,328	411,832
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	117	679		Onderpapagaai ring 10		48	N4	0	11kV Cable Network/	1,328	155,433
Stellenbosch	Main Substation		11kV Cable Network	70mm 3C Cu	m	251	680		Onderpapagaai ring11		48	N4	0	11kV Cable Network/	1,328	333,451
Stellenbosch	Main Substation		11kV Cable Network	95mm 3C Cu	m	88	145	0	Main (Industry) Bruply No 1 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	137,146
Stellenbosch	Main Substation		11kV Cable Network	95mm 3C Cu	m	89	146	0	Main (Industry) Bruply No 2 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	138,704

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Main Substation		11kV Cable Network	95mm 3C Cu	m	82	147	0	Main (Industry) Bruply No 3 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	127,795
Stellenbosch	Main Substation		11kV Cable Network	95mm 3C Cu	m	147	658		MBR 1_ Polka 11 K feeder		51	N4	0	11kV Cable Network/	1,558	229,096
Stellenbosch	Markotter Substation	66kV Outdoor Substa	11kV NER		No.	3					35	N4	0	66kV Outdoor Substa	940,000	2,820,000
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Battery Tripping Unit	110Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	Markotter Substation	66kV Outdoor Substa	Battery Tripping Unit	32Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Ring Main Unit	2 Way	No.	1			Distillers RMU		78	N4	0	11kV Ring Main Unit/	299,625	299,625
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Switching Static	11kV Feeders	No.	8					19	N4	0	11kV Indoor Substatic	681,500	5,452,000
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ring Main Unit	3 Way	No.	1			Meulplein RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ring Main Unit	3 Way	No.	1			BolBank RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ring Main Unit	3 Way	No.	1			Poskantoor RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ring Main Unit	3 Way	No.	1			Saambou RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Switching Static	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Switching Static	11kV Feeders	No.	10					19	N4	0	11kV Indoor Substatic	681,500	6,815,000
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ring Main Unit	3 Way	No.	1			DeWaterkant RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ring Main Unit	3 Way	No.	1			Welgevalen RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ring Main Unit	4 Way	No.	1			Gynasium RMU		80	N4	0	11kV Ring Main Unit/	1,007,563	1,007,563
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Switching Static	11kV Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Switching Static	11kV Feeders	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ring Main Unit	3 Way	No.	1			Welgelegen RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ring Main Unit	3 Way	No.	1			Koch RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ring Main Unit	3 Way	No.	1			DasigWes RMU		79	N4	0	11kV Ring Main Unit/	358,375	358,375
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ring Main Unit	4 Way	No.	1			Koch RMU		80	N4	0	11kV Ring Main Unit/	1,007,563	1,007,563
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ring Main Unit	5 Way	No.	1			Brandwagt RMU		81	N4	0	11kV Ring Main Unit/	716,750	716,750
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Switching Static	11kV Feeders	No.	6					19	N4	0	11kV Indoor Substatic	681,500	4,089,000
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Switching Static	11kV Incomer	No.	2					34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Switching Static	11kV Feeders	No.	5					19	N4	0	11kV Indoor Substatic	681,500	3,407,500
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Switching Static	11kV Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Cable Network	95 mm 3C Cu	m	50	Suidwal Switching Sta	MS Suidwal			51	N4	0	11kV Cable Network/	1,558	77,924
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Primary Cable	150 mm 3C Al	m	1276	Suidwal Switching Sta	Lower Dorp Switching	185 Cu		148	N4	0	11kV Cable Network/	1,062	1,354,513
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Primary Cable	300 mm 3C Al	m	1552	Suidwal Switching Sta	Boord Switching Stati	Suidwal Boord fdr 3 - 185Cu		149	N4	0	11kV Cable Network/	1,794	2,784,382
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Primary Cable	70 mm 3C Cu	m	214	Suidwal Switching Sta	Helderburg Switching Station			48	N4	0	11kV Cable Network/	1,328	284,297
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Switching Static	11kV Bus Section	No.	2					33	N4	0	11kV Indoor Substatic	1,081,000	2,162,000
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Switching Static	11kV Feeders	No.	14					19	N4	0	11kV Indoor Substatic	681,500	9,541,000
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Switching Static	11kV Incomer	No.	3					34	N4	0	11kV Indoor Substatic	705,000	2,115,000
Stellenbosch	Markotter Substation		11kV Cable Network	150mm 3C Al	m	395	350	0	Isa Carstens Piet Retief 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	419,304
Stellenbosch	Markotter Substation		11kV Cable Network	16mm 3C Cu	m	151	18	0	Bloemhof r/m Bloemhof m/s 11 kV feeder		36	N4	0	11kV Cable Network/	991	149,598
Stellenbosch	Markotter Substation		11kV Cable Network	16mm 3C Cu	m	366	131	0	Dalsig Oos Welgelegen Pomp 11 kV feeder		36	N4	0	11kV Cable Network/	991	362,601
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	323	119	0	Suidwal Krige 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	784,038
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	761	321	0	Krige Braak 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,847,222
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1068	351	0	Suidwal Coetzenburg 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,592,423
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1697	401	0	Suidwal Boord No 2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	4,119,233
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1557	484	0	Suidwal Boord fdr 3		57	N4	0	11kV Cable Network/	2,427	3,779,403
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1344	485	0	Suidwal Dalsig Oos 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,262,375
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1568	486	0	Suidwal Boord No 1 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,806,104
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	609	487	0	Suidwal Braak 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,478,263
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	611	541	0	Suidwal Braak 2 feeder		57	N4	0	11kV Cable Network/	2,427	1,483,118
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	540	607		Faber to Le Seuer-Feeder		57	N4	0	11kV Cable Network/	2,427	1,310,775

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1310	610		Lowerdorp Suidwal No2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,179,844
Stellenbosch	Markotter Substation		11kV Cable Network	185mm 3C Cu	m	1032	612		Suidwal Lower Dorp 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,505,038
Stellenbosch	Markotter Substation		11kV Cable Network	25mm 3C Al	m	167	43	0	Brandwacht Brandwacht 11 kV feeder		40	N4	0	11kV Cable Network/2	421	70,229
Stellenbosch	Markotter Substation		11kV Cable Network	25mm 3C Al	m	335	44	0	Brandwacht Olyf 11 kV feeder		40	N4	0	11kV Cable Network/2	421	140,878
Stellenbosch	Markotter Substation		11kV Cable Network	25mm 3C Al	m	690	45	0	Brandwacht LeSeuer 11 kV feeder		40	N4	0	11kV Cable Network/2	421	290,167
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Al	m	892	46	0	Brandwacht Faber 11 kv feeder		43	N4	0	11kV Cable Network/3	421	375,115
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	347	40	0	Koch r/m Doornbosch 11 kV feeder		42	N4	0	11kV Cable Network/3	991	343,777
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	557	41	0	Doornbosch Barry 11 kV feeder		42	N4	0	11kV Cable Network/3	991	551,827
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	430	42	0	Dalsig Wes Brandwacht1 11 kV feeder		42	N4	0	11kV Cable Network/3	991	426,007
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	277	123	0	Krige Voorgelegen 11 kV feeder		42	N4	0	11kV Cable Network/3	991	274,428
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	323	233	0	Koch s/s Koch r/m 11 kV feeder		42	N4	0	11kV Cable Network/3	991	320,000
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	561	234	0	Koch s/s Barry 11 kV feeder		42	N4	0	11kV Cable Network/3	991	555,790
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	521	249	0	Brandwacht 1 Brandwacht 2 11 kV feeder		42	N4	0	11kV Cable Network/3	991	516,161
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	472	276	0	Koch r/m Valerida 11 kV feeder		42	N4	0	11kV Cable Network/3	991	467,617
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	97	402	0	Dorp/Papegaai to Alexander Forbes		42	N4	0	11kV Cable Network/3	991	96,099
Stellenbosch	Markotter Substation		11kV Cable Network	35mm 3C Cu	m	146	456	0	Joles Park to Dorp/Papegaai cable		42	N4	0	11kV Cable Network/3	991	144,644
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	694	130	0	Dalsig Oos Brandwacht 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	921,972
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	758	132	0	Dalsig Oos Koch s/s 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	1,006,996
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	286	133	0	Dalsig Oos Binnekring 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	379,948
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	315	232	0	Binnekring Dalsig Wes 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	418,474
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	244	349	0	Suidwal Helderberg 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	324,152
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	592	357	0	Dalsig Oos Welgelegen 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	786,466
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	228	723		Stellen_volkskomuis 11kV feeder		48	N4	0	11kV Cable Network/	1,328	302,896
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	252	724		Krige -sport inst 11KV		48	N4	0	11kV Cable Network/	1,328	334,780
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	365	725		Sportint-Stillewater 11kV		48	N4	0	11kV Cable Network/	1,328	484,899
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	705	726		Volks-Bhoff 11kV		48	N4	0	11kV Cable Network/	1,328	936,586
Stellenbosch	Markotter Substation		11kV Cable Network	70mm 3C Cu	m	478	727		Bhoff-Krige 11kV		48	N4	0	11kV Cable Network/	1,328	635,018
Stellenbosch	University Substation	66kV Outdoor Substa	11kV NER		No.	3					35	N4	0	66kV Outdoor Substa	940,000	2,820,000
Stellenbosch	University Substation	66kV Outdoor Substa	Battery Tripping unit	110Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	University Substation	66kV Outdoor Substa	Battery Tripping unit	32Vdc	No.	1					7	N4	0	66kV Outdoor Substa	705,000	705,000
Stellenbosch	University Substation	Bosman Switching St	11kV Ring Main Unit	3 Way	No.	1			Azalia RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Bosman Switching St	11kV Ring Main Unit	3 Way	No.	1			Nyasa RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Bosman Switching St	11kV Ring Main Unit	3 Way	No.	1			Sovida RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Bosman Switching St	11kV Ring Main Unit	3 Way	No.	1			East litlg RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Bosman Switching St	11kV Ring Main Unit	3 Way	No.	1			Schuman RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Bosman Switching St	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatic	1,081,000	1,081,000
Stellenbosch	University Substation	Bosman Switching St	11kV Switching Static	Feeder	No.	8					19	N4	0	11kV Indoor Substatic	681,500	5,452,000
Stellenbosch	University Substation	Bosman Switching St	11kV Switching Static	Incomer	No.	4					34	N4	0	11kV Indoor Substatic	705,000	2,820,000
Stellenbosch	University Substation	Denneoord Switching	11kV Ring Main Unit	3 Way	No.	1			Koloniesland RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Denneoord Switching	11kV Switching Static	Feeder	No.	4					19	N4	0	11kV Indoor Substatic	681,500	2,726,000
Stellenbosch	University Substation	Denneoord Switching	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	University Substation	Eikestad Mall Switchir	11kV Primary Cable	185 mm 3C Cu	m	328	Stadsaal Switching St	Eikestad Mall Switching Station			57	N4	0	11kV Cable Network/	2,427	796,175
Stellenbosch	University Substation	Eikestad Mall Switchir	11kV Primary Cable	185 mm 3C Cu	m	328	Stadsaal Switching St	Eikestad Mall Switching Station			57	N4	0	11kV Cable Network/	2,427	796,175
Stellenbosch	University Substation	Eikestad Mall Switchir	11kV Switching Static	Feeder	No.	2				SBV4	19	N4	0	11kV Indoor Substatic	681,500	1,363,000
Stellenbosch	University Substation	Eikestad Mall Switchir	11kV Switching Static	Incomer	No.	2				SBV4	34	N4	0	11kV Indoor Substatic	705,000	1,410,000
Stellenbosch	University Substation	Kerk Switching Statio	11kV Switching Static	Feeder	No.	5					19	N4	0	11kV Indoor Substatic	681,500	3,407,500
Stellenbosch	University Substation	Kerk Switching Statio	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatic	705,000	705,000
Stellenbosch	University Substation	Kromrivier Switching	11kV Switching Static	Feeder	No.	7					19	N4	0	11kV Indoor Substatic	681,500	4,770,500
Stellenbosch	University Substation	LaCollien Switching S	11kV Ring Main Unit	3 Way	No.	1			DieRand RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	LaCollien Switching S	11kV Ring Main Unit	3 Way	No.	1			DrMalan RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation	LaCollien Switching S	11kV Ring Main Unit	3 Way	No.	1			TVToring RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	LaCollien Switching S	11kV Ring Main Unit	3 Way	No.	1			Helderfontein RMU	JS	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	LaCollien Switching S	11kV Ring Main Unit	3 Way	No.	1			Helderfontein2 RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	LaCollien Switching S	11kV Switching Static	Feeder	No.	4					19	N4	0	11kV Indoor Substatio	681,500	2,726,000
Stellenbosch	University Substation	LaCollien Switching S	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatio	705,000	705,000
Stellenbosch	University Substation	Merriman Bird Switch	11kV Ring Main Unit	3 Way	No.	1			Hagerhof RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Merriman Bird Switch	11kV Ring Main Unit	3 Way	No.	1			PicknPay RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Merriman Bird Switch	11kV Switching Static	Feeder	No.	2					19	N4	0	11kV Indoor Substatio	681,500	1,363,000
Stellenbosch	University Substation	Merriman Bird Switch	11kV Switching Static	Incomer	No.	1					34	N4	0	11kV Indoor Substatio	705,000	705,000
Stellenbosch	University Substation	MerrimanZ Switching	11kV Primary Cable	35 mm 3C Cu	m	400	MerrimanZ Switching	Schuman RMU		JK	45	N4	0	11kV Cable Network/5	1,328	531,396
Stellenbosch	University Substation	MerrimanZ Switching	11kV Primary Cable	70 mm 3C Cu	m	223	MerrimanZ Switching	Langenhoven RMU	No1		48	N4	0	11kV Cable Network/7	1,328	296,253
Stellenbosch	University Substation	MerrimanZ Switching	11kV Primary Cable	70 mm 3C Cu	m	125	MerrimanZ Switching	Bothmazicht Switching Station			48	N4	0	11kV Cable Network/7	1,328	166,061
Stellenbosch	University Substation	MerrimanZ Switching	11kV Primary Cable	70 mm 3C Cu	m	223	MerrimanZ Switching	Langenhoven RMU	No2		48	N4	0	11kV Cable Network/7	1,328	296,253
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	3 Way	No.	1			Monika RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	3 Way	No.	1			Langenhoven RMU	With Metering	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	3 Way	No.	1			Smuts RMU	JS	79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	3 Way	No.	1			Drostdy RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	3 Way	No.	1			BJ Vorster RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ring Main Unit	4 Way	No.	1			Drama RMU		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	University Substation	MerrimanZ Switching	11kV Switching Static	Bus Section	No.	1					33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Stellenbosch	University Substation	MerrimanZ Switching	11kV Switching Static	Feeder	No.	10				VD4	19	N4	0	11kV Indoor Substatio	681,500	6,815,000
Stellenbosch	University Substation	MerrimanZ Switching	11kV Switching Static	Incomer	No.	2				LMT	34	N4	0	11kV Indoor Substatio	705,000	1,410,000
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	2 Way	No.	1			Polisie RMU	GEC	78	N4	0	11kV Ring Main Unit/2	299,625	299,625
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			BATkrosier RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			SDRduToit RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			Helderberg RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			SA Perm RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			Neethlinghuis RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ring Main Unit	3 Way	No.	1			Ecclesia RMU		79	N4	0	11kV Ring Main Unit/3	358,375	358,375
Stellenbosch	University Substation	Stadsaal Switching St	11kV Switching Static	Bus Section	No.	1				Reyrolle	33	N4	0	11kV Indoor Substatio	1,081,000	1,081,000
Stellenbosch	University Substation	Stadsaal Switching St	11kV Switching Static	Feeder	No.	11				Reyrolle	19	N4	0	11kV Indoor Substatio	681,500	7,496,500
Stellenbosch	University Substation	Stadsaal Switching St	11kV Switching Static	Incomer	No.	2				Reyrolle	34	N4	0	11kV Indoor Substatio	705,000	1,410,000
Stellenbosch	University Substation	University Switching S	11kV Primary Cable	185 mm 3C Cu	m	50	University Switching S	University RMU			57	N4	0	11kV Cable Network/	2,427	121,368
Stellenbosch	University Substation	University Switching S	11kV Primary Cable	2x 185 mm 3C Cu	m	1220	University Switching S	Stadsaal Switching St	No2		57	N4	0	11kV Cable Network/	2,427	2,961,382
Stellenbosch	University Substation	University Switching S	11kV Primary Cable	35 mm 3C Cu	m	426	University Switching S	U.V. Workshop RMU			45	N4	0	11kV Cable Network/5	1,328	565,937
Stellenbosch	University Substation	University Switching S	11kV Primary Cable	70 mm 3C Cu	m	204	University RMU	CSIR	Universiteit WNNR 11 kV feeder 95Cu		48	N4	0	11kV Cable Network/7	1,328	271,012
Stellenbosch	University Substation	University Switching S	11kV Primary Cable	70 mm 3C Cu	m	321	University RMU	Kromrivier Switching Station			48	N4	0	11kV Cable Network/7	1,328	426,445
Stellenbosch	University Substation	University Switching S	11kV Ring Main Unit	4 Way	No.	1			University RMU		80	N4	0	11kV Ring Main Unit/4	1,007,563	1,007,563
Stellenbosch	University Substation	University Switching S	11kV Switching Static	Bus Section	No.	2					33	N4	0	11kV Indoor Substatio	1,081,000	2,162,000
Stellenbosch	University Substation	University Switching S	11kV Switching Static	Feeder	No.	15					19	N4	0	11kV Indoor Substatio	681,500	10,222,500
Stellenbosch	University Substation	University Switching S	11kV Switching Static	Incomer	No.	3					34	N4	0	11kV Indoor Substatio	705,000	2,115,000
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	339	159	0	Piet Retief Braak 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	359,859
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	687	237	0	Begraafplaas Stellenbosch Farmers Winery 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	729,271
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	1232	305	0	Universiteit Merriman No 1 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	1,307,805
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	1200	306	0	Universiteit Merriman Z No 2 11 Kv Feeder		148	N4	0	11kV Cable Network/	1,062	1,273,836
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	29	515	0	Piet Retief Isa Carstens Feeder		148	N4	0	11kV Cable Network/	1,062	30,784
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Al	m	2520	663		Groendal_ Franschoek 66 feeder		148	N4	0	11kV Cable Network/	1,062	2,675,056
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Cu	m	211	11	0	Universiteit Engineering Faculty No 2 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	223,983
Stellenbosch	University Substation		11kV Cable Network	150mm 3C Cu	m	216	12	0	Universiteit Engineering Faculty No 1 11 kV feeder		148	N4	0	11kV Cable Network/	1,062	229,291
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	144	23	0	Rupert International Rembrandt 11 kV feeder		36	N4	0	11kV Cable Network/	991	142,663

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	71	50	0	Boland Bank De Wets 11 kV feeder		36	N4	0	11kV Cable Network/	991	70,341
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	144	51	0	Meulplein Boland Bank 11 kV feeder		36	N4	0	11kV Cable Network/	991	142,663
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	517	92	0	Drama Monica 11 kV feeder		36	N4	0	11kV Cable Network/	991	512,199
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	570	98	0	Vrugtepakkers Cascade 11 kV feeder		36	N4	0	11kV Cable Network/	991	564,706
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	149	100	0	Cascade Rembrandt/Bird 11 kV feeder		36	N4	0	11kV Cable Network/	991	147,616
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	451	102	0	Papegaairand Vrugtepakkers 11 kV feeder		36	N4	0	11kV Cable Network/	991	446,812
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	273	113	0	Bosman East Lynne/Neethling 11 kV feeder		36	N4	0	11kV Cable Network/	991	270,465
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	262	115	0	Denneoord Van Der Stel/Van Riebeeck 11 kV feeder		36	N4	0	11kV Cable Network/	991	259,567
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	266	121	0	Braak Meulplein 11 kV feeder		36	N4	0	11kV Cable Network/	991	263,530
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	57	140	0	Begraafplaas Begraafplaas R/M 11 kV feeder		36	N4	0	11kV Cable Network/	991	56,471
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	791	175	0	Dr Malan TV 11 kV feeder		36	N4	0	11kV Cable Network/	991	783,654
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	197	183	0	Rembrandt/Bird Sdr Depot 11 kV feeder		36	N4	0	11kV Cable Network/	991	195,170
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	434	320	0	Stadsaal Rembrandt 11 kV feeder		36	N4	0	11kV Cable Network/	991	429,969
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	264	327	0	Bosman Sonvida 11 kV feeder		36	N4	0	11kV Cable Network/	991	261,548
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	126	396	0	Maritech Simonsberg Kaas 11 kV feeder		36	N4	0	11kV Cable Network/	991	124,830
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	68	406	0	Dr Malan to Berg en Dal		36	N4	0	11kV Cable Network/	991	67,368
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	342	424	0	Berg en Dal to La Coline		36	N4	0	11kV Cable Network/	991	338,824
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	106	506	0	SDR Depot to Drukkers		36	N4	0	11kV Cable Network/	991	105,016
Stellenbosch	University Substation		11kV Cable Network	16mm 3C Cu	m	391	507	0	Drukkers Simonsberg 11kV feeder		36	N4	0	11kV Cable Network/	991	387,369
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	596	122	0	Braak Stadsaal 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,446,708
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	320	179	0	SDR Kliniek Cascade 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	776,756
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1189	222	0	Tennant Papegaairand 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,886,133
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1400	284	0	Univrsiteit Tennant No3 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,398,307
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1421	285	0	Universiteit Tennant No 1 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,449,281
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1404	286	0	Universiteit Tennant 11 kV feeder 2		57	N4	0	11kV Cable Network/	2,427	3,408,016
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1265	307	0	Universiteit Stadsaal 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,070,613
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1333	311	0	Universiteit Hofman 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,235,674
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	642	318	0	Hofman SDR Kliniek 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,558,366
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	779	322	0	Braak Blakes Estate 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,890,915
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1343	328	0	Jan Marais Bosman 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	3,259,947
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	851	343	0	Blakes Estate Hofman No2 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,065,685
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1158	366	0	Hofman Papegaairand 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,810,885
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1234	371	0	Universiteit Bosman 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	2,995,365
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	527	377	0	Bosman Coetzenburg no 1, 185 cu cable		57	N4	0	11kV Cable Network/	2,427	1,279,220
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	292	457	0	Blakes Estate to Weidenhof cable		57	N4	0	11kV Cable Network/	2,427	708,790
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	478	559	0	Tennant Stellenbosch Motors 11 kV feeder		57	N4	0	11kV Cable Network/	2,427	1,160,279
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	337	560	0	Stellenbosch Motors Cascade feeder		57	N4	0	11kV Cable Network/	2,427	818,021
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1262	608		Stadsaal-Universteit 11Kv Feeder		57	N4	0	11kV Cable Network/	2,427	3,063,331
Stellenbosch	University Substation		11kV Cable Network	185mm 3C Cu	m	1482	667		US to Sonnebloem 11 kV fdr		57	N4	0	11kV Cable Network/	2,427	3,597,350
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	285	6	0	Latski Hofman 11 kV feeder		42	N4	0	11kV Cable Network/3	991	282,353
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	148	7	0	Nouveau Kilotreads 11 kV feeder		42	N4	0	11kV Cable Network/3	991	146,626
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	64	8	0	Kilotreads Lobelia 11 kV feeder		42	N4	0	11kV Cable Network/3	991	63,406
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	57	9	0	Zimbabwe Oos Zimbabwe Wes 11 kV feeder		42	N4	0	11kV Cable Network/3	991	56,471
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	623	10	0	Hagerhof Lavanda 11 kV feeder		42	N4	0	11kV Cable Network/3	991	617,214
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	78	17	0	Cascade Bokomo 11 kV feeder		42	N4	0	11kV Cable Network/3	991	77,276
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	120	19	0	Maeslant Amatoni 11 kV feeder		42	N4	0	11kV Cable Network/3	991	118,886
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	194	22	0	Rupert International SDR Du Toit 11 kV feeder		42	N4	0	11kV Cable Network/3	991	192,198
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	307	47	0	Middebosch Kweekskool 11 kV feeder		42	N4	0	11kV Cable Network/3	991	304,149
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	361	48	0	DeWaterkant Middebosch 11 kV feeder		42	N4	0	11kV Cable Network/3	991	357,647
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	258	49	0	Gimnasium DeWaterkant 11 kV feeder		42	N4	0	11kV Cable Network/3	991	255,604

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	88	52	0	De Ouwe Werf Edgars 11 kV feeder		42	N4	0	11kV Cable Network/	991	87,183
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	63	53	0	Ou Kollege De Ouwe Werf 11 kV feeder		42	N4	0	11kV Cable Network/	991	62,415
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	95	54	0	Andmar Ou Kollege 11 kV feeder		42	N4	0	11kV Cable Network/	991	94,118
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	100	55	0	Kerk Andmar 11 kV feeder		42	N4	0	11kV Cable Network/	991	99,071
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	47	56	0	Saambou Goodhope 11 kV feeder		42	N4	0	11kV Cable Network/	991	46,564
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	103	57	0	SA Perm Goodhope 11 kV feeder		42	N4	0	11kV Cable Network/	991	102,043
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	193	85	0	Denneoord Kollege m/s 11 kV feeder		42	N4	0	11kV Cable Network/	991	191,208
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	29	86	0	Kollege m/s Kollege r/m 11 kV feeder		42	N4	0	11kV Cable Network/	991	28,731
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	229	87	0	Rattray Die Laan 11 kV feeder		42	N4	0	11kV Cable Network/	991	226,873
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	315	88	0	Kweekskool DieLaan 11 kV feeder		42	N4	0	11kV Cable Network/	991	312,075
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	107	89	0	De Waal m/s Friedland 11 kV feeder		42	N4	0	11kV Cable Network/	991	106,006
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	243	90	0	Friedland Bergville 11 kV feeder		42	N4	0	11kV Cable Network/	991	240,743
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	157	91	0	Bergville Drama 11 kV feeder		42	N4	0	11kV Cable Network/	991	155,542
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	80	95	0	De Canha Libertas 11 kV feeder		42	N4	0	11kV Cable Network/	991	79,257
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	117	96	0	Libertas Andringa 11 kV feeder		42	N4	0	11kV Cable Network/	991	115,913
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	91	101	0	Lubbe Papegaairand 11 kV feeder		42	N4	0	11kV Cable Network/	991	90,155
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	108	103	0	Stadsaal Neethlinghuis 11 kV feeder		42	N4	0	11kV Cable Network/	991	106,997
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	138	104	0	Stadsaal De Waal m/s 11 kV feeder		42	N4	0	11kV Cable Network/	991	136,718
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	298	106	0	Stadsaal SA Perm 11 kV feeder		42	N4	0	11kV Cable Network/	991	295,232
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	358	107	0	Stadsaal Edgars 11 kV feeder		42	N4	0	11kV Cable Network/	991	354,675
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	258	120	0	Braak De Wets 11 kV feeder		42	N4	0	11kV Cable Network/	991	255,604
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	195	153	0	SDR Du Toit Polisie 11 kV feeder		42	N4	0	11kV Cable Network/	991	193,189
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	125	154	0	Polisie Landdros 11 kV feeder		42	N4	0	11kV Cable Network/	991	123,839
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	42	157	0	Landros GPO 11 kV feeder		42	N4	0	11kV Cable Network/	991	41,610
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	224	172	0	Neethlinghuis ABSA 11 kV feeder		42	N4	0	11kV Cable Network/	991	221,920
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	310	174	0	La Coline Prinspark 11 kV feeder		42	N4	0	11kV Cable Network/	991	307,121
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	59	176	0	Prinspark Dr Malan 11 kV feeder		42	N4	0	11kV Cable Network/	991	58,452
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	103	177	0	Merriman/Bird Pick&Pay 11 kV feeder		42	N4	0	11kV Cable Network/	991	102,043
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	155	178	0	Pick&Pay latski 11 kV feeder		42	N4	0	11kV Cable Network/	991	153,561
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	145	180	0	SDR Kliniek Langenhoven 11 kV feeder		42	N4	0	11kV Cable Network/	991	143,653
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	149	181	0	SDR Kliniek Nouveau 11 kV feeder		42	N4	0	11kV Cable Network/	991	147,616
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	153	184	0	George Blake Noord George Blake Suid 11 kV feeder		42	N4	0	11kV Cable Network/	991	151,579
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	294	185	0	Randstraat Papegaairand 11 kV feeder		42	N4	0	11kV Cable Network/	991	291,270
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	203	186	0	Stoffel Smit Randstraat 11 kV feeder		42	N4	0	11kV Cable Network/	991	201,115
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	135	191	0	ABSA UBS 11 kV feeder		42	N4	0	11kV Cable Network/	991	133,746
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	138	194	0	Tennant Alley 11 kV feeder		42	N4	0	11kV Cable Network/	991	136,718
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	93	211	0	UBS Kerk 11 kV feeder		42	N4	0	11kV Cable Network/	991	92,136
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	177	214	0	Merriman/Bird De Canha 11 kV feeder		42	N4	0	11kV Cable Network/	991	175,356
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	71	215	0	Bokomo Mastertreads 11 kV feeder		42	N4	0	11kV Cable Network/	991	70,341
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	306	239	0	Blakes Estate Maeslant 11 kV feeder		42	N4	0	11kV Cable Network/	991	303,158
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	457	248	0	Gimnasium Valerida 11 kV feeder		42	N4	0	11kV Cable Network/	991	452,756
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	5	278	0	Kromrivier Kromrivier r/m 11 kV feeder		42	N4	0	11kV Cable Network/	991	4,954
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	2	279	0	Merriman/Bird s/s Merriman/Bird r/m 11 kV feeder		42	N4	0	11kV Cable Network/	991	1,981
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	136	287	0	Kromrivier r/m Die Rand r/m 11 kV feeder		42	N4	0	11kV Cable Network/	991	134,737
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	314	291	0	Kollege R/M to Koloniesland cable		42	N4	0	11kV Cable Network/	991	311,084
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	1058	295	0	Tennant Nietvoorbij		42	N4	0	11kV Cable Network/	991	1,048,174
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	254	303	0	Die Rand r/m Die Rand m/s 11 kV feeder		42	N4	0	11kV Cable Network/	991	251,641
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	456	304	0	Universiteit Universiteit Werkswinkel 11 kV feeder		42	N4	0	11kV Cable Network/	991	451,765
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	410	309	0	Merriman Z Schuman 11 kV feeder		42	N4	0	11kV Cable Network/	991	406,192
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	429	312	0	Cascade Stoffel Smit 11 kV feeder		42	N4	0	11kV Cable Network/	991	425,016

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	172	315	0	Andringa Hagerhof 11 kV feeder		42	N4	0	11kV Cable Network/3	991	170,403
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	76	316	0	Zimbabwe Wes Lobelia 11 kV feeder		42	N4	0	11kV Cable Network/3	991	75,294
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	207	317	0	Sabosela Oewerzicht 11 kV feeder		42	N4	0	11kV Cable Network/3	991	205,078
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	157	363	0	Kromrivier Lavanda 11 kV feeder		42	N4	0	11kV Cable Network/3	991	155,542
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	584	364	0	Banghoek Kromrivier 11 kV feeder		42	N4	0	11kV Cable Network/3	991	578,576
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	215	365	0	Die Rand r/m La Coline 11 kV feeder		42	N4	0	11kV Cable Network/3	991	213,003
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	532	367	0	George Blake Suid Lubbe 11 kV feeder		42	N4	0	11kV Cable Network/3	991	527,059
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	257	368	0	Papegaairand Maritech 11 kV feeder		42	N4	0	11kV Cable Network/3	991	254,613
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	296	376	0	Kromrivier La Coline 11 kV feeder		42	N4	0	11kV Cable Network/3	991	293,251
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	529	397	0	Oewerzicht George Blake Noord 11 kV feeder		42	N4	0	11kV Cable Network/3	991	524,087
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	325	398	0	OK Saambou 11 kV feeder		42	N4	0	11kV Cable Network/3	991	321,982
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	67	399	0	Braak OK Bazaar 11 kV feeder		42	N4	0	11kV Cable Network/3	991	66,378
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	398	403	0	Amatoni t Alexander Forbes		42	N4	0	11kV Cable Network/3	991	394,304
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	55	407	0	Stellenbosch 101 to Schuilplaats		42	N4	0	11kV Cable Network/3	991	54,489
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	29	417	0	Dermont Sabosela turnin to Molteno		42	N4	0	11kV Cable Network/3	991	28,731
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	211	418	0	Dermont Sabosela turnin to Molteno Park		42	N4	0	11kV Cable Network/3	991	209,040
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	161	421	0	Hofman Akkerhof 11 kV feeder		42	N4	0	11kV Cable Network/3	991	159,505
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	114	422	0	Schoongezicht Akkerhof cable		42	N4	0	11kV Cable Network/3	991	112,941
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	433	423	0	Dermont Schoongezicht cable		42	N4	0	11kV Cable Network/3	991	428,979
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	393	425	0	Kromrivier to Vergezicht cable		42	N4	0	11kV Cable Network/3	991	389,350
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	65	435	0	La Rez to Taylor cable		42	N4	0	11kV Cable Network/3	991	64,396
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	120	449	0	Voorgelegen Dorp 98 cable		42	N4	0	11kV Cable Network/3	991	118,886
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	378	450	0	Dorp 98 Mark street m/s		42	N4	0	11kV Cable Network/3	991	374,490
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	162	455	0	Mark Str Joles Park cable		42	N4	0	11kV Cable Network/3	991	160,496
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	307	488	0	Daghospitaal Taylor 11 kV feeder		42	N4	0	11kV Cable Network/3	991	304,149
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	200	489	0	Langenhoven Agape cable		42	N4	0	11kV Cable Network/3	991	198,143
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	184	490	0	Agape to Zimbabwe cable		42	N4	0	11kV Cable Network/3	991	182,291
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	27	493	0	TV Toring to Nietvoorbij pomp		42	N4	0	11kV Cable Network/3	991	26,749
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	263	494	0	Helderfontein S/s		42	N4	0	11kV Cable Network/3	991	260,558
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	470	495	0	Helderfontein to OH Line cable		42	N4	0	11kV Cable Network/3	991	465,635
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	695	539	0	Kollege r/m Piron 11 kV feeder		42	N4	0	11kV Cable Network/3	991	688,546
Stellenbosch	University Substation		11kV Cable Network	35mm 3C Cu	m	52	540	0	Rattray Piron m/s		42	N4	0	11kV Cable Network/3	991	51,517
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	255	0	0	Merriman Z Langenhoven No 2 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	338,765
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	257	1	0	Merriman Z JC Smuts 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	341,422
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	211	20	0	Bast Molen Alexander 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	280,311
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	46	21	0	Alexander GPO 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	61,111
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	359	66	0	Jan Marais Cluver 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	476,928
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	218	83	0	Ou de Waal McDonald 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	289,611
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	150	84	0	De Waal Ou De Waal 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	199,274
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	189	93	0	Elckerlijck Drama 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	251,085
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	139	94	0	BJ Vorster MacDonalds 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	184,660
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	255	97	0	Merriman Z Langenhoven No 1 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	338,765
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	50	99	0	DW Papegaaipark 3 Winprint 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	66,425
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	179	105	0	Stadsaal Beyershof 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	237,800
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	66	109	0	Merriman z Het Begijnhof 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	87,680
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	229	110	0	Merriman Z BJ Vorster 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	304,224
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	406	112	0	Bosman Conservatorium 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	539,367
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	165	116	0	Denneoord De Waal 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	219,201
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	137	117	0	Coetzenburg Coetzenburg Sport 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	182,003
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	604	118	0	Coetzenburg Welgevallen 11 kV feeder		48	N4	0	11kV Cable Network/7	1,328	802,408

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	187	138	0	Blakes Estate Distillers no1 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	248,428
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	43	162	0	Cannery Reuben Nel 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	57,125
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	366	164	0	Kerk Nyasa 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	486,227
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	42	165	0	Nyasa Azalea 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	55,797
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	161	168	0	NH Kerk Bosman 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	213,887
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	591	169	0	Schuman Amadeus 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	785,138
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	175	170	0	Amadeus NH Kerk 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	232,486
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	98	171	0	Drosdy Coetzenburg Gallery 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	130,192
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	71	173	0	Het Begijnhof De Villiers 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	94,323
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	187	210	0	Coetzenburg Gallery Beyershof 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	248,428
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	99	213	0	Helderzicht Drosdy 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	131,521
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	186	238	0	Blakes Estate Distillers no2 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	247,099
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	524	288	0	Bosman Coetzenburg no 2, 70 Cu Cable		48	N4	0	11kV Cable Network/	1,328	696,129
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	507	292	0	Helderberg Stellenbosch Hotel 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	673,545
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	273	308	0	De Villiers Banghoek 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	362,678
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	172	310	0	MacDonalds Merriman/Bird 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	228,500
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	542	313	0	Tennant Du Toit 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	720,042
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	488	323	0	Braak Bast Molen 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	648,303
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	416	324	0	Braak Rupert International 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	552,652
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	344	325	0	Coservatorium Azalea 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	457,001
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	670	326	0	Bosman Kerk 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	890,088
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	640	329	0	Coetzenburg Gimnasium 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	850,234
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	850	342	0	Hofman Blakes Estate 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	1,129,217
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	4	344	0	Sonneblom NIVV r/m 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	5,314
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	285	345	0	NIVV r/m Cannery 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	378,620
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	674	362	0	Cluver Sonneblom 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	895,402
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	293	369	0	Papegaairand Papegaai Park 1 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	389,248
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	312	370	0	Papegaaipark 2 Papegaaipark 3 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	414,489
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	40	405	0	Papegaai Park 1 to Bridge 1		48	N4	0	11kV Cable Network/	1,328	53,140
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	566	415	0	Welgelegen Park cable		48	N4	0	11kV Cable Network/	1,328	751,925
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	593	416	0	Park to Welgelegen cable		48	N4	0	11kV Cable Network/	1,328	787,795
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	18	419	0	Bridge 2 to Bridge 1 cable		48	N4	0	11kV Cable Network/	1,328	23,913
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	141	420	0	Papegaaipark 2 to Bridge 2		48	N4	0	11kV Cable Network/	1,328	187,317
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	130	426	0	Merriman Z to Botmazicht cable		48	N4	0	11kV Cable Network/	1,328	172,704
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	385	427	0	Botmazicht to Eikenbosch Cable		48	N4	0	11kV Cable Network/	1,328	511,469
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	281	436	0	Mastertreads to La Rez		48	N4	0	11kV Cable Network/	1,328	373,306
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	151	439	0	NIVV r/m Droebane 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	200,602
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	322	440	0	Droebane Cannery 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	427,774
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	658	451	0	Merriman to Bergzicht Plaza		48	N4	0	11kV Cable Network/	1,328	874,147
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	306	452	0	Bergzicht Plaza to Hekderzicht		48	N4	0	11kV Cable Network/	1,328	406,518
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	69	511	0	SimonsRust 1 SimonsRust 2 Feeder		48	N4	0	11kV Cable Network/	1,328	91,666
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	132	519	0	Oudehoek 1ste Nasionaal 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	175,361
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	69	520	0	Oudehoek JanKatrs feeder		48	N4	0	11kV Cable Network/	1,328	91,666
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	43	521	0	Stellenbosch Hotel Jan Katz feeder		48	N4	0	11kV Cable Network/	1,328	57,125
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	117	526	0	Elcerlyc De Watergracht 70Cu feeder		48	N4	0	11kV Cable Network/	1,328	155,433
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	163	527	0	De Watergracht Cyrus 70Cu feeder		48	N4	0	11kV Cable Network/	1,328	216,544
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	236	528	0	Merriman Z Cyrus 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	313,524
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	532	532	0	DW Noitgedacht Du Toit cable		48	N4	0	11kV Cable Network/	1,328	706,757
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	170	533		Vergesicht Nooitgedacht 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	225,843
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	466	536	0	Papegaairand Linton 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	619,076

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	109	537	0	Papegaaipark 5 Linton 11kV feeder		48	N4	0	11kV Cable Network/	1,328	144,805
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	74	562		Papegaaipark Winprint 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	98,308
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	267	566	0	Hofman Caltex Bergzight		48	N4	0	11kV Cable Network/	1,328	354,707
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	73	567		HIV_Botmazight 11kV feeder		48	N4	0	11kV Cable Network/	1,328	96,980
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	12	580		Verreweide to Marais park		48	N4	0	11kV Cable Network/	1,328	15,942
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	342	583		Thatch to Driehoek 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	454,344
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	17	584		Student Village_Verreweide		48	N4	0	11kV Cable Network/	1,328	22,584
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	71	585		Student Village _Driehoek		48	N4	0	11kV Cable Network/	1,328	94,323
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	234	586		Driehoek _Verreweide		48	N4	0	11kV Cable Network/	1,328	310,867
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	10	590		Verrewyde - Cluver		48	N4	0	11kV Cable Network/	1,328	13,285
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	235	591		Blake/hof_V-D_Stell Sport		48	N4	0	11kV Cable Network/	1,328	312,195
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	130	593		ICA_Papagaai		48	N4	0	11kV Cable Network/	1,328	172,704
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	142	594		Dempsy-Bosman 11 kV Cable		48	N4	0	11kV Cable Network/	1,328	188,646
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	4	599		Cas-Stoffel 11 kV Cable		48	N4	0	11kV Cable Network/	1,328	5,314
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	5	602		Muller-Agapi		48	N4	0	11kV Cable Network/	1,328	6,642
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	5	603		Muller-Zim		48	N4	0	11kV Cable Network/	1,328	6,642
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	407	637		Sonne_Driehoek 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	540,696
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	80	646		Agape_Janker 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	106,279
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	186	647		Muller_Jonker 11kVFeeder		48	N4	0	11kV Cable Network/	1,328	247,099
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	9	648		BraakSS-BraakMS 11 Feeder		48	N4	0	11kV Cable Network/	1,328	11,956
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	162	651		Hoffman_Melrose 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	215,215
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	220	652		Dennesig_Melrose 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	292,268
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	239	653		Plambago_Dennesig 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	317,509
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	115	654		Plambago_Dennesig 11kV Feeder		48	N4	0	11kV Cable Network/	1,328	152,776
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	131	656		Stadsaal Mill Squire11 kV feeder		48	N4	0	11kV Cable Network/	1,328	174,032
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	139	657		First nationall Mill Squire11 kV feeder		48	N4	0	11kV Cable Network/	1,328	184,660
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	1433	666		Sonneblom Eikenbosch 11 kV feeder		48	N4	0	11kV Cable Network/	1,328	1,903,727
Stellenbosch	University Substation		11kV Cable Network	70mm 3C Cu	m	457	728		Vrugte-Papegaai R		48	N4	0	11kV Cable Network/	1,328	607,120
Stellenbosch	University Substation		11kV Cable Network	95mm 3C Cu	m	219	13	0	Universiteit WNNR 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	341,306
Stellenbosch	University Substation		11kV Cable Network	95mm 3C Cu	m	520	114	0	Bosman Denneoord 11 kV feeder		51	N4	0	11kV Cable Network/	1,558	810,406
Stellenbosch	University Substation		11kV Cable Network	95mm 3C Cu	m	139	565		Eike to Stadsaal 11kV feeder		51	N4	0	11kV Cable Network/	1,558	216,628
Stellenbosch	University Substation		11kV Cable Network	Mink	m	52	496	0	O/H line to TRF Huise		69	N4	0	11kV OHL Network/M	367	19,063
Stellenbosch	University Substation		11kV Cable Network	Mink	m	353	497	0	O/H line to Polisie Voertuigbewaringseenheid		69	N4	0	11kV OHL Network/M	367	129,410
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	100kVA	No.	1			GM015	100	102	N5	100	11kV Ground Mount	84,013	84,013
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	160kVA	No.	1			GM011	160	105	N5	160	11kV Ground Mount	115,150	115,150
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	160kVA	No.	1			GM012	160	105	N5	160	11kV Ground Mount	115,150	115,150
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	200kVA	No.	1			GM012	200	106	N5	200	11kV Ground Mount	120,438	120,438
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	200kVA	No.	1			GM013	200	106	N5	200	11kV Ground Mount	120,438	120,438
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	315kVA	No.	1			GM013	315	109	N5	315	11kV Ground Mount	163,252	163,252
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	315kVA	No.	1			GM014	315	109	N5	315	11kV Ground Mount	163,252	163,252
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	315kVA	No.	1			GM017	315	109	N5	315	11kV Ground Mount	163,252	163,252
Franschoek	Franschoek	Groendal Switching S	11kV Ground Mount	50kVA	No.	1			GM016	50	101	N5	50	11kV Ground Mount	75,200	75,200
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM103	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM104	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM121	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM130	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM137	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM138	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM216	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM221	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM222	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM106	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM116	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM117	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM124	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM128	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM129	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM213	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM223	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM300	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM109	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM110	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM111	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM205	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM217	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM218	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM105	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM112	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM112A	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM115	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM119	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM120	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM122	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM123	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM127	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM131	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM136	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM201	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM212	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM219	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM221	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM227	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Groendal Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM228	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Hugenote Switching S	11kV Ground Mount	200kVA	No.	1			GM001	200	106	N5	200	11kV Ground Mount	120,438	120,438
Franschoek	Franschoek	Hugenote Switching S	11kV Ground Mount	315kVA	No.	1			GM002	315	109	N5	315	11kV Ground Mount	163,252	163,252
Franschoek	Franschoek	Hugenote Switching S	11kV Ground Mount	50kVA	No.	1			GM003	50	101	N5	50	11kV Ground Mount	75,200	75,200
Franschoek	Franschoek	Hugenote Switching S	11kV Ground Mount	50kVA	No.	1			GM006	50	101	N5	50	11kV Ground Mount	75,200	75,200
Franschoek	Franschoek	Hugenote Switching S	11kV Ground Mount	50kVA	No.	1			GM007	50	101	N5	50	11kV Ground Mount	75,200	75,200
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	1000kVA	No.	1			SS004 Wynkelder	1000	103	N5	1000	11kV Ground Mount	640,963	640,963
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	100kVA	No.	1			PM301	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM302	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	16kVA	No.	1			PM303	16	118	N5	16	11kV Pole Mount Trar	39,363	39,363
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	200kVA	No.	1			PM305	200	127	N5	200	11kV Pole Mount Trar	122,200	122,200
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	25kVA	No.	1			PM304	25	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Franschoek	Franschoek	Hugenote Switching S	11kV Pole Mount Trar	50kVA	No.	1			PM306	50	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Franschoek	Franschoek	Monument Switching	11kV Pole Mount Trar	100kVA	No.	1			PM405	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	Monument Switching	11kV Pole Mount Trar	100kVA	No.	1			PM406	100	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Franschoek	Franschoek	66kV Outdoor Substa	11kV Miniature Subst	315kVA	No.	1				315	91	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	11kV Primary Cable	630mm 1C Cu	m	60	Power Transformer	Cloetesville Switching Station			144	N5	0	66kV Outdoor Substa	2,503	150,165
Stellenbosch	Cloetesville Substatio	66kV Outdoor Substa	Distribution Transforn	100kVA	No.	1					102	N5	100	11kV Ground Mount	84,013	84,013

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Ground Mount	100 kVA	No.	1			GM SDRDepot		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Cloetesville Substatio	Cascade Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Drukkers		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Ground Mount	100 kVA	No.	1			GM Cloetesville Switching Station		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Ground Mount	315 kVA	No.	1			GM Rhode1		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Ground Mount	315 kVA	No.	1			GM Rhode2		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	200 kVA	No.	1			MS StelPark		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	300 kVA	No.	1			MS Gabriel		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Seger		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS MountainSilver		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Waterboom		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Bergsipress		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Melkhout		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Waaierpalm		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Essenhout		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Stasie		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	315 kVA	No.	1			MS Tehuis		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	400 kVA	No.	1			MS Ortell		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	400 kVA	No.	1			MS HollyOaks		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	400 kVA	No.	1			MS Chestnut		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	400 kVA	No.	1			MS Last		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	500 kVA	No.	1			MS Cherrywood		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	500 kVA	No.	1			MS Mount Simon Estate		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	500 kVA	No.	1			MS Mount Simon Estate 2		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Cloetesville Switching	11kV Miniature Subst	800 kVA	No.	1			MS Nuutgevonden Estate		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Cloetesville Substatio	Costa Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Ground Mount	400 kVA	No.	1			GM Curry Switching Station		110	N5	400	11kV Ground Mount	299,625	299,625
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Crombi		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Olifant		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Cupido		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Anthony		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Curry Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Davidse		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Ground Mount	500 kVA	No.	1			GM Hofman Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Ground Mount	500 kVA	No.	1			GM Sabosela		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	160 kVA	No.	1			MS Dermont		85	N5	150	11kV Miniature Subst	775,794	775,794
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	200 kVA	No.	1			MS Schoongesig		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	200 kVA	No.	1			MS Dennesig		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	315 kVA	No.	1			MS Latsky		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	315 kVA	No.	1			MS Molteno		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	400 kVA	No.	1			MS Akkerhof		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	500 kVA	No.	1			MS Boschen		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Hofman Switching Sta	11kV Miniature Subst	500 kVA	No.	1			MS Melrose		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	315 kVA	No.	1			MS Masitandane1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	315 kVA	No.	1			MS 6thAve5		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	315 kVA	No.	1			MS 13th Street 17		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	315 kVA	No.	1			MS School Crescent 9		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	315 kVA	No.	1			MS 10th Street 8		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Bassi4		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Long6		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS New School		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Snake Valley		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Vineyard7		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Mdala 2		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Hani		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Luyolo10		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	400 kVA	No.	1			MS Sesihlanu16		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS Sokuqala15		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS 7thAve13		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS Bassi/Long 14		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS Kayamandi Corridor		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS Mdala End 12		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS MondiCres11		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Kayamandi Switching	11kV Miniature Subst	500 kVA	No.	1			MS Makapula		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Ground Mount	200 kVA	No.	1			GM LandStrSuid Switching Station		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	300 kVA	No.	1			MS Lakay1		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	300 kVA	No.	1			MS Lakay2		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	300 kVA	No.	1			MS Langstr Woonstelle		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	300 kVA	No.	1			MS NorthEnd		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	300 kVA	No.	1			MS Lang/Williams		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	400 kVA	No.	1			MS Orleans		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	LangStrSuid Switchin	11kV Miniature Subst	750 kVA	No.	1			MS Fir		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ground Mount	1000 kVA	No.	1			GM Simonsberg Cheese		103	N5	1000	11kV Ground Mount	640,963	640,963
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ground Mount	250 kVA	No.	1			GM Papegaairand Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Ground Mount	250 kVA	No.	1			GM Maritech		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	200 kVA	No.	1			MS ICA		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	300 kVA	No.	1			MS Stoffel Smit Rd		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	300 kVA	No.	1			MS VW Rand Str		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Lubbe		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	315 kVA	No.	1			MS George Blake South		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	315 kVA	No.	1			MS George Blake North		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Linton		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Planken Str		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Papegaaiberg Industrial 5		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Papegaaiberg Industrial 3		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Papegaaiberg Industrial 1		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Bridge Rd 1		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Bridgerd 2		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Hulett		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Papegaaiberg Industrial 2		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Winprint		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1					96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Papegaairand Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Stoffel Smit Rd 8		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Ground Mount	200 kVA	No.	1			GM Naveau		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Ground Mount	250 kVA	No.	1			GM SDR Kliniek Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Miniature Subst	200 kVA	No.	1			MS Langenhoven		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Miniature Subst	500 kVA	No.	1			MS Agape		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Miniature Subst	500 kVA	No.	1			MS Jonkersview		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	SDR Kliniek Switching	11kV Miniature Subst	800 kVA	No.	1			MS Muller		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Ground Mount	500 kVA	No.	1			GM DuToit		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	100 kVA	No.	1			MS Dag Hospitaal		83	N5	100	11kV Miniature Subst	791,380	791,380
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	300 kVA	No.	1			MS Stellenbosch Motors		90	N5	300	11kV Miniature Subst	575,398	575,398

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	300 kVA	No.	1			MS Taylor		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Lappan2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	315 kVA	No.	1			MS LaRez		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	315 kVA	No.	1			MS M Threads		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Bokomo		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	400 kVA	No.	1			MS CV Central		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	400 kVA	No.	1			MS Jakaranda		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	400 kVA	No.	1			MS Noble		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Mulberry Place		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Skool		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Tennant		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Alley		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Lappan1		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Tennant Switching St	11kV Miniature Subst	500 kVA	No.	1			MS Lappan3		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 1 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 2 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS Zone 0		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 3 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 4 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 5 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 6 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Watergang Switching	11kV Miniature Subst	500 kVA	No.	1			MS 7 Watergang		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Hendrikse		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Welgevonden Boulevard		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Welgevonden Gate		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Welgevonden Entrance		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	400 kVA	No.	1			MS Olive		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	400 kVA	No.	1					94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Klein Welgevonden		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Perdevy (A1)		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Rankel (A2)		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Sour Fig (A2A)		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Sonnedou		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1			MS Belladonna		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Cloetesville Substatio	Welgevonden Switchi	11kV Miniature Subst	500 kVA	No.	1					96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Pniel	Dwarsrivier Substatio	Boschendal	11kV Miniature Subst	500kVA	No.	1			MS SA Police 346	MS-0347	96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	100kVA	No.	1			TRF Rachaelfontein	PTRF-815	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	100kVA	No.	1			TRF Simonsberg Woodwork	PTRF-1020	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	160kVA	No.	1			TRF Rachaelfontein	PTRF-814	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	50kVA	No.	1			TRF Boscheddal Workers Homes	PTRF-1023	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	50kVA	No.	1			TRF Boscheddal Farm Houses	PTRF-1022	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	50kVA	No.	1			TRF Boschendal Administrative houses	PTRF-1021	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Boschendal	11kV Pole Mount Trar	50kVA	No.	1			TRF New Oaks	PTRF-816	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Ground Mount	315kVA	No.	1			TRF Delta Crest	TRF-177	109	N5	315	11kV Ground Mount	163,252	163,252
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	100kVA	No.	1			TRF Lubeck	PTRF-176	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	100kVA	No.	1			TRF Golf Club	PTRF-1044	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	100kVA	No.	1			TRF AM Farm Houses	PTRF-562	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	100kVA	No.	1			TRF Two Rivers		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	150kVA	No.	1			TRF AM Farm Houses	PTRF-560	125	N5	150	11kV Pole Mount Trar	109,863	109,863

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	150kVA	No.	1			TRF AM Farm Houses	PTRF-566	125	N5	150	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	160kVA	No.	1			TRF AM Farms houses	PTRF-558	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	25kVA	No.	1			TRF Soloms Church	PTRF-557	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	25kVA	No.	1			TRF School	PTRF-575	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	25kVA	No.	1			TRF Farm house	PTRF-576	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	25kVA	No.	1			TRF AM Farm Houses	PTRF-565	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	50kVA	No.	1			TRF Games Club	PTRF-567	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	50kVA	No.	1			TRF New AM Farm		122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	50kVA	No.	1			TRF AM Farm Houses	PTRF-563	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Delta Crest	11kV Pole Mount Trar	50kVA	No.	1			TRF AM Farm Houses	PTRF-564	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Ground Mount	315kVA	No.	1			TRF Delta Pump		109	N5	315	11kV Ground Mount	163,252	163,252
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Ground Mount	630kVA	No.	1			TRF Delta Meer	TRF-178	113	N5	630	11kV Ground Mount	403,806	403,806
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Pole Mount Trar	100kVA	No.	1			TRF Pickstons	PTRF-569	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Pole Mount Trar	100kVA	No.	1			TRF Soloms Delta	PTRF-968	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Delta Meer	11kV Pole Mount Trar	150kVA	No.	1			TRF Delta Meer	PTRF-568	125	N5	150	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Ground Mount	500kVA	No.	1			TRF Pickstons	TRF-175	111	N5	500	11kV Ground Mount	320,481	320,481
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	15kVA	No.	1			TRF Farmstall	PTRF-813	117	N5	15	11kV Pole Mount Trar	37,013	37,013
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	160kVA	No.	1			TRF Meerlust	PTRF-555	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	160kVA	No.	1			TRF Werda	PTRF-807	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	160kVA	No.	1			TRF Bosbou Housing	PTRF-570	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	25kVA	No.	1			TRF Groot Drakenstein Station	PTRF-809	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	25kVA	No.	1			TRF Meerlust Dam		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	25kVA	No.	1			TRF Pickstons		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	50kVA	No.	1			TRF Lekkerwyn Tea Room	PTRF-556	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Groot Drakenstein	11kV Pole Mount Trar	50kVA	No.	1			TRF Delta Meer	PTRF-574	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Miniature Subst	200kVA	No.	1			MS Johannesdal 304		88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Miniature Subst	500kVA	No.	1			MS Mentoor		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	100kVA	No.	1			Rosendal	PTRF-828	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	100kVA	No.	1			Mountain Woods	PTRF-824 Vuurberg	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	100kVA	No.	1			Moores End	PTRF-827	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	100kVA	No.	1			Johannesdal 3		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	10kVA	No.	1			Kykindiepot 2	PTFR-825	116	N5	10	11kV Pole Mount Trar	25,263	25,263
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	16kVA	No.	1			Kykindiepot 1	PTRF-826	117	N5	15	11kV Pole Mount Trar	37,013	37,013
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	50kVA	No.	1			Seven Oaks	PTRF-823	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	50kVA	No.	1			Johannesdal	N000000004	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Johannesdal	11kV Pole Mount Trar	75kVA	No.	1			Johannesdal	PTRF-829	123	N5	75	11kV Pole Mount Trar	74,025	74,025
Pniel	Dwarsrivier Substatio	Pniel	11kV Ground Mount	315kVA	No.	1			TRF Pniel	TRF-264	109	N5	315	11kV Ground Mount	163,252	163,252
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	200kVA	No.	1			MS Panorama str 305	MS-0306	88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	200kVA	No.	1			MS Pine str	MS-0465	88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	200kVA	No.	1			MS Pniel Council Offices 302	MS-0303	88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	200kVA	No.	1			MS Pniel 348	MS-0349	88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	315kVA	No.	1			MS Silwermyn str 347	MS-0348	92	N5	315	11kV Miniature Subst	887,125	887,125
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	315kVA	No.	1			MS Pniel Main Road 301	MS-0302	92	N5	315	11kV Miniature Subst	887,125	887,125
Pniel	Dwarsrivier Substatio	Pniel	11kV Miniature Subst	500kVA	No.	1			MS		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	100kVA	No.	1			Sunburgh Inn hotel	PTRF-831	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	100kVA	No.	1			TRF Cyster	PTRF-832	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	100kVA	No.	1			TRF Pniel	PTRF-821	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	100kVA	No.	1			TRF Pniel	PTRF-820	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	150kVA	No.	1			TRF Pniel	PTRF-859	125	N5	150	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	25kVA	No.	1			TRF de Boordje	PTRF-1003	120	N5	25	11kV Pole Mount Trar	53,756	53,756

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	50kVA	No.	1			TRF Pniel School	PTRF-817	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	Pniel	11kV Pole Mount Trar	50kVA	No.	1			TRF Club House	PTRF-818	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Pniel	Dwarsrivier Substatio	RFG	11kV Pole Mount Trar	100kVA	No.	1			TRF Post Office	PTRF-808	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	RFG	11kV Pole Mount Trar	100kVA	No.	1			TRF Romnick		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Ground Mount	200kVA	No.	1			TRF Hollandse Moelen	TRF-003	106	N5	200	11kV Ground Mount	120,438	120,438
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Ground Mount	200kVA	No.	1			TRF Hollandse Moelen	TRF-003	106	N5	200	11kV Ground Mount	120,438	120,438
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Miniature Subst	200kVA	No.	1			MS Hollandse Moelen		88	N5	200	11kV Miniature Subst	695,635	695,635
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	100kVA	No.	1			TRF New Pump		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	100kVA	No.	1			TRF L'ARL D'ORLEANS	PTRF-855	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	100kVA	No.	1			TRF LUSTHOF	PTRF-731	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	100kVA	No.	1			TRF LUSTHOF	PTRF-728	124	N5	100	11kV Pole Mount Trar	82,250	82,250
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	160kVA	No.	1			TRF LE ARC BERRIES	TRF-738	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	160kVA	No.	1			TRF ST CROIX	PTRF-733	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	160kVA	No.	1			TRF LA TRAMATANE	PTRF-732	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	160kVA	No.	1			TRF MODDERVLEI	PTRF-729	126	N5	160	11kV Pole Mount Trar	109,863	109,863
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	25kVA	No.	1			TRF L'ARL D'ORLEANS	PTRF-737	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	25kVA	No.	1			TRF LUSTHOF	PTRF-730	120	N5	25	11kV Pole Mount Trar	53,756	53,756
Pniel	Dwarsrivier Substatio	Victor Verster	11kV Pole Mount Trar	50kVA	No.	1			TRF ST CROIX	PTRF-735	122	N5	50	11kV Pole Mount Trar	62,275	62,275
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	300 kVA	No.	1			MS Rokewood		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	300 kVA	No.	1			MS Blenheim		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	300 kVA	No.	1			MS Marine RKW		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	300 kVA	No.	1			MS Elberts		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Wingerd		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Lovell 2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Lovell 1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Rhodes		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS DeOewer		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Bokewood Pomp		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			DeBosch		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Bon Cretien		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	400 kVA	No.	1			MS Kleingeluk		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	400 kVA	No.	1			MS Culemborg		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	400 kVA	No.	1			MS Lovell 3		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Die Boord Switching S	11kV Miniature Subst	800 kVA	No.	1			MS Oewer Park		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Golf Substation	Die Boord Switching S	Distribution Transforn	1000 kVA	No.	1			GM Shopping Centre		103	N5	1000	11kV Ground Mount	640,963	640,963
Stellenbosch	Golf Substation	Die Boord Switching S	Distribution Transforn	315 kVA	No.	1			GM Die Werf		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Golf Substation	Die Boord Switching S	Distribution Transforn	400 kVA	No.	1			GM Die Boord Switching Station		110	N5	400	11kV Ground Mount	299,625	299,625
Stellenbosch	Golf Substation	Golf Outdoor Substati	11kV Miniature Subst	315 kVA	No.	1			MS Golf Club		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	160 kVA	No.	1			MS Schuilplaats		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	200 kVA	No.	1			MS Padstal		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	200 kVA	No.	1			MS LeMontier		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	200 kVA	No.	1			MS Christian Brothers		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS STB101		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Securie		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Repens		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS LaPastorale2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS MountBlanc		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS LaPastorale		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS LeHermitage		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS PKVillas		92	N5	315	11kV Miniature Subst	887,125	887,125

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS 3 Fountains		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Anesta		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Rivier1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Rivier2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Elsie		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	400 kVA	No.	1			MS Parmalat		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	400 kVA	No.	1			MS Eden		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	400 kVA	No.	1			MS Florida		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	400 kVA	No.	1			MS Cynariodes		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	400 kVA	No.	1			MS Paradyskloof		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	500 kVA	No.	1			MS Mediklíniek		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Miniature Subst	500 kVA	No.	1			MS Canterbury		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	100 kVA	No.	1			PM Water Reservoir		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	100 kVA	No.	1			PM Waterwerke		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	100 kVA	No.	1			PM Vrieshof		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	16 kVA	No.	1			PM Mulberry		118	N5	16	11kV Pole Mount Trar	39,363	39,363
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	200 kVA	No.	1			PM Orchardvale		127	N5	200	11kV Pole Mount Trar	122,200	122,200
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM MTN / Tennis		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Oakdale		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Groenewyde		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Kaapzichtpomp		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Kaapzicht		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Tonnel		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Vrieshofpomp		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Kaboeterbos		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	25 kVA	No.	1			PM Skietbaan		120	N5	25	11kV Pole Mount Trar	53,756	53,756
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	50 kVA	No.	1			PM L'Abri		122	N5	50	11kV Pole Mount Trar	62,275	62,275
Stellenbosch	Golf Substation	Paradyskloof Switchir	11kV Pole Mount Trar	75 kVA	No.	1			PM Grondves		123	N5	75	11kV Pole Mount Trar	74,025	74,025
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	1000 kVA	No.	1			MS Octoplace		145	N5	1000	11kV Miniature Subst	1,332,450	1,332,450
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS Stellenpark hotel		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS ISSI		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS TP1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS TP2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS Nok		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS Electron3		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS Proton		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	315 kVA	No.	1			MS Electron1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	400 kVA	No.	1			MS CarpeDiem		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	400 kVA	No.	1			MS Terso		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Polytwine		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Prindtel		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Neutron		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Afriland		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Quantum2		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Quantum3		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Cotlinplace		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS Platinum Place		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	500 kVA	No.	1			MS TP Pomp		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	630 kVA	No.	1			MS RTEC		98	N5	630	11kV Miniature Subst	1,167,680	1,167,680
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	800 kVA	No.	1			MS Electron2		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Golf Substation	Techno Park Switchin	11kV Miniature Subst	800 kVA	No.	1			MS Times Square		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Golf Substation	Techno Park Switchin	Distribution Transforn	1250 kVA	No.	1			GM Datavoice		103	N5	1000	11kV Ground Mount	640,963	640,963
Stellenbosch	Jan Marais Substatior	66kV Outdoor Substa	11kV Primary Cable	630mm 1c Cu	m	100	Power Transformer	Jan Marais Switching Station			144	N5	0	66kV Outdoor Substa	2,503	250,275
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ground Mount	200 kVA	No.	1			MS 7/11		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ground Mount	250 kVA	No.	1			GM Simonswyk		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Ground Mount	500 kVA	No.	1			GM Helshoogte		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	200 kVA	No.	1			MS Jan Marais Switching Station		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	315 kVA	No.	1			MS The Merriman		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	500 kVA	No.	1			MS Jonker Zight		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	500 kVA	No.	1			MS Cluver Circle		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	500 kVA	No.	1			MS Soeteweide		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	800 kVA	No.	1			MS Groeneweide		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	800 kVA	No.	1			MS Simonsrust2		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	800 kVA	No.	1			MS Simonsrust1		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Jan Marais Switching	11kV Miniature Subst	800 kVA	No.	1			MS Beltana		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Ground Mount	100 kVA	No.	1			GM BlDrifPomp		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Ground Mount	315 kVA	No.	1			GM Stellenbosch Hoerskool		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Ground Mount	500 kVA	No.	1			GM Karendal Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Ground Mount	500 kVA	No.	1			GM Rowan		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Miniature Subst	300 kVA	No.	1			MS DuPlessis		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Zwaanswyk		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Jannasch2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Karendal Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Jannasch1		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Maraispark Switching	11kV Ground Mount	250 kVA	No.	1			GM Maraispark Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Jan Marais Substatior	Maraispark Switching	11kV Miniature Subst	315 kVA	No.	1			MS LaDaulphine		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Maraispark Switching	11kV Miniature Subst	500 kVA	No.	1			MS Stias		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Ground Mount	500 kVA	No.	1			GM Hospitaal		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	Simonsberg Switching	11kV Miniature Subst	800 kVA	No.	1			MS Morris		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Ground Mount	100 kVA	No.	1			GM Sonneblom Switching Station		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Lelie		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Protea		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Khaler		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS BothmasHoogte		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Eikenbos		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Bothmazicht		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	315 kVA	No.	1			MS Cluver		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	500 kVA	No.	1			MS HIV Centre		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	500 kVA	No.	1			MS DrieHoek		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	500 kVA	No.	1			MS CapeDutch		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	500 kVA	No.	1			MS StudentVillage		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Sonneblom Switching	11kV Miniature Subst	800 kVA	No.	1			MS Verwiede		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	200 kVA	No.	1			MS Assegaai		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Hector		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Bartlett		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Pendoring		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Gorridon		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Woodman		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	400 kVA	No.	1			MS Packham		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	400 kVA	No.	1			MS Merton		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Bloekom Adendorff		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Amoi		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Stone		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Waterwerke		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Idas2		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Stone Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS La Roche		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Ground Mount	100 kVA	No.	1			GM Tindall Switching Station		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Miniature Subst	315 kVA	No.	1			MS Bloekom		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	Tindall Switching Stat	11kV Miniature Subst	315 kVA	No.	1			MS IdasValleySport		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ground Mount	100 kVA	No.	1			GM RozPomp		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ground Mount	500 kVA	No.	1			GM UniePark Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Ground Mount	500 kVA	No.	1			GM Morkel		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	150 kVA	No.	1			MS Watergang		83	N5	100	11kV Miniature Subst	791,380	791,380
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	200 kVA	No.	1			MS vnKopenhagen		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	200 kVA	No.	1			MS Endler		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	200 kVA	No.	1			MS Provinsie		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	200 kVA	No.	1			MS Uitsig		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	315 kVA	No.	1			MS AP Venter		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Unielaan		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Jan Marais Substatior	UniePark Switching S	11kV Miniature Subst	500 kVA	No.	1			MS Jonkershoek		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	66kV Outdoor Substa	11kV Ground Mount	200 kVA	No.	1			GM Main Substation		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	Main Substation	66kV Outdoor Substa	11kV Primary Cable	630 mm 1C Cu	m	300	Power Transformer	Industrial Switching Station		allow 100 m per Power Trans	144	N5	0	66kV Outdoor Substa	2,503	750,825
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Ground Mount	100 kVA	No.	1			GM Begraafplaas Switching Station		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	200 kVA	No.	1			MS Liberte		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	200 kVA	No.	1			MS Cabernet		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	200 kVA	No.	1			MS OudeLibertas		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Steloord2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	500 kVA	No.	1			MS Pap / Pomp		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	630 kVA	No.	1			MS Bosmans Crossing		98	N5	630	11kV Miniature Subst	1,167,680	1,167,680
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	630 kVA	No.	1			MS KWVPark		98	N5	630	11kV Miniature Subst	1,167,680	1,167,680
Stellenbosch	Main Substation	Begraafplaas Switchir	11kV Miniature Subst	800 kVA	No.	1			MS Sonop		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Ground Mount	160 kVA	No.	1			GM Geluksoord		105	N5	160	11kV Ground Mount	115,150	115,150
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Rioolhuise		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Kompos		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Selfords		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	315 kVA	No.	1			MS HoepHoep		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	500 kVA	No.	1			MS Marcels		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Devon Valley Switchir	11kV Miniature Subst	500 kVA	No.	1			MS Sandhagen		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Distell Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Steloord1		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Distell Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Vredenburg		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Distell Switching Stati	11kV Miniature Subst	800 kVA	No.	1			MS The Vineyard		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ground Mount	100 kVA	No.	1			GM Stellentia		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ground Mount	100 kVA	No.	1			MS OudeMolen		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ground Mount	250 kVA	No.	1			GM Lower Dorp Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Ground Mount	500 kVA	No.	1			GM WillingPark		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Miniature Subst	315 kVA	No.	1			MS RupertMuseum		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Miniature Subst	315 kVA	No.	1			MS WPK		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Miniature Subst	500 kVA	No.	1			MS Lower Dorp		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Lower Dorp Switching	11kV Miniature Subst	500 kVA	No.	1			MS Blersch		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Polkadraai Switching	11kV Ground Mount	100 kVA	No.	1			MS Recycling Plant		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	Main Substation	Polkadraai Switching	11kV Ground Mount	315 kVA	No.	1			GM RioolGeset		109	N5	315	11kV Ground Mount	163,252	163,252

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Main Substation	Polkadraai Switching	11kV Ground Mount	500 kVA	No.	1			GM W/Winkel		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Main Substation	Polkadraai Switching	11kV Miniature Subst	1000 kVA	No.	1			MS Dewatering		145	N5	1000	11kV Miniature Subst	1,332,450	1,332,450
Stellenbosch	Main Substation	Polkadraai Switching	11kV Miniature Subst	1600 kVA	No.	1			MS MBR1		146	N5	1600	11kV Miniature Subst	1,599,645	1,599,645
Stellenbosch	Main Substation	Polkadraai Switching	11kV Miniature Subst	1600 kVA	No.	1			MS MBR2		146	N5	1600	11kV Miniature Subst	1,599,645	1,599,645
Stellenbosch	Main Substation	Polkadraai Switching	11kV Miniature Subst	400 kVA	No.	1			GM Polkadraai Switching Station		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Ground Mount	500 kVA	No.	1			GM Tortelduif Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	300 kVA	No.	1			MS Kleinvallei		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Hamerkop2		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	315 kVA	No.	1			MS JanFrederik		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Flamingo		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Loerie		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	500 kVA	No.	1			MS Swawel		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Main Substation	Tortelduif Switching S	11kV Miniature Subst	500 kVA	No.	1			MS Hamerkop1		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	66kV Outdoor Substa	11kV Primary Cable	630 mm 1C Cu	m	100	Power Transformer	Suidwal Switching Station			144	N5	0	66kV Outdoor Substa	2,503	250,275
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Ground Mount	500 kVA	No.	1					111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	160 kVA	No.	1			MS Maesland		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	200 kVA	No.	1			MS Alex Forbes		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	200 kVA	No.	1			MS V/D Stel Sport		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Villa Roux		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Amatoni		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Blakes Estate Switchi	11kV Miniature Subst	315 kVA	No.	1			MS Weidenhof		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ground Mount	200 kVA	No.	1			GM BolBank		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ground Mount	250 kVA	No.	1			GM Braak Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ground Mount	315 kVA	No.	1			GM Poskantoor		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ground Mount	315 kVA	No.	1			GM Saambou		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Ground Mount	500 kVA	No.	1			GM Meulplein		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	160 kVA	No.	1			MS BastMolen		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS IsaCarstens		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Alexander		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Landros		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MS Goodhope		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	315 kVA	No.	1			MD DeWet		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	400 kVA	No.	1			MS PietRetief		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS Braak		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Braak Switching Stati	11kV Miniature Subst	500 kVA	No.	1			MS OK Bazaar		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ground Mount	315 kVA	No.	1			MS Welgavalen		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ground Mount	500 kVA	No.	1			GM Gymnasium		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Ground Mount	500 kVA	No.	1			GM DeWaterkant		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Coetzenburg Sport		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Middebosch		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Miniature Subst	315 kVA	No.	1			MS Kweekskool		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Coetzenburg Switchir	11kV Miniature Subst	315 kVA	No.	1			MS DieLaan		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ground Mount	315 kVA	No.	1			GM Welgelegen		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ground Mount	500 kVA	No.	1			GM Dalsig Oos Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ground Mount	500 kVA	No.	1			GM Koch		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Ground Mount	750 kVA	No.	1			GM DalsigWes		114	N5	750	11kV Ground Mount	481,016	481,016
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	300 kVA	No.	1			MS Brandwag1		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	300 kVA	No.	1			MS Brandwag2		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	300 kVA	No.	1			MS Faber		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	300 kVA	No.	1			MS Olyf		90	N5	300	11kV Miniature Subst	575,398	575,398

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	300 kVA	No.	1			MS LeSeur		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Park		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Barry		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Doornbosch		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Koch		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Binnekring		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	315 kVA	No.	1			MS Pomp Welgelegen		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Dalsig Oos Switching	11kV Miniature Subst	400 kVA	No.	1			MS Valerida		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS Stillewaters		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS Bloemhof		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS Voorgelegen		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS Dorpstr98		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS Mark		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	315 kVA	No.	1			MS JolesPark		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	400 kVA	No.	1			MS Mark2		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	500 kVA	No.	1			MS Sports Institute		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	500 kVA	No.	1			MS Volskombuis		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	500 kVA	No.	1			MS Stellenryk		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	500 kVA	No.	1			MS La Gratitude		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Krige Switching Static	11kV Miniature Subst	500 kVA	No.	1			MS Dorp / Pap		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	Markotter Substation	Suidwal Switching Sta	11kV Miniature Subst	500 kVA	No.	1			MS Suidwal		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	66kV Outdoor Substa	11kV Primary Cable	630 mm 1C Cu	m	100	Power Transformer	University Switching Station			144	N5	0	66kV Outdoor Substa	2,503	250,275
Stellenbosch	University Substation	66kV Outdoor Substa	Distribution Transforn	100kVA	No.	1					102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	University Substation	Bosman Switching St	11kV Ground Mount	200 kVA	No.	1			GM Sovida		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	University Substation	Bosman Switching St	11kV Ground Mount	315 kVA	No.	1			GM East litlg		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	University Substation	Bosman Switching St	11kV Ground Mount	315 kVA	No.	1			GM Azalia		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	University Substation	Bosman Switching St	11kV Miniature Subst	160 kVA	No.	1			MS NHKerk		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	University Substation	Bosman Switching St	11kV Miniature Subst	200 kVA	No.	1			MS Amadeus		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	University Substation	Bosman Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Conserv		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Bosman Switching St	11kV Miniature Subst	500 kVA	No.	1			MS De Camoran		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Denneoord Switching	11kV Ground Mount	160 kVA	No.	1			MS Koloniesland		105	N5	160	11kV Ground Mount	115,150	115,150
Stellenbosch	University Substation	Denneoord Switching	11kV Ground Mount	250 kVA	No.	1			GM Denneoord Switching Station		107	N5	250	11kV Ground Mount	150,547	150,547
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	160 kVA	No.	1			MS Ratray		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	200 kVA	No.	1			MS Oudewaal		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	315 kVA	No.	1			MS Kollege		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	315 kVA	No.	1			MS Huis Piron		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	315 kVA	No.	1			MS vd Stell/v Riebeech		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	500 kVA	No.	1			MS DeWaal		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Denneoord Switching	11kV Miniature Subst	500 kVA	No.	1			MS McDonald		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Kerk Switching Statior	11kV Ground Mount	500 kVA	No.	1			GM Kerk Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	University Substation	Kromrivier Switching	11kV Ground Mount	200 kVA	No.	1			GM Kromrivier		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	University Substation	Kromrivier Switching	11kV Miniature Subst	315 kVA	No.	1			MS Vergesig		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Kromrivier Switching	11kV Miniature Subst	500 kVA	No.	1			MS Lavanda		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Kromrivier Switching	11kV Miniature Subst	500 kVA	No.	1			MS Binne Plein		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	LaCollien Switching S	11kV Ground Mount	50 kVA	No.	1			GM TVToring		122	N5	50	11kV Pole Mount Trar	62,275	62,275
Stellenbosch	University Substation	LaCollien Switching S	11kV Ground Mount	500 kVA	No.	1			GM LaCollien Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	University Substation	LaCollien Switching S	11kV Ground Mount	500 kVA	No.	1			GM Helderfontein		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	University Substation	LaCollien Switching S	11kV Miniature Subst	315 kVA	No.	1			MS DieRand		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	LaCollien Switching S	11kV Miniature Subst	315 kVA	No.	1			MS Bergendal		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	LaCollien Switching S	11kV Miniature Subst	630 kVA	No.	1			MS PrinsPark		98	N5	630	11kV Miniature Subst	1,167,680	1,167,680

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	University Substation	LaCollien Switching S	11kV Pole Mount Trar	100 kVA	No.	1			PM Huise		124	N5	100	11kV Pole Mount Trar	82,250	82,250
Stellenbosch	University Substation	LaCollien Switching S	11kV Pole Mount Trar	150 kVA	No.	1			PM Polisie		125	N5	150	11kV Pole Mount Trar	109,863	109,863
Stellenbosch	University Substation	Merriman Bird Switch	11kV Ground Mount	300 kVA	No.	1			GM Hagerhof		108	N5	300	11kV Ground Mount	163,031	163,031
Stellenbosch	University Substation	Merriman Bird Switch	11kV Ground Mount	300 kVA	No.	1			GM PicknPay		108	N5	300	11kV Ground Mount	163,031	163,031
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	300 kVA	No.	1			MS Merriman Bird		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	300 kVA	No.	1			MS DeCanha		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	300 kVA	No.	1			MS Libertoslaghuis		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	300 kVA	No.	1			MS Andringa		90	N5	300	11kV Miniature Subst	575,398	575,398
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	315 kVA	No.	1			MS Caltex Bergzight		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Merriman Bird Switch	11kV Miniature Subst	500 kVA	No.	1			MS Plambago		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ground Mount	1000 kVA	No.	1			GM Drostdy		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	University Substation	MerrimanZ Switching	11kV Ground Mount	500 kVA	No.	1			GM Drama		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	1000 kVA	No.	1			MS Hetbeginhof		145	N5	1000	11kV Miniature Subst	1,332,450	1,332,450
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	160 kVA	No.	1			MS deVilliers		86	N5	160	11kV Miniature Subst	735,715	735,715
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	200 kVA	No.	1			MS Elckerlyc		88	N5	200	11kV Miniature Subst	695,635	695,635
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	315 kVA	No.	1			MS Cyrus		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	315 kVA	No.	1			MS Held/Zicht		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	315 kVA	No.	1			MS McDonalds		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	315 kVA	No.	1			MS Banhoek		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	500 kVA	No.	1			MS Watergracht		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	MerrimanZ Switching	11kV Miniature Subst	800 kVA	No.	1			MS BergzightPlaza		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ground Mount	200 kVA	No.	1			GM Ecclesia		106	N5	200	11kV Ground Mount	120,438	120,438
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ground Mount	315 kVA	No.	1			GM SDRduToit		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ground Mount	315 kVA	No.	1			GM Neethlinghuis		109	N5	315	11kV Ground Mount	163,252	163,252
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ground Mount	500 kVA	No.	1			GM Stadsaal Switching Station		111	N5	500	11kV Ground Mount	320,481	320,481
Stellenbosch	University Substation	Stadsaal Switching St	11kV Ground Mount	750 kVA	No.	1			GM SA Perm		114	N5	750	11kV Ground Mount	481,016	481,016
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	1000 kVA	No.	1			MS OudeHoek		145	N5	1000	11kV Miniature Subst	1,332,450	1,332,450
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	1000 kVA	No.	1			MS ABSA		145	N5	1000	11kV Miniature Subst	1,332,450	1,332,450
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	250 kVA	No.	1			MS Andmar		89	N5	250	11kV Miniature Subst	642,196	642,196
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Stellenbosch Hotel		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	315 kVA	No.	1			MS JanKats		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Louw		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	315 kVA	No.	1			MS D'Owerf		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	315 kVA	No.	1			MS Bergvil		92	N5	315	11kV Miniature Subst	887,125	887,125
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	400 kVA	No.	1			MS OuKollege		94	N5	400	11kV Miniature Subst	1,065,255	1,065,255
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	500 kVA	No.	1			MS 1stNAT		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	500 kVA	No.	1			MS DeWaal		96	N5	500	11kV Miniature Subst	1,109,788	1,109,788
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	630 kVA	No.	1			MS Beyershof		98	N5	630	11kV Miniature Subst	1,167,680	1,167,680
Stellenbosch	University Substation	Stadsaal Switching St	11kV Miniature Subst	800 kVA	No.	1			MS Mill Square		99	N5	800	11kV Miniature Subst	1,243,385	1,243,385
Stellenbosch	University Substation	University Switching S	11kV Ground Mount	100 kVA	No.	1			GM University		102	N5	100	11kV Ground Mount	84,013	84,013
Stellenbosch	University Substation	University Switching S	11kV Ground Mount	300 kVA	No.	1			GM University Switching Station		108	N5	300	11kV Ground Mount	163,031	163,031
Pniel	Dwarsrivier Substatio	Pniel	LV Pole Mounted kios	1 Way	No.	71			LV Kiosk		154	N6	0	LV Pole Mounted kios	5,503	390,745
Stellenbosch	SBM		LV Cable Network	25mm 4c Cu	m	7,425			Commercial Lifeline/Low (99 consumers)	LV UGC Cable Netwo	134	N6	0	LV Cable Network/25	585	4,344,739
Stellenbosch	SBM		LV Kiosk	9 Way	No.	99			Commercial Lifeline/Low (99 consumers)	LV UGC Cable Netwo	151	N6	0	400V Consumer Netw	29,375	2,908,125
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	87,375			Commercial Regular 03 (3ph 1165 consumers)	LV UGC Cable Netwo	138	N6	0	LV Cable Network/95	1,492	130,385,344
Stellenbosch	SBM		LV Kiosk	9 Way	No.	1,165			Commercial Regular 03 (3ph 1165 consumers)	LV UGC Cable Netwo	151	N6	0	400V Consumer Netw	29,375	34,221,875
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	7,726	m/s	kiosk 1	Domestic Lifeline 01 Formal Indigent (5183 consur	LV UGC Cable Netwo	139	N6	0	LV Cable Network/12	1,794	13,862,561
Stellenbosch	SBM		LV Cable Network	35mm 4c Cu	m	14,744	kiosk 2	kiosk 3	Domestic Lifeline 01 Formal Indigent (5183 consur	LV UGC Cable Netwo	135	N6	0	LV Cable Network/35	704	10,377,327
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	11,976	kiosk 1	kiosk 2	Domestic Lifeline 01 Formal Indigent (5183 consur	LV UGC Cable Netwo	137	N6	0	LV Cable Network/70	1,077	12,903,439
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	14,615	m/s	kiosk 1	Domestic Lifeline 01 Formal Indigent (5183 consur	LV UGC Cable Netwo	138	N6	0	LV Cable Network/95	1,492	21,809,855

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	SBM		LV Kiosk	9 Way	No.	740	30.85119048		Domestic Lifeline 01 Formal Indigent (5183 consu	LV UGC Cable Netwo	151	N6	0	400V Consumer Netw	29,375	21,750,089
Stellenbosch	SBM		LV Pole Mounted Kios	6 Way	No.	1,624			Domestic Lifeline 01 Informal Indigent (7 703 cons	LV OHL Network	153	N6	0	LV Pole Mounted Kios	5,503	8,935,156
Stellenbosch	SBM		LV ABC Conductor	70mm 3c + 54,6 +25	m	23,998			Domestic Lifeline 01 Informal Indigent (7 703)	LV OHL Network	152	N6	0	LV ABC Conductor/7	896	21,493,768
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	2,850	m/s	kiosk 1	Domestic Lifeline 01 Informal Indigent (7 703)	LV OHL Network	139	N6	0	LV Cable Network/12	1,794	5,113,541
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	12,911	m/s	kiosk 1	Domestic Low (14,840 consumers)	LV UGC Cable Netwo	139	N6	0	LV Cable Network/12	1,794	23,164,880
Stellenbosch	SBM		LV Cable Network	35mm 4c Cu	m	12,020	kiosk 3	kiosk 4	Domestic Low (14,840 consumers)	LV UGC Cable Netwo	135	N6	0	LV Cable Network/35	704	8,460,258
Stellenbosch	SBM		LV Cable Network	50mm 4c Cu	m	27,751	kiosk 2	kiosk 3	Domestic Low (14,840 consumers)	LV UGC Cable Netwo	136	N6	0	LV Cable Network/50	840	23,314,141
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	13,356	kiosk 1	kiosk 2	Domestic Low (14,840 consumers)	LV UGC Cable Netwo	137	N6	0	LV Cable Network/70	1,077	14,390,756
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	48,230	m/s	kiosk 1	Domestic Low (14,840 consumers)	LV UGC Cable Netwo	138	N6	0	LV Cable Network/95	1,492	71,971,218
Stellenbosch	SBM		LV Kiosk	9 Way	No.	1,632			Domestic Low (14,840 consumers)	LV UGC Cable Netwo	151	N6	0	400V Consumer Netw	29,375	47,951,750
Stellenbosch	SBM		LV Kiosk	9 Way	No.	339			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	151	N6	0	400V Consumer Netw	29,375	9,970,418
Stellenbosch	SBM		LV Cable Network	185mm 4c Cu	m	623			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	141	N6	0	LV Cable Network/18	2,637	1,642,270
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	2369			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	138	N6	0	LV Cable Network/95	1,492	3,535,037
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	1858			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	137	N6	0	LV Cable Network/70	1,077	2,002,006
Stellenbosch	SBM		LV Cable Network	35mm 4c Cu	m	955			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	135	N6	0	LV Cable Network/35	704	672,343
Stellenbosch	SBM		LV Cable Network	240mm 4c Cu	m	504			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	142	N6	0	LV Cable Network/24	3,494	1,760,780
Stellenbosch	SBM		LV Cable Network	185mm 4c Cu	m	1956			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	141	N6	0	LV Cable Network/18	2,637	5,157,465
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	2488			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	139	N6	0	LV Cable Network/12	1,794	4,463,857
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	9497			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	138	N6	0	LV Cable Network/95	1,492	14,171,479
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	10361			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	137	N6	0	LV Cable Network/70	1,077	11,163,731
Stellenbosch	SBM		LV Cable Network	50mm 4c Cu	m	2369			Domestic Regular (2082 consumers)	LV UGC Cable Netwo	136	N6	0	LV Cable Network/50	840	1,990,198

Appendix E – N6 Sample areas asset database

Town / Network	Location 1	Location 2	Equipment	Description	Unit	Qty	Cable From ..	Cable To ...	Name	Comments	Code	Network Segment	Capacity kVA	Description	Unit Price	Amount
Stellenbosch	SBM		LV Cable Network	25mm 4c Cu	m	75			Commercial Lifeline and Commercial Low	LV UGC Cable Network	134	N6	0	LV Cable Network/25mm 4c Cu	585	43,886
Stellenbosch	SBM		LV Kiosk	9 Way	No.	1			Commercial Lifeline and Commercial Low	LV UGC Cable Network	151	N6	0	400V Consumer Network/9 Way	29,375	29,375
																R 73,261.25
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	75			Commercial Regular 03 (3ph)	LV UGC Cable Network	138	N6	0	LV Cable Network/95mm 4c Cu	1,492	111,919
Stellenbosch	SBM		LV Kiosk	9 Way	No.	1			Commercial Regular 03 (3ph)	LV UGC Cable Network	151	N6	0	400V Consumer Network/9 Way	29,375	29,375
																R 141,293.75
						Tennantville			Noble m/s 400kVA	400	kVA	161	consumers	2.48	kVA per consumer	
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	240	m/s	kiosk 1	Domestic Lifeline Formal Indigent	LV UGC Cable Network	139	N6	0	LV Cable Network/120mm 4c Cu	1,794	430,614
Stellenbosch	SBM		LV Cable Network	35mm 4c Cu	m	458	kiosk 2	kiosk 3	Domestic Lifeline Formal Indigent	LV UGC Cable Network	135	N6	0	LV Cable Network/35mm 4c Cu	704	322,352
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	372	kiosk 1	kiosk 2	Domestic Lifeline Formal Indigent	LV UGC Cable Network	137	N6	0	LV Cable Network/70mm 4c Cu	1,077	400,821
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	454	m/s	kiosk 1	Domestic Lifeline Formal Indigent	LV UGC Cable Network	138	N6	0	LV Cable Network/95mm 4c Cu	1,492	677,482
Stellenbosch	SBM		LV Kiosk	9 Way	No.	23			Domestic Lifeline Formal Indigent	LV UGC Cable Network	151	N6	0	400V Consumer Network/9 Way	29,375	675,625
															Total Cost	2,506,893
															per kVA	R 6,267.23
						Enkanini			3 x 1000 kVA m/s	3000	kVA	1300	consumers	2.31	kVA per consumer	
Stellenbosch	SBM		LV Pole Mounted Kios	6 Way	No.	274			Domestic Lifeline 01 Informal Indigent	LV OHL Network	153	N6	0	LV Pole Mounted Kiosk/6 Way	5,503	1,507,945
Stellenbosch	SBM		LV ABC Conductor	70mm 3c + 54,6 +25 r	m	4,050			Domestic Lifeline 01 Informal Indigent	LV OHL Network	152	N6	0	LV ABC Conductor/70mm 3c + 54,6 +25 mm	896	3,627,405
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	481			Domestic Lifeline 01 Informal Indigent	LV UGC Cable Network	139	N6	0	LV Cable Network/120mm 4c Cu	1,794	863,022
															Total Cost	5,998,372
															per kVA	R 1,999.46
						Arbeidslus			Assegaai 200kVA / Pendoring 315kVA	515	kVA	200	consumers	2.58	kVA per consumer	
Stellenbosch	SBM		LV Cable Network	120mm 4c Cu	m	174	m/s	kiosk 1	Domestic Low	LV UGC Cable Network	139	N6	0	LV Cable Network/120mm 4c Cu	1,794	312,195
Stellenbosch	SBM		LV Cable Network	35mm 4c Cu	m	162	kiosk 3	kiosk 4	Domestic Low	LV UGC Cable Network	135	N6	0	LV Cable Network/35mm 4c Cu	704	114,020
Stellenbosch	SBM		LV Cable Network	50mm 4c Cu	m	374	kiosk 2	kiosk 3	Domestic Low	LV UGC Cable Network	136	N6	0	LV Cable Network/50mm 4c Cu	840	314,207
Stellenbosch	SBM		LV Cable Network	70mm 4c Cu	m	180	kiosk 1	kiosk 2	Domestic Low	LV UGC Cable Network	137	N6	0	LV Cable Network/70mm 4c Cu	1,077	193,946
Stellenbosch	SBM		LV Cable Network	95mm 4c Cu	m	650	m/s	kiosk 1	Domestic Low	LV UGC Cable Network	138	N6	0	LV Cable Network/95mm 4c Cu	1,492	969,963
Stellenbosch	SBM		LV Kiosk	9 Way	No.	22			Domestic Low	LV UGC Cable Network	151	N6	0	400V Consumer Network/9 Way	29,375	646,250
															Total Cost	2,550,580
															per kVA	R 4,952.58
						Die Boord			12 minisubs 3975kVA	595	consumers			6.68	kVA per consumer	
Stellenbosch	SBM		LV Kiosk	9 Way	No.	97			Domestic Regular	LV UGC Cable Network	151	N6	0	400V Consumer Network/9 Way	29,375	2,849,375
			LV Cable Network	LV Cable Network/18	m	178			Domestic Regular	CU185PVC	141	N6	0	LV Cable Network/185mm 4c Cu	2,637	469,333
			LV Cable Network	LV Cable Network/95r	m	677			Domestic Regular	CU95PVC	138	N6	0	LV Cable Network/95mm 4c Cu	1,492	1,010,253
			LV Cable Network	LV Cable Network/70r	m	531			Domestic Regular	CU70PVC	137	N6	0	LV Cable Network/70mm 4c Cu	1,077	572,139
			LV Cable Network	LV Cable Network/35r	m	273			Domestic Regular	CU35PVC	135	N6	0	LV Cable Network/35mm 4c Cu	704	192,144
			LV Cable Network	LV Cable Network/24	m	144			Domestic Regular	AL300PVC	142	N6	0	LV Cable Network/240mm 4c Cu	3,494	503,201
			LV Cable Network	LV Cable Network/18	m	559			Domestic Regular	AL240PVC	141	N6	0	LV Cable Network/185mm 4c Cu	2,637	1,473,915
			LV Cable Network	LV Cable Network/12	m	711			Domestic Regular	AL150PVC	139	N6	0	LV Cable Network/120mm 4c Cu	1,794	1,275,694
			LV Cable Network	LV Cable Network/95r	m	2,714			Domestic Regular	AL120PVC	138	N6	0	LV Cable Network/95mm 4c Cu	1,492	4,049,967
			LV Cable Network	LV Cable Network/70r	m	2,961			Domestic Regular	AL95PVC	137	N6	0	LV Cable Network/70mm 4c Cu	1,077	3,190,403
			LV Cable Network	LV Cable Network/50r	m	677			Domestic Regular	AL70PVC	136	N6	0	LV Cable Network/50mm 4c Cu	840	568,765
															Total Cost	16,155,189
															per kVA	R 4,064.20

We owe it to ourselves and to the next generation to conserve the environment so that we can bequeath our children a sustainable world that benefits all.

WANGARI MAATHAI

Document Prepared by:

Zutari (Pty) Ltd
Reg No 1977/003711/07
1 Century City Drive
Waterford Precinct
Century City
Cape Town
South Africa
PO Box 494
Cape Town
8000
Docex: DX 204

T +27 21 526 9400

E capetown@zutari.com
W zutari.com

7.6.3	UPDATE OF THE ELECTRICITY MASTER PLAN REPORT

Collaborator No: **762680**
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **06 February 2024**

1. SUBJECT: UPDATE OF THE ELECTRICITY MASTER PLAN REPORT

2. PURPOSE

To submit the updated Electricity Master Plan to Council in line with the Service Delivery Budget Implement Programme Key Performance Indicator (SDBIP KPI). The Electricity Master Plan needs to be reviewed every five years in line with the Municipality's Distribution License conditions.

3. DELEGATED AUTHORITY

In terms of the Electricity Regulation Act, 2000 (Act no 4 of 2000), the National Energy Regulator of South Africa (NERSA) must monitor the supply and demand balance of the electricity systems to achieve an efficient, effective, sustainable and orderly development and operation of the electricity network.

To achieve this objective, National Energy Regulator of South Africa (NERSA) through its licensing conditions require municipalities to perform master planning which is valid for and reviewed every five years.

4. EXECUTIVE SUMMARY

The Electricity Masterplan is the strategic planning document that informs the Electrical Services Department in terms of planning, management, and budgeting processes for current and future Electrical Services projects. The Electricity Masterplan also informs the operations and maintenance of the electricity network infrastructure to address the increase in electricity demand and supply in the WC024.

The current Electricity masterplan was updated in September 2015 and was valid for five years therefore the current Masterplan was due for review by September 2020.

However due to the changes in the electricity industry (load shedding, Alternative Energy Generation (AEG) initiatives) the municipality delayed the reviewing of the Electricity Master Plan in order to finalise the Energy Master Plan first. This was done in order for the outputs of the Energy Master Plan to be used as inputs for the Electricity Master Plan study. The finalisation and approval of the Spatial Development Framework (SDF) further played a vital role in the updating of the Electricity Master Plan.

5. RECOMMENDATIONS

(a) that the content of this report be noted; and

(b) that the Updated Electricity Masterplan dated November 2023, detailed in **ANNEXURE A**, be noted and approved as stipulated by National Energy Regulator of South Africa (NERSA) through its licensing conditions requirements.

6. DISCUSSION / CONTENTS

6.1 Background

The current Electricity Masterplan was updated in September 2015. To align the with the changing electricity industry (load shedding, Alternative Energy Generation (AEG) initiatives) the municipality delayed the reviewing of the Electricity Master Plan in order to finalise the Energy Master Plan first. The outputs of the Energy Master Plan once completed was used as inputs for the Electricity Master Plan study, the approved and finalised Spatial Development Framework (SDF) was also vital to ensure that all new developments are considered when revising and updating the Electricity Masterplan that was completed in November 2023.

6.2 Discussion

The primary purpose of the Electricity Masterplan is to provide Stellenbosch Municipality with a long-term plan for the development and updating of its electrical infrastructure. The scope include:

a) Data collection and visual inspection of all substations forming part of the network as part of the condition assessment.

b) Preparation of suitable load forecast with low growth, most likely growth and high growth scenarios. Load forecast is based on town planning information, historic load growth and information from the existing electrical network.

c) Load flow studies are performed using industry simulation software. The simulation assesses the capacity and loading of the electrical infrastructure.

d) The study presents a 20-year network development plan and associated projects with implementation timelines.

e) The preparation of the provisional cost estimates are based on the recommendations that forms part of the masterplan.

6.3 Financial Implications

The cost for the Updating of the Electricity Master Plan amounts R440 000.00

6.4 Legal Implications

The recommendations in this report comply with Council's policies and all applicable legislation.

The compliance to NERSA's licence conditions and the Electricity Regulation Act, 2000 (Act no4 of 2000).

6.5 Staff Implications

This report has no staff implications for Stellenbosch Municipality.

6.6 <u>Previous / Relevant Council Resolutions</u>:

6.7 <u>Risk Implications</u>

This report has no risk implications for Stellenbosch Municipality.

6.8 <u>Comments from Senior Management</u>:

6.8.1 <u>Director: Infrastructure Services</u>

Agree with the recommendations.

RECOMMENDATIONS FROM INFRASTRUCTURE COMMITTEE MEETING:2024-02-06: ITEM 5.1.3

(a) that the content of this report be noted; and

(b) that the Updated Electricity Masterplan dated November 2023, detailed in **ANNEXURE A**, be noted and approved as stipulated by National Energy Regulator of South Africa (NERSA) through its licensing conditions requirements.

ANNEXURES

Annexure A: UPDATE OF THE ELECTRICITY MASTER PLAN REPORT

FOR FURTHER DETAILS CONTACT:

NAME	***Shane Chandaka***
POSITION	***Director***
DIRECTORATE	***Infrastructure Services***
CONTACT NUMBERS	***021 808 8213***
E-MAIL ADDRESS	***shane.chandaka@stellenbosch.gov.za***
REPORT DATE	***2024 – 01 - 25***

ANNEXURE A

STELLENBOSCH MUNICIPALITY

UPDATE OF THE ELECTRICTY MASTER PLAN REPORT

NOVEMBER 2023

Contact details for this report

Name Hilton Baartman
Designation Project Leader
Email hilton@gls.co.za

Name Tsolane Mokoena
Designation Senior Electrical Engineer
Email tsolane@gls.co.za

GLS Consulting (Pty) Ltd
Cnr R44 and School Rd
Stellenpark Block D, North, First Floor
Jamestown
Stellenbosch
7600

Tel: +27 21 880 0388
www.gls.co.za

Statement of Confidentiality

DOCUMENT CONTROL AND APPROVALS

Document Control					
Report Title	**STELLENBOSCH MASTER PLAN REPORT**				
Client		**Stellenbosch Local Municipality**	**Client contact**		Mr. Mark Benson
Rev	**Date**	**Revision details/status**	**Author**	**Reviewer**	**Approver**
0	30/06/2023	Draft Electricity Masterplan	J. Davids M. Nkwana J.Chanyandura M.Mabhoko	T. Mokoena	H. Bartman
1	30/11/2023	Final Electricity Masterplan	J. Davids M. Nkwana J.Chanyandura M.Mabhoko	R. Melesi	T. Mokoena
Current Revision		**0**			

Approval			
Reviewer Signature		Approver Signature	
Name	Raba Melesi	Name	T. Mokoena
Title	Senior Electrical Engineer	Title	Senior Electrical Engineer
Date		Date	

Client Approval	
Client Signature	
Name	Mark Benson
Title	Planning and Design Manager
Organization	Stellenbosch Local Municipality
Date	

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Nomenclature

AAAC	-	All Aluminium Alloy Conductor
AADC	-	Average Annual Daily Consumption
ADMD	-	After-Diversity Maximum Demand
Al	-	Aluminium
CF	-	Calibration Factor
Cu	-	Copper
DMRE	-	Department of Mineral Resources and Energy
Edisan	-	Electrical Network Planning Computer Program, developed in-house by GLS Consulting
EEDSM	-	Energy Efficiency Demand Side Management
HV	-	High Voltage (V > 33 kV)
IDP	-	Integrated Development Plan
INEP	-	Integrated National Electrification Programme
kV	-	Kilovolt
kVA	-	Kilovolt-ampere
kWh	-	Kilowatt-hour
LF	-	Load Factor
LM	-	Local Municipality
LPU	-	Large Power User
LV	-	Low Voltage (V ≤ 1 kV)
m	-	Meters
MD	-	Maximum Demand
Minisub or MS	-	Miniature substation
MIPPP	-	Municipal Independent Power Producer Programme
mm	-	Millimetres
MV	-	Medium Voltage (1 kV < V ≤ 33 kV)
MV/LV Transformer Zone	-	MV/LV transformer supply area
MVA	-	Megavolt-ampere
NMD	-	Notified Maximum Demand
PMT	-	Pole Mounted Transformer
PV	-	Photovoltaic
RE	-	Renewable Energy
RMU	-	Ring Main Unit
S	-	Apparent Power
SDF	-	Spatial Development Framework
SS	-	Substation
Stand	-	Plot of Land of an Electricity Consumer
STLM	-	Stellenbosch Local Municipality
Supply Zone	-	Substation supply area
Swift	-	Database and Statistical Analysis Computer Program, developed in-house by GLS Consulting
Switching Zone	-	Switching station supply area

1 INTRODUCTION

1.1 Background

GLS Consulting was appointed to update the master plan for the electricity distribution system for Stellenbosch Local Municipality (STLM).

The project looks at not only updating of geospatial electrical model of the electrical distribution network in STLM, updating the existing load forecast for the licensed distribution areas with consideration of the increased penetration of small-scale embedded generation (SSEG), but also to incorporate the outcomes from the energy plan conducted in 2022 by CSIR into the long-term master plan report.

The master plan report will display the analysis and findings of the studies conducted on the electricity distribution network within the distribution license area.

1.2 Study Area

STLM is located in the Cape Winelands District within the Western Cape Province. It is bordered in the north by the Drakenstein Local Municipality, and in the southwest by the City of Cape Town Metropolitan Municipality. With a geographical area of 900 km2 [1], it is the smallest municipality of the five that make up the district.

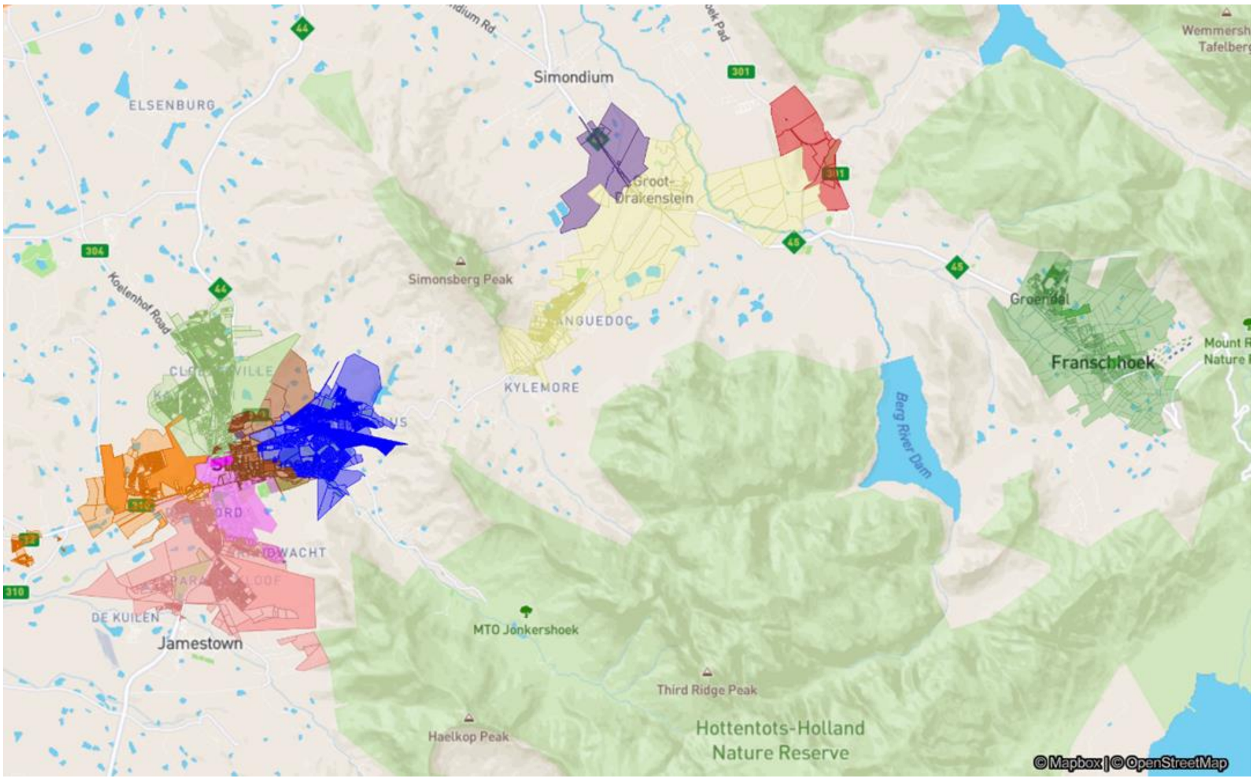


Figure 1-1: Study area

The municipality is responsible for the distribution of electricity within the large portions of the STLM area of supply which covers a great portion of the Stellenbosch Area, Franschhoek and pockets of supply zones within the Pniel areas. The remainder of the area, especially the surrounding farm holdings, are supplied directly by Eskom. Franschhoek is the only town presented by a single intake point, whilst the rest have more than one intake point from Eskom. The supply zones are supplied by Eskom, Drakenstein Local Municipality and IPP's at two mains voltage levels:

Table 1-1 below is a summary of the Intake points and their corresponding maximum demand (MD), Notified Maximum Demand and Voltage level. The location of the intake points is all represented in this table. Currently the STLM supply area has a total MD of 76.7 MVA and a total NMD of 90 MVA.

Table 1-1: STLM Eskom intake points

Town	Intake Point	MD (MVA)	NMD (MVA)	Voltage (kV)
Stellenbosch	Main Substation	51.2	60	66
	Cloetesville Substation	12.3	16	66
Franschhoek	SS Franschhoek	9.5	10	66
Pniel	Drakenstein Prison	0.6	1	11
	RFG Intake	3.3	4	11
	Riversmeet Intake	3.8	4	11
Total		80.7	95	

The three different study areas are represented in the Figure 1-2 below. As mentioned before, most of STLM electricity supply area is comprised of the Stellenbosch region which can further be broken up into primary supply areas namely: Main, Markotter, Golf Club, University, Jan Marais and Cloetesville. The former five of which is supplied via a 66kV ring with intake at Main. Cloetesville as seen in the table above is supplied independently and does not form a ring with the other 5 primary substations.

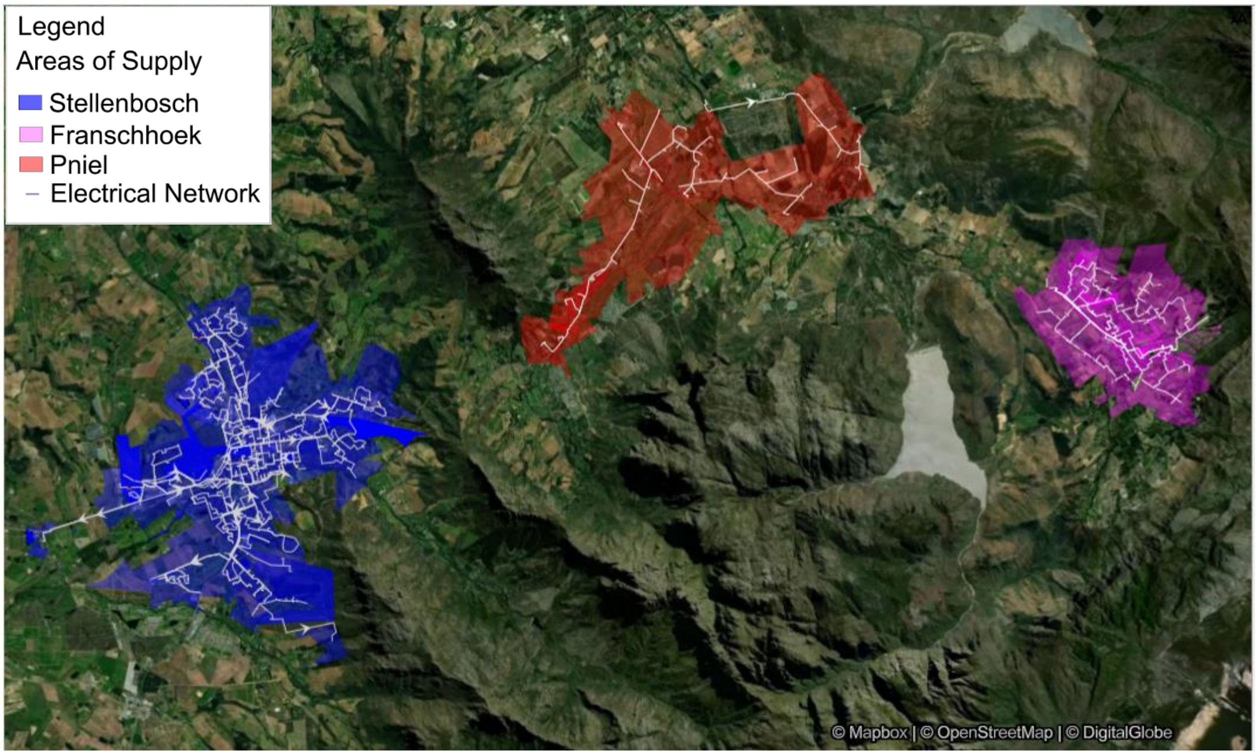


Figure 1-2: STLM area of supply

1.3 Previous Master Planning

NETGroup South Africa in partnership with Shanduka Energy prepared an Electrical Infrastructure Master Plan that consisted of a load forecast, field inspection of the electricity assets, and refurbishment plan with cost estimates. An update of the master plan was conducted later in September 2015 by Royal HaskoningDHV regarding the analysis of the existing electrical system in Stellenbosch and Franschhoek.

No overall master planning had been conducted for the STLM proceeding to these investigations, but various Engineering Consultants have been performing evaluations and planning of portions of the distribution systems in the area over the years. An energy master plan was recently completed by CSIR that investigated the energy supply options for the municipality.

1.1 Purpose and Objectives of the Project

The main objective of the study is to update the Electricity Master Plan (EMP) for the distribution network in STLM Area of Supply (Excluding Eskom Areas of Supply), incorporate findings from the energy master plan conducted by CSIR and develop a network investment strategy. Additionally, with the shift to renewable energy in the province and amongst high income residential consumers and industrial/commercial consumers, there is a need to understand the impact of the small-scale embedded generation (SSEG) on the MV networks.

1.4 Disclaimer

The report was compiled after an investigation based on the information made available to GLS. The highest degree of data integrity was used during the data gathering process. The information provided by STLM to GLS is assumed to be an accurate representation of the existing system.

Subsequent to the completion of the data capturing, the layout plans including the relevant attributes were handed back to the Municipality so that the information could be verified by the Client. GLS cannot therefore be held accountable for inaccurate information received pertaining to the components of the existing system.

The information in this report is intended for use by STLM only.

2 TOOLS

SWIFT and EDISAN software TOOLS are used to develop this master plan. These are software products developed internally by GLS (refer to www.gls.co.za).

DigSilent PowerFactory is used for the grid impact study aimed to assess the impact of the introduction of SSEGs and REs into the electricity network.

2.1 SWIFT

SWIFT is a computer program that performs statistical analysis of data in municipal billing databases and provides important information to the municipal infrastructure manager. This process allows for the comparison of actual consumption with theoretical values and through links to the simulation model, using the cadaster, perform realistic populating thereof. The demand database is further enhanced by the use of meter records and theoretical values. The software also allows for the calculation of income from electricity sales based on chosen tariff structures. SWIFT further allows us to easily do energy balances (in the same way the IWA water balances are done) on a suburb, load zone, distribution zone or system wide level.

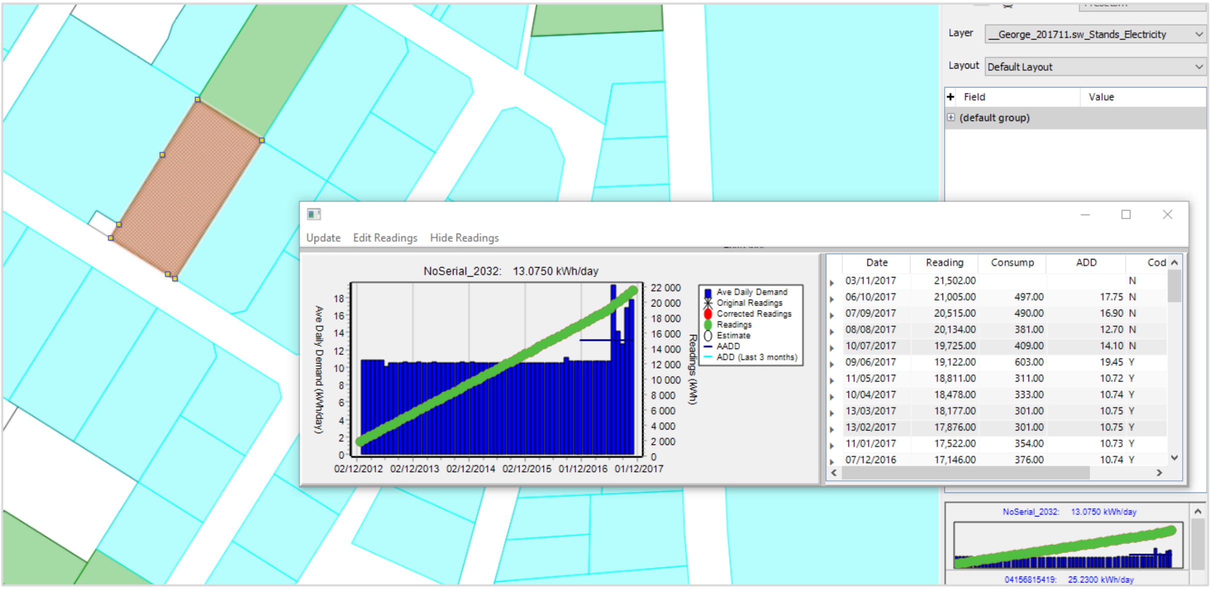


Figure 2-1: Stand-level Billing Analysis

2.2 EDISAN

EDISAN (Electricity Distribution System Analyser) is a comprehensive application built for the spatial and electrical modelling, analysis and optimal design of electricity distribution systems. The program, which interfaces with the choice of either Reticmaster, Digsilent PowerFactory or the OpenDSS public domain program for all electrical modelling and simulation aspects, performs steady state analysis with the capability to optimize distribution losses, cable sizes, voltage drop and equipment sizes for planning purposes. EDISAN is also a load forecasting and master planning tool, which can utilize load profiles (as per NRS standard) and shapes, based on land use categories (in line with spatial development frameworks where available) and thus forecast load growth using conventional S-Curve methods.

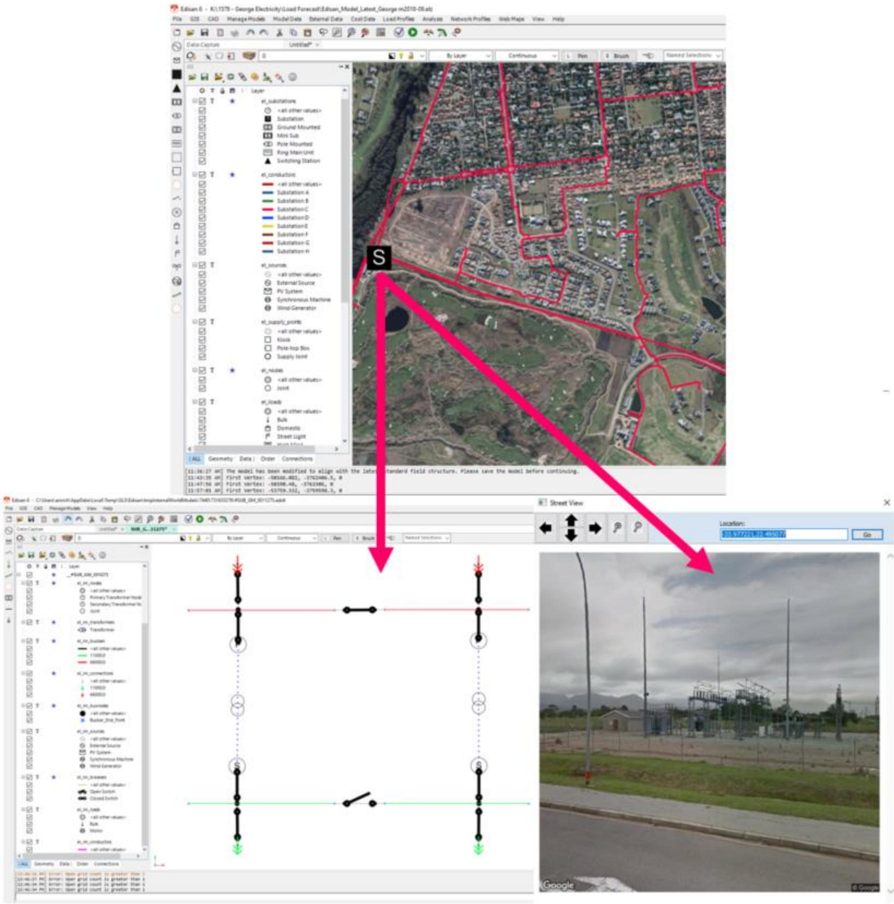


Figure 2-2: GIS Network Model in EDISAN

3 STUDY APPROACH

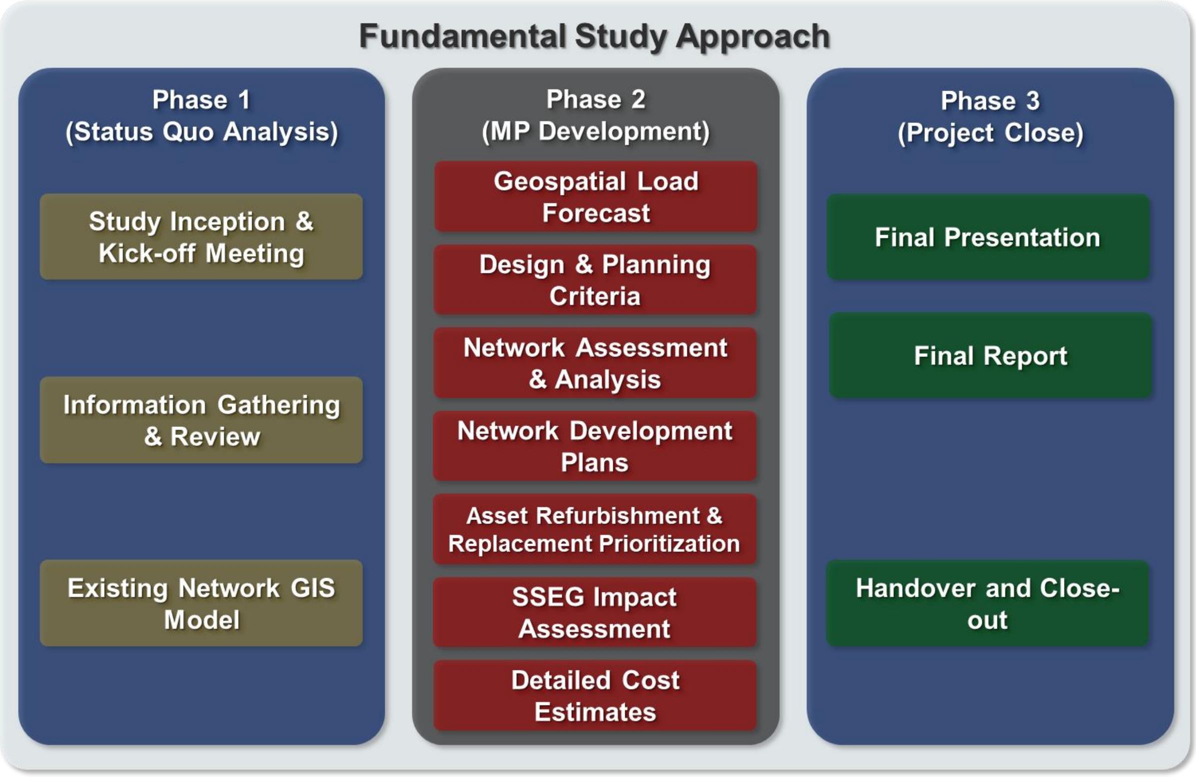


Figure 3-1: Fundamental Study Approach

Table 3-1: Detailed Tasks Breakdown

<table>
<tr><th>No</th><th>Task</th><th>Key Activities</th><th>Scope of Work</th><th>Requirements / Outcomes / Deliverables</th></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Status Quo Analysis</td><td>Study Inception and Kick-off</td><td>i. Identification of all stakeholders and confirmation of project specific roles interaction requirements.
ii. Set-up of effective communication channels.
iii. Confirmation of the general project approach and methodology.
iv. Confirmation of interaction with stakeholders (Project management, Project steering committee, workshop, and meeting schedules etc.).
v. Confirming the study area and scope of work.
vi. The agreement on software and systems to be used during the study and the format in which deliverables and supporting information should be provided.
vii. Identify and confirm stakeholder input meetings/workshops and information requirements in order to initiate the project.</td><td>a) The outcome of this activity will be a common understanding of the project requirements, scope of work and alignment with Stellenbosch Municipality's needs and project resources
b) Details of the various stakeholders and agreed interface requirements.</td></tr>
<tr><td>Information Gathering and Review</td><td>i. Collect sufficient project supporting information for the various study phases.
ii. Review all obtained information to provide a solid platform on which the project will be based.</td><td>a) Geographical Information
▪ Topographical information,
▪ Spatial and Town information (cadastral information and available network GIS information)
▪ Existing bulk electrical network (HV & MV) shape files
▪ Existing line routes and substation sites
b) Electrical System Information
▪ Electrical network information (SLD, substation single line diagrams, System Impedance diagrams)
▪ Network operating diagrams
▪ Equipment parameter data (nameplates, specifically for power transformers, circuit breakers and lines and cable conductor types),
▪ Existing DigSilent PowerFactory Network Model to conduct load flow, contingency analysis, and fault level analysis.
c) Billing (SWIFT) Information
▪ Eskom bulk purchases (Accounts)
▪ Billing Data Extract
▪ Prepaid Vending Data
▪ Database where prepaid meters linked with billing system is listed, and data thereof
▪ Suburb, Land use and Tariff Codes
▪ Meter GIS Database (Prepaid +Conventional)
▪ Deeds Information or Valuation Roll
d) Existing Standards & Reports
▪ Existing studies and reports (Including demand forecast, and Master Plans)
▪ Distribution standards,
▪ Integrated Development Plan (IDP)
▪ Spatial Development Framework (SDF)
▪ Small Scale Embedded Generation Policy
e) Demand Forecast Information
▪ Existing Demand and Energy forecast.</td></tr>
</table>

No	Task	Key Activities	Scope of Work	Requirements / Outcomes / Deliverables
				▪ Large Power Users information ▪ Existing Substation and maximum demand values ▪ Annual energy consumption ▪ Known new developments such as development plans from regional developers, specific applications for electricity connection. f) Existing Capital Programme ▪ Rolling program to be reviewed and integrated into the Sub-Tx Plan (value, description, and network location) ▪ Standard item costs (e.g., Transformer and Cables); Standard building block costs; Existing capital plan.
		Existing Network GIS Model	i. Model the existing electrical network geospatially ii. Confirm Study Area, i.e., George Municipality vs Eskom area of supply	a) HV / MV network EDISAN model b) Location and routes of electrical infrastructure modelled accurately c) Load Flow ready EDISAN model
2	**Master Plan Development**	Geospatial Load Forecast	i. Identify and assign land categories to individual stands ii. Analyse customer consumption from the billing data per stand using SWIFT software iii. Populate the EDISAN stands with the SWIFT data iv. Map stands to electrical network supply points in EDISAN v. Calibrate the calculated ADMDs and saturation loads (kVA/Ha) by comparing summated values to the measured data. vi. Identify future development areas based on application and SDF vii. Assign calibrated ADMDs and saturation loads to future areas and forecast demand	a) Geospatial load forecast per MV/LV transformer per feeder per HV/MV transformer per substation per intake point. b) Customized ADMDs and saturation loads per substation area and for municipality c) Workshop the developed demand forecast d) Demand Forecast Report
		Design and Planning Criteria	i. Review and confirm Design and Planning Criteria, Standards and Guidelines applicable to the study ii. Discuss and agree to the required parameters, philosophies, and technologies	g) Design criteria report detailing the design criteria to be applied during the concept design Sub-class / Load-class demand assumptions
		Asset Refurbishment and Replacement Reprioritisation	i. Physical site verification of HV assets located that the HV substations ii. Collect maintenance and asset condition reports for the HV equipment	a) Document findings from the site visit and reports to develop an asset refurbishment and replacement reprioritisation strategy.
		Network Assessment and Analysis	i. Perform steady state load flow and contingency analysis ii. Assessing the existing network capability and shortcomings to supply the forecasted demand	a) Network problem statement
		Network Development Plans	i. Develop expansion and strengthening scenarios ii. Review the adequacy of these scenarios through steady state load flow and contingency analysis	a) Future network expansion and strengthening options b) Workshop the developed options
		SSEG Impact Assessment	i. Develop SSEG penetration scenarios ii. Demand analysis iii. Steady state load flow analysis	a) SSEG penetration limits b) SSEG impact on load demand c) SSEG impact on electrical network

No	Task	Key Activities	Scope of Work	Requirements / Outcomes / Deliverables
		Detailed Cost Estimates	i. Perform cost estimates of the project packages ii. Develop a phased master plan capital program (CAPEX).	a) Project list b) Master plan CAPEX
3	**Project Close**	Final Presentation & Reporting	i. Submit a draft final report for inputs and comments ii. Conduct a final presentation for final inputs and comments iii. Submit final study report	a) Final Master Plan Study Report

4 STATUS QUO ANALYSIS

4.1 Electricity Network Information

4.1.1 Stellenbosch

The Stellenbosch supply zone is supplied through six main 66/11kV primary substations namely Main, Cloetesville, Golf, Markotter, University and Jan Marias Substations. Out of the six main primary substations are only two that are supplied directly by Eskom, these are the Main, Cloetevilles substations, the remaining four are interconnected and transmit 66kV that will be distributed to their respective supply zones.

Cloetesville Substation

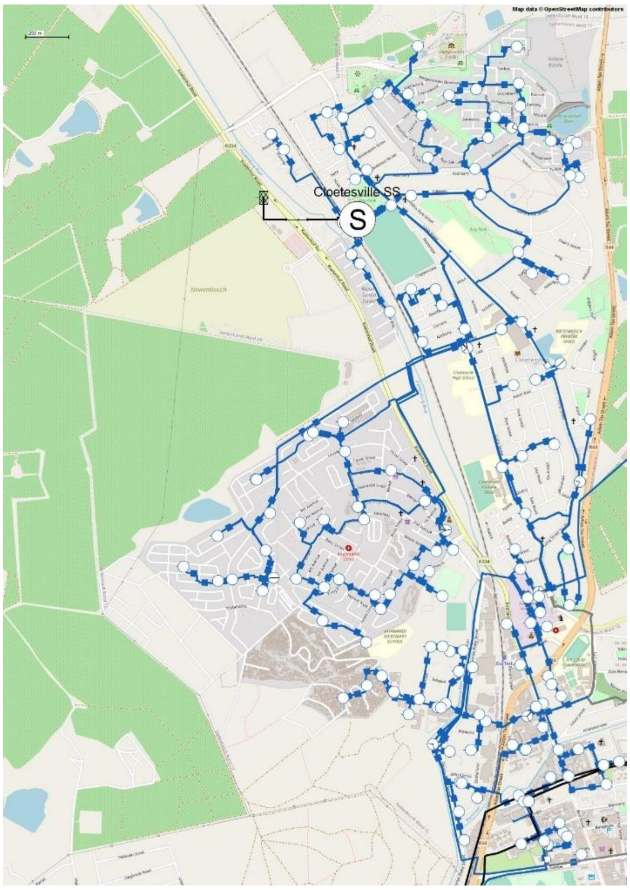


Figure 4-1: Cloetesville Substation Electrical Network

Cloetesville substation is located north of the Cloetesville sport grounds alongside the railway parallel to the Plankenburg River. The substation has a contracted NMD of 16MVA with Eskom and is responsible for the supply of electricity to the Cloetesville, Welgevonden Estate, Kayamandi and La Colline areas within Stellenbosch town. There is only one overhead feeder supplying the main substation at 66kV from Eskom with no N-1 contingency. The substation comprises of 2x 20MVA 66/11kV power transformers making the installed capacity 40MVA, and firm capacity 20MVA. There is plans to construct a 66kV line between University to supply Cloetesville.

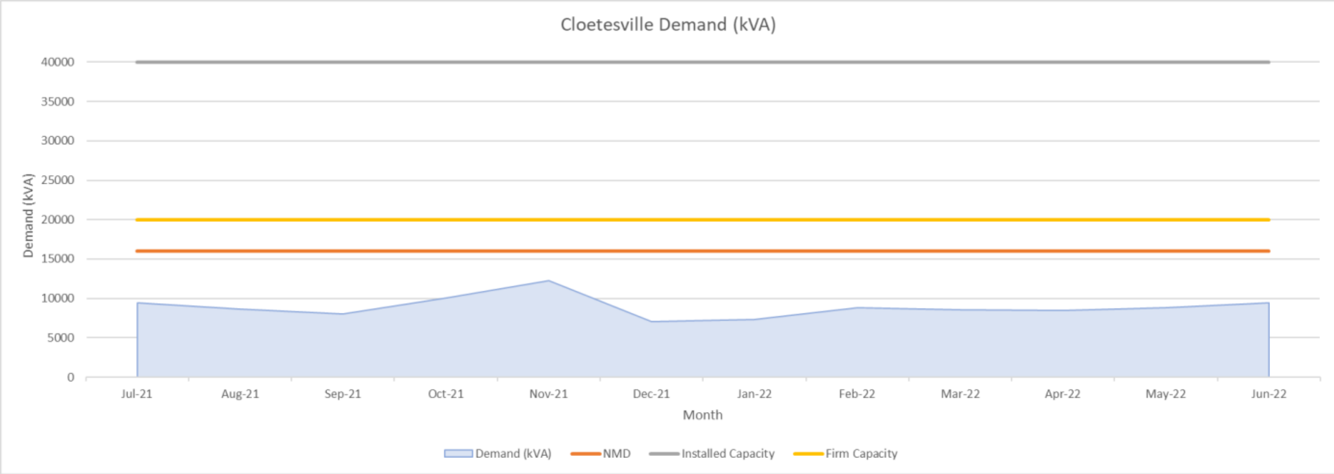


Figure 4-2: Cloetesville monthly demand trend

The main types of loads within the supply zone include residential, churches, educational and commercial customers. The cumulative daily load profile from 2021 to 2022 for the substation as depicted in Figure 4-3.

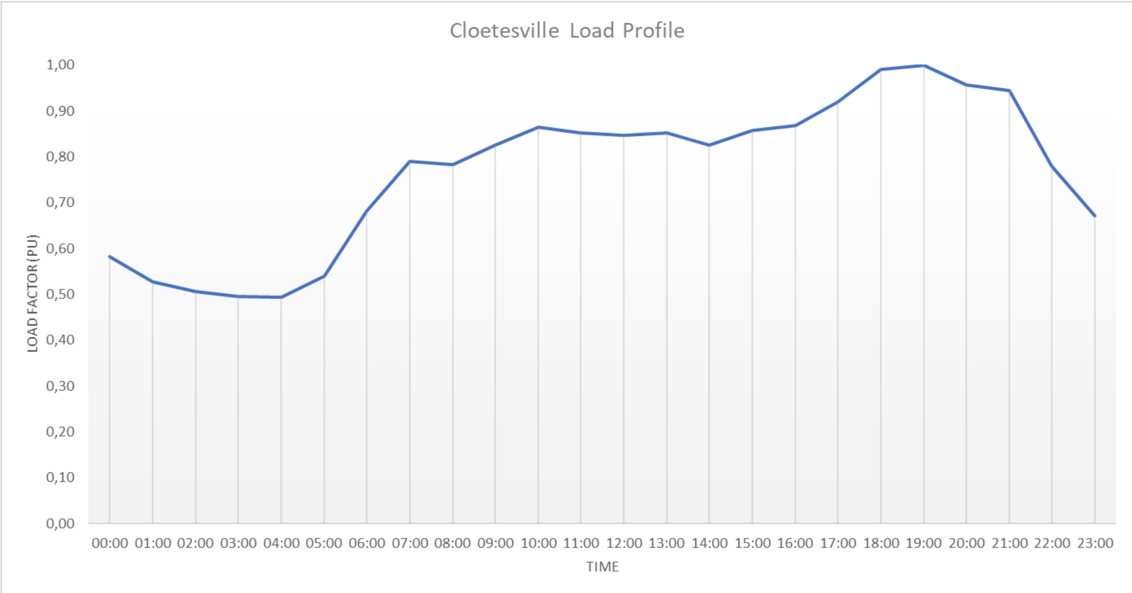


Figure 4-3: Cloetesville supply zone load profile

Stellenbosch Main Substation

Stellenbosch Main Substation formerly, Industries substation is located on Vredenburg Road in Devonvallei. The substation has a contracted NMD of 60MVA with Eskom and provides electricity to almost the entire Stellenbosch town area including the Devonvallei, Devon Park and Onder Papergaaiberg areas, Technopark going north towards Paradyskloof, Die Boord suburbs towards Brandwacht, and the entire Stellenbosch CBD through to Idasvallei towards the wine farms in the direction of Franschhoek.

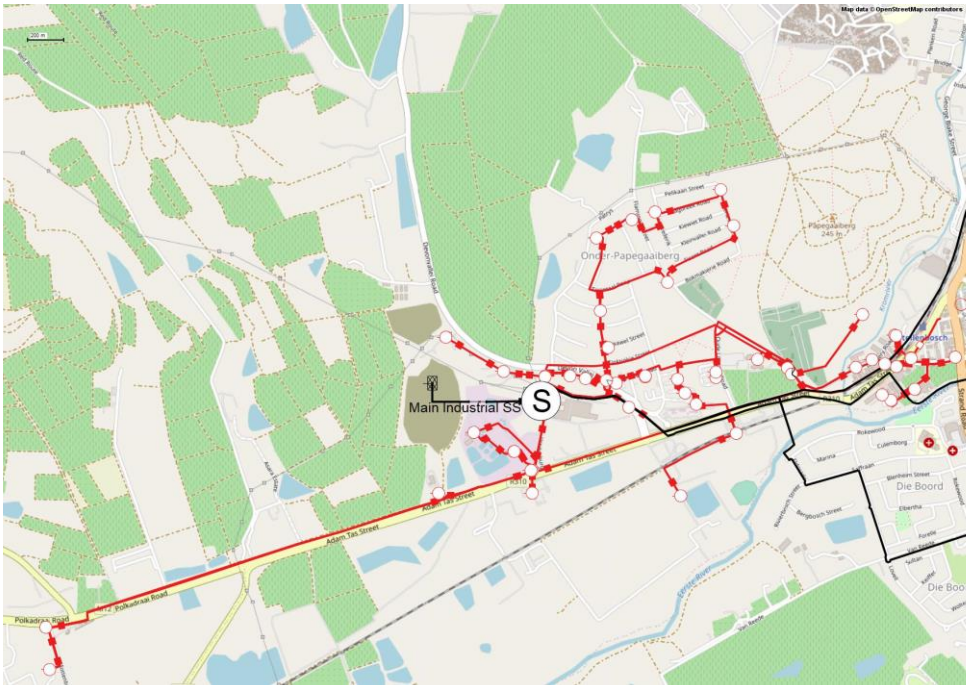


Figure 4-4: Stellenbosch Main Substation Electrical Network

The substation sits next door to a 132/66/11kV substation owned by Eskom. The STLM intake point has 3 x 7.5MVA 66/11kV power transformers and a total installed capacity of 22.5MVA and 15MVA firm capacity. There are two feeders supplying the substation at 66kV from Eskom. The contracted NMD for the substation is 60MVA, and this is inclusive of the other primary substations that are supplied 66kV that lie downstream of the main substation's supply zone namely, Golf, Markotter, Jan Marias and University substations.

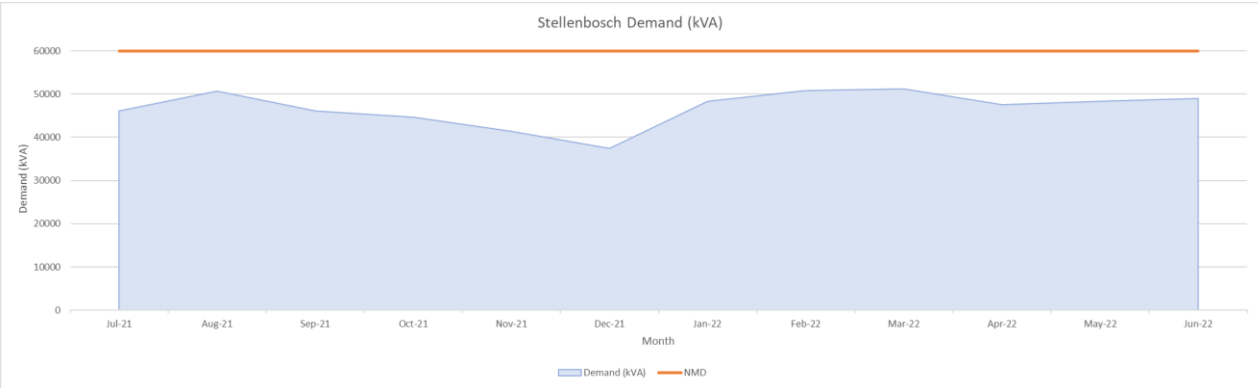


Figure 4-5: Stellenbosch Main monthly demand trend

Figure 4-5 displays the demand trends between July 2021 and June 2022. The demand is well below the contracted NMD. Figure 4-6 shows average load profile of the 66kV supply to Stellenbosch Main between 2021 and 2022, one can see that the peak demand occurred between 09:00 and 11:00, this is understandable when considering the nature of customers supplied that ranges between business offices, commercial retail, residential and industrial customers. Part of the substation acts as a switching point for the interlinked 66kV transmission network within Stellenbosch town, whilst the other part of the substation distributes 11kV to its supply zone through the substation transformers.

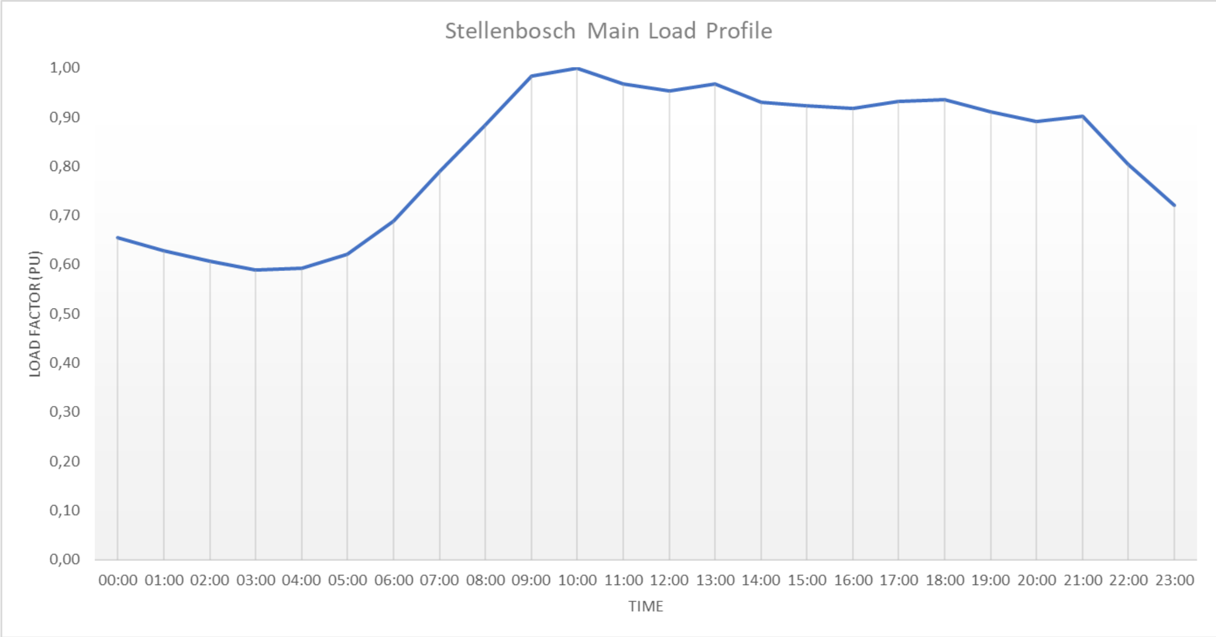


Figure 4-6: Stellenbosch Main 66kV load profile

Unlike the 66kV supply to Stellenbosch Main, the customers supplied directly by the 66/11kV transformers within the substation serve a less diverse load classes. The biggest contributors to the demand within the 66/11kV transformers in Main substation are commercial and industrial customers, therefore a higher load factor.

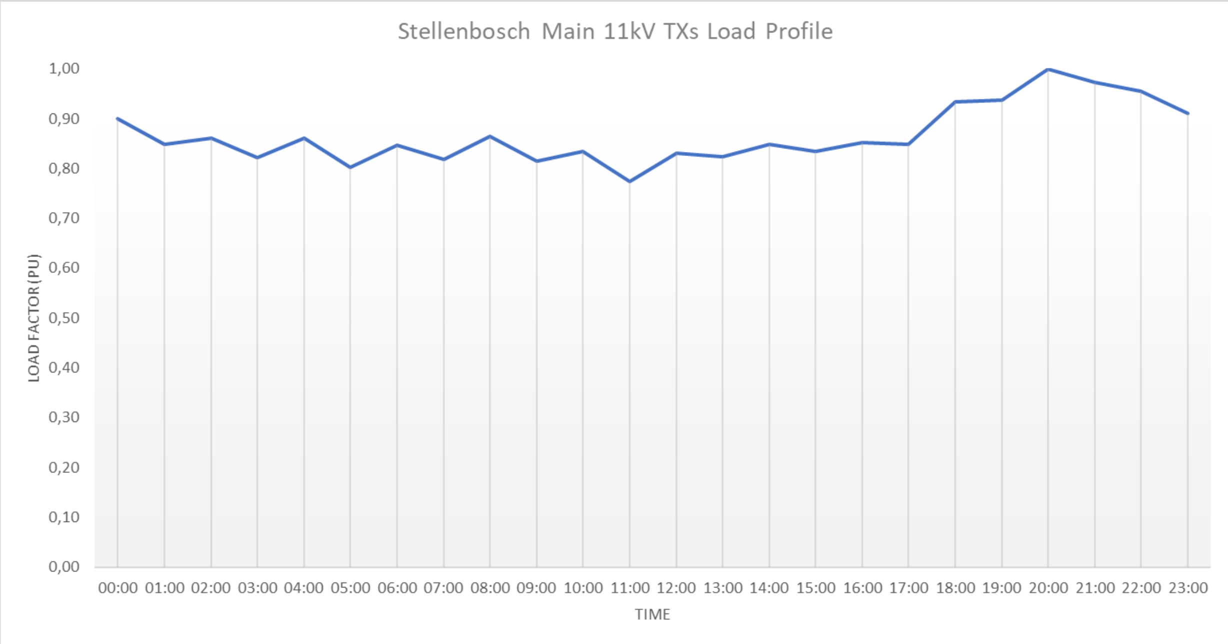


Figure 4-7: Stellenbosch Main 66/11kV transformers load profile

Markotter Substation (Suidwal)

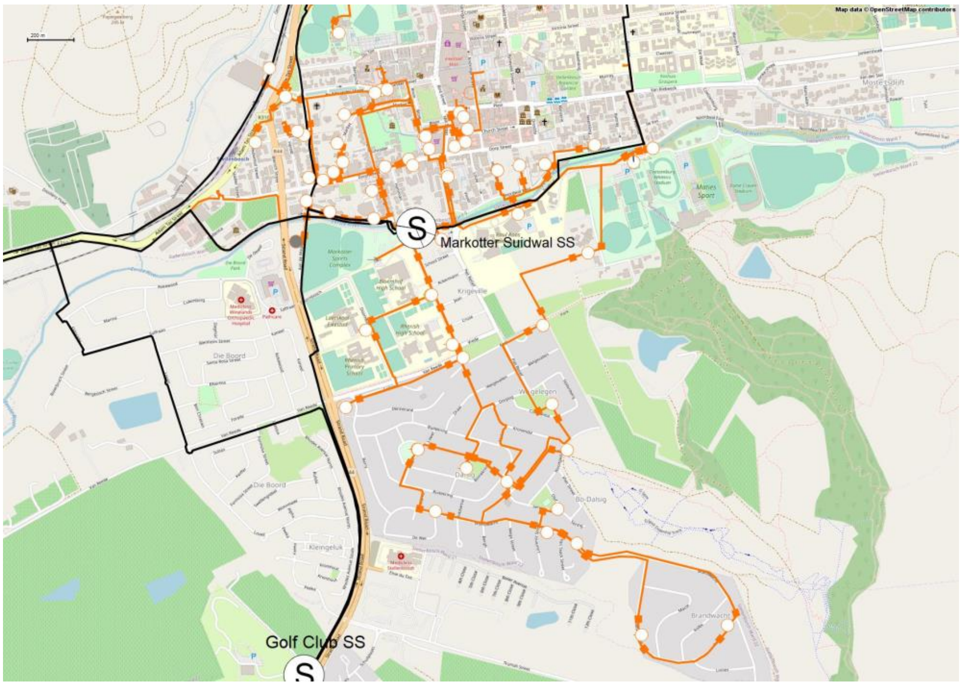


Figure 4-8: Markotter Electrical Network

Markotter Substation (Suidwal) is located in front of the Markotter sport grounds near the Eerste River in the Krigeville suburbs. The substation yard consists of three 7.5MVA 66/11kV power transformers and receives it’s 66kV supply through one 350mm^2 Aluminium oil-filled cable from Stellenbosch Main and is interlinked through one 150mm^2 Aluminium oil-filled cable from Jan Marais substation, and one 400mm^2 Aluminium oil-filled cable from Golf substation to form part of a 66kV transmission network.

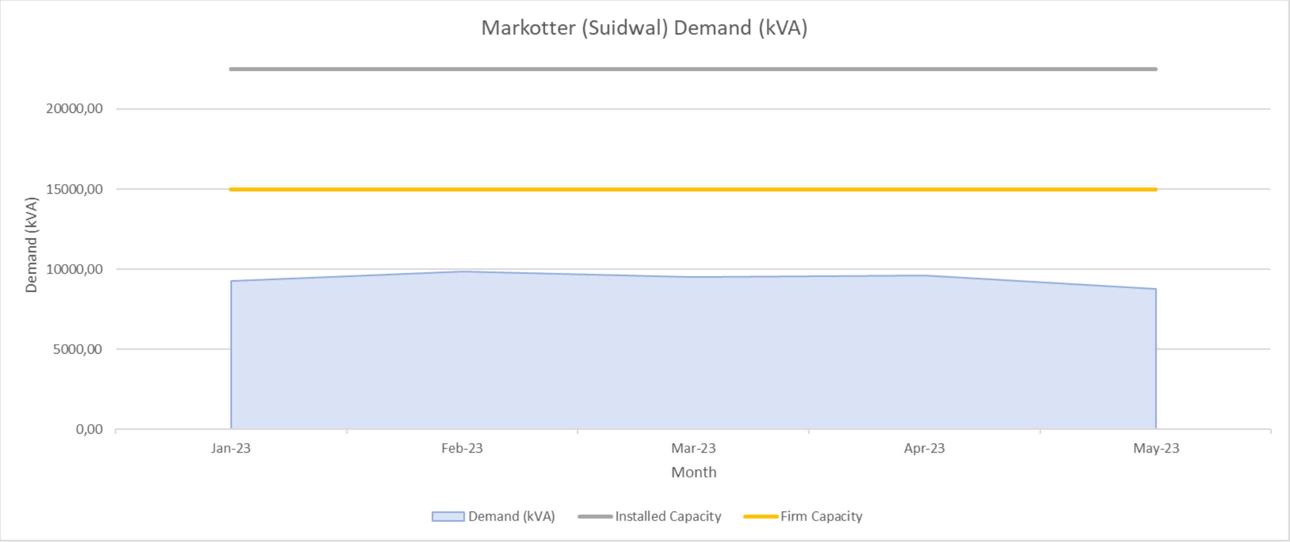


Figure 4-9: Markotter substation 2023 monthly demand trend

Figure 4-9 displays the monthly demand trend of the substation in 2023 thus far. The monthly maximum demand information was extracted from the CT Labs scopes that are monitoring power quality of the other main substations in Stellenbosch. This substation currently has sufficient capacity and the necessary N-1 contingency to supply its supply zone.

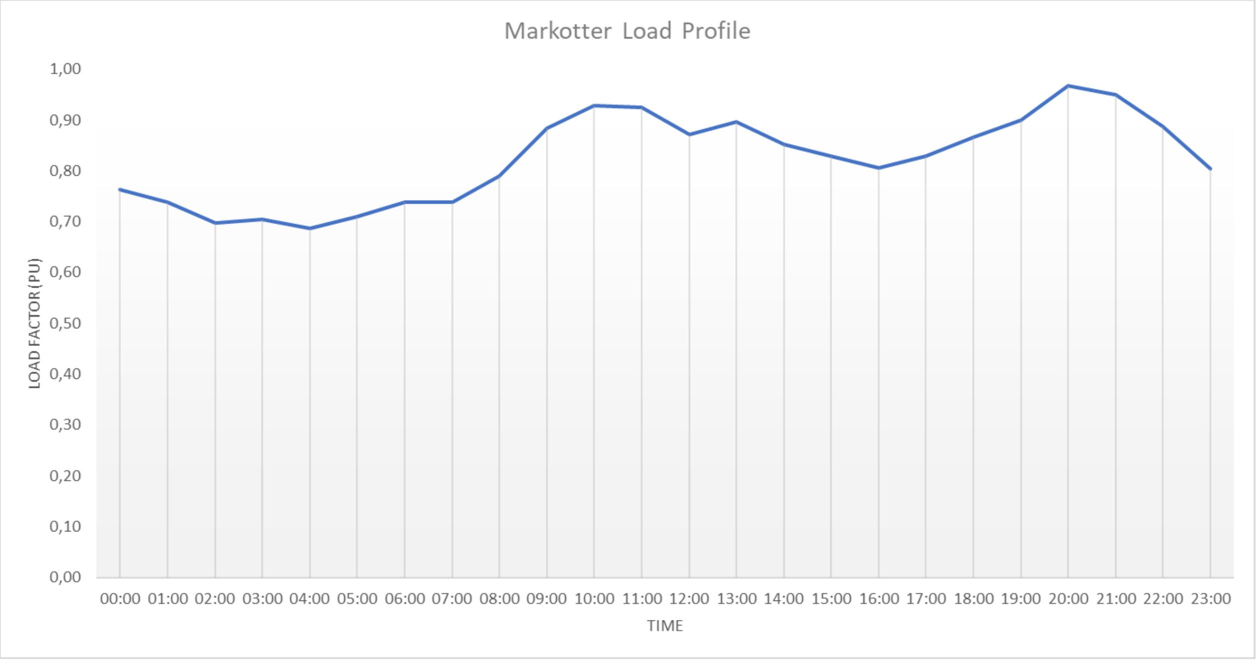


Figure 4-10: Markotter substation load profile

Markotter substation mainly supplies the residential customers, there are bulk meter customer such as the nearby schools, sports grounds and business offices, but as seen in load profile depicted in Figure 4-9, the bulk of the customers are residential customers.

Golf Substation

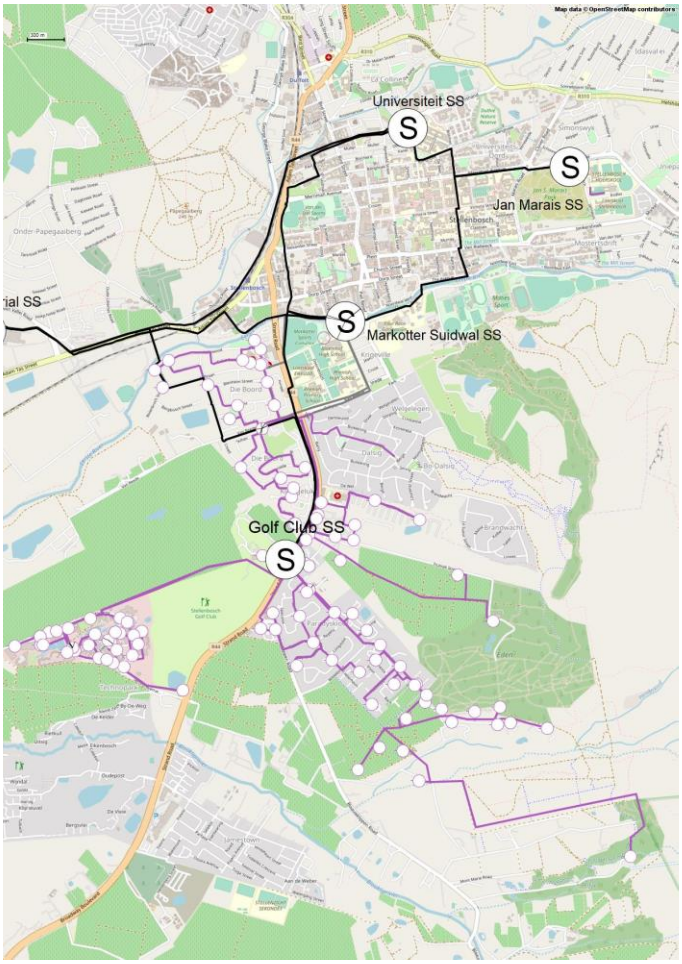


Figure 4-11: Golf substation Electrical Network

Golf Substation is located along R44 at the Stellenbosch Golf Club. The substation consists of two 20MVA 66/11kV power transformers and receives it's 66kV supply through one 800mm² Aluminium cable from Stellenbosch Main and is interlinked through one 400mm² Aluminium cable from Markotter substation to form part of a 66kV transmission network. The maximum demand between January and February 2023 was 9,65 MVA and 9,24MVA respectively, this is well below the installed and firm capacity of the substation.

The substation supplies a mix of commercial, industrial and residential customers, the bulk of which are the commercial and industrial customers. Figure 4-12 shows the average load profile between January and February 2023.

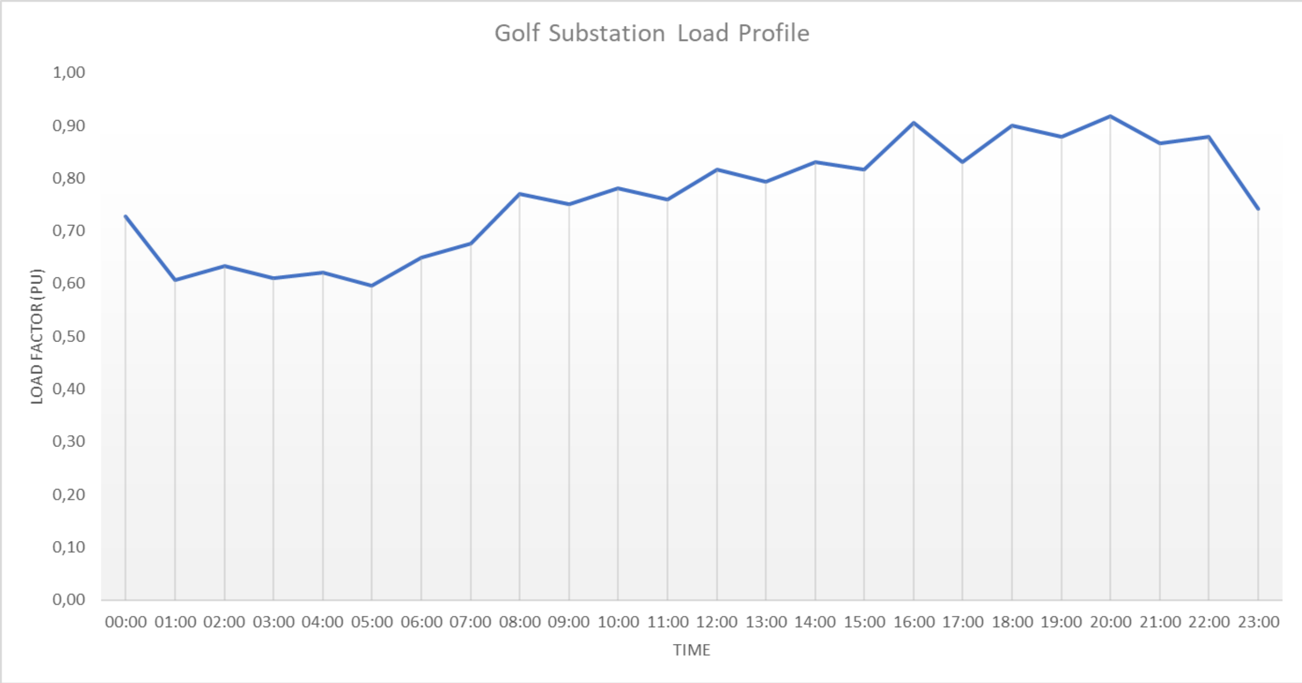


Figure 4-12: Golf substation load profile

University Substation

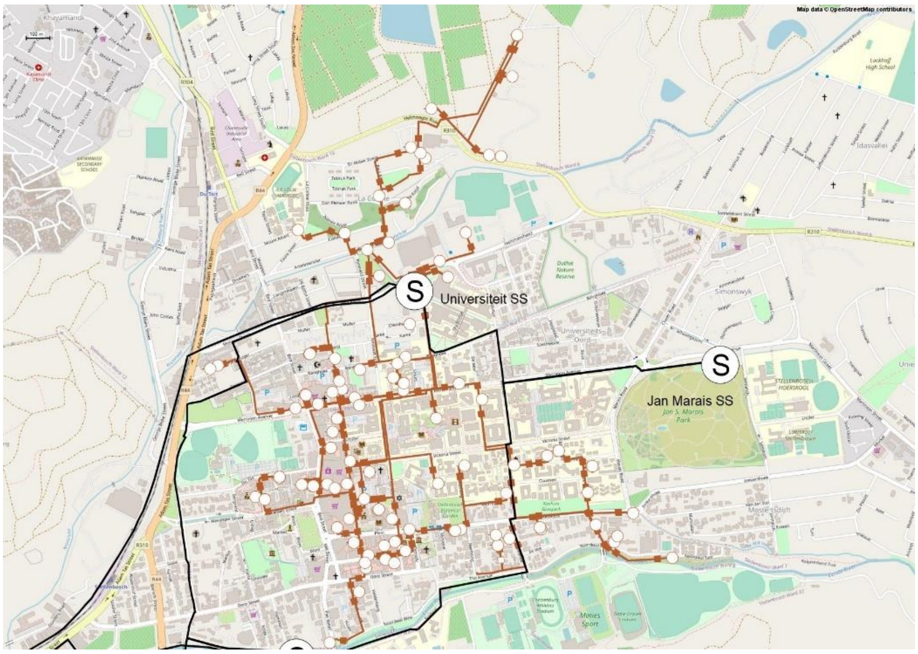


Figure 4-13: University substation Electrical Network

University substation is located next to the Stellenbosch traffic department and opposite the University of Stellenbosch Civil Engineering faculty. The substation yard consists of three 15MVA 66/11kV power transformers and receives it's 66kV supply through one 350mm^2 Aluminium cable from Stellenbosch Main and is interlinked through one 150mm^2 Aluminium oil-filled cable from Jan Marais substation, and one 400mm^2 Aluminium cable from Markotter substation to form part of a 66kV transmission network.

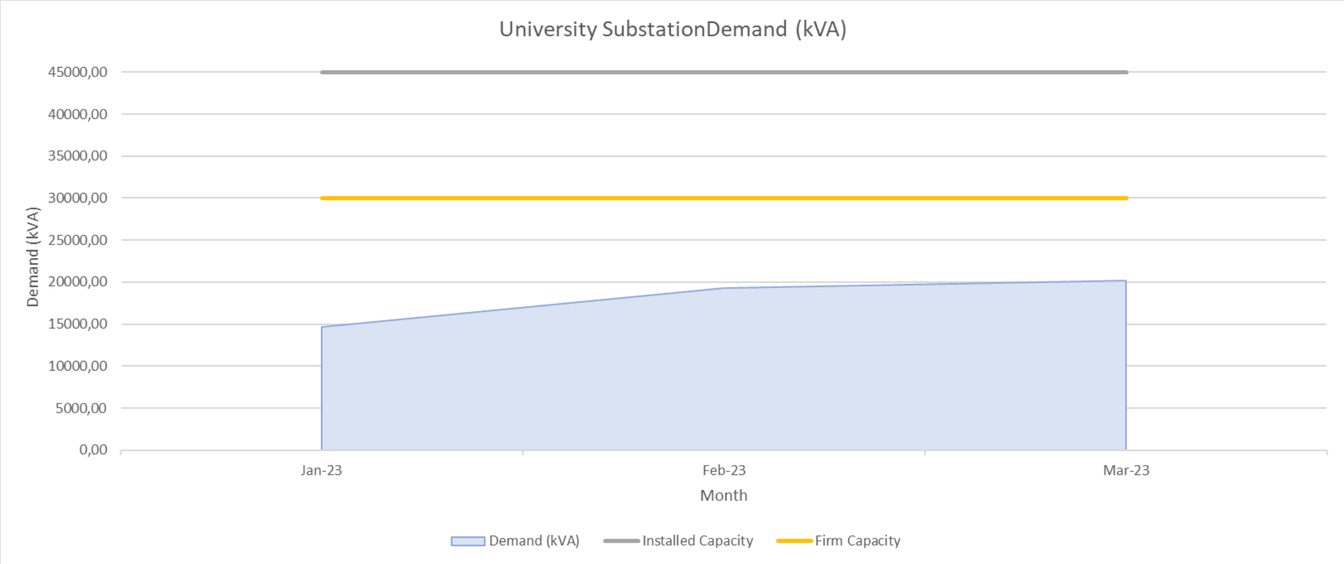


Figure 4-14: University substation 2023 monthly demand trend

Figure 4-9 displays the monthly demand trend of the substation in 2023 thus far. The monthly maximum demand information was extracted from the CT Labs scopes that are monitoring power quality of the other main substations in Stellenbosch, only three months information was provided for all the three transformers located within the substation for this analysis. This substation currently has sufficient installed capacity and the necessary N-1 contingency to supply its supply zone.

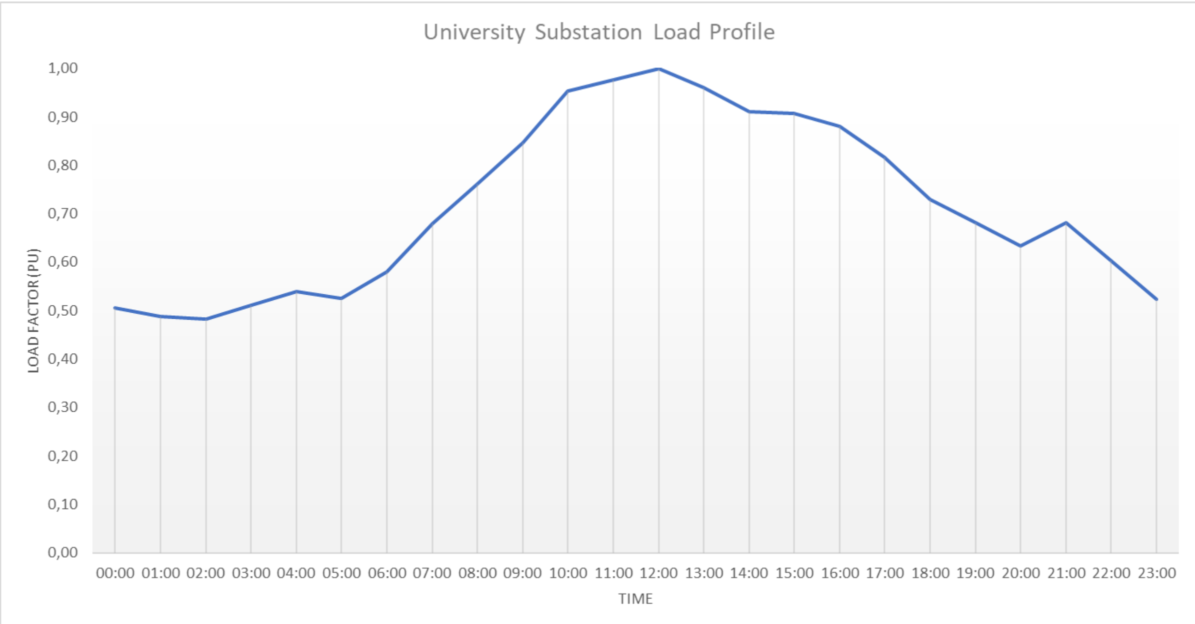


Figure 4-15: University substation load profile

University substation is responsible for the supply of electricity to the Stellenbosch CBD area, which consists of one of its biggest customers, the University of Stellenbosch. There are a number of other bulk users in the supply zone such as student accommodation, university campus and commercial customers. These customer classes are reflected in load profile depicted in Figure 4-15.

Jan Marais Substation

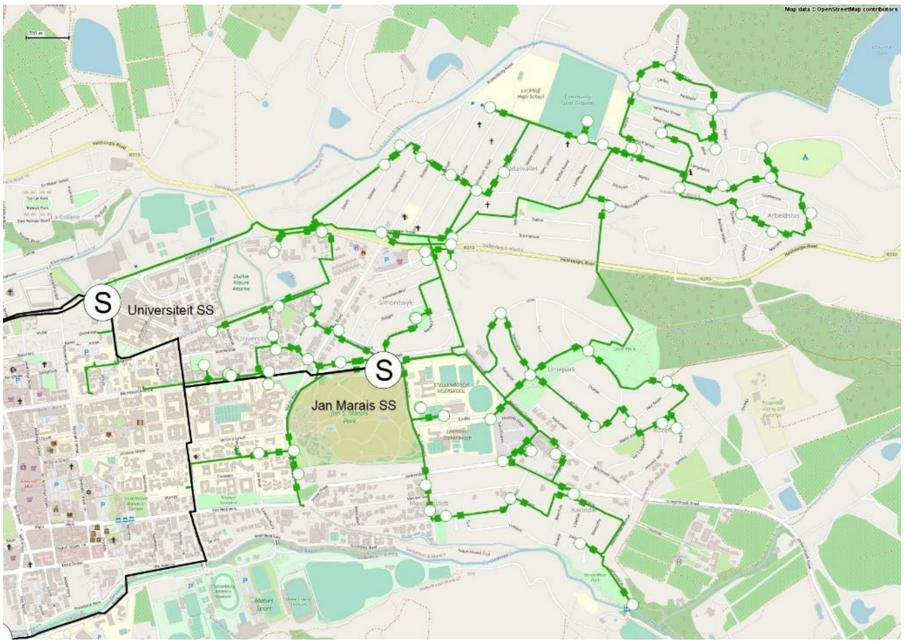


Figure 4-16: Jan Marais substation Electrical Network

Jan Marias substation is located next to Jan Marias Eco Centre along Merriman Avenue. The substation yard consists of two 10MVA 66/11kV power transformers and is interlinked through one 150mm² Aluminium oil-filled cable from University substation, and another 150mm² Aluminium oil-filled cable from Markotter substation to form part of a 66kV transmission network. Work is currently being conducted on the 10MVA transformer.

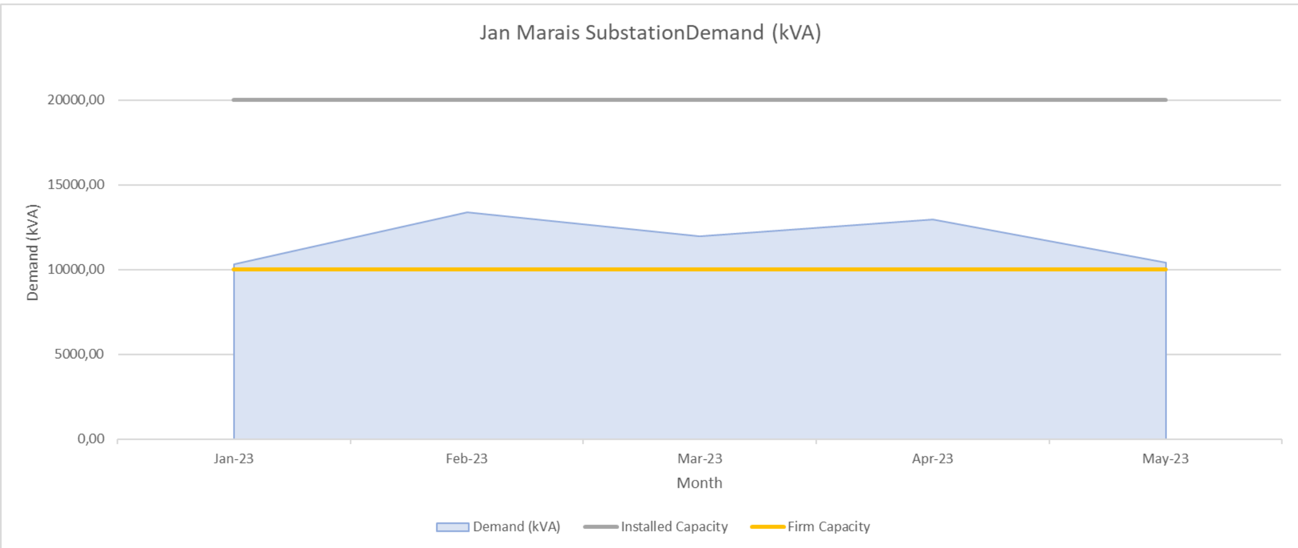


Figure 4-17: Jan Marais substation 2023 monthly demand trend

Figure 4-9 displays the monthly demand trend of the substation in 2023 thus far. The monthly maximum demand information was extracted from the CT Labs scopes that are monitoring power quality of the other main substations in Stellenbosch, only five months information was provided for all the three transformers located within the substation for this analysis. This substation currently has sufficient installed capacity but not under contingency as the firm capacity is exceeded.

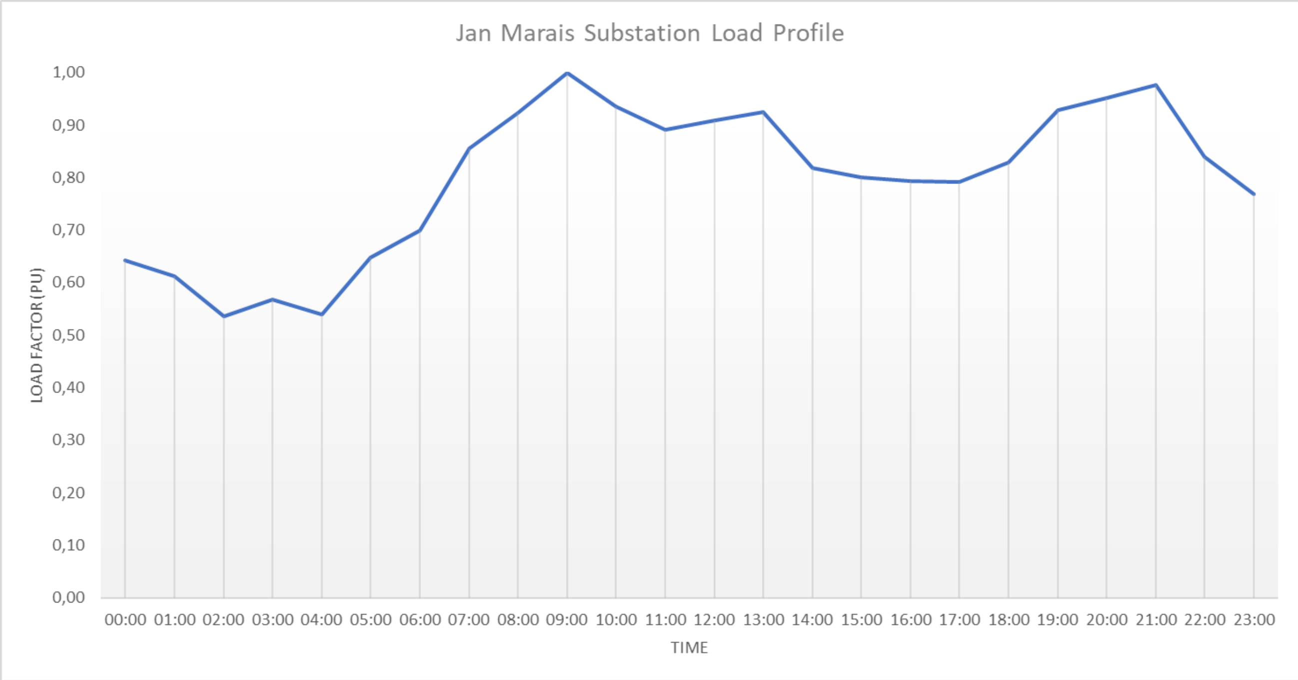


Figure 4-18: University substation load profile

Jan Marais substation supplies the residential suburbs with several commercial customers present in the supply zone. The customer classes load profile between January 2023 and May 2023 is depicted in Figure 4-15 and it is clear to see the peaks resulting from the residential customers usage.

4.1.2 Franschhoek

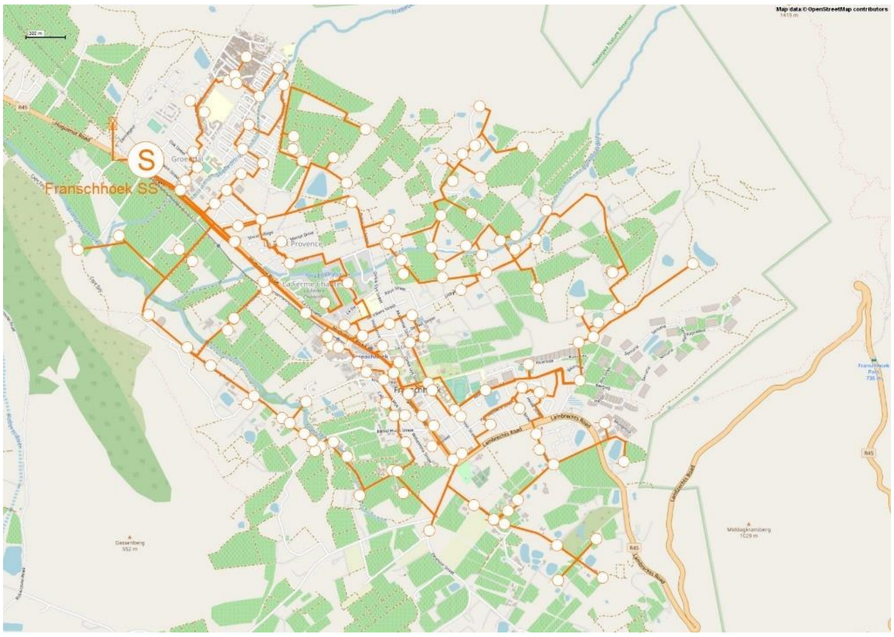


Figure 4-19: Franschhoek Electrical Network

Franschhoek is located at the foot of Mont Rochelle nature reserve. The town is about 30km away from Stellenbosch with centuries-old vineyards present. Franschhoek is supplied electricity from Eskom to one intake substation. The intake point has a contracted NMD of 10 MVA.

The intake point is located along the R45 just after Dennegeur Road as you enter Franschhoek town. The supply zone provides electricity to the entire Franschhoek town. The substation has two 20MVA 66/11kV power transformers and is supplied 66 kV from Eskom.

The maximum demand of the supply zone occurred in April 2022 with 9.5 MVA, but since, the maximum demand has increased to exceed the substation NMD. The demand trend between July 2022 to May 2023 is depicted in Figure 4-20.

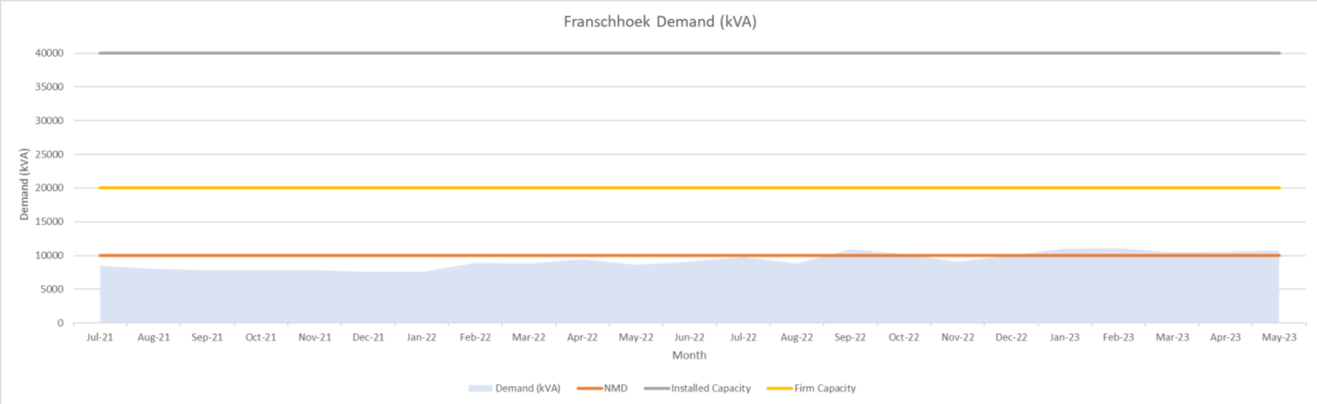


Figure 4-20: Franschhoek monthly demand trend

From the load profile, it is clear to see that the peak demands occur the most between 19:00 and 20:00 in the evening. The daily load profile was extracted from the meter readings between 2021 to 2022 for the substation is depicted in Figure 4-21. The load for the supply is made up of residential, farms and holiday accommodations.

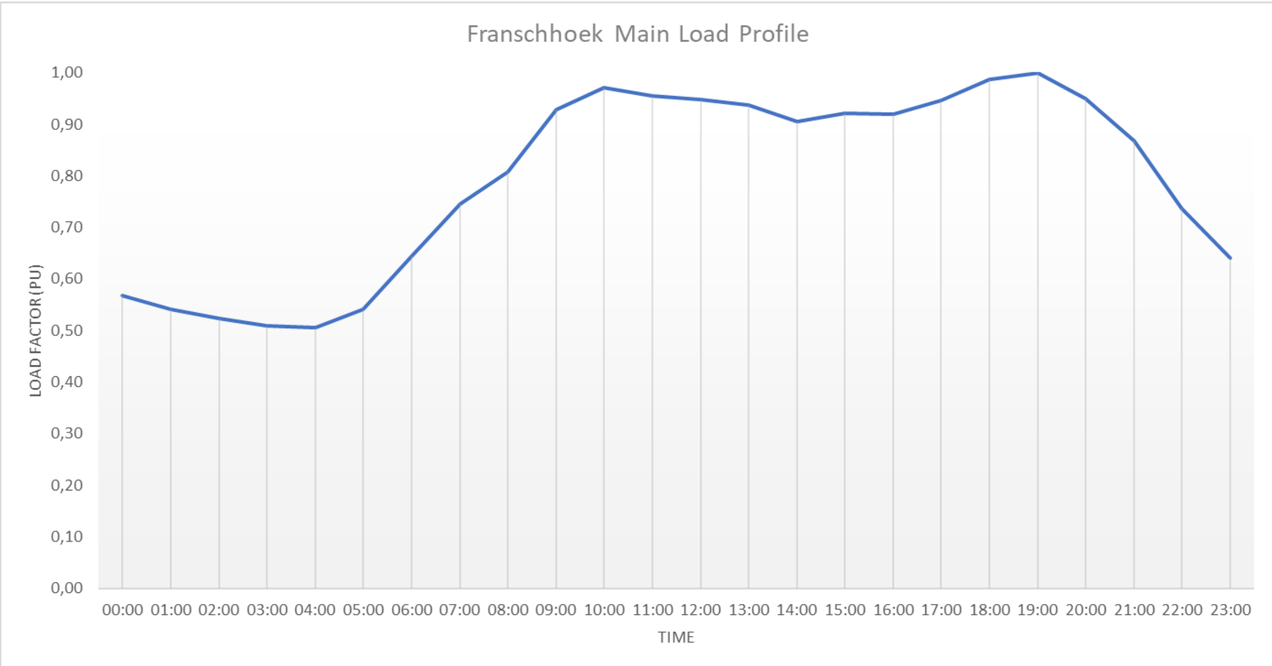


Figure 4-21: Franschhoek customer load profile

The supply zone is also an affluent area which has seen an increased installation of solar rooftop PVs for the customers.

4.1.3 Pniel

Figure 4-22: Pniel Electrical Network

Pniel is a settlement that lies between Stellenbosch and Franschhoek. The area is supplied electricity from three intake points through Ring Main Units (RMU) from Drakenstein Local Municipality (DLM). The total NMD for the area is 9 MVA.

The three intake points are located at three different locations. The first is within the Groot Drakenstein Prison as is known as the Hollandse Mollen Intake, the second is Riversmeet intake point, which is located near Allee Bleue and the Banghoek River and the last intake point namely, RFG (Rhodes Food Group) intake points, is located along the Bien Donne Road. These portions of the network in Pniel were previously owned by the DLM before STLM procured the supply zones.

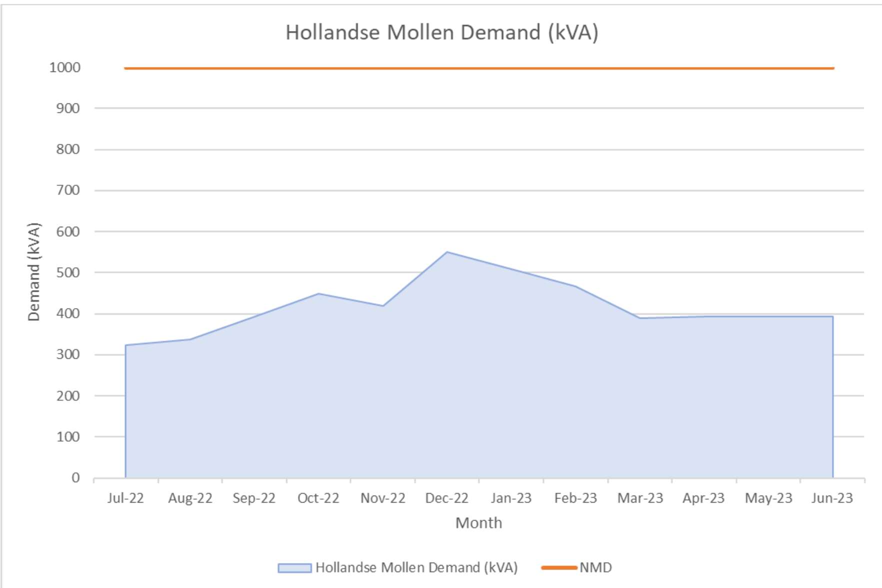


Figure 4-23: Pniel Hollandse Mollen Monthly Demand Trend

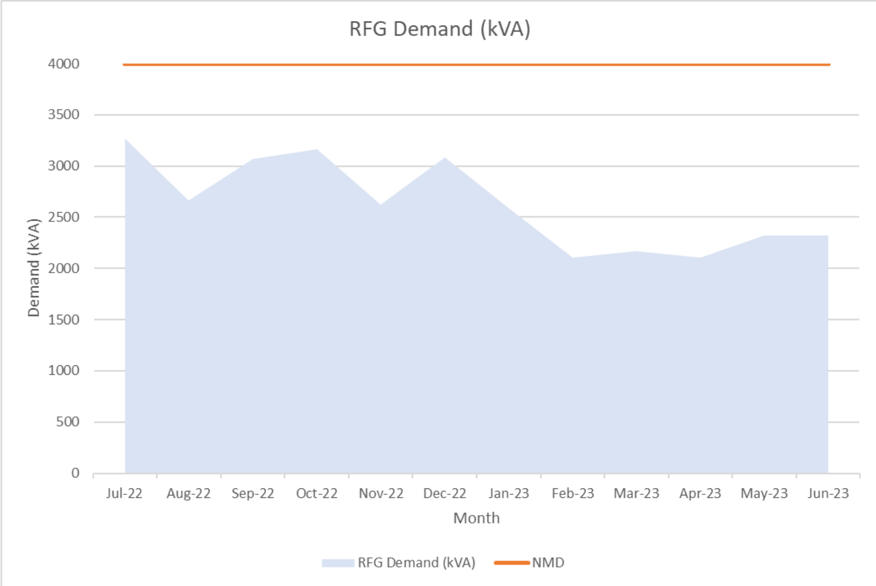


Figure 4-24: Pniel RFG Mollen Monthly Demand Trend

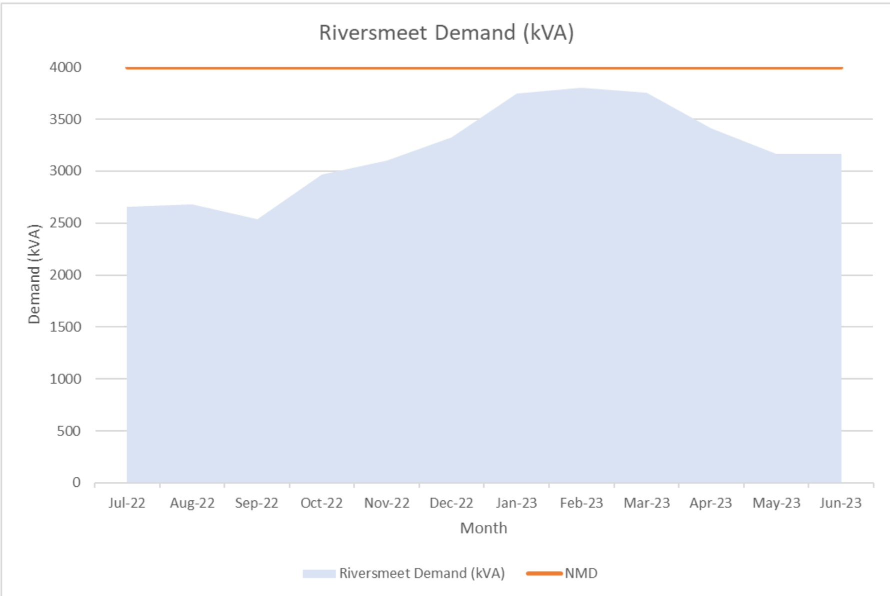


Figure 4-25: Pniel Riversmeet Mollen Monthly Demand Trend

The demand trend of the Pniel intake points between 2022 and 2023 shows that the most demand is utilised during the summer period as opposed to the winter. The only intake point with a higher demand usage in winter is the Hollandse Mollen intake which mostly supplies small farms, holiday accommodations and residential estates.

Hollandse Mollen has a maximum demand of 551 kVA, and it's clear to see from its load profile in Figure 4-26 between 2019 and 2020 that the bulk of the users carry a domestic load profile.

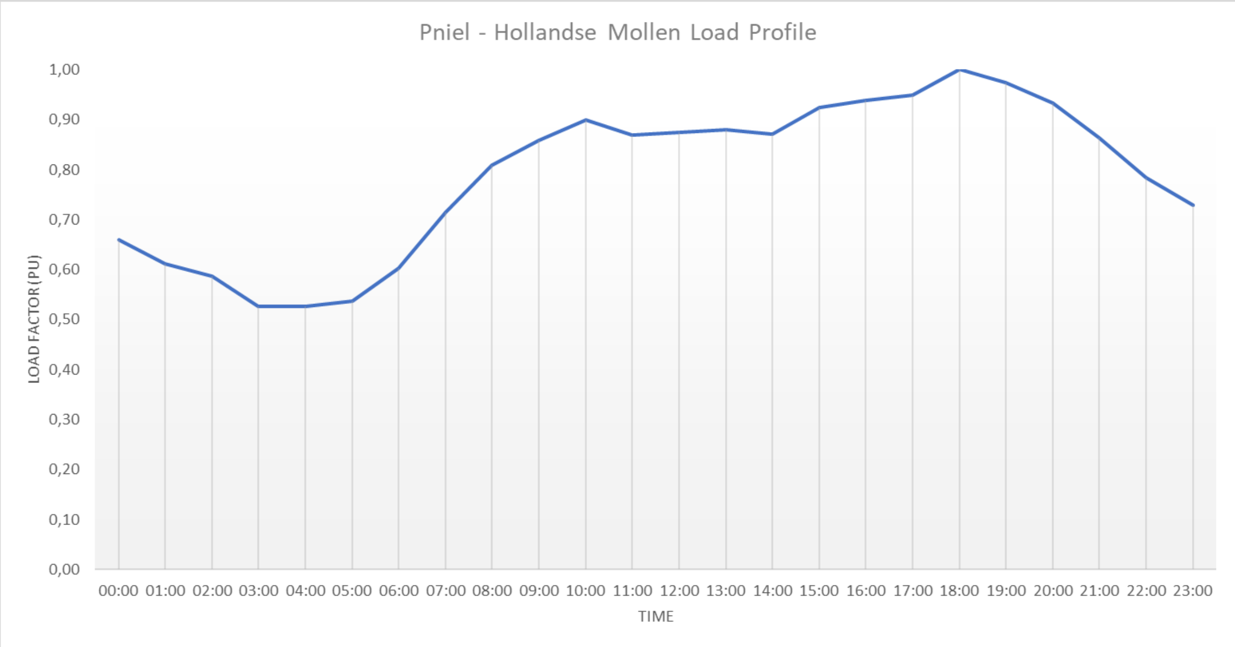


Figure 4-26: Hollandse Mollen intake load profile

RFG intake contrary to Hollandse Mollen is supplying industrial customers and farms along the R45. It's load profile as depicted in Figure 4-27.

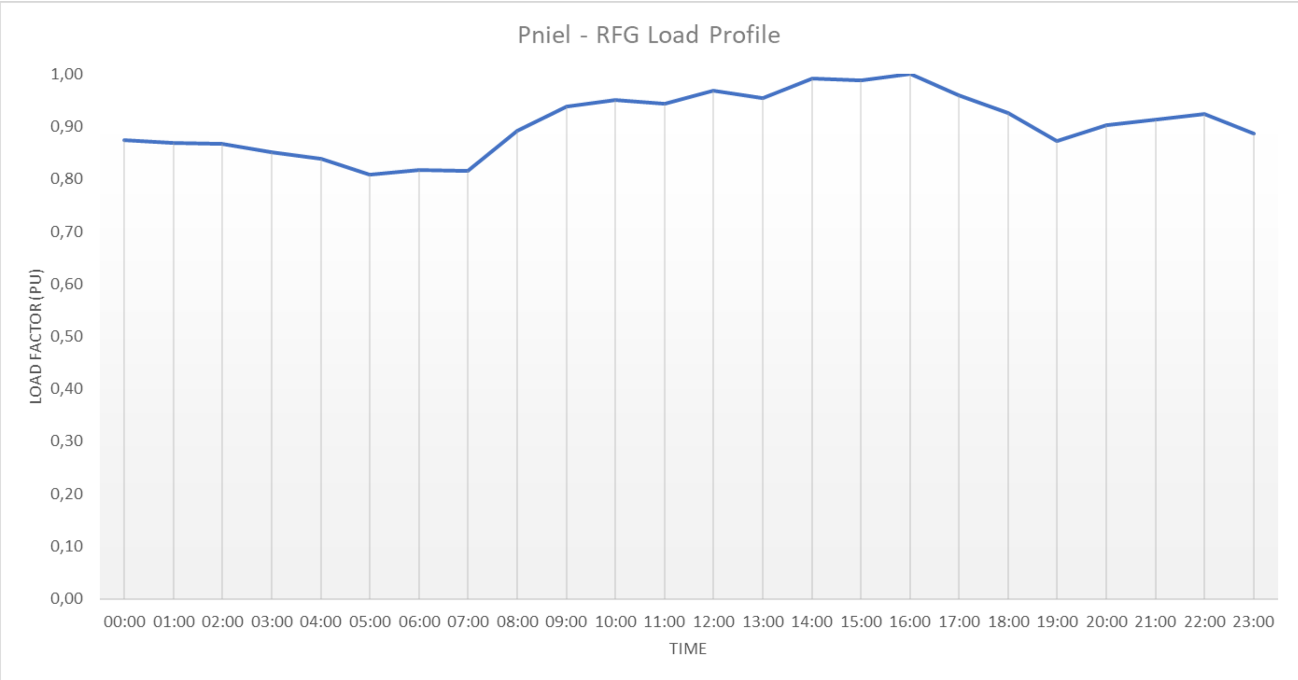


Figure 4-27: RFG intake load profile

The last intake point, Riversmeet, supplies the bulk of the Pniel town and surrounding wine farms. The customers within this supply zone comprise of residential, farms, educational and commerce facilities.

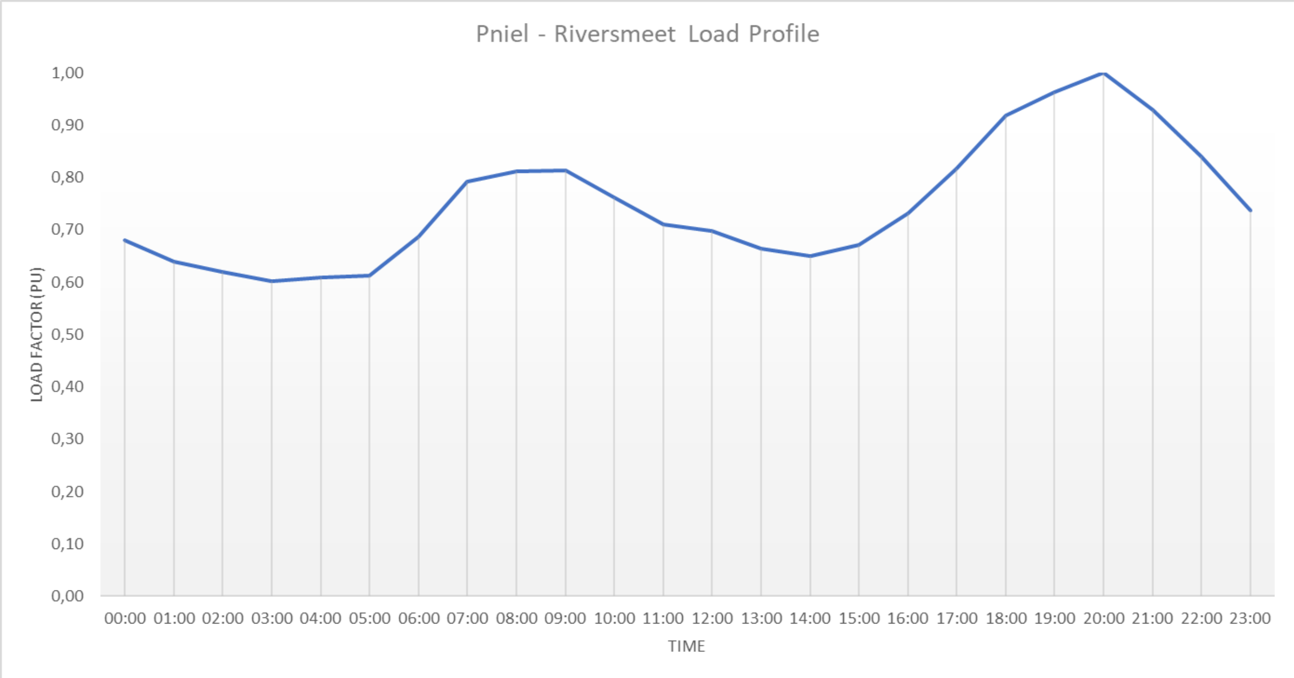


Figure 4-28: Rivermeet load profile

4.2 Present Land Use and Electricity Demand

4.2.1 Methodology

The Stellenbosch LM's treasury database is linked to the municipal cadastral to allocate each stand within the licensed supply area with its respective treasury data. The stand is subsequently linked to the geospatial electrical network model, which assists with identifying and creating supply zones within the network. The program is used to analyse the present land use and electrical demand situation in Stellenbosch LM, as well as the projected potential electricity demand for a fully occupied system.

4.2.2 Swift Analysis

Stellenbosch LM uses the SAMRAS Enterprise Resource Planning (ERP) treasury system for the towns within the municipality's licensed distribution area. There is also an external prepayment meters database where purchases made by customers are stored. The prepaid vending is handled by Ontec Systems Pty (Ltd) who manage the electrical prepaid vending system. Currently, the prepaid meters are not directly linked to the treasury system, and the monthly service charge (R/POD) is manually linked. The treasury records for the period between April 2022 and April 2023 were used as the base information for the analysis.

The customer meters appearing on the SAMRAS treasury system were well linked to the municipal cadastral, however the electricity meters prepaid vending systems required additional work to link the appropriate meter to its stand.

Table 4-1: Methods used to link electricity meters on the treasury system m to the cadastral

Link Method	No. Meters (Records)
Stand ID from Billing Electricity Meter	8 687
Stand ID linked on Rate Account and Electricity Meter	3 274
Stand ID Manually linked (Complex or Estate)	724
Stand ID linked based on Rate Account	933
Stand ID linked on Water Account	19
Linked to Billing Record	**13 367**
GIS Manual linking	32
GIS from Meter Address	510
Informal (Address and Tariff)	6 888
Linked to Cadastral Stand	**7 430**
Unlinked	9 077
Total	**30 144**

4.2.3 Land Use

There are a number of land use and zoning codes maintained in the treasury system being operated by the Stellenbosch LM, the following land use categories were identified for this study:

Table 4-2: Land use and zoning codes maintained in the treasury system

Landuse	Description
BUS_COMM	Business/Commercial
CLUSTER	Town houses
EDU	Educational
FARM_AH	Farm/Agricultural holding
FLATS	Flats
GOVT_INST	Government/Institutional/Municipal
IND	Industrial

Landuse	Description
OTHER	All other categories
PARKS	Parks
RES	Residential stands
UNKNOWN	All stands where the category of the land use code is unclear

In order to account for the effect of stand size on residential electrical demand, the RES category is further subdivided into five sub-categories, based on stand size, as follows:

Table 4-3: Division of the land use RES category

Landuse	Description
RES 500	smaller than 500 m^2
RES 1000	500 m^2 to 1 000 m^2
RES 1500	1 000 m^2 to 1 500 m^2
RES 2000	1 500 m^2 to 2 000 m^2
RES >2000	larger than 2 000 m^2

The land use is critical to the Load Classification process. Load Classification is mainly a SWIFT software exercise where each stand is classified based on its land-use correlated with the tariff from the billing data. Each stand is assigned a typical daily profile based on its land-use type.

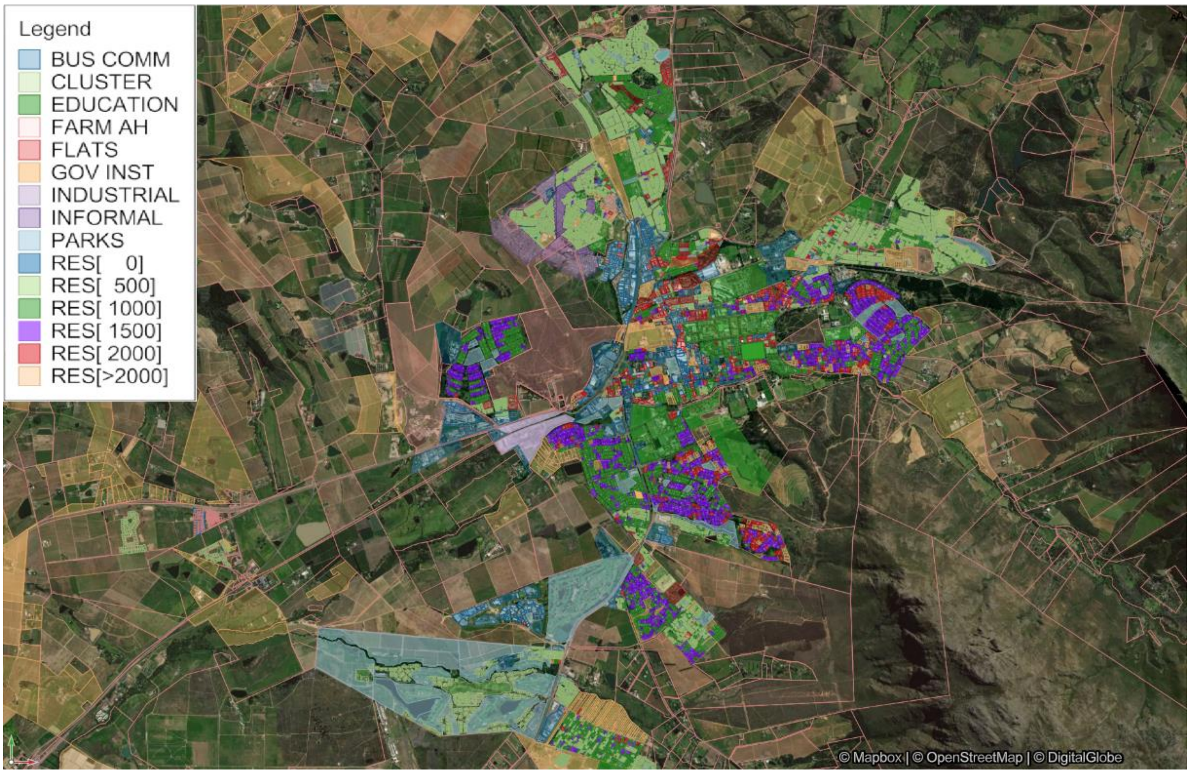


Figure 4-29: Stellenbosch Stand Land-Use

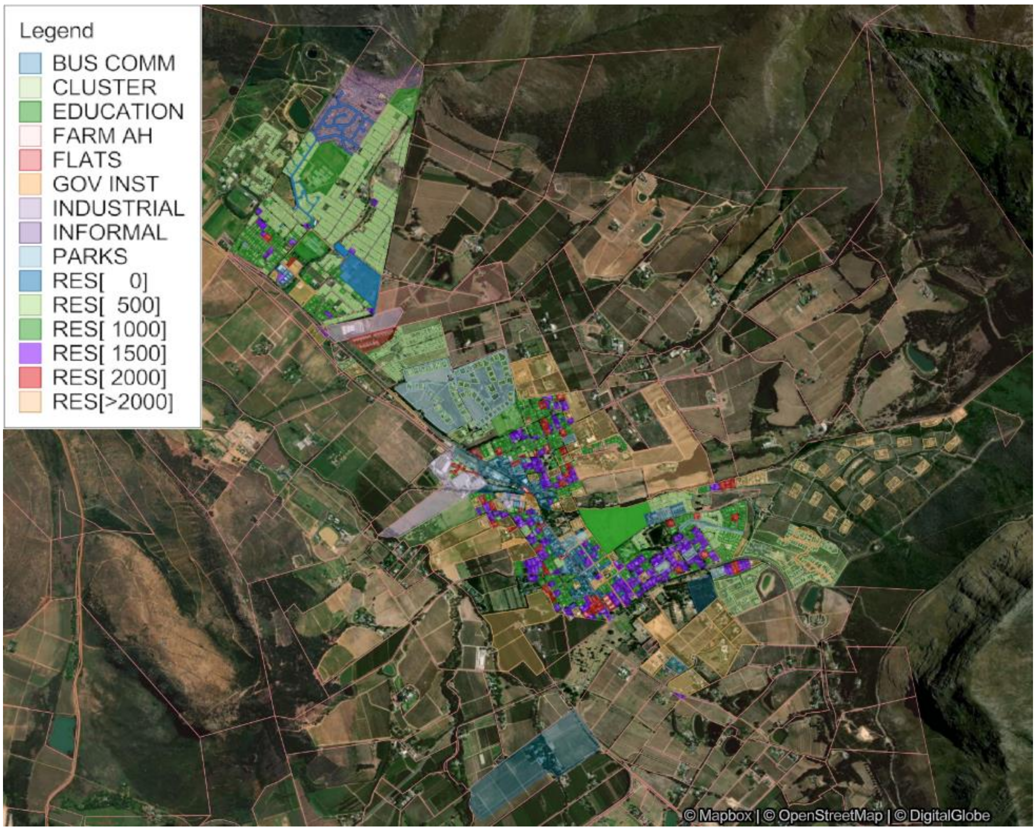


Figure 4-30: Franschhoek Stand Land Use

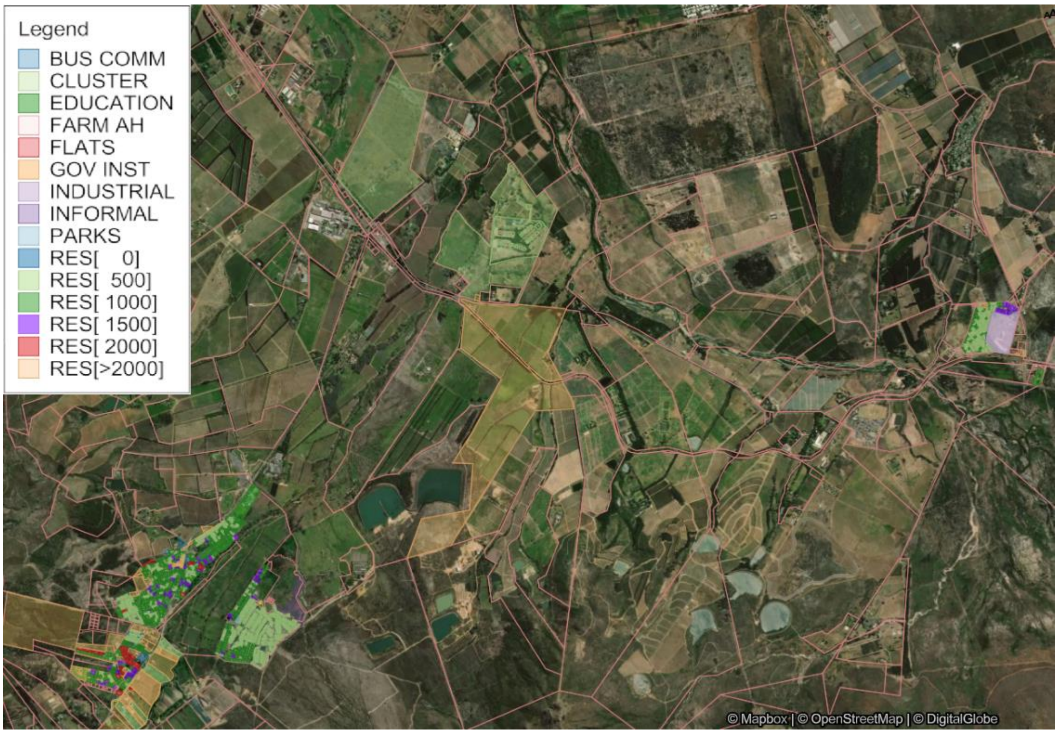


Figure 4-31:Pniel Stand Land Use

For the future land use and electricity demand scenario the potential future developments for the area were considered (these areas are informed by the Planning Directorate of Stellenbosch LM). The existing vacant stands in the treasury data would become "occupied", i.e. start using electricity based on the allocated land use and suburb theoretical Annual Average Daily Consumptions (AADC) for the stand.

4.2.4 Distribution Zones and Zonal Meter Readings

The distribution zones and zonal meter readings were provided by the municipality. The distribution zones are the same as the supply zones for this study. These are defined by the electricity network configuration from the point of supply provided by Eskom. Figure 4-32 displays the supply zones which constitute the Stellenbosch LM supply area.

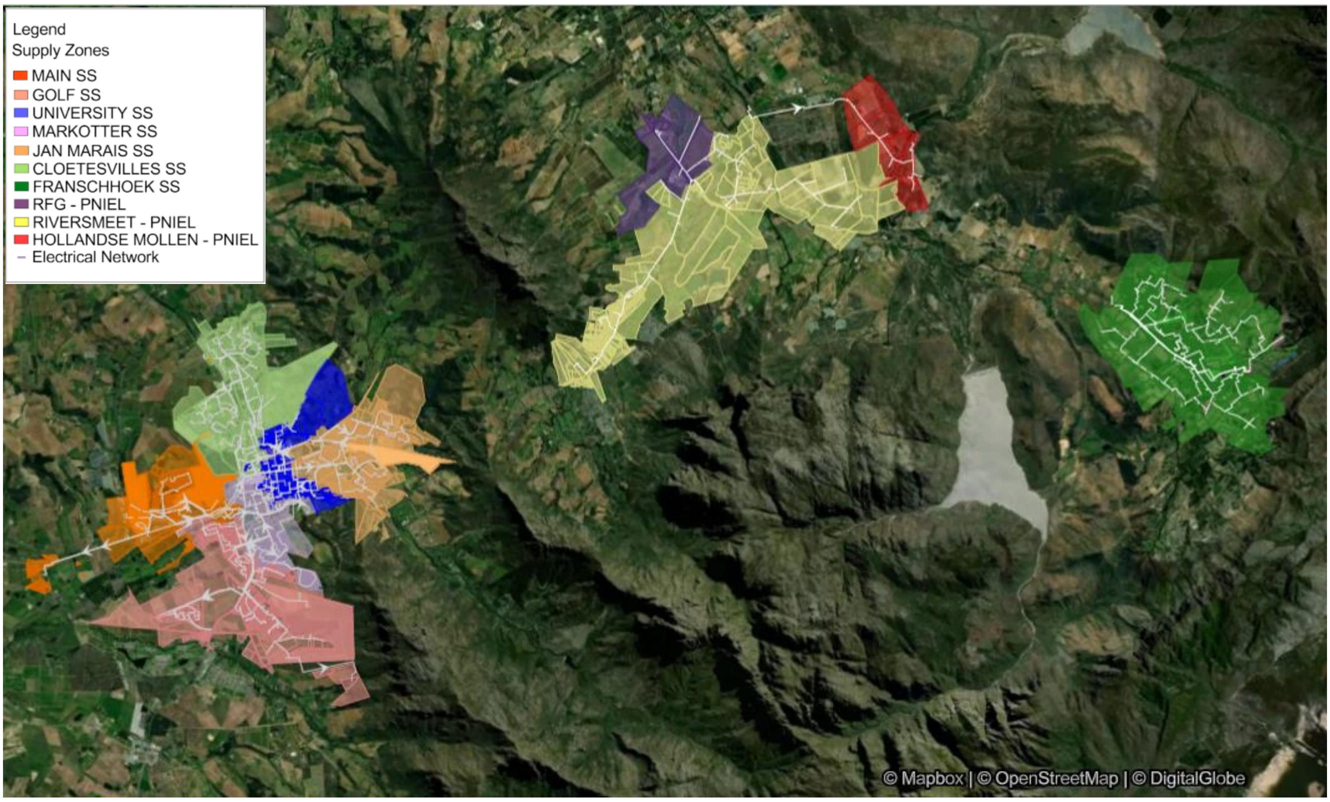


Figure 4-32: Stellenbosch LM Supply (Distribution) Zones

Zonal electricity meter readings for this study means the hourly demand (kVA) recorded over a period of time for the different licensed distribution supply zones within the municipality. The recorded monthly maximum demand (MD) and monthly consumptions between 2021 and 2022 for all the intake points were provided.

4.2.5 Large Power Users (LPU)

The hourly electricity demand and consumption meter readings were provided for the LPUs within the Stellenbosch LM network. These meters readings were used to determine the load profiles for these LPUs and ascertain their respective MDs.

Stellenbosch LM has about 946 meter accounts appearing on the Ontec AMI system as at May 2023. Of those users, only 35 users have a registered MD above 100kVA. This total does not include the intake points for the substation that are appearing on the platform. Most of these bulk meters are for commercial, industrial or TOU tariff codes within the municipality. The total MDs for the 35 LPUs above 100kVA total up to 34.36MVA, that is 42.17% of the total MD of all the intake supply points in Stellenbosch LM.

5 GEOSPATIAL LOAD FORECAST

Figure 5-1 provides a high-level block diagram presentation of the basic methodology followed when developing the geospatial demand forecast. The methodology consists of various activities required to establish the forecast and can be grouped into five main sections, i.e., Load Classification, Load Energy Consumption & Theoretical Maximum Demand, Spatial Correlation of Stands to Network, Base Load Calibration and Forecast.

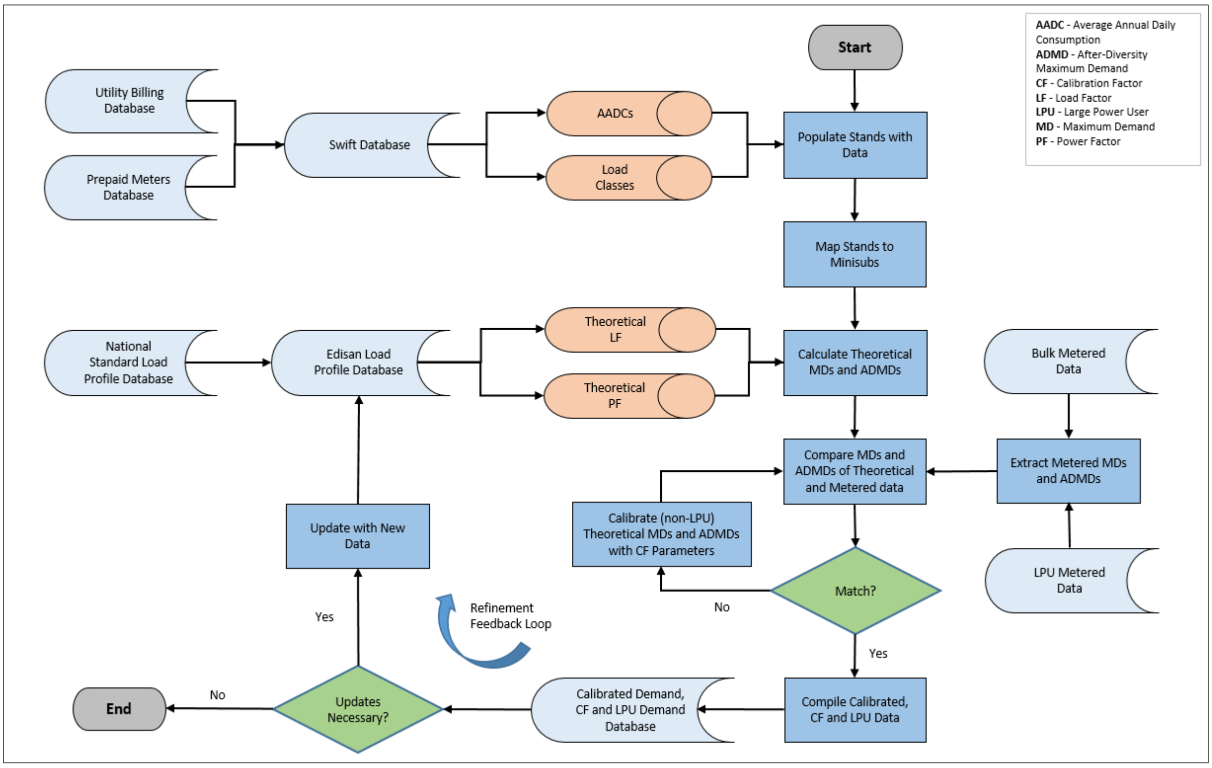


Figure 5-1: GLS Geospatial Load Forecast Methodology

5.1 Load Classification

Load classification is mainly a SWIFT software exercise where each stand is classified based on its land-use correlated with the tariff from the billing data. Each stand is assigned a typical daily profile based on its land-use type. As a start, standard load profiles are used; however, these can be customized based on the specific information available. These are the standard load profiles developed per the Eskom geo-based load forecast standard [2]. The daily profile will have an associated theoretical load factor (LF) and power factor (pf). Table 5-1 shows the standard daily profiles available for this project.

Table 5-1: Standard Load Profiles

Profile Name	Hour 01	Hour 02	Hour 03	Hour 04	Hour 05	Hour 06	Hour 07	Hour 08	Hour 09	Hour 10	Hour 11	Hour 12	Hour 13	Hour 14	Hour 15	Hour 16	Hour 17	Hour 18	Hour 19	Hour 20	Hour 21	Hour 22	Hour 23	Hour 24	PF
1A_Dry_land_Crops_and_Animals	0.66	0.65	0.65	0.66	0.71	0.79	0.87	0.94	0.96	0.97	0.99	0.99	0.99	0.98	1	1	0.97	0.93	0.92	0.89	0.83	0.76	0.72	0.69	0.676
1B_Irrigation	0.65	0.64	0.63	0.63	0.65	0.72	0.78	0.86	0.92	0.94	0.98	1	0.99	0.97	0.98	0.97	0.95	0.92	0.89	0.88	0.85	0.79	0.73	0.69	0.683
1C_Mixed	0.64	0.63	0.62	0.62	0.64	0.71	0.78	0.85	0.91	0.92	0.97	0.99	0.98	0.95	0.98	1	0.98	0.92	0.88	0.87	0.84	0.78	0.73	0.69	0.676
1D_Game	0.56	0.54	0.54	0.53	0.57	0.69	0.87	0.95	0.97	0.94	0.92	0.89	0.85	0.78	0.8	0.81	0.84	0.92	1	0.97	0.94	0.86	0.75	0.64	0.854
1E_Forestry	0.6	0.6	0.59	0.6	0.71	0.76	0.82	0.85	0.92	0.88	0.9	0.88	0.83	0.83	0.83	0.83	0.83	0.9	1	0.97	0.9	0.81	0.71	0.64	0.844
2A_Coal	0.81	0.79	0.78	0.78	0.79	0.81	0.8	0.83	0.85	0.87	0.89	0.89	0.89	0.89	0.87	0.85	0.9	0.95	0.99	1	0.99	0.95	0.89	0.86	0.745
2B_Gold	0.83	0.83	0.82	0.83	0.83	0.82	0.84	0.9	0.94	0.96	0.99	1	0.97	0.96	0.96	0.96	0.93	0.88	0.88	0.88	0.89	0.87	0.86	0.86	0.693
3A_Furniture	0.42	0.43	0.42	0.42	0.41	0.41	0.46	0.81	1	0.99	0.97	1	0.89	0.94	0.93	0.86	0.78	0.54	0.46	0.47	0.48	0.47	0.47	0.47	0.612
3B_H_Manufacturing_High	1	1	1	1	1	0.99	0.97	0.96	0.94	0.93	0.94	0.94	0.95	0.95	0.95	0.96	0.97	0.96	0.95	0.95	0.98	0.99	0.99	1	0.718
3B_L_Manufacturing_Low	0.45	0.44	0.44	0.44	0.45	0.47	0.53	0.81	1	0.98	0.98	1	0.92	0.88	0.94	0.9	0.79	0.58	0.56	0.54	0.52	0.5	0.48	0.47	0.635
3B_M_Manufacturing_Medium	0.69	0.68	0.67	0.65	0.65	0.65	0.71	0.9	0.99	0.97	1	1	0.92	0.94	0.96	0.94	0.87	0.79	0.78	0.78	0.78	0.76	0.76	0.74	0.667
3D_Food_and_textiles	0.62	0.61	0.61	0.6	0.61	0.62	0.67	0.81	0.93	0.96	0.98	1	0.99	0.96	0.99	0.98	0.93	0.82	0.78	0.76	0.74	0.71	0.68	0.66	0.694
6A_Commerce_Retail	0.53	0.53	0.52	0.52	0.53	0.54	0.65	0.82	0.94	0.97	0.99	1	1	0.99	0.98	0.96	0.92	0.81	0.71	0.64	0.6	0.58	0.56	0.55	0.73
6B_Hospitality	0.64	0.61	0.6	0.6	0.61	0.68	0.83	0.94	0.97	0.96	0.93	0.91	0.88	0.85	0.83	0.81	0.81	0.9	1	0.99	0.95	0.89	0.79	0.71	0.818
7A_Airports	0.82	0.81	0.81	0.81	0.82	0.85	0.87	0.9	0.99	1	0.97	0.94	0.92	0.91	0.88	0.84	0.84	0.83	0.85	0.87	0.86	0.85	0.85	0.83	0.743
7B_S_Warehousing	0.35	0.35	0.35	0.35	0.35	0.37	0.45	0.76	0.99	0.99	1	1	0.95	0.87	0.97	0.96	0.84	0.51	0.47	0.45	0.43	0.41	0.38	0.37	0.683
7D_B_Harbour	0.79	0.77	0.75	0.78	0.86	0.94	0.98	1	0.97	0.89	0.87	0.87	0.85	0.86	0.88	0.93	0.97	0.97	0.93	0.89	0.81	0.76	0.78	0.78	0.726
7D_S_Rail	0.98	0.93	0.9	0.89	0.95	1	0.99	0.92	0.92	0.88	0.85	0.83	0.87	0.88	0.88	0.91	0.92	0.97	0.97	1	1	0.96	0.96	0.99	0.72
8B_Commerce_Office	0.56	0.49	0.55	0.55	0.56	0.64	0.79	0.91	0.95	0.97	0.99	0.99	0.99	1	0.99	0.94	0.84	0.72	0.65	0.62	0.6	0.59	0.58	0.57	0.7
9A_Sport	0.75	0.74	0.74	0.73	0.73	0.79	0.87	0.95	0.98	0.98	1	0.99	0.99	0.98	0.97	0.95	0.92	0.92	0.9	0.88	0.86	0.82	0.8	0.76	0.794
9B_Water_and_Sewerage	0.81	0.79	0.77	0.76	0.77	0.79	0.81	0.9	0.99	1	0.99	0.99	0.98	0.97	0.95	0.92	0.88	0.9	0.92	0.9	0.88	0.87	0.85	0.84	0.747
9C_Hospitals	0.57	0.56	0.55	0.56	0.58	0.67	0.79	0.9	1	1	0.97	0.93	0.88	0.83	0.79	0.74	0.68	0.72	0.78	0.78	0.75	0.71	0.65	0.6	0.819
9C_Education	0.58	0.58	0.67	0.59	0.66	0.74	0.84	0.96	1	0.98	0.97	0.95	0.91	0.87	0.81	0.73	0.72	0.75	0.74	0.72	0.69	0.65	0.62	0.59	0.819
9D_Government	0.58	0.57	0.56	0.56	0.58	0.64	0.75	0.87	1	1	0.96	0.91	0.87	0.83	0.8	0.76	0.65	0.65	0.71	0.71	0.69	0.66	0.62	0.6	0.831
Hostel_4_6	0.26	0.23	0.23	0.23	0.27	0.41	0.7	0.66	0.5	0.47	0.44	0.42	0.42	0.42	0.44	0.49	0.58	0.75	0.98	1	0.9	0.74	0.51	0.35	1
RurRes	0.29	0.26	0.24	0.26	0.3	0.45	0.66	0.59	0.47	0.45	0.43	0.43	0.43	0.44	0.45	0.49	0.57	0.7	0.98	1	0.85	0.63	0.43	0.34	1
Township_5_6	0.26	0.23	0.22	0.22	0.26	0.39	0.72	0.71	0.52	0.48	0.45	0.42	0.42	0.41	0.44	0.49	0.59	0.77	0.98	1	0.92	0.78	0.54	0.35	1
UrbEst_10h_plus	0.54	0.51	0.5	0.5	0.51	0.59	0.81	0.91	0.94	0.91	0.85	0.8	0.76	0.71	0.68	0.68	0.73	0.86	1	0.98	0.92	0.82	0.7	0.6	1
UrbRes_7l_7h	0.31	0.26	0.24	0.24	0.28	0.43	0.73	0.78	0.68	0.63	0.57	0.53	0.51	0.49	0.5	0.54	0.64	0.8	0.98	1	0.93	0.79	0.58	0.4	1
UrbTwn_7l_8h	0.49	0.45	0.44	0.44	0.46	0.55	0.8	0.92	0.91	0.86	0.8	0.74	0.7	0.66	0.63	0.64	0.69	0.83	1	1	0.93	0.79	0.67	0.55	1
UNKNOWN	0.64	0.63	0.62	0.62	0.64	0.71	0.78	0.85	0.91	0.92	0.97	0.99	0.98	0.95	0.98	1	0.98	0.92	0.88	0.87	0.84	0.78	0.73	0.69	0.676
NO_CATEGORY	0.64	0.63	0.62	0.62	0.64	0.71	0.78	0.85	0.91	0.92	0.97	0.99	0.98	0.95	0.98	1	0.98	0.92	0.88	0.87	0.84	0.78	0.73	0.69	0.676

In this study, the tariff code aggregated load profiles were provided and used to further refine the base load calibration.

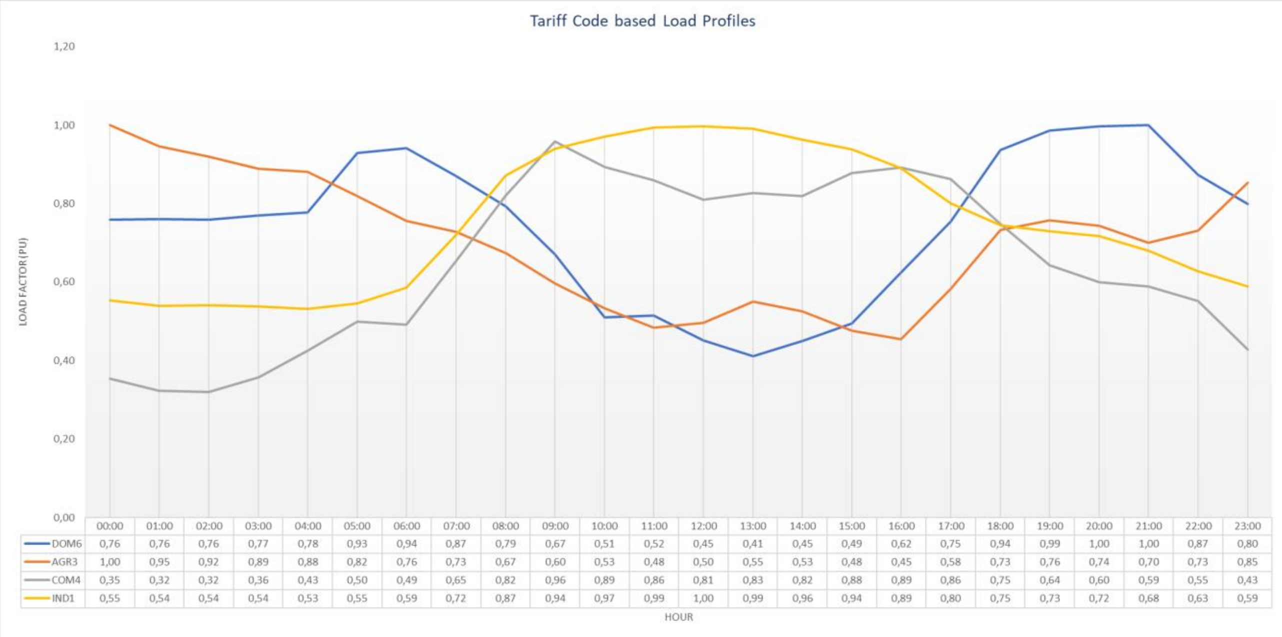


Figure 5-2: Load profiles generated from STLM existing tariff codes

Figure 5-3: Stellenbosch Stand Land-Use

Figure 5-3 shows a map of the Stellenbosch Municipality stands assigned with the appropriate load profiles based on the recorded stand's land-use.

Contrary to typical geo-based load forecast calculations, where fixed apparent power (S) peak values are assumed for each load class, the GLS methodology does not assume a peak value per load class, but rather calculates the peak value for each stand, in relation to the stand's actual, metered energy consumption (AADC) data. Hence the ADMDs and saturation loads can be customized per area as needed.

5.2 Load Energy Consumption and Theoretical Maximum Demand

SWIFT uses the municipal and pre-paid billing databases to calculate an average annual daily consumption (AADC), a kWh value for each stand. This is based on actual consumption data. In cases where actual consumption data is not available, for whatever reason, estimated AADC values based on similar information from similar stands are used.

Subsequently, a theoretical maximum demand (kVA) per stand is calculated using the theoretical load factors and power factors. The theoretical maximum demand for each stand is calculated as follows:

$$MD_{theoretical}\ (kVA) = \frac{AADC_{Swift}\ (kWh)}{LF_{theoretical}\ x\ PF_{theoretical}\ x\ 24h}$$

Where:

- $MD_{theoretical}$ is theoretical peak demand of the stand;
- $AADC_{Swift}$ is the average annual daily consumption (in kWh) of the stand, obtained via Swift from the actual consumption data as per the billing data;
- $LF_{theoretical}$ is the theoretical load factor associated with the daily profile used; and
- $PF_{theoretical}$ is the theoretical power factor specific to the load class that the stand belongs.

The term 'theoretical' is used due to the theoretical values being assumed for *LF* and *PF*, as per the Eskom geo-based load forecast standard [2].

Load supply points serving multiple stands will have a combined maximum demand (MD). This combined MD is formed by stacking the profiles of its downstream loads. Because the 24-hour load shapes are stacked, diversity is inherently considered in the combined MD. This combined MD can be de-aggregated into its constituent parts, in order to see the contribution of each load class to the overall load profile, and the after diversity maximum demand (ADMD) per load class.

In this case of a non-homogeneous load-mix, the ADMD per zone can be expressed per load class:

$$ADMD_i\ (kVA) = \frac{MD_i\ (kVA)}{n_i}$$

Where:

- $ADMD_i$ = ADMD of the i_{th} load-class in the zone
- MD_i = combined MD of the i_{th} load class in the zone
- n_i = Number of consumers in the i_{th} load-class in the zone

Figure 5-4 shows, for illustrative purposes, a simple graphical example of how the loads of 2 stands aggregate to form a combined load profile at the common supply point, whilst Figure 5-5 shows a generic example of a de-aggregated view of a combined load profile.

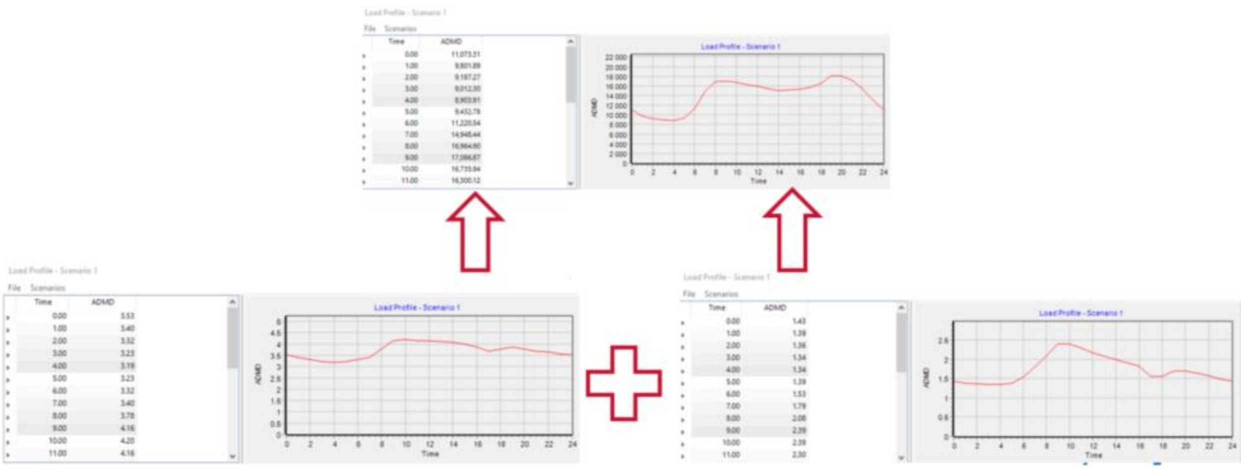


Figure 5-4: Graphical Example of Combined Load Profile at the Common Supply Point

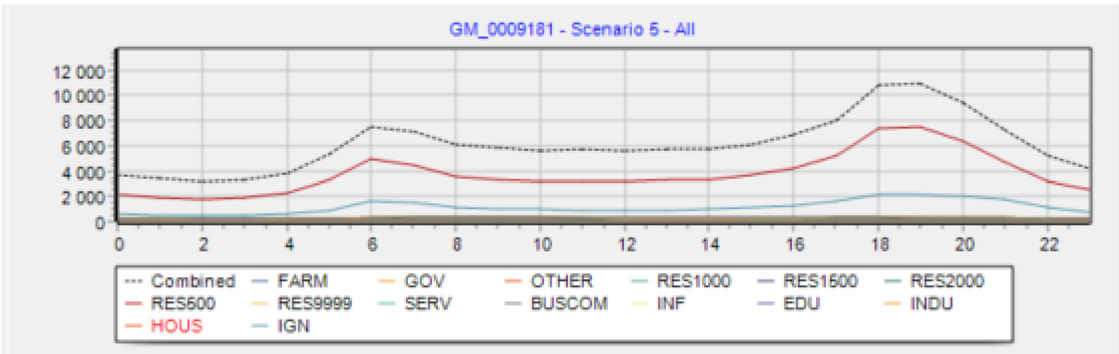


Figure 5-5: Generic Example of a De-aggregated View of a Combined Load Profile

Before the Swift data is utilised in the calculation process, it is first subject to a data clean-up process, whereby anomalies and outlier data are identified and reviewed. This could be caused, for example, by practical things such as meter reading errors. An extensive and methodical data clean-up process is first executed. All unrealistic outlier values (attributable to, for example, metering errors) are filtered from the dataset. Coupled with this, is the removal of data points where meter "freezing" has taken place, a condition whereby a meter reading was stuck to a particular value for an extended time sequence. All "misleading" information is removed. This could be attributed to cold-load pickup, a condition whereby excessive inrush current is drawn by loads as they are re-energised after an extended outage.

The 2018-2019 period in South Africa was plagued by load shedding, hence there are several days in the provided datasets that contain these events. Load profiles on these days are characterised by abnormal shapes and high spikes in demand following the extended outages. Figure 5-6 displays the daily load profiles of Markotter Substation during and without loadshedding. The load factor of the supply zone seems to decrease as the loadshedding stages increase.

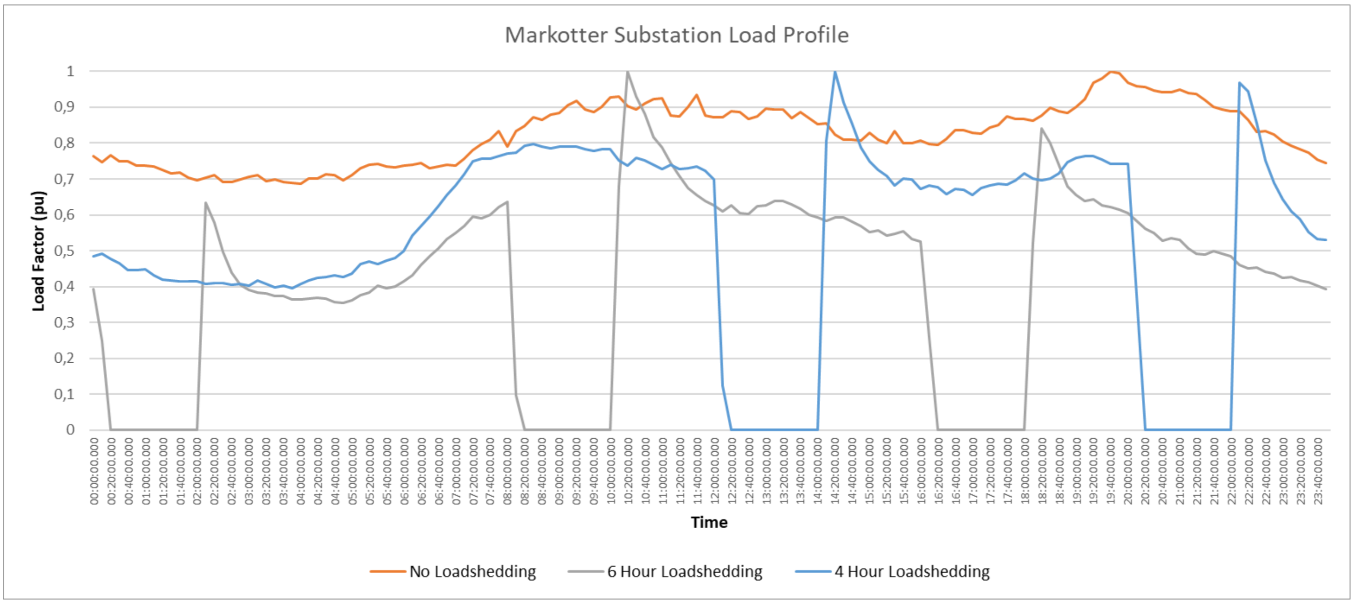


Figure 5-6: Impact of loadshedding on a daily load profile for Markotter (Suidwal) Substation

Since the aim is to establish steady-state profiles for typical peak days in the networks, data points pertaining to load shedding days are not used. Cold-load pickup should however not be ignored in network planning, as the network must be able to handle inrush stress. The intensity of the cold-load pickup depends on variables such as the time of day of network re-energising, the weather, the type of loads within the network, as well as the control techniques to defer load.

5.3 Spatial Correlation of Stands to Network

A particular problem with South African LV networks is the lack of LV network data, and consequent lack of visibility in LV networks. Network SLDs are typically only captured up to the level of minisubs, which leaves uncertainty as to which stands are supplied by a particular minisub. Edisan addresses this issue by employing a stand-to-minisub cross-referencing feature, which spatially maps each stand to its closest minisub. Figure 5-7 shows an example of the spatial mapping technique applied to a minisub in the STLM network. Figure 5-8 shows a network overview of the spatial mapping of stands to minisubs. The capability of this feature, is that the same cross-reference mapping technique can be applied on LV networks, in order to map each stand to its nearest LV kiosk. This promotes capability to perform LV network modelling and studies. The cross-referencing feature, coupled with other geospatial features in Edisan, promotes the possibility of granular load forecasting on customised zones.

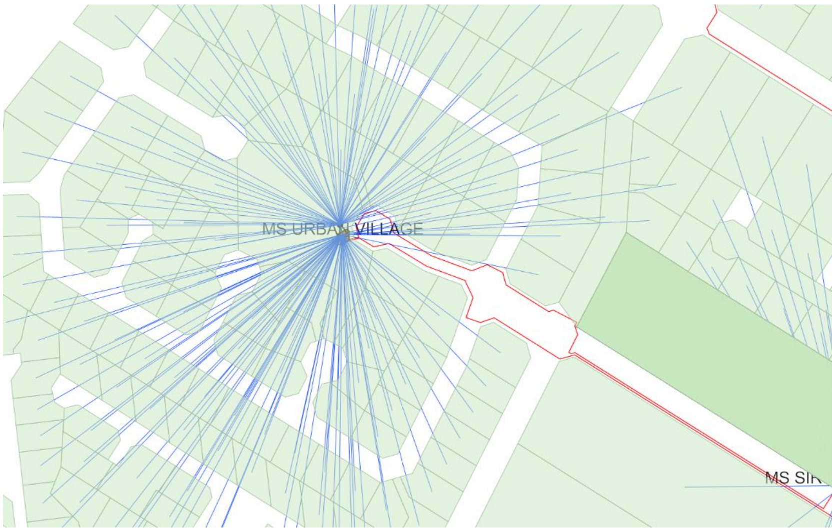


Figure 5-7: Zoomed View of Spatial Mapping of Stands to a Minisub in the STLM Network

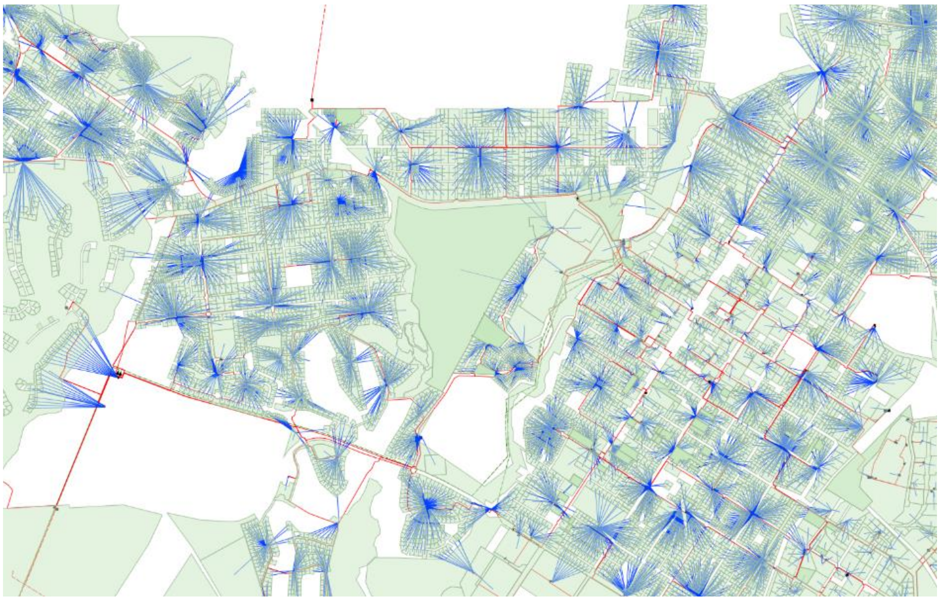
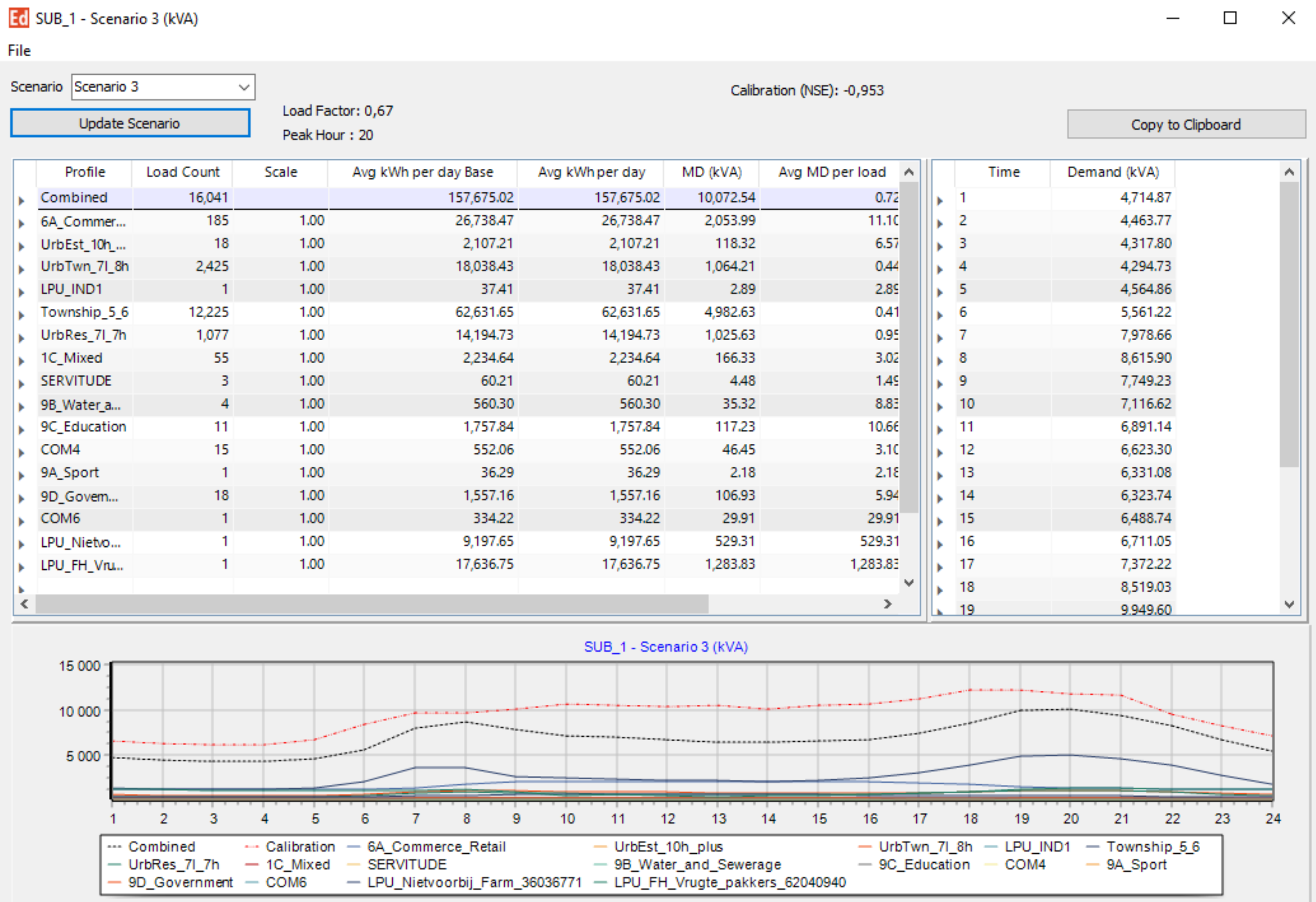


Figure 5-8: STLM Network Overview of Spatial Mapping of Stands to Minisubs

When stands are mapped to minisubs the supply area of each minisub becomes visible. This is useful in many ways, for example, in identifying which customers will be affected by outages at particular supply points. Furthermore, the geospatial database captures the load class of every stand in the area and eliminates high-level load class estimation, bringing about a reduction in estimation errors in load modelling and forecasting.

The combined maximum demand (MD) can be viewed for each point of supply (i.e., MV/LV transformer, switching- and substation) in the network. This combined MD is formed by summating the load of the individual profiles of the downstream levels in the parent-to-child network hierarchy. Because the 24-hour load shapes are stacked, diversity is inherently considered in the combined MD. This combined MD can de-aggregated into its constituent parts, to see the contribution of each load class to the overall load profile, and the after diversity maximum demand (ADMD) per load class.



Profile	Load Count	Scale	Avg kWh per day Base	Avg kWh per day	MD (kVA)	Avg MD per load
Combined	16,041		157,675.02	157,675.02	10,072.54	0.72
6A_Commer...	185	1.00	26,738.47	26,738.47	2,053.99	11.10
UrbEst_10h_...	18	1.00	2,107.21	2,107.21	118.32	6.57
UrbTwn_7l_8h	2,425	1.00	18,038.43	18,038.43	1,064.21	0.44
LPU_IND1	1	1.00	37.41	37.41	2.89	2.89
Township_5_6	12,225	1.00	62,631.65	62,631.65	4,982.63	0.41
UrbRes_7l_7h	1,077	1.00	14,194.73	14,194.73	1,025.63	0.95
1C_Mixed	55	1.00	2,234.64	2,234.64	166.33	3.02
SERVITUDE	3	1.00	60.21	60.21	4.48	1.49
9B_Water_a...	4	1.00	560.30	560.30	35.32	8.83
9C_Education	11	1.00	1,757.84	1,757.84	117.23	10.66
COM4	15	1.00	552.06	552.06	46.45	3.10
9A_Sport	1	1.00	36.29	36.29	2.18	2.18
9D_Govern...	18	1.00	1,557.16	1,557.16	106.93	5.94
COM6	1	1.00	334.22	334.22	29.91	29.91
LPU_Nietvo...	1	1.00	9,197.65	9,197.65	529.31	529.31
LPU_FH_Vru...	1	1.00	17,636.75	17,636.75	1,283.83	1,283.83

Time	Demand (kVA)
1	4,714.87
2	4,463.77
3	4,317.80
4	4,294.73
5	4,564.86
6	5,561.22
7	7,978.66
8	8,615.90
9	7,749.23
10	7,116.62
11	6,891.14
12	6,623.30
13	6,331.08
14	6,323.74
15	6,488.74
16	6,711.05
17	7,372.22
18	8,519.03
19	9,949.60

Figure 5-9: Cloetesville substation load profile analysis in EDISAN (Before Calibration)

Figure 5-9 illustrates the aggregation of the load profiles of the individual load classes at a particular point of supply (Cloetesville Substation) on the network. The black dotted graph is the combined profile at the point of supply, whilst the red dotted graph is the actual measured profile. Additionally, the number of customers per load class, AADC (Base and Calibrated), MD and associated ADMD are shown. The Base AADC and the Calibrated AADC values are the same since the calibration exercise has not been done yet. In this illustration it can be clearly observed that the black dotted and red dotted graphs are misaligned both horizontally and vertically. This indicates that the sum of the theoretically calculated individual load profile demands that summate to the black dotted graph were assigned load factors that are different to the actual measured metered data.

5.4 Base Load Calibration

The base load calibration exercise is meant to reconcile the combined theoretical MD with the actual measured MD at a particular point of supply on the network. The process involves comparing the theoretically derived predicted maximum demand values against the measured data, quantify the errors introduced during the prediction, and derive appropriate calibration measures to be applied. The eventual aim is to extrapolate the theoretically calculated values to predictive scenarios, i.e., predicting MDs and ADMDs from metered AADCs where load measurements are not readily available – which is a common scenario downstream of South African HV/MV distribution substations.

The base load calibration is an iterative process; however, it essentially involves two activities:

- Adjusting the theoretical load demand peaks to align with the metered load data peaks. This is a horizontal adjustment of the combined theoretical load profile curve to fit the measured load profile curve.

- Scale the peak amplitude of the theoretical demands to match the peak amplitude of the metered load data (i.e., multiplying the theoretical demands with a scaling factor). This is a vertical adjustment of the combined theoretical load profile curve to fit the measured load profile curve.

The metered MD can be related to the theoretical MD through the following relationship:

$$MD_{metered}\ (kVA) = MD_{theoretical} * CF_1 * CF_2$$

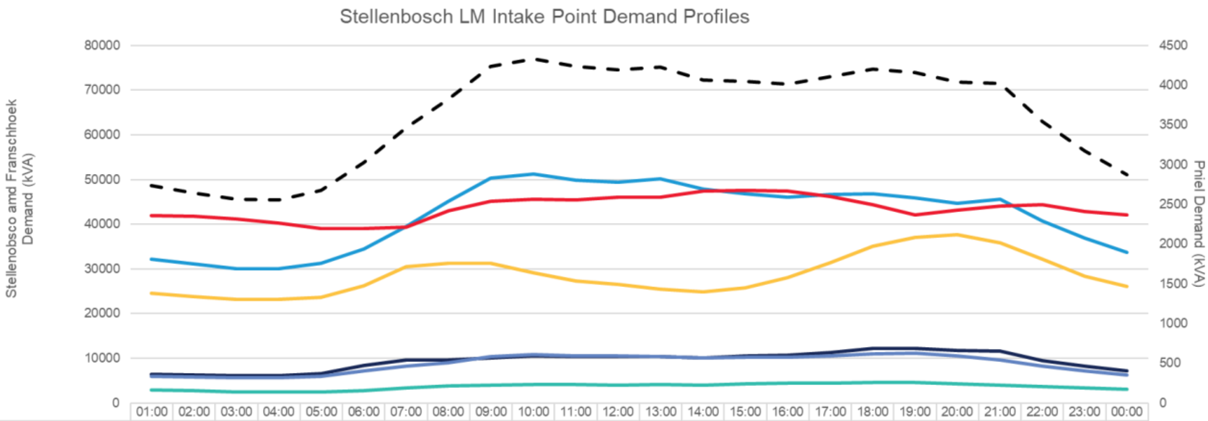
Where:

- CF_1 = correction factor to account for using AADC instead of average peak day consumption
- CF_2 = amplitude scaling factor

In the Eskom geo-based load forecast standard [2], the load shape given for a specific load class is for a typical peak day. Therefore, the Eskom geo-based load forecast standard [2] LF relates the average load for the *peak day* to the peak load of the *peak day*. Therefore, when using the average *annual* daily consumption (AADC) in the calculation process, as opposed to the average *peak day* daily consumption, it is expected that the theoretically calculated value will fall short by a certain factor. The CF_1 is used to compensate the shortfall. CF_2, the amplitude scaling factor, is needed because in the predictive conversion from energy to demand, error is introduced. The energy values that we have, inform the initial amplitude of each individual load profile's peak, and guides the calibration – the consumption information at the very least provides some inside into the proportionality of consumption, from which a reasonable prediction of proportionality of demand can be made.

Recorded maximum demand information for Stellenbosch LM Intake substations and intakes for the period 2021-2023 was received. This load data provides 30-minute resolution insight into the aggregated apparent power consumption behaviour of the loads within the respective substation zones. For the 66/11kV other primary substations within Stellenbosch Town, the available information was between January 2023 and May 2023, this reduced load information resulted in a reduced base to assess the maximum demand information for these substations. All the information was analysed to reveal the steady-state load behaviour (profiles) patterns for a typical peak day in the network.

Figure 5-10 shows the typical peak day profiles for the Stellenbosch LM HV/MV supply zones that are then used as the calibration profiles.



	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00
Cloetesville Substation	6468	6201	6067	6058	6626	8362	9696	9588	10119	10598	10443	10372
Stellenbosch Main Substation	32228	31087	30056	29989	31288	34540	39463	45115	50334	51205	49930	49363
Franschhoek	5998	5798	5651	5619	6009	7140	8275	8964	10311	10776	10606	10512
Combined	48601	46928	45529	45377	47584	53871	61553	68053	75294	77017	75303	74562
Hollandse Mollen - Pniel	161	154	138	138	141	157	188	212	225	235	228	227
Riversmeet - Pniel	1384	1339	1303	1309	1326	1473	1715	1755	1763	1639	1536	1494
Rhodes Food Group Intake - Pniel	2362	2350	2313	2265	2193	2199	2217	2419	2541	2564	2559	2594

	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00
Cloetesville Substation	10444	10114	10505	10646	11273	12152	12260	11731	11568	9544	8227	7148
Stellenbosch Main Substation	50103	47870	46805	46065	46655	46849	45861	44760	45628	40708	36932	33667
Franschhoek	10399	10049	10230	10212	10493	10961	11093	10545	9633	8173	7112	6297
Combined	75206	72326	71912	71415	73034	74693	73920	71823	71550	62936	56469	51121
Hollandse Mollen - Pniel	231	227	242	245	249	261	256	242	227	205	192	173
Riversmeet - Pniel	1437	1395	1450	1575	1766	1977	2085	2121	2013	1809	1598	1469
Rhodes Food Group Intake - Pniel	2591	2670	2679	2671	2597	2493	2366	2424	2481	2497	2409	2367

Hour

Figure 5-10: Stellenbosch LM's Intake Points Calibration Profiles

Figure 5-11 show the summarized 24-hour day graphs of the customized load profiles for the Stellenbosch Municipality.

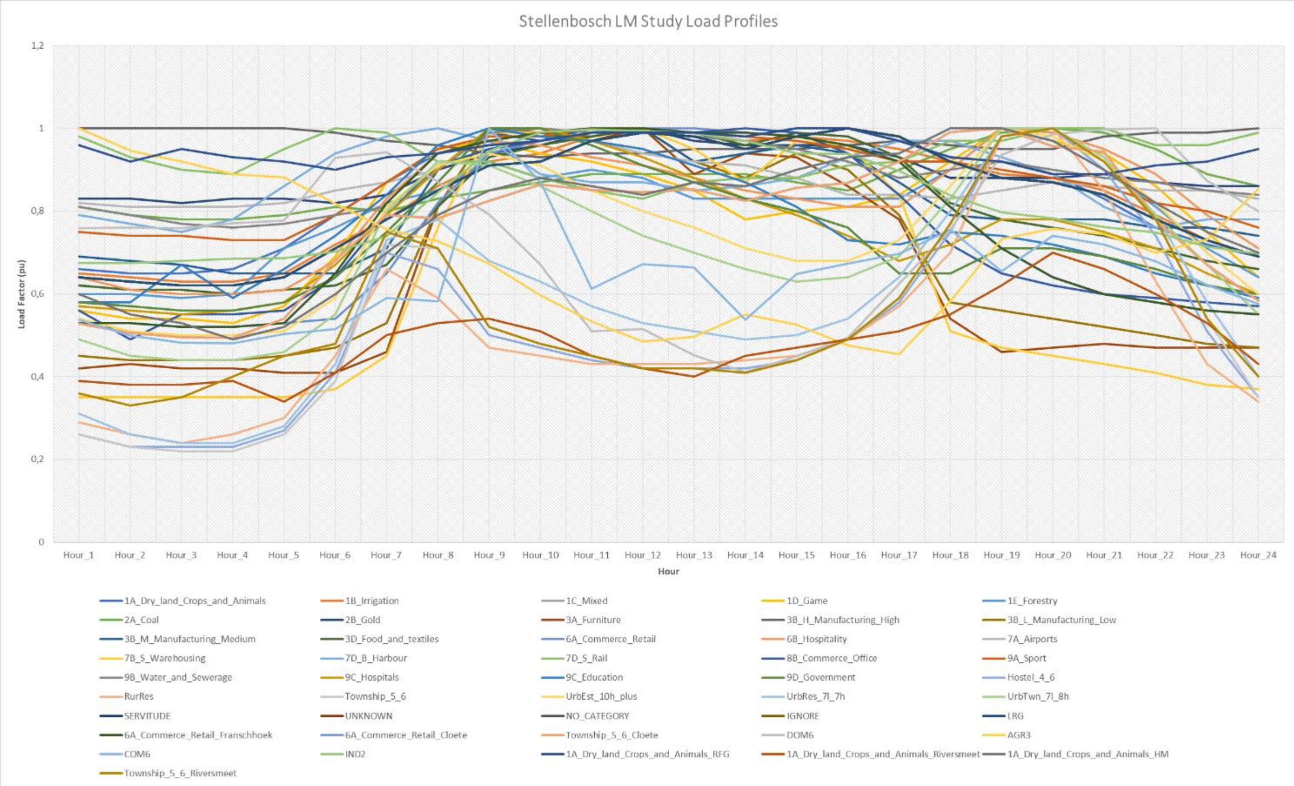
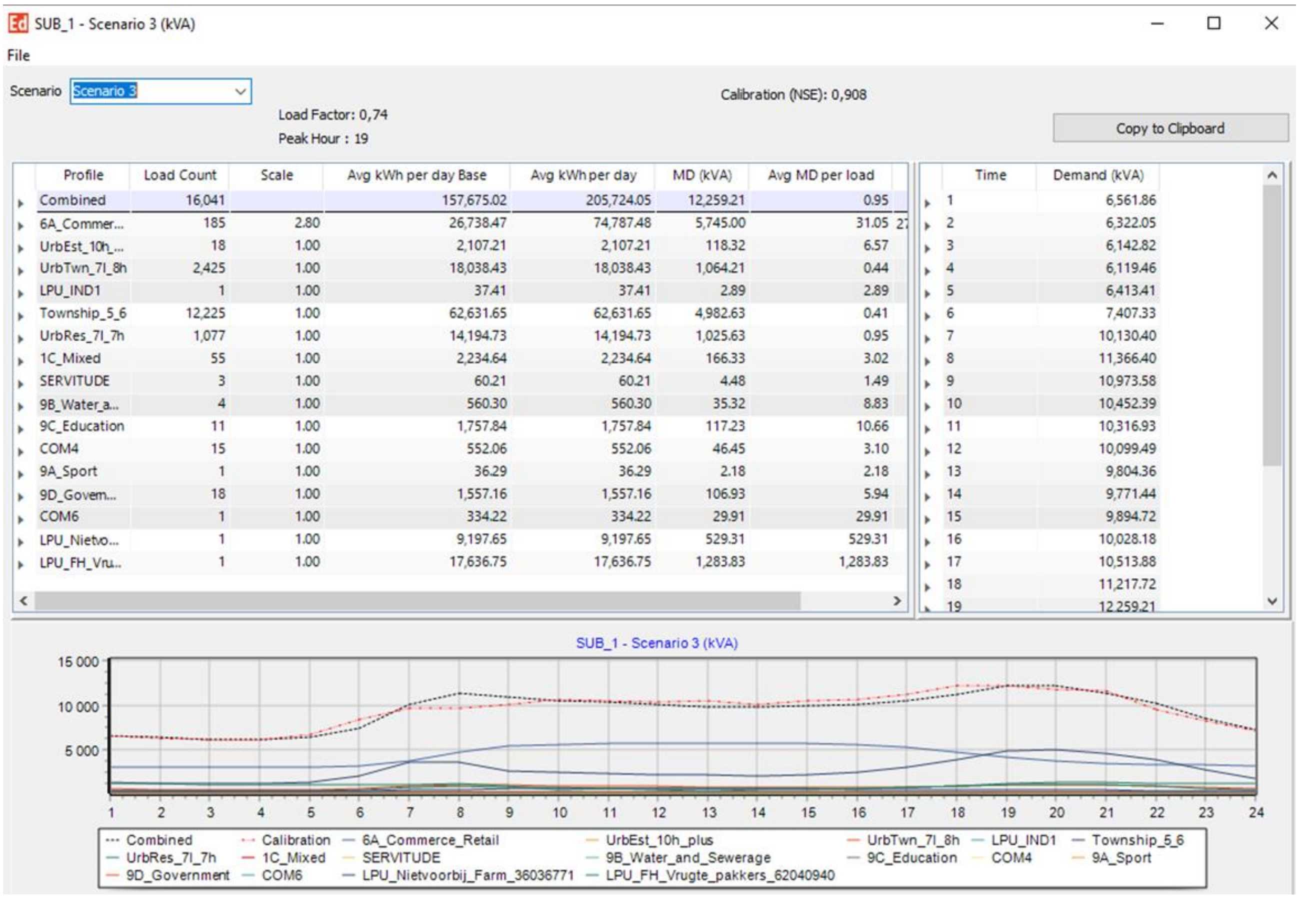


Figure 5-11: Standard and Stellenbosch-customized Load Profile Curves

Figure 5-12 illustrates Cloetesville Substation now calibrated. The black dotted graph represents the combined theoretical curves now scaled horizontally and vertically to match the red dotted metered curve. The scaling factor is 1.25 and the ADMDs for the different load classes are shown.



Profile	Load Count	Scale	Avg kWh per day Base	Avg kWh per day	MD (kVA)	Avg MD per load
Combined	16,041		157,675.02	205,724.05	12,259.21	0.95
6A_Commer...	185	2.80	26,738.47	74,787.48	5,745.00	31.05
UrbEst_10h_...	18	1.00	2,107.21	2,107.21	118.32	6.57
UrbTwn_7l_8h	2,425	1.00	18,038.43	18,038.43	1,064.21	0.44
LPU_IND1	1	1.00	37.41	37.41	2.89	2.89
Township_5_6	12,225	1.00	62,631.65	62,631.65	4,982.63	0.41
UrbRes_7l_7h	1,077	1.00	14,194.73	14,194.73	1,025.63	0.95
1C_Mixed	55	1.00	2,234.64	2,234.64	166.33	3.02
SERVITUDE	3	1.00	60.21	60.21	4.48	1.49
9B_Water_a...	4	1.00	560.30	560.30	35.32	8.83
9C_Education	11	1.00	1,757.84	1,757.84	117.23	10.66
COM4	15	1.00	552.06	552.06	46.45	3.10
9A_Sport	1	1.00	36.29	36.29	2.18	2.18
9D_Govern...	18	1.00	1,557.16	1,557.16	106.93	5.94
COM6	1	1.00	334.22	334.22	29.91	29.91
LPU_Nietvo...	1	1.00	9,197.65	9,197.65	529.31	529.31
LPU_FH_Vru...	1	1.00	17,636.75	17,636.75	1,283.83	1,283.83

Time	Demand (kVA)
1	6,561.86
2	6,322.05
3	6,142.82
4	6,119.46
5	6,413.41
6	7,407.33
7	10,130.40
8	11,366.40
9	10,973.58
10	10,452.39
11	10,316.93
12	10,099.49
13	9,804.36
14	9,771.44
15	9,894.72
16	10,028.18
17	10,513.88
18	11,217.72
19	12,259.21

Figure 5-12: Cloetesville substation load profile analysis in EDISAN (After Calibration)

The combined load classes within the substation area of supply summate to the measured peak demand of the individual substation resulting in specific ADMDs (kVA) and saturation loads (kVA/Ha) for the different load classes. Additionally, the load count for the different load classes under each substation area of supply is specified. As it can be seen from the tables, the same load classes have different ADMDs and saturation load for different substations. Furthermore, if the time of peak for a specific substation is different from the standard load profile, a customized load profile for that substation is created resulting in a customized load class.

5.5 Key Drivers Impacting Future Demand and Energy Growth

5.5.1 Future Development Areas

Future development areas are one of the key drivers impacting future demand and energy growth in Stellenbosch Municipality. Municipalities expect development of unoccupied land to expand town and city boundaries and to drive economic activities. These future development areas were identified and captured in consultation with the town planning and engineering departments of Stellenbosch LM. Multiple documents were consulted including the Stellenbosch Spatial Development Framework and Adam Tas Corridor integrated plans. These are the same future development areas considered for the water and sanitation master plan, as developed by GLS Consulting and contained in a geospatial shapefile.

Figure 5-13 and Figure 5-14 shows the STLM planned future stands per substation zone.

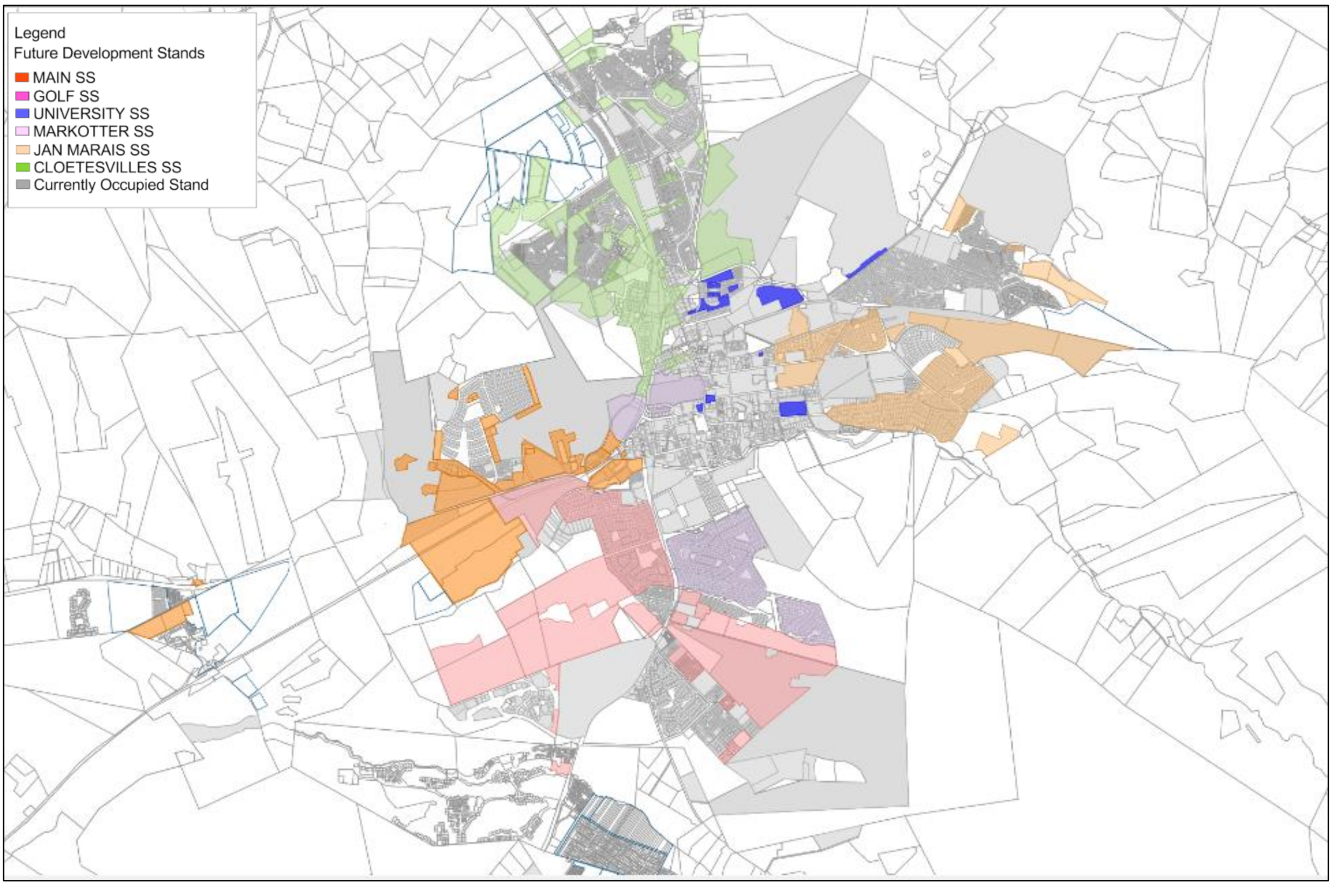


Figure 5-13: Stellenbosch Town Planned Future Stands Per Substation zone

Figure 5-14: Franschhoek and Pniel Planned Future Stands per Supply zone

A listing of all the future developments considered in study are presented in Table 5-2. Each area was spatially linked to a load zone indicating the future developments closest supply zone. Indicative development start year and years till development saturation were kept the same as the values considered for the water and sanitation master plan, as developed by GLS. The resultant calculated saturation demand values for each area's future development made up the load growth anticipated per supply zone. These are derived from the standard or customized ADMDs (kVA/unit) per area of supply taking into consideration the load class's loading factor at the intake point's peak hour.

Table 5-2:Stellenbosch LM Future Developments

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Greater Franschhoek	2,37	Single residential 500	23,25	55		FRANSCHHOEK	UrbEst_10h_plus
Greater Franschhoek	22,90	Single residential 1500	7,50	172		FRANSCHHOEK	UrbTwn_7l_8h
Greater Franschhoek	0,71	Single residential 1000	15,43	11		FRANSCHHOEK	UrbRes_7l_7h
Greater Franschhoek	3,85	Single residential 1500	7,50	29		FRANSCHHOEK	UrbTwn_7l_8h
Greater Franschhoek	3,20	Single residential 1500	7,50	25		FRANSCHHOEK	UrbTwn_7l_8h
Greater Franschhoek	6,98	Single residential 1000	12,50	88		FRANSCHHOEK	UrbRes_7l_7h
Greater Franschhoek	10,70	Single residential 500	14,21	152	Farm 1070 & prt 9 of Farm 1075 - Franschhoek - Jan 2017	FRANSCHHOEK	UrbEst_10h_plus
Greater Franschhoek	8,46	Single residential 1000	12,50	106		FRANSCHHOEK	UrbRes_7l_7h
Greater Franschhoek	8,50	Single residential 500	25,00	213		FRANSCHHOEK	UrbEst_10h_plus
Greater Franschhoek	4,59	Single residential 500	25,00	115		FRANSCHHOEK	UrbEst_10h_plus
Greater Franschhoek	11,45	Single residential 500	25,00	287		FRANSCHHOEK	UrbEst_10h_plus
Greater Franschhoek	67,60	Affordable housing	40,00	2704		ESKOM	UrbRes_7l_7h
Greater Franschhoek	7,66	Single residential 500	25,00	192	Stellenbosch La Motte (1000) IRDP	ESKOM	UrbEst_10h_plus
Greater Franschhoek	1,78	Single residential 500	25,00	45		ESKOM	UrbEst_10h_plus
Greater Franschhoek	42,51	Single residential 500	25,00	1063		HOLLANDSE MOLLEN	UrbEst_10h_plus
Greater Franschhoek	1,14	Affordable housing	40,00	46	Erf 412, 217 and 284 Groendal	FRANSCHHOEK	UrbRes_7l_7h
Greater Franschhoek	3,28	Single residential 500	25,00	83		ESKOM	UrbEst_10h_plus
Greater Franschhoek	0,57	Single residential 1000	13,99	8		FRANSCHHOEK	UrbRes_7l_7h
Dwars River	16,88	Affordable housing	41,46	700	Pniel Lanquedoc (700) IRDP	ESKOM	UrbRes_7l_7h
Dwars River	6,41	Single residential 500	36,52	234	Kylemore (171) IRDP	ESKOM	UrbEst_10h_plus
Dwars River	18,73	Single residential 500	30,22	566	Kylemore Farm Old Bethlehem 153 (170) IRDP	ESKOM	UrbEst_10h_plus
Dwars River	2,14	Single residential 500	25,00	54		ESKOM	UrbEst_10h_plus

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Dwars River	13,95	Single residential 500	25,00	349		RIVERSMEET	UrbEst_10h_plus
Dwars River	20,76	Affordable housing	40,00	831		ESKOM	UrbRes_7l_7h
Stellenbosch	3,10	Flats	81,20	252	Farm 82_Gevonden - Stellenbosch - July 2018	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	5,27	Affordable housing	72,07	380	Erf 7001 Cloetesville (200) IRDP FLISP	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	15,44	Single residential 500	25,00	387		CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	4,39	Affordable housing	28,73	126	Idas Valley Pt 3 of Farm 1075 (126) IRDP	JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	5,37	Single residential 500	109,83	590		JAN MARAIS SS	UrbEst_10h_plus
Stellenbosch	16,16	Densification (Res)	3,22	52		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	16,52	Flats	366,80	6060		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	50,60	Single residential 1000	12,50	633		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	84,40	Single residential 1000	12,50	1055		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	1,43	Single residential 1000	10,51	15		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	25,95	Densification (Res)	25,00	649		ESKOM	
Dwars River	19,36	Single residential > 2000	0,98	19		ESKOM	UrbEst_10h_plus
Dwars River	4,67	Public facilities	80,37	375		RIVERSMEET	9D_Government
Dwars River	30,94	Mixed	18,62	576		RIVERSMEET	
Dwars River	1,89	Mixed	25,00	48		RIVERSMEET	
Dwars River	3,21	Single residential > 2000	3,74	12		ESKOM	UrbEst_10h_plus
Dwars River	6,32	Mixed	25,00	159		RIVERSMEET	
Dwars River	16,78	Mixed	25,00	420		RIVERSMEET	
Dwars River	16,26	Single residential 1000	12,50	204		RIVERSMEET	UrbRes_7l_7h
Dwars River	14,94	Single residential 1500	7,50	113		RIVERSMEET	UrbTwn_7l_8h
Dwars River	23,67	Single residential 2000	5,00	119		RIVERSMEET	SERVITUDE
Dwars River	8,33	Single residential 500	25,00	209		RIVERSMEET	UrbEst_10h_plus
Dwars River	2,17	Single residential 500	25,00	55		RIVERSMEET	UrbEst_10h_plus
Stellenbosch	4,85	Single residential 500	25,00	122		CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	1,55	Affordable housing	40,00	63		CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	3,69	Affordable housing	40,00	148		CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,65	Single residential 500	25,00	17		CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	1,30	Flats	60,00	78		CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	7,27	Single residential 500	25,00	182		CLOETESVILLE SS	UrbEst_10h_plus

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Stellenbosch	2,28	Group housing 30 to 40	35,00	80		UNIVERSITY SS	UrbRes_7l_7h
Stellenbosch	8,42	Group housing 40 to 60	50,00	421		UNIVERSITY SS	UrbRes_7l_7h
Stellenbosch	2,03	Single residential 500	25,00	51		UNIVERSITY SS	UrbEst_10h_plus
Stellenbosch	4,92	Group housing 40 to 60	50,00	246		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	3,07	Single residential 500	47,91	147		JAN MARAIS SS	UrbEst_10h_plus
Stellenbosch	1,10	Single residential 500	21,76	24		JAN MARAIS SS	UrbEst_10h_plus
Stellenbosch	32,33	Single residential 1000	1,73	56	Portion 2 of Farm 490 (Amoi Fijnbosch) - Stellenbosch - Text_Sept2019	ESKOM	UrbRes_7l_7h
Stellenbosch	7,85	Single residential 500	5,10	40		JAN MARAIS SS	UrbEst_10h_plus
Stellenbosch	82,30	Densification (Res)	3,04	250		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	0,76	Business/Commercial	411,73	312		UNIVERSITY SS	6A_Commerce_Retail
Stellenbosch	0,27	Group housing 40 to 60	50,00	14		CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	2,30	Single residential 500	25,00	58		MAIN SS	UrbEst_10h_plus
Stellenbosch	5,33	Single residential 500	25,00	134		MAIN SS	UrbEst_10h_plus
Stellenbosch	0,76	Single residential 500	25,00	19		MAIN SS	UrbEst_10h_plus
Stellenbosch	1,07	Single residential 500	25,00	27		MAIN SS	UrbEst_10h_plus
Stellenbosch	2,41	Single residential 500	25,00	61		MAIN SS	UrbEst_10h_plus
Stellenbosch	2,49	Agricultural	0,00	0		MAIN SS	1A_Dry_land_Crops_and_Animals
Stellenbosch	1,65	Single residential 500	25,00	42		MAIN SS	UrbEst_10h_plus
Stellenbosch	0,72	Agricultural	0,00	0		MAIN SS	1A_Dry_land_Crops_and_Animals
Stellenbosch	76,98	Densification (Res)	4,55	350		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	21,84	Densification (Res)	2,29	50		MARKOTTER SS	UrbRes_7l_7h
Stellenbosch	77,83	Densification (Res)	2,70	210		MARKOTTER SS	UrbRes_7l_7h
Stellenbosch	6,32	Single residential 1000	18,98	120		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	23,26	Single residential 1000	12,50	291		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	7,99	Group housing 30 to 40	35,00	280		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	1,37	Single residential 1000	12,50	18		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	2,29	Single residential 1000	12,50	29		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	1,90	Single residential 500	16,32	31		GOLF CLUB SS	UrbEst_10h_plus
Stellenbosch	8,02	Single residential 1000	12,50	101		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	49,05	Single residential 1000	12,50	614		GOLF CLUB SS	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Stellenbosch	57,20	Single residential 1000	12,50	716		GOLF CLUB SS	UrbRes_7l_7h
Stellenbosch	4,75	Single residential 1000	12,50	60		ESKOM	UrbRes_7l_7h
Stellenbosch	2,78	Business/Commercial	45,00	126		GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	1,42	Business/Commercial	45,00	65		GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	2,32	Business/Commercial	45,00	105		GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	42,79	Densification (Res)	25,00	1070		ESKOM	
Stellenbosch	2,32	Single residential 500	25,00	59		CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	1,60	Affordable housing	40,52	65		CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,73	Group housing 40 to 60	50,00	37		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	2,35	Other	21,27	50		GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	3,08	Business/Commercial	48,63	150		GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	14,49	Affordable housing	40,00	580		ESKOM	UrbRes_7l_7h
Stellenbosch	13,48	Single residential 500	25,00	338		ESKOM	UrbEst_10h_plus
Klapmuts	15,01	Industrial	50,00	751		ESKOM	3B_M_Manufacturing_ Medium
Klapmuts	7,99	Densification (BCI)	40,00	320		ESKOM	
Klapmuts	47,67	Mixed	17,22	821		ESKOM	
Klapmuts	7,32	Single residential 1000	19,81	145		ESKOM	UrbRes_7l_7h
Klapmuts	9,82	Single residential 1000	7,33	72		ESKOM	UrbRes_7l_7h
Klapmuts	144,42	Mixed	8,12	1173		ESKOM	
Klapmuts	4,56	Group housing 20 to 30	25,20	115		ESKOM	UrbRes_7l_7h
Klapmuts	59,61	Mixed	16,79	1001		ESKOM	
Klapmuts	6,35	Business/Commercial	45,00	286		ESKOM	6A_Commerce_Retail
Klapmuts	5,05	Industrial	50,00	253		ESKOM	3B_M_Manufacturing_ Medium
Klapmuts	29,00	Mixed	10,66	309		ESKOM	
Klapmuts	92,63	Single residential 1500	2,11	195		ESKOM	UrbTwn_7l_8h
Klapmuts	1,98	Affordable housing	40,00	80		ESKOM	UrbRes_7l_7h
Klapmuts	47,80	Single residential 500	12,87	615		ESKOM	UrbEst_10h_plus
Klapmuts	10,99	Business/Commercial	45,00	495		ESKOM	6A_Commerce_Retail
Klapmuts	14,31	Industrial	50,00	716		ESKOM	3B_M_Manufacturing_ Medium
Raithby	6,63	Single residential 1500	7,50	50		ESKOM	UrbTwn_7l_8h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Raithby	1,83	Single residential 1500	7,50	14		ESKOM	UrbTwn_7l_8h
Stellenbosch	10,84	Densification (Res)	55,72	604		JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	4,29	Densification (Res)	20,99	90		UNIVERSITY SS	UrbRes_7l_7h
Klapmuts	2,25	Single residential 500	25,00	57		ESKOM	UrbEst_10h_plus
Klapmuts	4,56	Industrial	45,36	207	Farm 749 - Klapmuts	ESKOM	3B_M_Manufacturing_Medium
Klapmuts	6,37	Single residential 500	25,00	160		ESKOM	UrbEst_10h_plus
Klapmuts	18,85	Mixed	8,01	151	Portion 36 of Farm 748 - Klapmuts (Nov 2021)	ESKOM	
Klapmuts	11,05	Single residential 1000	12,50	139		ESKOM	UrbRes_7l_7h
Klapmuts	6,09	Single residential 1000	12,50	77		ESKOM	UrbRes_7l_7h
Klapmuts	2,11	Informal upgraded	75,36	159		ESKOM	
Greater Franschhoek	12,64	Informal upgraded	150,34	1900	Franschhoek Langrug (1900) UISP	FRANSCHHOEK	
Stellenbosch	17,91	Informal upgraded	209,39	3751		CLOETESVILLE SS	Township_5_6
Stellenbosch	1,68	Informal upgraded	48,11	81		CLOETESVILLE SS	Township_5_6
Stellenbosch	1,97	Informal upgraded	137,03	270		CLOETESVILLE SS	Township_5_6
Stellenbosch	4,11	Informal upgraded	121,64	500		CLOETESVILLE SS	Township_5_6
Stellenbosch	9,18	Single residential 500	28,32	260	Farm 85 - Stellenbosch_update - Dec 2018	CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	2,28	Flats	28,95	66	Erven 4202 & 4203 - Stellenbosch (REV1) - Mrt2018	JAN MARAIS SS	UrbRes_7l_7h
Greater Franschhoek	6,85	Business/Commercial	45,00	309	La Motte Development - Franschhoek - Mar 2016	ESKOM	6A_Commerce_Retail
Greater Franschhoek	12,07	Affordable housing	26,68	322	Stellenbosch La Motte (1000) IRDP	ESKOM	UrbRes_7l_7h
Koelenhof	2,23	Industrial	50,00	112		ESKOM	3B_M_Manufacturing_Medium
Koelenhof	5,43	Single residential 500	25,07	136		ESKOM	UrbEst_10h_plus
Koelenhof	22,93	Mixed	29,87	685		ESKOM	
Koelenhof	101,49	Single residential 1000	1,29	131		ESKOM	UrbRes_7l_7h
Koelenhof	0,84	Single residential 500	25,00	21		ESKOM	UrbEst_10h_plus
Koelenhof	2,38	Industrial	50,00	119		ESKOM	3B_M_Manufacturing_Medium
Koelenhof	57,24	Single residential 500	29,77	1704		ESKOM	UrbEst_10h_plus
Koelenhof	30,04	Single residential 500	27,13	815		ESKOM	UrbEst_10h_plus
Koelenhof	14,48	Single residential 1000	12,50	182		ESKOM	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Stellenbosch	17,18	Business/Commercial	83,57	1436	Erven 16469 & 16470 - Stellenbosch	MAIN SS	6A_Commerce_Retail
Stellenbosch	24,21	Single residential 500	25,00	606		ESKOM	UrbEst_10h_plus
Polkadraai	23,53	Mixed	16,07	378		ESKOM	6A_Commerce_Retail
Polkadraai	28,14	Single residential 500	16,99	478		ESKOM	UrbEst_10h_plus
Klapmuts	19,32	Single residential 1000	12,50	242		ESKOM	UrbRes_7l_7h
Klapmuts	8,39	Industrial	50,00	420		ESKOM	3B_M_Manufacturing_ Medium
Stellenbosch	15,33	Single residential 1000	10,18	156		JAN MARAIS SS	UrbRes_7l_7h
Polkadraai	0,61	Business/Commercial	45,00	28		MAIN SS	6A_Commerce_Retail
Polkadraai	11,58	Single residential 1000	12,50	145		MAIN SS	UrbRes_7l_7h
Dwars River	8,63	Mixed	5,22	45		ESKOM	
Dwars River	4,26	Public facilities	11,03	47		RIVERSMEET	9D_Government
Dwars River	8,75	Business/Commercial	2,63	23		RIVERSMEET	6A_Commerce_Retail
Dwars River	1,51	Single residential 2000	1,32	2		RIVERSMEET	SERVITUDE
Dwars River	2,54	Single residential 2000	1,97	5		RIVERSMEET	SERVITUDE
Dwars River	2,17	Affordable housing	6,90	15		RFG	UrbRes_7l_7h
Dwars River	4,46	Affordable housing	1,12	5		RFG	UrbRes_7l_7h
Dwars River	1,87	Business/Commercial	33,70	63		RIVERSMEET	6A_Commerce_Retail
Dwars River	5,02	Mixed	4,78	24		ESKOM	
Dwars River	0,81	Single residential 2000	1,24	1		ESKOM	SERVITUDE
Dwars River	3,57	Single residential 2000	0,56	2		RIVERSMEET	SERVITUDE
Dwars River	1,44	Single residential 2000	1,39	2		RIVERSMEET	SERVITUDE
Greater Franschhoek	2,00	Flats	46,06	92	Erf 1692 - Franschhoek Rev1 - Aug 2019	FRANSCHHOEK	
Klapmuts	1,71	Group housing 20 to 30	22,17	38	Portion 27 of Farm 716 - Klapmuts_Oct 2018	ESKOM	UrbRes_7l_7h
Raithby	4,80	Flats	27,69	133	Erf 298 - Raithby_Nov 2018	ESKOM	
Stellenbosch	0,26	Business/Commercial	191,84	50	Erf 14625 - Stellenbosch_update - Dec 2018	MAIN SS	6A_Commerce_Retail
Stellenbosch	1,99	Business/Commercial	22,11	44	Erf 16523 - Stellenbosch_update - Jan 2019	GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	0,26	Flats	226,13	59	Erf 8343 to Erf 8347 - Stellenbosch	UNIVERSITY SS	UrbRes_7l_7h
Greater Franschhoek	14,56	Affordable housing	45,18	658	La Motte housing development	ESKOM	UrbRes_7l_7h
Greater Franschhoek	4,21	Affordable housing	40,83	172	La Motte housing development	ESKOM	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Greater Franschhoek	6,50	Affordable housing	42,63	277	La Motte housing development	ESKOM	UrbRes_7l_7h
Stellenbosch	0,41	Business/Commercial	41,46	17	Erf 6128 - Stellenbosch	CLOETESVILLE SS	6A_Commerce_Retail
Stellenbosch	0,40	Flats	163,08	66	Erven 2151, 2152, 2153 and 11191 (Schoongezicht Villas) - Stellenbosch - Sept 2019	JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	0,14	Flats	194,83	27	Erf 2425 - Stellenbosch - Nov 2019	UNIVERSITY SS	UrbRes_7l_7h
Klapmuts	71,31	Flats	54,26	3869	Stellenbosch Bridge - Klapmuts - Aug 2020	ESKOM	
Klapmuts	90,36	Flats	69,52	6282	Stellenbosch Bridge - Klapmuts - Aug 2020	ESKOM	
Stellenbosch	0,15	Flats	405,55	60	Erf 12186 - Stellenbosch - Nov 2020	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	2,72	Flats	110,30	300	Erf 14601 - Stellenbosch	MAIN SS	UrbRes_7l_7h
Stellenbosch	4,95	Group housing 20 to 30	35,99	178	Portions 52, 53, 54, 71 & 845 of Farm 510 - Stellenbosch	ESKOM	UrbRes_7l_7h
Stellenbosch	0,46	Mixed	125,66	58	Erf 5357 - Stellenbosch (Drostdy Centre) - (May 2021)	UNIVERSITY SS	6A_Commerce_Retail
Klapmuts	0,70	Single residential 500	41,61	29	Erven 188, 191-193 & 195-200 - Klapmuts	ESKOM	UrbEst_10h_plus
Stellenbosch	0,07	Business/Commercial	26,87	2	Erf 1405 & Rem of Erf 140 - Kayamandi	CLOETESVILLE SS	6A_Commerce_Retail
Stellenbosch	43,22	Affordable housing	12,19	527	Botmaskop Housing Development - Stellenbosch (March 2022) - Rev1	JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	0,94	Affordable housing	136,82	128	Kayamandi Housing Projects 4A, 4B, 5A & 8 - Text (Sept 2021)	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	1,28	Affordable housing	137,06	176	Kayamandi Housing Projects 4A, 4B, 5A & 8 - Text (Sept 2021)	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,56	Affordable housing	85,19	48	Kayamandi Housing Projects 4A, 4B, 5A & 8 - Text (Sept 2021)	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,71	Affordable housing	73,42	52	Kayamandi Housing Projects 4A, 4B, 5A & 8 - Text (Sept 2021)	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,71	Affordable housing	91,25	65	Kayamandi Housing Projects 4A, 4B, 5A & 8 - Text (Sept 2021)	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,12	Flats	224,13	27	Erf 3223 - Stellenbosch	JAN MARAIS SS	UrbRes_7l_7h
Stellenbosch	0,82	Flats	487,11	400	Dennesig student accommodation - Stellenbosch - Aug 2018	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,93	Flats	544,77	508	Dennesig student accommodation - Stellenbosch - Aug 2018	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,53	Business/Commercial	149,57	80	Erf 1147 - Stellenbosch (June 2022)	MAIN SS	6A_Commerce_Retail
Stellenbosch	1,05	Flats	201,84	211	Du Toit Street development - Stellenbosch	MARKOTTER SS	UrbRes_7l_7h
Greater Franschhoek	4,92	Affordable housing	40,00	197	Maasdorp Village, Franschhoek	ESKOM	UrbRes_7l_7h
Greater Franschhoek	1,98	Affordable housing	40,00	80	Erf 3229 Mooiwater, Franschhoek TRA	FRANSCHHOEK	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Greater Franschhoek	0,57	Affordable housing	40,00	23	Erf 412, 217 and 284 Groendal	FRANSCHHOEK	UrbRes_7l_7h
Stellenbosch	0,34	Affordable housing	40,00	14	Erf 8776 Stellenbosch, Cloetesville	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,51	Affordable housing	40,00	21	La Colline Precinct	UNIVERSITY SS	UrbRes_7l_7h
Koelenhof	2,48	Affordable housing	40,00	100	Simonsig Village	ESKOM	UrbRes_7l_7h
Klapmuts	1,19	Informal upgraded	67,21	80	ISSP Klapmuts La Rochelle (80 sites) UISP	ESKOM	
Polkadraai	16,98	Affordable housing	31,80	540	Vlottenburg Rem Farm 387 (540) IRDP	ESKOM	UrbRes_7l_7h
Dwars River	62,03	Affordable housing	3,22	200	Stellenbosch Meerlust (200) IRDP	RFG	UrbRes_7l_7h
Stellenbosch	0,31	Affordable housing	40,00	13	Erf 6705 Stellenbosch, Cloetesville	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	1,26	Affordable housing	40,00	51	The Steps and Orlean Lounge: Rectification of existing units	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	1,43	Flats	93,90	134	Erven 6300, 6847 and 6886 Stellenbosch, Cloetesville	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,93	Affordable housing	40,00	38	The Steps and Orlean Lounge: Rectification of existing units	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	1,17	Affordable housing	40,00	47	La Colline	UNIVERSITY SS	UrbRes_7l_7h
Stellenbosch	15,54	Affordable housing (HD)	60,74	944	Kayamandi northern extension	ESKOM	
Stellenbosch	3,63	Light industrial	45,00	164	Kayamandi northern extension	ESKOM	
Stellenbosch	32,24	Agricultural	0,00	0	Kayamandi northern extension	ESKOM	
Stellenbosch	3,32	Apartments (VHD)	112,86	375	Kayamandi northern extension	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	5,50	Affordable housing (HD)	62,34	343	Kayamandi northern extension	CLOETESVILLE SS	
Stellenbosch	2,61	Apartments (VHD)	112,93	295	Kayamandi northern extension	ESKOM	
Stellenbosch	0,65	Apartments (VHD)	113,12	73	Kayamandi northern extension	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	12,43	Affordable housing (HD)	65,14	810	Kayamandi northern extension	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	3,24	Educational	1,00	4	Kayamandi northern extension	CLOETESVILLE SS	9C_Education
Stellenbosch	10,12	Affordable housing (HD)	46,85	474	Kayamandi northern extension	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	0,74	Public facilities	40,00	30	Kayamandi northern extension	CLOETESVILLE SS	9D_Government
Stellenbosch	4,74	Educational	1,00	5	Kayamandi northern extension	CLOETESVILLE SS	9C_Education
Stellenbosch	2,98	Business/Commercial	16,80	50	Kayamandi northern extension	ESKOM	6A_Commerce_Retail
Stellenbosch	2,60	Flats	96,30	250	Kayamandi northern extension	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	34,66	Mixed	46,74	1620	Precinct #10	ESKOM	
Stellenbosch	7,36	Informal upgraded	148,78	1095		CLOETESVILLE SS	Township_5_6
Stellenbosch	14,29	Affordable housing	40,00	572	Farms 81/2 and 81/9 Stellenbosch	CLOETESVILLE SS	UrbRes_7l_7h
Stellenbosch	5,05	Flats	54,42	275	Kayamandi northern extension	ESKOM	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Stellenbosch	3,46	Flats	54,29	188	Kayamandi northern extension	ESKOM	UrbRes_7l_7h
Stellenbosch	15,68	Mixed	25,00	392	Kayamandi northern extension	ESKOM	6A_Commerce_Retail
Stellenbosch	2,75	Educational	1,00	3	Kayamandi northern extension	ESKOM	
Stellenbosch	2,52	Flats	54,47	137	Kayamandi northern extension	ESKOM	UrbRes_7l_7h
Stellenbosch	24,16	Single residential 500	24,83	600	Kayamandi northern extension	ESKOM	UrbEst_10h_plus
Stellenbosch	2,66	Affordable housing	40,00	107	Teen-die-bult, La Colline	UNIVERSITY SS	UrbRes_7l_7h
Stellenbosch	32,96	Mixed	149,27	4920	Precinct #04	GOLF CLUB SS	6A_Commerce_Retail
Stellenbosch	94,33	Mixed	74,04	6984	Precinct #01	MAIN SS	6A_Commerce_Retail
Stellenbosch	15,21	Business/Commercial	219,61	3340	Precinct #07	MARKOTTER SS	6A_Commerce_Retail
Stellenbosch	3,85	Mixed	258,91	996	Precinct #06	MAIN SS	6A_Commerce_Retail
Stellenbosch	17,82	Mixed	124,16	2212	Precinct #08	MARKOTTER SS	6A_Commerce_Retail
Stellenbosch	11,75	Mixed	99,37	1168	Precinct #05	MAIN SS	6A_Commerce_Retail
Stellenbosch	69,09	Industrial	115,11	7953	Precinct #09	CLOETESVILLE SS	3B_M_Manufacturing_ Medium
Stellenbosch	27,61	Mixed	38,47	1062	Precinct #03	MAIN SS	6A_Commerce_Retail
Stellenbosch	7,25	Mixed	429,01	3110	Precinct #02	MAIN SS	6A_Commerce_Retail
Koelenhof	24,45	Affordable housing	40,00	979	Farm 34 Vaaldraai Elsenburg	ESKOM	UrbRes_7l_7h
Stellenbosch	19,21	Affordable housing	98,91	1900	Stellenbosch Botmaskop (1900) IRDP	JAN MARAIS SS	UrbRes_7l_7h
Vlottenburg	4,79	Group housing 40 to 60	60,10	288	Welmoed	ESKOM	
Vlottenburg	9,86	Group housing 30 to 40	35,00	345	Welmoed	ESKOM	
Vlottenburg	0,96	Educational	1,00	1	Welmoed	ESKOM	
Vlottenburg	4,56	Group housing 30 to 40	35,27	161	Welmoed	ESKOM	
Vlottenburg	0,45	Public facilities	40,00	19	Welmoed	ESKOM	9D_Government
Vlottenburg	0,97	Public facilities	40,00	39	Welmoed	ESKOM	9D_Government
Vlottenburg	5,44	Group housing 30 to 40	34,92	190	Welmoed	ESKOM	
Vlottenburg	2,30	Group housing 40 to 60	60,51	139	Welmoed	ESKOM	
Vlottenburg	0,17	Business/Commercial	45,00	8	Welmoed	ESKOM	6A_Commerce_Retail
Stellenbosch	22,17	Single residential 500	25,00	555		CLOETESVILLE SS	UrbEst_10h_plus
Stellenbosch	1,59	Single residential 500	25,00	40		MAIN SS	UrbEst_10h_plus
Stellenbosch	9,40	Single residential 1000	12,50	118		ESKOM	UrbRes_7l_7h
Klapmuts	54,34	Single residential 1000	7,29	396		ESKOM	UrbRes_7l_7h

Region	Area (Ha)	Landuse	Density	Units	Development Location Description	Supply Zone	Load Profile
Koelenhof	6,32	Industrial	50,00	317		ESKOM	3B_M_Manufacturing_ Medium
Polkadraai	26,02	Mixed	16,11	419		ESKOM	
Polkadraai	5,64	Mixed	16,13	91		ESKOM	
Klapmuts	14,50	Industrial	50,00	725		ESKOM	3B_M_Manufacturing_ Medium
Stellenbosch	5,74	Informal upgraded	86,73	498		CLOETESVILLE SS	Township_5_6
Vlottenburg	2,71	Business/Commercial	45,00	122	Welmoed	ESKOM	6A_Commerce_Retail
Vlottenburg	2,78	Business/Commercial	45,00	126	Welmoed	ESKOM	6A_Commerce_Retail
Vlottenburg	2,70	Group housing 20 to 30	25,00	68	Welmoed	ESKOM	UrbRes_7l_7h
Vlottenburg	2,53	Group housing 20 to 30	25,00	64	Welmoed	ESKOM	UrbRes_7l_7h
Vlottenburg	2,86	Group housing 20 to 30	25,00	72	Welmoed	ESKOM	UrbRes_7l_7h
Vlottenburg	2,78	Group housing 20 to 30	25,00	70	Welmoed	ESKOM	UrbRes_7l_7h

5.5.2 Natural Growth

Natural growth in this study is represented by the growth in population numbers. Population growth is anticipated within the municipality with a growth rate of 1.7% annually between 2021 and 2025, subsequently leading to an increase requirement of households. Alongside this growth, the provision of electricity services to these future customers is also expected. It is important to note that the capacity and provision of services for existing developed properties that are simply unoccupied do not necessitate any additional planning. As long as the customer who will eventually occupy the service connection utilizes it in accordance with its designed capacity, no further action is required.

Increase in population numbers does not only result in additional or backlog of residential dwellings, but also the commercial, service and educational facilities to provide for the everyday needs of these new residents. Typically, these forms of developments that the municipality is aware of or the custodians of are recorded into IDP's and other SDF documentations. The current list of future developments within Table 5-2 address a number of such facilities.

The occupation of vacant stands allocated land uses will be added into the load growth.

5.5.3 Backyard dwellers

The lower income areas within Stellenbosch LM show a trend of backyard dwellings present on stands zoned for a single dwelling, resulting in having more than just one household in one yard and therefore, an increased demand. Stellenbosch and Franschhoek, having a prosperous active economic activity in the Cape Winelands and offering employment opportunities within the municipality will continue attract more migrants from neighbouring towns increasing the need for residence. The low-income areas highlighted by the STLM technical staff to have experienced this trend include Kayamandi, Cloetesville, Idas Valley, Longlands and Groendal. There are several factors contributing to this phenomenon. People are likely to move to areas that already have services. As families grow, family members are reluctant to move out of their homes when there is no economic motivation or means to do so. Backyard dwellings also serve as a source of income for the owners of the main house.

Figure 5-15: Stands with additional units in Cloetesville

Currently, backyard dwelling is happening informally, however the municipality has formal procedures in place to handle backyard dwellers, each additional dwelling requires an application for a meter for the additional dwelling with no shared metering for customers. Although a final average number of backyard dwellers per erf is extremely difficult to predict, the current number of backyard dwellers in low income areas is unknown but this master plan will use a limit of one additional backyard dweller per stand.

When applying the one additional backyard dweller per stand policy, the After Diversity Maximum Demand (ADMD) for the stand increases. The ADMDs used in the previous electrical master plan conducted in 2021 were used to display this impact.

Table 5-3: Township stand ADMD

Supply Zone	ADMD per single dwelling (kVA)
Cloetesville SS	1

Taking into consideration the increased ADMD, the demand calculation based on the number of units required for 1 000 units in any of the area's changes to 2 000 units with an additional dwelling on the same stand, or 3 000 units if there are two additional dwellings on a stand. This changes the total demand anticipated for an area or supply zone, as seen in Table 5-4

Table 5-4: Impact of backyard dwellers on the demand

Supply Zone	Stands available	Dwellings per stand	Units anticipated	ADMD per single dwelling (kVA)	Updated ADMD (kVA)	Total Demand (kVA)
Cloetesville SS	1 000	1	1 000	1	1	1 000
Cloetesville SS	1 000	2	2 000	1	2	2 000
Cloetesville SS	1 000	3	3 000	1	3	3 000

A planning department will plan for provision of services (water, refuse or electricity) based on the number of units per area registered on the treasury system. Unfortunately, backyard dwellers are often not registered on the system and go unseen but make an impact on the network. As seen in Table 5-4, as the number of dwellings on a single residential stand increase, the total demand required in the area increases as well. The demand has now either doubled or tripled depending on the number of backyard dwellers on a single stand. If plans are made for provision of 1 MVA for 1 000 units, but the demand ends up being 2 MVA due to the additional units, there would not be sufficient capacity to cater for all the residences.

Note that this example is looking at stands demarcated for single residential units and not any additional units on the stands, but due to the informal settling of backyard dwellers on stands meant and planned for a single dwelling, additional units are now placed on the stand. BLM is making efforts to account for and allocate additional capacity in the electricity network to cater for the backyard dwellers and turn the process into a formal one. This will prevent faults, outages and maintenance happening due to any constraints in network.

5.6 Load Growth Calculation

Apart from understanding what the end state network constraints might be, it is also important to understand the progression of these constraints. This will ensure that an appropriate and timely intervention is undertaken on the affected part of the network. Additionally, considering that often there are competing priorities for the budget, it becomes increasingly important to allocate resources at the correct time.

The load growth calculation for a load forecast has two components – the existing loads, and the future loads. In this forecast, the existing and the future loads are treated separately.

The rise in electricity prices has prompted consumers to find ways to improve their energy efficiency. This, coupled with Energy Efficiency Demand Side Management (EEDSM) strategies implemented by municipalities, explains why the general decreasing trend in maximum demand has been observed over the past decade. Although the demand has seemed to stabilise over the last few years, it would be realistic to expect decline over the next few years due to the current energy climate surrounding Eskom in South Africa, as well as the economic impact of the ongoing COVID-19 pandemic. It would be realistic to apply a small negative growth to existing loads, however, and conservatively so, existing loads are kept constant.

Future loads are handled differently and are treated in accordance with s-curve growth. S-curves were chosen to simulate a specific load class' "road" to saturation. For each future stand, four key inputs are used as input into the s-curve functions for each new load – the start date of the development, the duration of the development (until completion), the initial growth factor and the saturation demand value of the development. The starting date and development duration for the future stands are obtained from the future development plans. The normalized annual peak load estimate per year is mathematically approximated using a Gompertz curve simulated through the following formula:

$$f(n) = \frac{1}{(1+10C)} \times \left[(2 + 10C) \times \left(A + \frac{(1 - A)}{1 + 10C \times e^{\left(\frac{-7n}{B}\right)}}\right) - 1\right]$$

Where:

- *f* = defines the per unitised annual peak load estimate for year n
- A – defines the starting point of the S curve (For an existing load the parameter A would be determined by calculating the existing load as a percentage of the saturation load),
- B – defines the number of years till saturation, and
- C – is a number between 1 and 10 that manipulates the initial growth pattern, where 1 means strong initial growth and results in slow growth.

Figure 5-16 shows sample load growth S-Curves with varying load growth rates until saturation.

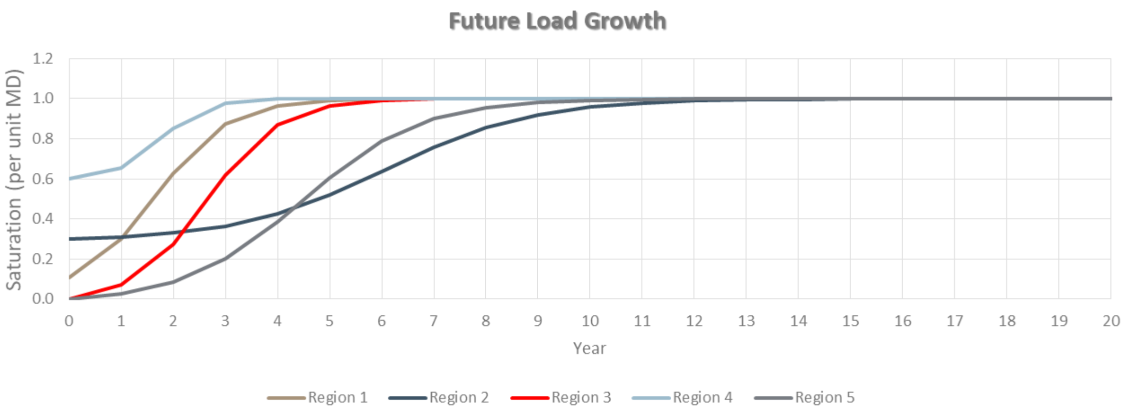


Figure 5-16: Sample normalized annual peak load growth S-Curves

Three load forecasting scenarios are developed:

i. Short Saturation Time Scenario (Short Scenario) – this forecasting scenario uses the area development ideal saturation time as informed by IDP budgets and standard project completion and occupancy periods.

ii. Expected Saturation Time Scenario (Expected Scenario) – this forecasting scenario considers possible project delays due to market changes, contractual disputes, material shortages, etc. The area development ideal saturation time is expanded by a factor of 1.5.

iii. Long Saturation Time Scenario (Long Scenario) – this forecasting scenario applies a longer delay to the ideal saturation time to simulate longer project delays. The area development ideal saturation time is expanded by a factor of 2.

5.7 Supply Zone Load Forecast Results

This section presents the load growth forecast results for STLM electricity network in relation to the planned future developments in Table 5-2. The load growth pattern for each substation is simulated using S-curves over a 20-year period, stretching from 2023 – 2043 where 2023 is Year 0, 2024 Year 1 and 2043 is Year 20. Each load growth simulation considers the three forecasting scenarios of short, expected, and long load saturation times. The existing network was evaluated against the forecasted demand to assess if the existing network will be able to supply the future demand and to identify any potential network constraints. Substation capacity expansion plans by the municipality were communicated to GLS and considered in the network analysis. These current refurbishment plans are listed below:

1. The return to service of the Main SS second 15 MVA transformer after refurbishments are performed on the oil leaking switchgear.
2. The return to service of the Cloetesville SS second 20 MVA transformer after Eskom concludes its repairs on their section of the substation yard.
3. Additional 20 MVA transformer at Golf Substation to increase the installed capacity from 40 MVA to 60 MVA.
4. The refurbishment of the 10 MVA transformer at Jan Marais Substation.
5. The return to service of Franschhoek SS's second 20 MVA transformer after the repair of the supply switchgear.
6. New La Terra substation with 2 x 185mm^2 cables supply from Franschhoek SS to be in operation from 2024.
7. The return to service of University SS third transformer after the necessary refurbishments are concluded on the switchgear.

Table 5-5 displays the current peak demands for each supply zone, as well as the future peak demands at Year 20 for the low, expected and high forecast scenarios.

Table 5-5: Substations Existing and Future Peak Demands

Load Zone	Current Peak (MVA)	Low Peak (MVA)	Expected Peak (MVA)	High Peak (MVA)
Cloetesville SS	12.3	17.32	17.32	17.32
Stellenbosch Main SS (66 kV)	51.2	44.76	45.26	45.35
Stellenbosch Main SS (11kV)	8.21	34.16	34.65	34.74
Golf SS	9.24	12.15	12.15	.12.15
Markotter SS	8.77	16.12	16.12	16.12
University SS	14.66	16.21	16.21	16.21
Jan Marais SS	10.32	12.27	12.27	12.27
Franschhoek SS	11.09	18.14	18.14	18.14
Pniel RFG	3.27	4.06	4.07	4.07
Pniel Riversmeet	3.81	6.04	6.21	4.29
Pniel Hollandse Mollen	0.55	1.44	1.95	2.18

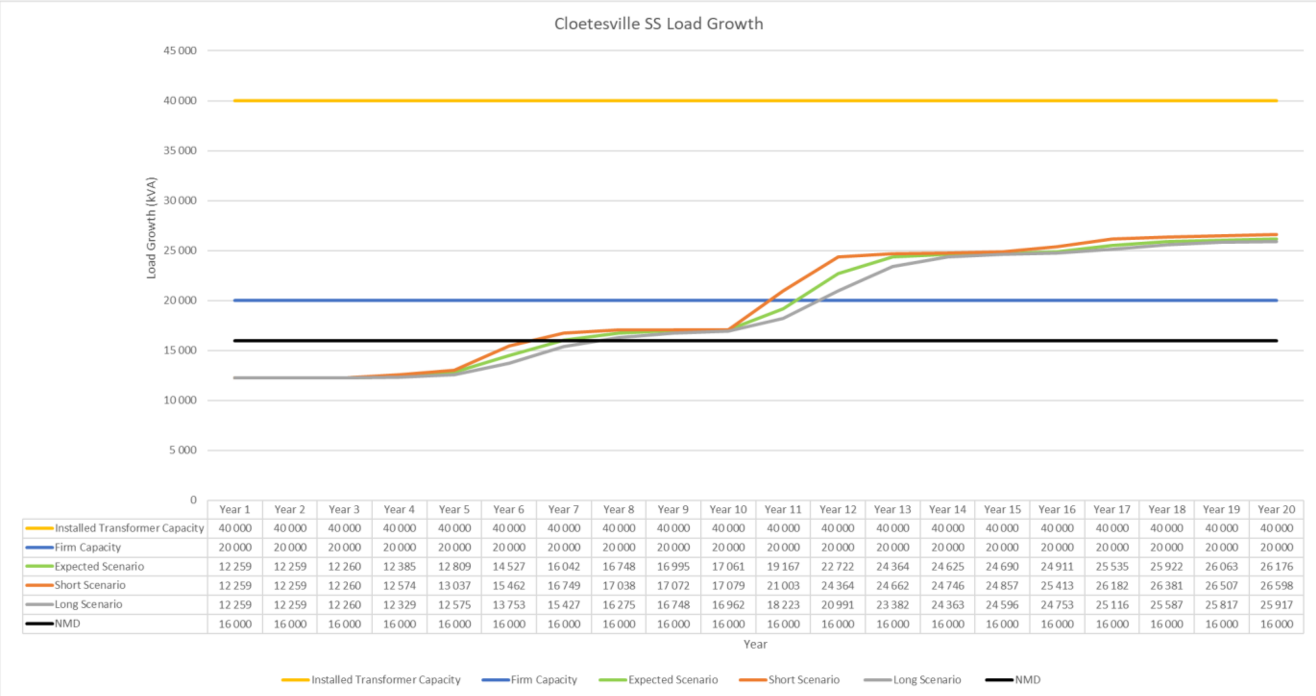
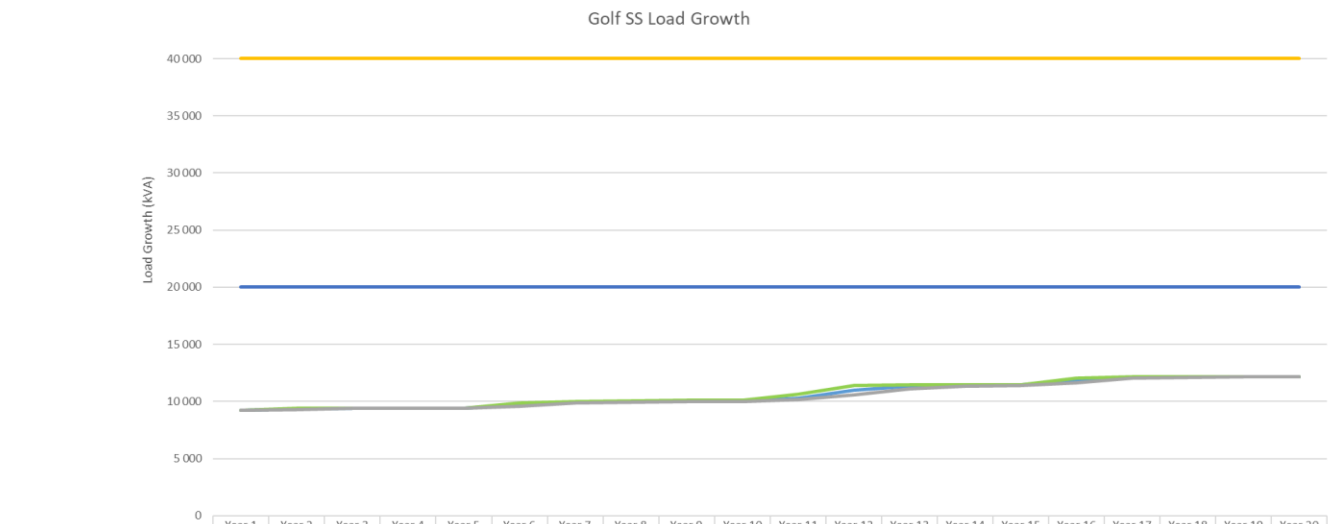


Figure 5-17: Cloetesville SS 20-Year Load Growth

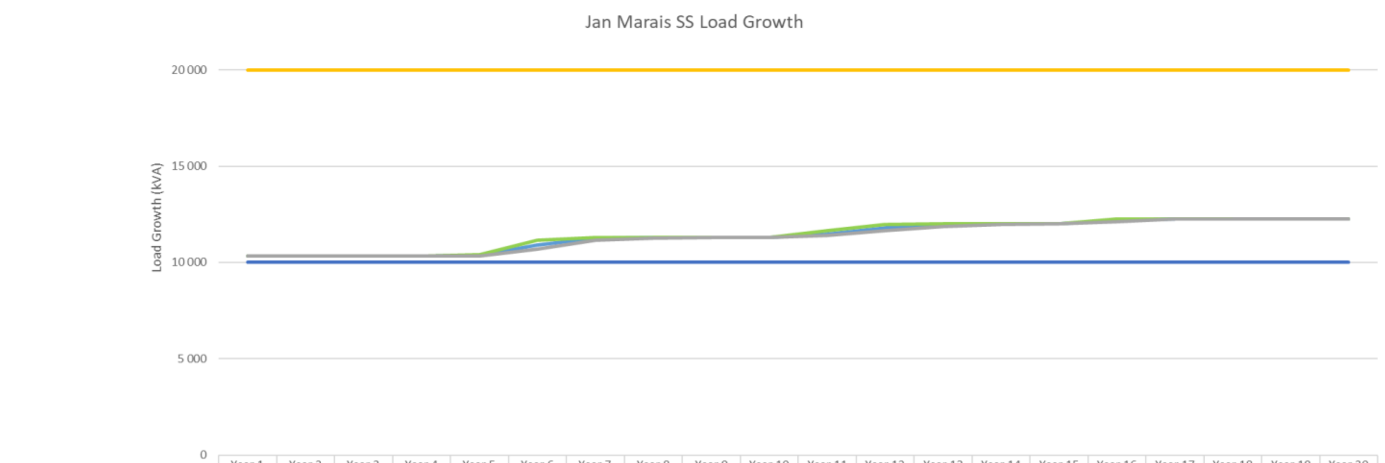
Cloetesville SS has an installed capacity of 40 MVA with a firm capacity of 20 MVA. The anticipated load growths for the supply zone are seen in Figure 5-22. The substation NMD is set to be exceeded at Year 6 in 2029. The firm capacity is expected to be exceeded at Year 11 in 2034 while the installed capacity is not expected to be exceeded within the 20-Year forecast.



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Installed Transformer Capacity	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
Firm Capacity	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000
Expected Scenario	9 240	9 350	9 402	9 403	9 403	9 750	9 936	9 984	10 035	10 081	10 312	10 995	11 371	11 438	11 460	11 853	12 102	12 146	12 152	12 153
Short Scenario	9 240	9 396	9 403	9 403	9 403	9 901	9 984	10 059	10 112	10 134	10 636	11 375	11 452	11 471	11 479	12 045	12 148	12 154	12 154	12 154
Long Scenario	9 240	9 303	9 396	9 403	9 403	9 603	9 901	9 947	9 984	10 023	10 170	10 587	11 126	11 360	11 424	11 666	12 026	12 113	12 142	12 150

Figure 5-18: Golf SS 20-Year Load Growth

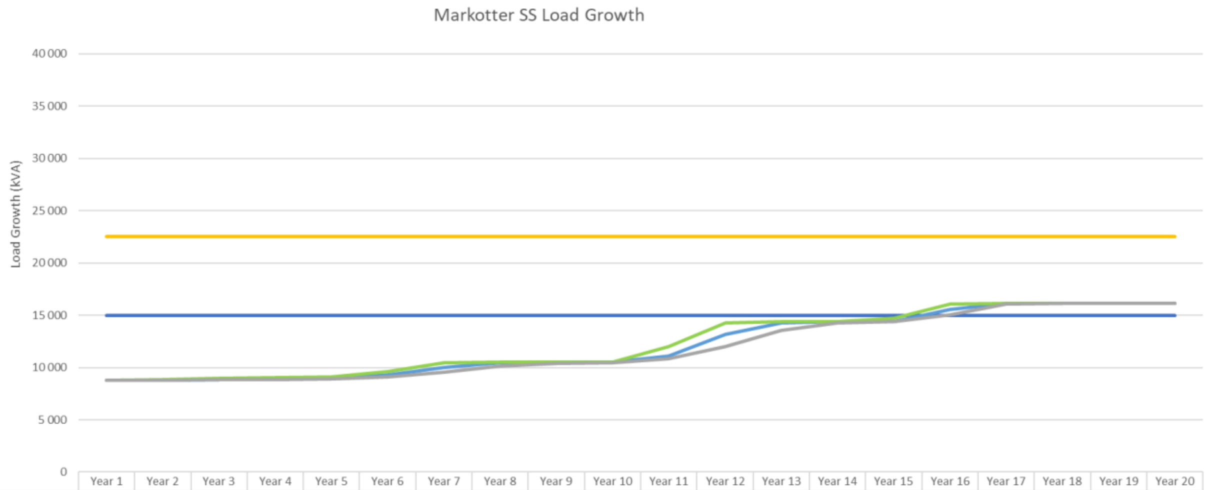
Golf SS has an installed capacity of 40 MVA with a firm capacity of 20 MVA. The anticipated load growths for the supply zone are seen in Figure 5-18. Similarly, to Cloetesville SS, the substation installed and firm capacities are both not expected to be exceeded within the 20-Year forecast.



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Installed Transformer Capacity	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000
Firm Capacity	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000
Expected Scenario	10 322	10 322	10 322	10 333	10 370	10 917	11 247	11 299	11 305	11 306	11 471	11 809	11 973	11 996	11 999	12 181	12 268	12 269	12 269	12 269
Short Scenario	10 322	10 322	10 322	10 349	10 390	11 169	11 299	11 306	11 306	11 306	11 637	11 973	11 998	11 999	11 999	12 257	12 269	12 269	12 269	12 269
Long Scenario	10 322	10 322	10 322	10 328	10 350	10 680	11 166	11 269	11 298	11 305	11 398	11 637	11 875	11 973	11 994	12 103	12 257	12 268	12 269	12 269

Figure 5-19: Jan Marais SS 20-Year Load Growth

Jan Marais SS has an installed capacity of 20 MVA with a firm capacity of 10 MVA. The anticipated load growths for the supply zone are seen in Figure 5-19. The substation firm capacity has already been exceeded on an occasion and will continue to exceed with the load growth while the installed capacity is not expected to be exceeded within the 20-Year forecast.



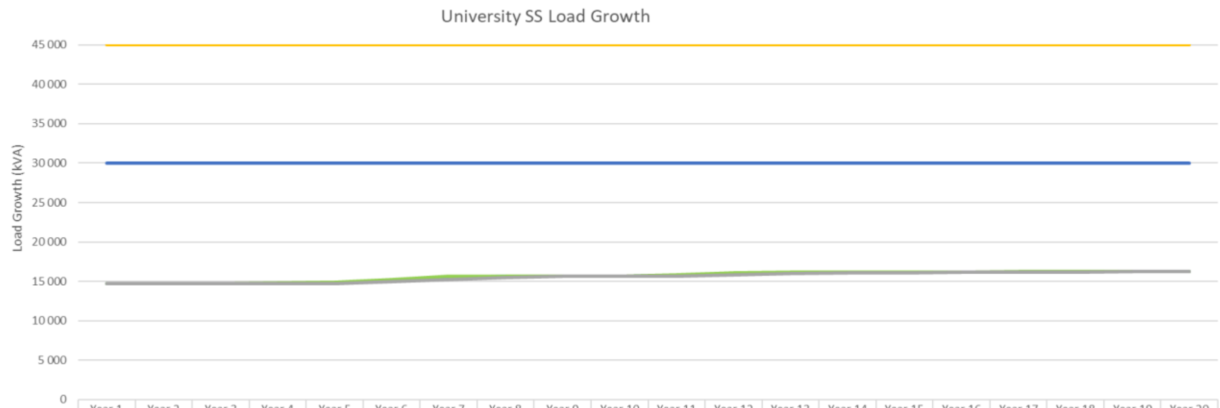
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Installed Transformer Capacity	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500
Firm Capacity	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000
Expected Scenario	8 778	8 801	8 847	8 918	8 997	9 267	10 018	10 423	10 484	10 494	11 100	13 133	14 236	14 392	14 409	15 562	16 112	16 120	16 120	16 120
Short Scenario	8 787	8 847	8 959	9 053	9 092	9 639	10 432	10 492	10 494	10 496	12 008	14 236	14 404	14 410	14 739	16 058	16 120	16 120	16 120	16 120
Long Scenario	8 774	8 787	8 810	8 847	8 899	9 077	9 549	10 146	10 404	10 470	10 820	12 004	13 578	14 235	14 379	15 065	16 043	16 117	16 120	16 120

Year

Installed Transformer Capacity — Firm Capacity — Expected Scenario — Short Scenario — Long Scenario

Figure 5-20: Markotter SS (Suidwal) 20-Year Load Growth

Markotter SS has an installed capacity of 22.5 MVA with a firm capacity of 15 MVA. The anticipated load growths for the substation's 11kV distribution network are seen in Figure 5-20. The substation firm capacity is expected to exceed in Year 14, 2037 and the installed capacity is expected to be sufficient for this 20-Year forecast.



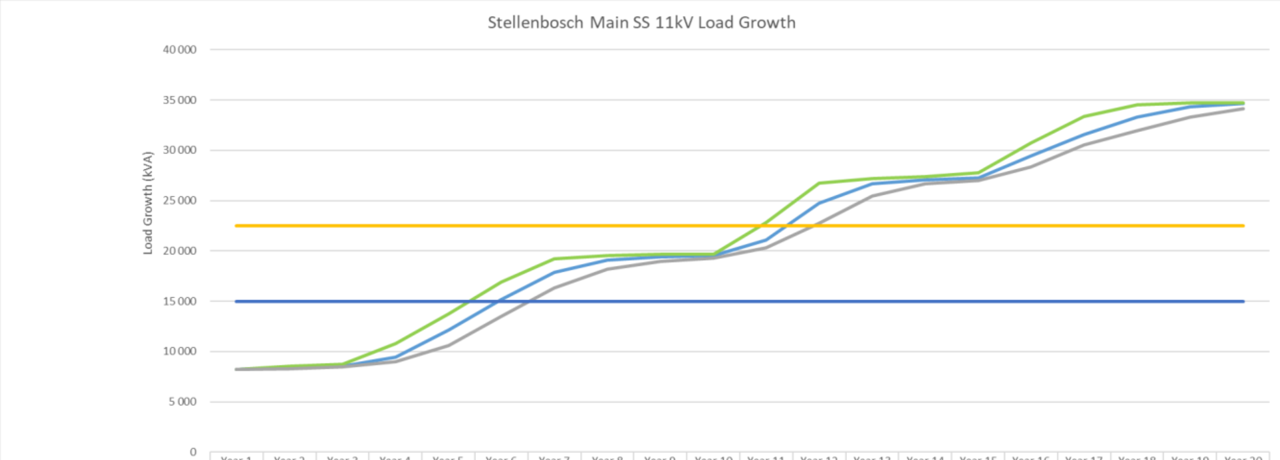
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Installed Transformer Capacity	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000	45 000
Firm Capacity	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000	30 000
Expected Scenario	14 663	14 663	14 665	14 698	14 804	15 034	15 423	15 614	15 642	15 645	15 718	15 964	16 097	16 116	16 118	16 132	16 179	16 204	16 207	16 208
Short Scenario	14 663	14 664	14 667	14 749	14 866	15 230	15 615	15 644	15 645	15 645	15 828	16 097	16 117	16 118	16 118	16 153	16 204	16 208	16 208	16 208
Long Scenario	14 663	14 664	14 664	14 682	14 744	14 921	15 215	15 497	15 612	15 638	15 684	15 827	16 018	16 097	16 114	16 125	16 153	16 189	16 204	16 207

Year

Installed Transformer Capacity — Firm Capacity — Expected Scenario — Short Scenario — Long Scenario

Figure 5-21: University SS 20-Year Load Growth

University SS has an installed capacity of 45 MVA with a firm capacity of 30 MVA. The anticipated load growths for the substation's 11kV distribution network are seen in Figure 5-21. Both the substation's installed and firm capacity is sufficient to carry the anticipated 20-Year load growth.

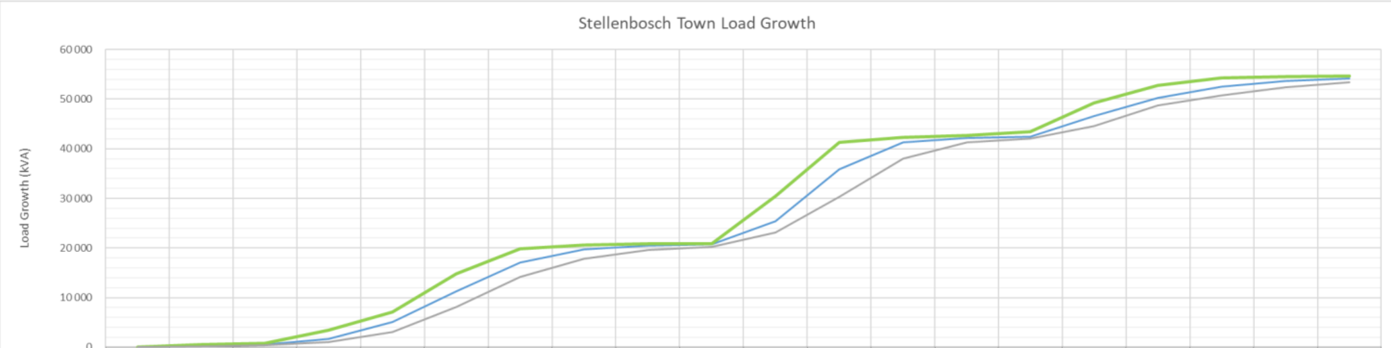


	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Expected Scenario	8 230	8 382	8 523	9 431	12 161	15 183	17 849	19 099	19 431	19 566	21 082	24 761	26 704	27 095	27 260	29 431	31 551	33 329	34 342	34 650
Short Scenario	8 246	8 514	8 706	10 784	13 777	16 906	19 238	19 558	19 642	19 672	22 846	26 712	27 187	27 358	27 756	30 738	33 344	34 551	34 723	34 742
Long Scenario	8 224	8 310	8 447	8 960	10 567	13 516	16 330	18 163	18 987	19 305	20 278	22 726	25 484	26 679	27 027	28 377	30 563	31 949	33 294	34 160
Installed Transformer Capacity	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500	22 500
Firm Capacity	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000	15 000

Figure 5-22: Stellenbosch Main SS (11 kV) 20-Year Load Growth

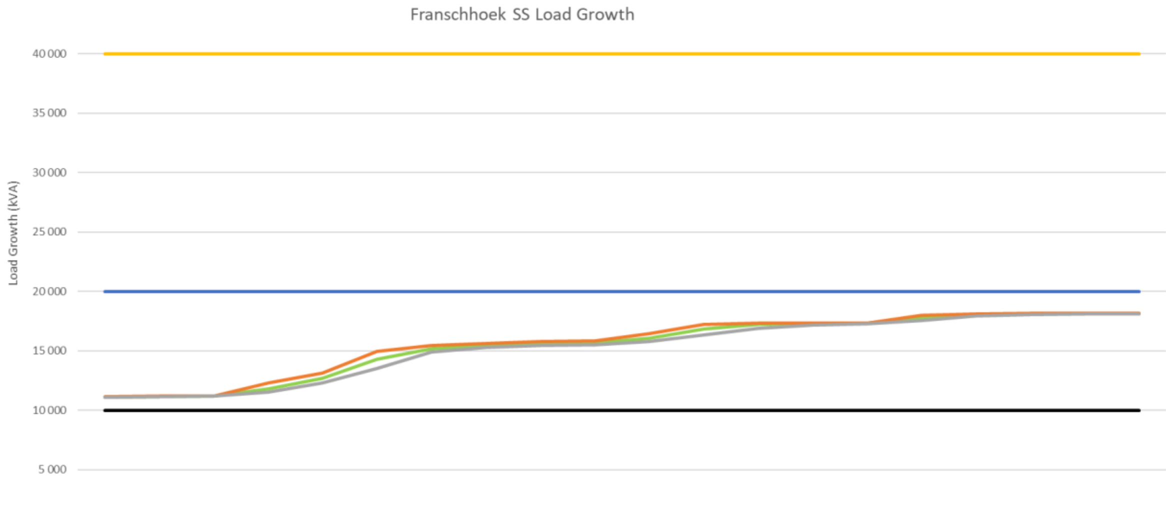
Stellenbosch Main SS has an installed capacity of 22.5 MVA with a firm capacity of 15 MVA. The anticipated load growths for the substation's 11kV distribution network are seen in Figure 5-22. The substation firm capacity is expected to exceed in Year 5, 2028 and the installed capacity at Year 11, 2034.

The overall load growth for the Stellenbosch Town area is depicted in Figure 5-23. The anticipated additional load is sitting at about 54 MVA in Year 20 which is in 2043.



	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Expected	27	313	554	1 703	5 079	11 215	17 052	19 703	20 427	20 689	25 385	35 919	41 280	42 198	42 470	46 605	50 282	52 524	53 690	54 112
Short	53	537	852	3 447	7 101	14 842	19 851	20 633	20 807	20 868	30 494	41 293	42 357	42 637	43 484	49 199	52 801	54 218	54 517	54 626
Long	18	180	434	1 084	3 073	8 086	14 124	17 834	19 569	20 238	23 109	30 309	37 998	41 242	42 070	44 625	48 692	50 759	52 381	53 359

Figure 5-23: Stellenbosch Town 20-Year Anticipated Additional Load Growth



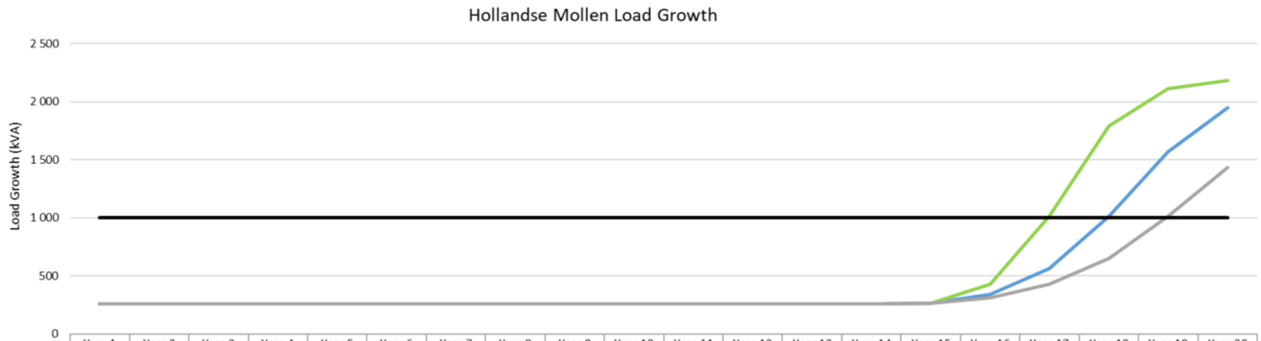
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Installed Transformer Capacity	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000
Firm Capacity	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000
Expected Scenario	11 112	11 174	11 208	11 826	12 682	14 273	15 191	15 433	15 570	15 695	16 062	16 819	17 213	17 296	17 329	17 766	18 065	18 129	18 139	18 142
Short Scenario	11 139	11 207	11 213	12 294	13 158	14 949	15 434	15 635	15 784	15 846	16 477	17 227	17 318	17 349	17 362	17 991	18 131	18 140	18 141	18 142
Long Scenario	11 104	11 139	11 188	11 556	12 294	13 534	14 889	15 269	15 432	15 537	15 793	16 335	16 919	17 182	17 267	17 545	17 957	18 077	18 121	18 135
NMD	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000

Year

Installed Transformer Capacity — Firm Capacity — Expected Scenario — Short Scenario — Long Scenario — NMD

Figure 5-24: Franschhoek SS 20-Year Load Growth

Franschhoek SS has an installed capacity of 40 MVA with a firm capacity of 20 MVA. The substation MD has already exceeded its NMD. The anticipated load growths for the substation's 11kV distribution network are seen in Figure 5-24. Despite the NMD having been exceeded, the substation installed, and firm capacities aren't expected to be exceeded within the 20-Year forecast.



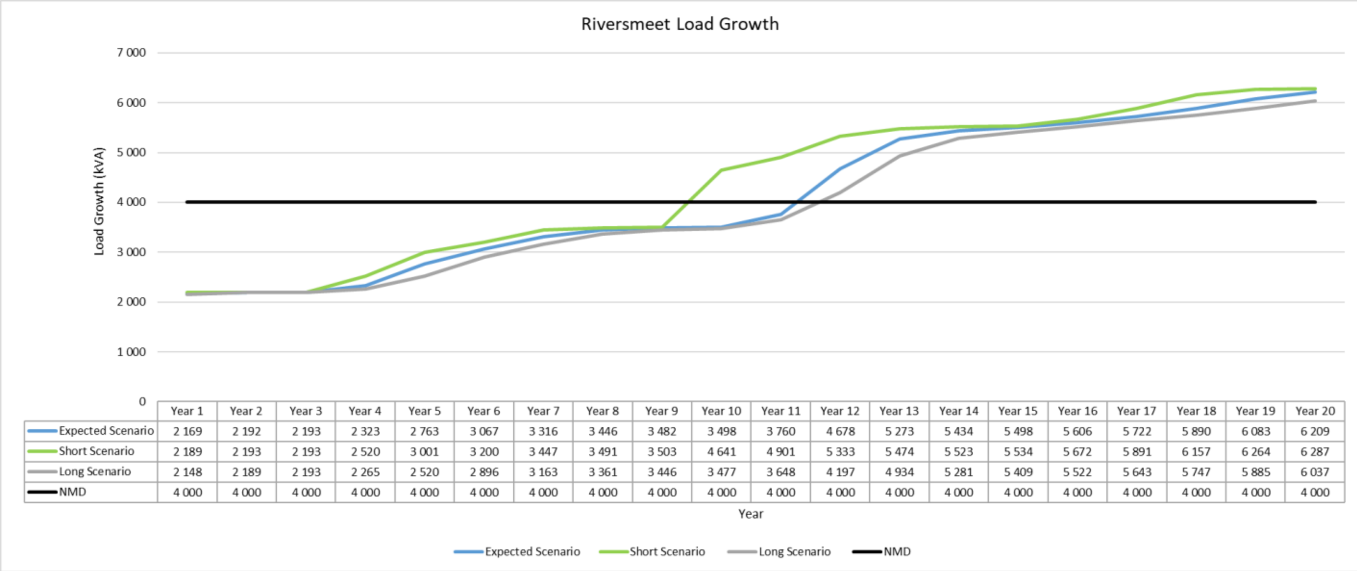
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Expected Scenario	261	261	261	261	261	261	261	261	261	261	261	261	261	261	262	342	561	1 011	1 568	1 947
Short Scenario	261	261	261	261	261	261	261	261	261	261	261	261	261	261	262	427	1 011	1 789	2 114	2 184
Long Scenario	261	261	261	261	261	261	261	261	261	261	261	261	261	261	262	313	427	651	1 011	1 436
NMD	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000	1 000

Year

Expected Scenario — Short Scenario — Long Scenario — NMD

Figure 5-25: Pniel Hollandse Mollen 20-Year Load Growth

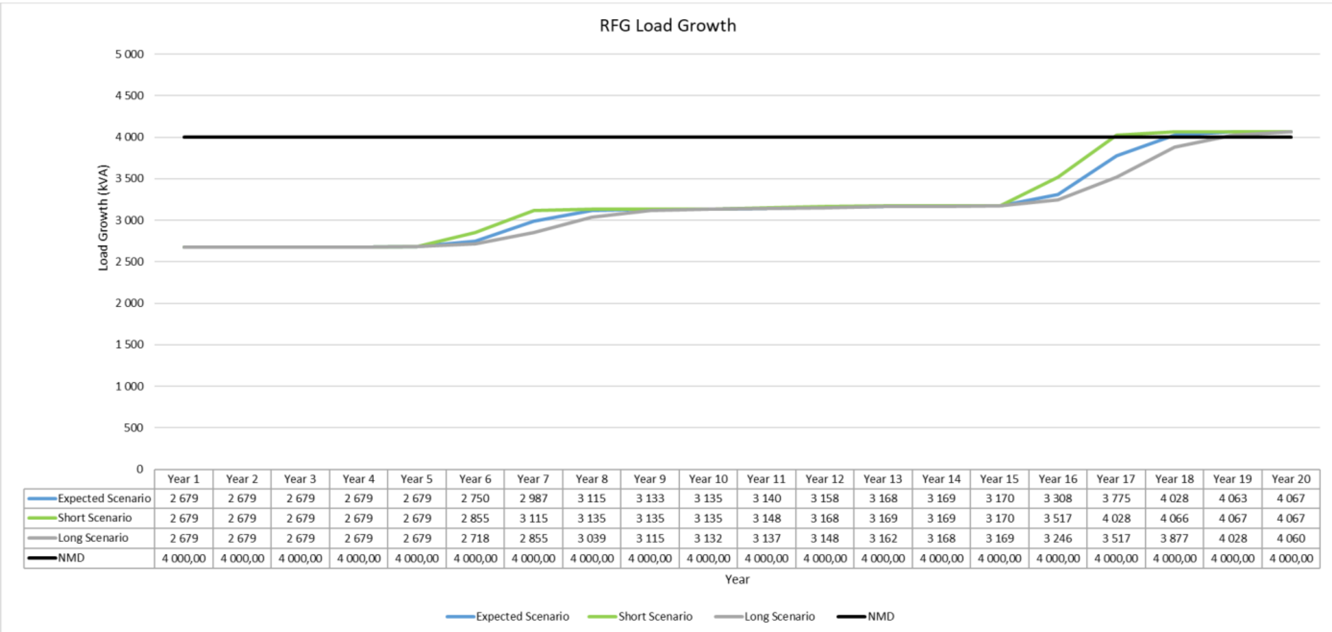
Hollandse Mollen intake point from Drakenstein LM is an RMU, therefore there is no transformer installed or firm capacity available. The anticipated load growths for the 11kV distribution network are seen in Figure 5-25. The load growth only starts later at Year 15, 2035 and grows aggressively to above 2 MVA for the Expected and Short scenarios at Year 20.



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Expected Scenario	2 169	2 192	2 193	2 323	2 763	3 067	3 316	3 446	3 482	3 498	3 760	4 678	5 273	5 434	5 498	5 606	5 722	5 890	6 083	6 209
Short Scenario	2 189	2 193	2 193	2 520	3 001	3 200	3 447	3 491	3 503	4 641	4 901	5 333	5 474	5 523	5 534	5 672	5 891	6 157	6 264	6 287
Long Scenario	2 148	2 189	2 193	2 265	2 520	2 896	3 163	3 361	3 446	3 477	3 648	4 197	4 934	5 281	5 409	5 522	5 643	5 747	5 885	6 037
NMD	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000

Figure 5-26: Pniel Riversmeet 20-Year Load Growth

Riversmeet intake point from Drakenstein LM is also an RMU, therefore there is no transformer installed or firm capacity available. The anticipated load growths for the 11kV distribution network are seen in Figure 5-26. The load growth two rapid spells within the 20-Year forecast, first in Year 3, 2026 and again in Year 9 at 2032. The NMD is anticipated to be exceeded between Year 9 and 12 (2032 and 2035). At the end of the 20-Year load growth period, the anticipated demand almost doubles in this supply zone as it is above 6 MVA for all scenarios.



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Expected Scenario	2 679	2 679	2 679	2 679	2 679	2 750	2 987	3 115	3 133	3 135	3 140	3 158	3 168	3 169	3 170	3 308	3 775	4 028	4 063	4 067
Short Scenario	2 679	2 679	2 679	2 679	2 679	2 855	3 115	3 135	3 135	3 135	3 148	3 168	3 169	3 169	3 170	3 517	4 028	4 066	4 067	4 067
Long Scenario	2 679	2 679	2 679	2 679	2 679	2 718	2 855	3 039	3 115	3 132	3 137	3 148	3 162	3 168	3 169	3 246	3 517	3 877	4 028	4 060
NMD	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00	4 000,00

Figure 5-27: Pniel RFG 20-Year Load Growth

RFG intake point from Drakenstein LM like the Hollansde Mollen and Riversmeet intakes is through an RMU, therefore there is no transformer installed or firm capacity available. The anticipated load growths for the 11kV distribution network are seen in Figure 5-26. The load growth like Riversmeet intake experiences two rapid spells within the 20-Year forecast, first in Year 5, 2028 and again in Year 15 at 2037. The NMD of the intake is anticipated to exceed between Year 17 and Year 19 (2039 and 2041). At the end of the 20-Year load growth period, the anticipated demand in this supply zone as it is above 4 MVA for all scenarios.

6 NETWORK PLANNING PHILOSOPHY AND CRITERIA

6.1 Network Planning Philosophy

The planning criteria used to assess network capacity and determine the need for, and timing of network expansion, reinforcement or re-configuration is developed using existing standards applicable to Stellenbosch LM as a distribution license holder and current planning standards upheld by the municipality. Network development plans are then compiled that will satisfy the planning criteria and address existing and future network constraints. It is important to note that there are non-negotiable regulations that all electricity users and distributors shall comply with, as discussed later in the Standards and Guidelines section. These regulations shall be considered when doing network planning and form the minimum planning requirements for all electrical networks. The role of systems planning is to provide:

- Reliable networks,
- To optimize expenditure and,
- To minimise life cycle costs.

The network planning philosophy is a set of overarching guiding principles that the network planner shall apply when contemplating future investment in the electrical network.

The network planning philosophy can be divided into ten core philosophies, as indicated in Figure 6-1, that shall be analyzed and considered by the network planner.

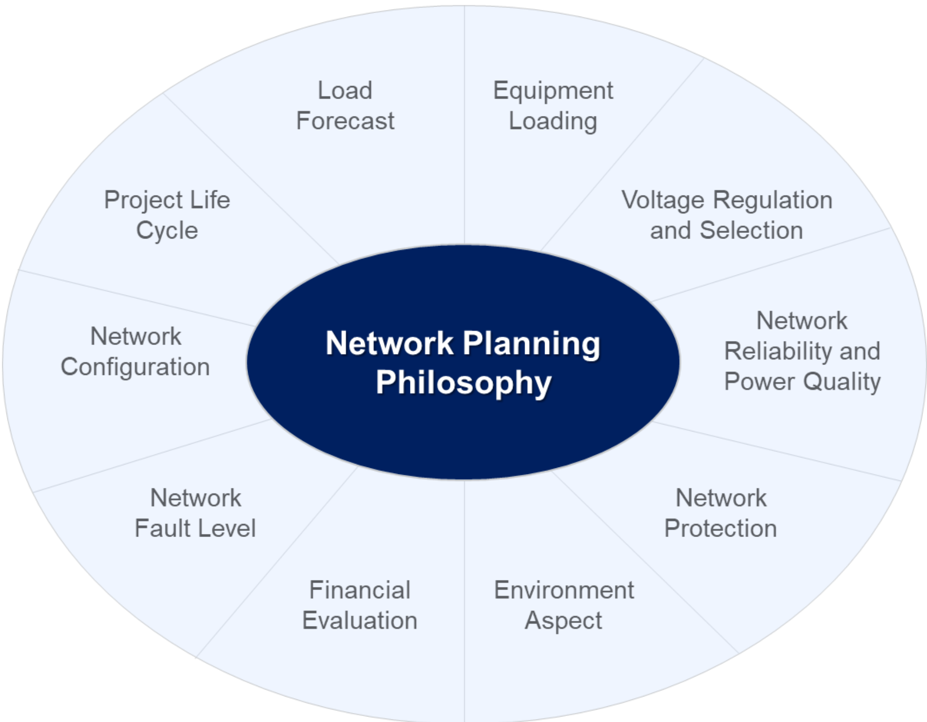


Figure 6-1: Core Network Planning Philosophies

Table 6-1: Description of the Core Network Philosophies

Core Network Philosophies	Description of Core Philosophies
Voltage Regulation and Selection	The voltage regulation philosophy focuses on network voltage deviations to ensure that the network meets the minimum regulatory requirements. Only standard voltages should be used based on the voltage selection philosophy. All non-standard voltage should be replaced by standard ones when strengthening or refurbishment is taking place. The optimum voltage which will minimize the loss and increase transfer capability shall be selected.
Equipment Loading	No electrical equipment shall be loaded above its designed rating under normal network configurations. Exception can be made for temporary abnormal conditions.
Network Configuration	An optimal network configuration shall enhance ease of control, reliability of the system and increase the protection of the network.
Network Reliability and Power Quality	Network reliability entails the evaluation of the network investment decisions by quantifying in economic terms the benefits of improving reliability by comparing different alternatives. Note that Franschhoek Local Municipality designs its Distribution systems as meshed networks with an N-1 contingency planning philosophy to ensuring that the loss of any one component of the network will not result in the loss of supply to any customers. Although invariably there will be radial feeders in some of the supply areas. In urban areas the density of users often results in an open, meshed network that is run radially with open points. This operating mode minimizes fault levels and simplifies technical and operational requirements. In these situations, improved supply restoration times are possible, although the initial loss of supply will still occur. The network planners should select reliability levels or alternative expansion / reinforcement plans based on capital costs, customer outage costs, O&M and losses cost. Power quality is mandated by NRS 048-2:2008 and shall be complied to. Each of the voltage quality parameters is described in NRS 048-2:2008 and, where appropriate, compatibility levels, limits, and assessment methods are specified. These compatibility levels and limits provide measures of acceptable voltage quality at the point of supply to end customers of electricity utilities.
Network Protection	The network shall be adequately protected via standard protection philosophies to protect equipment as well as personal safety of staff.
Network Fault Level	No equipment shall be subjected to a fault level higher than the manufacturers rating of the equipment.
Load Forecast	The agreed philosophy done by Stellenbosch Municipality is to do a geographical demand forecast where the location, the year and the demand are known. This will include the Spatial development framework plans, population growth, land use and future house-holds growth. The network shall be planned for different scenarios namely, low, medium, and high.
Project Life Cycle	All aspects of the realization of a project shall be included. All parties are to be consulted (primary plant, secondary plant and field services) and the project life phases shall be well understood and documented.
Environmental Aspect	For all new infrastructure environmental constraints within the area shall be considered. Alternatives shall be taken into consideration to find a balance between environmental and network requirements.
Financial Evaluation	The financial aspect of the project including both the execution of the project as well as the life cycle of the project shall be considered. Therefore, evaluating system alternatives not solely based on technical viability, they should also be financially sound. A balance should be drawn to determine the best option according to budgetary requirements.

These core network philosophies detailed in Table 6-1 are used to determine the required network upgrades detailed in the next section.

6.2 Standards and Guidelines

The planning criteria must comply with the following regulatory and licensing requirements:

- The Network Code within the South African Grid Code,
- The Electricity Regulations Act,
- The Distribution Code

Note that the NRS048 code is also used for quality of supply purposes and reliability studies.

6.2.1 The South African Grid Code (Version 10.0, August 2019)

The South African (Transmission) Grid code is an important reference for all planners. Distribution Network Planners need to be aware of the various chapters within the South African Grid Code.

Among the chapters, the relevant ones for distribution network are the Tariff code and the network code. The distribution planners should be familiar with these chapters as they define how costs are recovered and also depict the technical requirements on the transmission network for voltages, reliability and quality of supply for the transmission network that supplies the distribution network.

The South African Grid Code: Network Code focuses on the Transmission Network Service Provider (TNSP) and customer technical (QOS, reliability and system capacity) network requirements. It is broken down into sections defining connection conditions (for generators, distributors and end-use customers), defining technical design requirements applicable to the service providers and finally defining the TS development process and methodology.

6.2.2 The Electricity Regulation Act No.4 of 2006

The electricity regulation Act No. 4 of 2006 provides the following:

- It establishes a national regulatory framework for the electricity supply industry,
- It makes the National Energy Regulator the custodian and enforces the national electricity regulatory framework,
- It provides for licenses and registration as the manner in which generation, transmission, distribution, reticulation trading and the import and export of electricity are regulated, and
- It regulates the reticulation of electricity by municipalities; and provides for matters connected therewith.

Stellenbosch Local Municipality as an authorized Licensee for distribution of electricity is required, by law, to ensure that all the license requirements are fulfilled. Stellenbosch Local Municipality is thus legally responsible for the distribution of electricity at all voltages less than and including sixty-six kilovolts (66kV) within its supply area.

The Distributor is required to provide electricity through the distribution network in a non-discriminatory cost manner to third parties. The act specifically mentions the distributor's responsibility in terms of upgrade and strengthening to support the access of the network to the third party.

6.2.3 The Distribution Code (Version 6.1, August 2019)

The distribution code includes 8 chapters for which the following is discussed:

- Distribution system connection process and procedures,
- Responsibilities of the distributors,
- Responsibilities of customers and/or users,
- Distribution system technical requirements,
- Distribution system planning and development,
- Network investment criteria, and

- Embedded generators connection conditions.

The above aspects can be summarized as below:

Table 6-2: Distribution Code Descriptors

Distribution point of focus	Description
Distribution system connection and procedures	Makes provision for the exchange of information between the Distributor and the customer at various stages of the Planning and connection process as well as the operational phase of commissioning.
Responsibilities of the distributors	Describes the dos and don'ts of the distributors. Amongst these responsibilities, the distributor should make capacity available and provide open and non-discriminatory access to all customers. The Distributor should advise potential users of the expected reliability of its network. The Distributor shall be responsible for the planning, design and engineering specifications of the work required for the distribution system connection or expansion.
Responsibilities of customers and / or users	Describes the responsibilities of the customers. Amongst these responsibilities, the customer should be responsible for the removal and the reinstallation of any privately-owned equipment for the distributor to perform the installation work that the customer has requested.
Distribution system technical requirements	Describes the following requirements: Protection, Quality of Supply (Voltage harmonics and inter-harmonics, Voltage flicker, voltage unbalance, voltage dips, interruptions, voltage regulation, frequency, voltage surges and switching disturbances), load power factor, earthing requirements, distribution network interruption performance indices, losses in the distribution system, equipment requirements.
Distribution system planning and development	Depicts the framework for distribution network planning development. A distributor licensee should annually compile a 10-year load forecast at the Distributor's incoming points of supply including Distributor's cross-boundary connections. The Distributor is responsible for compiling network development plan with a minimum window period of five years and reviewed every 3 years. These plans should include the relevant activities such as electrification and refurbishment.
Network Investment Criteria	Describes the investment criteria (e.g., on shared network, investments shall be evaluated on the least-life-cycle economic cost where investments made by the distributors shall be evaluated on a least life-cycle distributor cost.); the least economic cost criteria for shared network investments, for standard dedicated customer connections, for premium customer connection; strategic investments and international criteria for international connections.
Embedded Generators connection conditions	Describes the responsibilities of Embedded generators to distributors, responsibilities of distributors to the Embedded Generators, provision of planning information and connection point technical requirements.

6.2.4 The NRS 048 – Quality of Supply

While the NRS 048-2 provides utilities with compatibility levels for reporting Power Quality to the National Electricity Regulator of South Africa (NERSA), NRS 048-4 recommends network planning levels for use by utilities in planning to achieve the required compatibility. The planning levels of these parameters apply to: Voltage Regulation, Harmonics, Voltage Flicker, Voltage Unbalance, Voltage Dips and Interruptions.

The following sections discuss the voltage regulation and reliability network aspect as explained in NRS 048-2 report. More details can be sourced from the NRS 048 documents.

6.2.5 Voltage Regulation

The voltage regulation is described in NRS 048 part 2: Voltage characteristics, compatibility levels, limits and assessment methods.

- **Standard and Declared Voltages**

For customers supplied at <500V, the standard voltage shall be 400 V phase to phase, 230 V phase to neutral.

For customers supplied at other voltage levels (>500 V), the magnitude of the declared voltage shall be as specified in the supply agreement. Unless otherwise specified in the supply agreement, the declared voltage shall be nominal.

- **Compatibility levels**

For all LV supplies <500 V Stellenbosch Local Municipality needs to provide a standard voltage of 400/230 V, with a maximum variation of ±10%.

For any system voltage ≥ 500 V, the supply voltage shall not deviate from the declared voltage by more than 5% for any period longer than 10 consecutive minutes.

Table 6-3 Deviation from standard or declared voltages

Voltage level [V]	Compatibility level [%]
Voltage < 500V	±10%
Voltage ≥ 500V	±5%

- **Limits**

The NRS 048 – 2 reserves maximum voltage limits to reach the values as depicted in Table 6-4 below.

Table 6-4 Maximum deviation from standard or declared voltages.

Voltage level [V]	Compatibility level [%]
Voltage < 500V	±15%
Voltage ≥ 500V	±10%

In view of the above regulation, the network planner should keep in mind that the network regulation principle is to ensure that the voltages supplied to customers result in acceptable appliance utilization voltages.

The network planner when using the regulation should understand the power system and the equipment within the network before making a call on the planning limits. In essence of the above, a "±15%" change may damage customer equipment hence cannot be applicable within certain conditions.

6.2.6 Reliability of Supply

Reliability of supply is a subset of quality of supply. Supply interruptions are divided into 4 categories: forced interruptions, voluntary customer load reductions, planned interruptions and involuntary customer load reductions. Interruptions shall be further classified as either momentary interruptions or sustained interruptions.

Network interruption performance indices (SAIDI, SAIFI, MAIFI, CAIDI, etc.) are used to provide measures of one of the following reliability and availability of supply related areas.

- Availability of supply – the average duration of an interruption of supply experienced by the customer.
- Reliability of supply – how frequently on average an interruption of supply is experienced by the customer.
- Restoration of supply – the percentage of customers that had their supply restored within a specified target timer after an interruption (based on NRS 047 requirements)
- Worst served customers – the percentage of individual customers that receive poor network interruption performance levels.
- MV and HV transformer unavailability – the average duration of interruption of supply that affects the MV/LV and HV/MV transformers only.
- Network reliability – the frequency of interruptions occurring on network normalized to 100 km.

These measures are often used as triggers to identify problematic networks below the average regional or national continuity indices. These indices are often affected by non – firm networks and substations that feed large areas where many customers (e.g. > 100) are affected by network faults.

Moreover NRS 048 – 6 categorizes worst customer measures based on the following conditions:

- Percentage of customers with single supply sustained interruptions of longer than 18 hours per annum per event,
- Percentage of customers experiencing 60 or more sustained interruptions per annum.
- Percentage of customers experiencing 30 or more individual supply sustained interruptions and that also last longer than 18 hours each per annum.

Additional to the mentioned indices, the following major events should also be reported as per required by NRS 048 -6:

Major event criteria A:

- More than 5000 customers are affected and are without supply for 18 hours or longer due to a single event.
- More than 500 MVA hours of the aggregated HV supply side ratings of the downstream installed transformer capacity are off for 2 hours or longer.

Major event criteria B:

- More than 10% of the installed customer base of the distributor licensee is without supply for 12 hours or longer.
- More than 10% installed MVA transformer base of the distributor licensee is without supply for 12 hours or longer.

Major event criteria C:

- The criteria shall be defined by the distributor licensee as part of its internal performance management and reporting process.

6.3 Network Planning Criteria

Network Planning Criteria are a set of standards applied to maintain network adequacy and reliability that are used as a planning design tool to protect the interest of all network users. The criteria are also applied to protect networks against instability.

Amongst other planning requirements, the current distribution network master plan will focus on the following:

- Voltage regulation and voltage selection,
- Equipment loading,
- Fault level,
- Network configuration.

To assess the network against these requirements, the following studies will be performed:

- Steady – state load flow analysis,
- Contingency analysis, and
- Fault level analysis

These studies will be performed for both the existing networks and the Network Development Plans to ensure adherence.

6.3.1 Voltage regulation

Steady – State Voltage at normal conditions

The steady-state criteria apply to the normal continuous behavior of a network and cover post – disturbance behavior once the network has settled. When planning a network, it is necessary to access the reactive power requirements under light and heavy load to ensure that the reactive demand placed on supply infrastructure, be it to absorb or generate reactive power, and does not exceed the capability of the supply source.

As per the section 6.4, the NRS 048 – Quality of Supply provides us with the voltage regulation as below:

- For voltages <500 V the standard voltage is 400 V three phase or 230 V single phase.
- For voltages >500 V the standard voltage is the declared voltage.

For all LV supplies <500 V Stellenbosch LM needs to provide a standard voltage of 400/230 V, with a maximum variation ±5%. Older 380/220 V contracts are no longer valid and do not need to be enforced.

Table 6-5: Steady - State Voltage Regulation Limits

Voltage level [V]	Compatibility level [%]
Voltage < 500V	±10%
Voltage ≥ 500V	±5%

For any system voltage ≥ 500 V, the supply voltage shall not deviate from the declared voltage by more than 5% for any period longer than 10 consecutive minutes, the network shall be designed to achieve a continuous network voltage at a user's connection not exceeding the design limit 105% of nominal and falling below 95% of nominal voltage during normal and maintenance conditions.

For any system voltage < 500 V, the supply voltage shall not deviate from declared voltage by more than 10% for any period longer than 10 consecutive minutes.

Contingency Criteria

The voltage limits that will be used for a single contingency were between 0.925 p.u. and 1.075 p.u. applicable to sub transmission networks.

The network shall be designed to achieve a steady-state voltage within:

- ±5% of the nominal voltage during normal conditions
- ±8% of the nominal voltage during planned maintenance conditions and
- ±10% of the nominal voltage during un-planned outage conditions

6.3.2 Voltage Selection Criteria

The Stellenbosch Local Municipality distribution network is supplied from Eskom and Drankenstein Local Municipality through several Intake points at a range from 11 kV to 66 kV. The intakes are:

- Main Substation,
- Cloetesville Substation,
- Franschhoek Substation,
- Pniel Hollandse Mollen,
- Pniel Riversmeet,
- Pniel RFG.

The other substations that not named below are tapped to the Eskom supplied bus intakes.

The following sub – transmission standard voltage levels are proposed for any new Intake points:

- 132 kV
- 66 kV

The following distribution standard voltages are proposed:

- 22 kV
- 11 kV
- 400 V/ 230 V (for LV Reticulation)

6.3.3 Conductor Selection Criteria

The Stellenbosch Local Municipality generally uses overhead conductors for 11 kV Distribution circuits in order to minimise construction costs. When underground cables are required for the reticulation network the environmental constraints are considered and the costs must be justified. To achieve maximum cost efficiency in the installation of conductors, standard overhead conductor and underground cable sizes have been selected. This will facilitate minimum stock holdings and purchase prices, giving the users the least cost network.

The standard conductor size (and cable size) that is equal to, or greater than that required for the extension or reinforcement.

Table 6-6: Proposed Underground Cable and Overhead Line Conductor sizes

Conductor	Type	Rate (Amp)
70mm^2 3c Cu XLPE	Underground Cable	240
70mm^2 3c Cu PILC	Underground Cable	195
95mm^2 3c Cu XLPE	Underground Cable	290
95mm^2 3c Cu PILC	Underground Cable	235
120mm^2 3c Cu XLPE	Underground Cable	325
120mm^2 3c Cu PILC	Underground Cable	265
185mm^2 3c Cu XLPE	Underground Cable	410
185mm^2 3c Cu PILC	Underground Cable	335
Hare	Overhead Line	292
Mink	Overhead Line	209
Ferret	Overhead Line	240
Dog	Overhead Line	360
Tiger	Overhead Line	420
Wolf	Overhead Line	470
Lynx	Overhead Line	520
Chickadee	Overhead Line	530
Panther	Overhead Line	560
Bear	Overhead Line	650
Kingbird	Overhead Line	710
Tern	Overhead Line	830

The Stellenbosch local municipality is replacing smaller-sized conductors with a minimum distribution conductor size of 70mm² to avoid technical issues like overloading which are due to growing demands. This proactive initiative aims to enhance the stability and reliability of the distribution system, reducing the risk of heat generation and circuit damage. By upgrading to larger conductors, the municipality ensures a more dependable power supply, minimizing disruptions and improving overall system performance.

The Hare and Mink overhead lines are a specific type of overhead lines that incorporate advanced technology and design principles. These lines are specifically engineered to minimize power losses and enhance the overall stability of the electricity network. Stellenbosch Municipality has embraced this innovative technology to deliver a more sustainable and resilient electrical grid for its residents. By adopting the Hare and Mink lines, the municipality strives to provide an improved and reliable power supply, ensuring the well-being and satisfaction of the community. Overhead lines with greater current capacity are also proposed that are larger than the Hare and Mink are also proposed in Table 6-6.

Franschhoek also utilises table 18 and 19 (refer to www.sab-cable.com) for the conductors with rated voltage of 1000V and below.

6.3.4 Substation Size and Transformer Selection Criteria

New substations will usually be established when the load reaches 25% of the estimated saturation load in a defined supply zone. In the interim, Distribution Switching Stations may be established to supply the load from bordering substations to delay capital investment.

Optimal supply zone sizing is directly related to the density of the loads. The higher the density of the load, the larger the size of the zone. It has been proven that for 11 kV distribution networks in mainly residential areas as found in Stellenbosch, the optimal size of the substation supply load/area ranges between 20 MVA to 40 MVA. For the purpose of the study, we have selected the following zone sizes:

- 66/11kV – 7.5 to 22.5MVA,
- 66/11kV – 10 to 20MVA, and
- 66/11kV – 20 to 40MVA.

Table 6-7 outlines the guideline for firm substation sizes that will be used for the study.

Table 6-7: Firm Substation Sizes Guidelines

Firm Capacity [kVA]	Number of Transformers
15,000	3 x 7.5 MVA
10,000	2 x 10 MVA
20,000	2 x 20 MVA

In designing extensions to the network, ultimate load horizon planning shall be used to establish the network concept plan and the initial installation shall conform to that concept plan and use carriers that are appropriately sized. The ADMD is also used to help determine the MV transformer sizing.

Table 6-8 outlines the standard transformer sizes for the distribution network.

Table 6-8: Standard Distribution Transformer Sizes

Type	Rate [kVA]
Pole mounted	50
Pole mounted	100
Pole mounted	150
Pole mounted	200
Pole mounted	250
Pole mounted	300

Type	Rate [kVA]
Pole mounted	315
Pole mounted	500
Mini substation	315
Mini substation	400
Mini substation	500
Mini substation	630
Mini substation	800
Mini substation	1000
Mini substation	1250
Mini substation	1600
Mini substation	2000

6.3.5 Equipment Loading: Thermal Rating Limits

The thermal ratings of network components shall not be exceeded under normal or emergency operating conditions when calculated on the following basis:

Transformers

Transformers are capable of significant and short-term overloads because of the thermal inertia of the core. The main concern however is with cyclic loading and the effect of extended periods of overload on the life of the transformer insulation since ageing effect is cumulative. If the transformer has cooling equipment, the rating above nominal with cooling is enhanced considerably and the effect of hot spot temperatures mitigated. It is permissible to overload the transformer for short periods on the basis that for the remainder of the time the use of life will be less than normal.

For each class of transformer, general limitations on current and temperature are recommended as listed in IEC354 Loading Guide for Oil-Immersed Transformers. These values provide a broad “operating envelope” which may be greatly affected by the following:

- Load Profile (Duration and Peak)
- Ambient Conditions
- Assumption of transformer thermal characteristics
- Voltage limitations and
- Capability of transformer accessories

It is thus recommended that the nameplate thermal rating is used for planning purposes. Once a specific transformer approaches its nameplate thermal loading limits, an informed decision, backed by physical measurements and sample tests, should be made with regard to the upgrade strategy.

Typical rating definitions are those of long-term emergency (LTE) rating, specified as the amount of load the transformer can carry while suffering 1 percent "loss of life", and the Short-term emergency (STE) rating that allows two-times the transformer nameplate rating for 15 minutes. These factors can be incorporated into maintenance and analysis programs within Stellenbosch, where certain aspects with regard to the transformers approaching their thermal limits are monitored and informed decisions can be made with regard to additional investment requirements.

Under normal conditions, the thermal loading of the transformers should not exceed the nominal manufacturer’s name plate rating. In the case where more than one customer is supplied from a transformer, a project should be initiated when the distribution transformer reaches 80% of its capacity. For cases where the distribution supplies a single customer, the planner should inform the customer when the transformer reaches 80% of its capacity.

Under contingencies, the thermal loadings should not exceed the nominal manufacturer's name plate rating by 20%.

Switchgear

Normal manufacturer's name plate rating.

Overhead Lines

Under normal condition, the thermal loading of the overhead line should not exceed the nominal manufacturer's name plate rating. The overhead line rating based ambient temperature under normal conditions is 75 °C and 90 °C under contingency conditions. The planner should initiate a project when the thermal loading on the line reaches 100% of its normal condition rating.

Under contingencies (emergency), the overhead line rating based ambient temperature is 90 °C. The thermal loading of the overhead line should not exceed its emergency rating. For high temperature conductors, the temperature under contingency conditions is 180 °C.

Cables

Normal cyclic rating, with maximum operating temperatures of 90 °C for XLPE cables; 70 °C for 11kV paper insulated cables.

Under normal condition, the thermal loading of the cable should not exceed the nominal manufacturer's name plate rating. The planner should initiate a project when the thermal loading on the line reaches 100% of its normal condition rating.

Under contingencies (emergency), the thermal loading of the overhead line should not exceed its emergency rating.

6.3.6 Fault Rating Limits

For safety reasons, the fault rating of any equipment shall not be less than the fault level in that part of the network at any time and for any normal network configuration. The maximum fault levels on Stellenbosch LM networks depend on the network and substation configuration and the upstream fault level.

Table 6-9: Fault Level Limits

Voltage Level [kV]	Fault Level Limits [kA]
66	31.5
11	25

Equipment owned by the Stellenbosch LM are and should be designed to withstand these fault levels for 1 second. Depending on the new configuration of the network the above fault levels might change. A fault level analysis check should be done to re-adjust the fault level. Projects should be initiated where the fault current level exceeds 90% of the fault current level rating of equipment.

6.3.7 Simulation Program

The study analysis will be done using Edisan and DigSilent PowerFactory 2023 (or later release) software for the distribution network.

6.3.8 Distribution network constraints

The distribution network constraints can be divided into categories of three conditions:

- Constrained network,
- Network nearing limits, and
- Not constrained.

Table 6-10 illustrates these constraints under normal conditions with a colour coding system to distinguish easily were constrained networks need strengthening.

Table 6-10: The distribution network constraints

Criteria	Red	Orange	Green
MV Voltage	≤ 90% and > 105%	> 90% and < 95%	≥ 95% and < 105%
Maximum thermal line loading	≥ 100%	> 80% and < 100%	< 80%

- Red indicates that the voltage and/or thermal limits have been violated and that no additional load can be connected on these networks.
- Orange indicates that a limited amount of load can be connected before limits are reached, however measures need to be put in place to avoid the limits being violated.
- Green indicates that the network is capable of supplying load and that the limits have not been reached.

6.3.9 Network Reliability

Stellenbosch plan and design its networks to the N-1 criteria. In some cases, there may be a time delay to allow the manual reconfiguration of the network to transfer load. The N-1 criteria can be compromised for short periods during an expansion phase on the network for 66kV line and 66/11kV transformer contingencies for loads smaller than 2MVA. This measure is to defer capital and prevent short term unnecessary investment into the networks.

The Stellenbosch Local Municipality distribution network area is characterized mainly by urban distribution feeders that supply the area via cables.

Urban Distribution Feeders

Distribution feeders in urban areas shall be planned and designed so that, for a substation feeder circuit or exit cable fault, the load of that feeder can be transferred to adjacent feeders by manual network reconfiguration.

Where practical, the network shall be planned and designed so that, in the event of failure of a substation transformer, all the load of that transformer can be transferred to other transformers within the same substation and adjacent substations.

The above planning objectives will be achieved by:

- Planning distribution cables in a ring configuration with the capacity to supply the entire load from either side of the cable ring or,
- Planning distribution cables to feed between two substations, with the capacity to supply the entire load from either side.
- Planning transformation substations for firm transformer capacity,
- Planning the main supply to Switching Stations to be firm, i.e., if any one cable fails, the entire load can still be supplied from the remaining supply cable(s).
- Converting spur feeders into rings, by phasing them out as far as possible.

Rural Distribution Feeders

The radial nature of rural distribution feeders normally precludes the application of contingency criteria to these feeders. However, where reasonably achievable, interconnection between feeders shall be provided, and reclosers and sectionalizers shall be installed to minimise the extent of outages.

Load Security

For established security criteria, loads are categorized in four classes namely Category “A, B, C and D”. These are defined as follow:

- Category A: Load that should not be disconnected for any one system outage (fault or maintenance),
- Category B: Load that should not be disconnected for more than 90 seconds for any one system event,
- Category C: Load that should not be disconnected for more than 2 hours for any one system even, and
- Category D: Load that may have to be disconnected for any single system event until faulty equipment has been replaced or maintained.

6.3.10 Project Life Cycle

A minimum 10-year load growth needs to be considered for MV networks. However, if in doubt the larger conductor size needs to be used. The backbone conductor / cable of a distributor should be planned to suit the load for the next 20 years.

The network planner should ensure that all aspects of the realization of a project are included. This is to say that all parties are consulted (primary plant, secondary plant and field services) and also that the project life phases are well understood and documented.

7 NETWORK ANALYSIS

The STLM electricity network was modelled in DigSilent Power Factory to simulate the load growth for described above for a 20-year period. Based on the data provided 3 Power Factory models were created comprised of the 3 separate distribution Networks as described in previous sections, namely:

i. Stellenbosch
ii. Franschhoek
iii. Pniel

1.2 Stellenbosch Network

7.1.1 HV Ring

The Stellenbosch Network is supplied by two 66kV intake points one at Main SS and one at Cloetesville SS. It has an interconnected 66kV ring which connects primary substations Main SS, Markotter SS, Golf Club SS, University and Jan Marais. Cloetesville is supplied independently from the rest, however, is connected via the 11kV network to the University Supply area. Figure 7-1 is the geospatial representation of the Stellenbosch 66kV network.

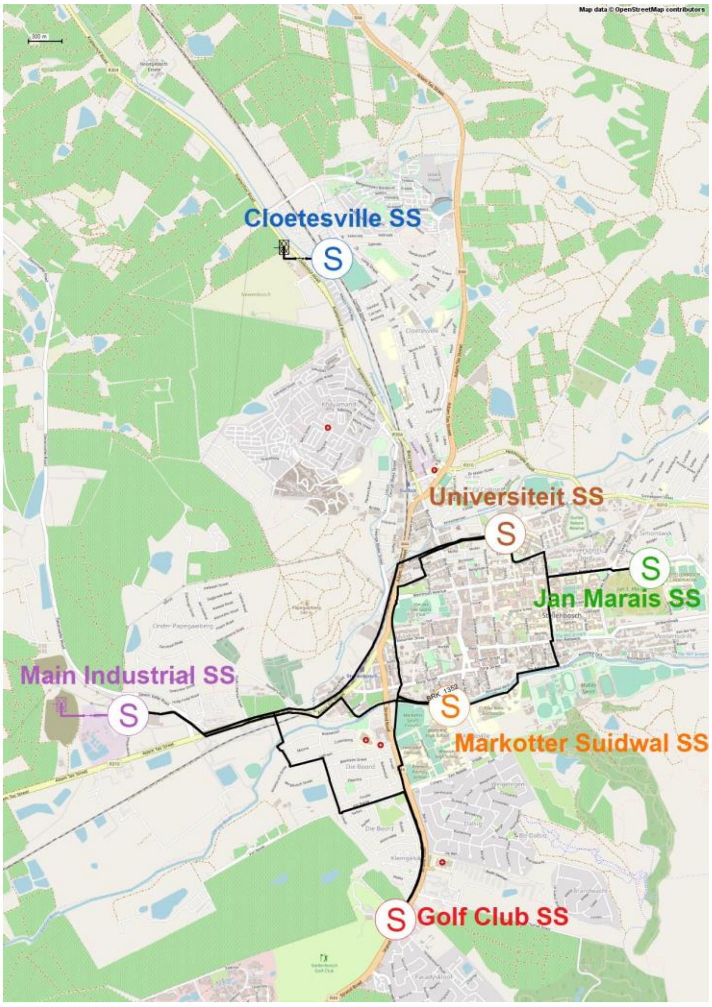


Figure 7-1: Stellenbosh Geospatial 66kV Network

7.1.2 MV Distribution Network

The Stellenbosch MV network is an 11kV distribution network, which is split into six Supply zones namely Main, Markotter, Golf, Jan Marais and Cloetesville. Each supply zone is further split into various distribution switching zones which switch the network at 11kV. These are shown in the table below.

Table 7-1: STLM Supply Area and Distribution Network

Supply Area						
	Main SS	Markotter SS	Golf SS	Jan Marais SS	University SS	Cloetesville SS
Distribution Area	**Devon Valley**	**Krige**	**Boord**	**Marais Park**	**University RMU**	**Welgevonden**
	Begraafplaas	**Braak**	**Pardyskloof**	**UniePark**	**Bosman**	**Tennant**
	Distell	**Coetzenburg**	**TechnoPark**	**HuisduPreez**	**Stadsaal**	**Curry**
	Polkadraai	**Dalsig Oos**	**Tramali RMU**	**Tindal**	**Merriman**	**LangstrSuid**
	Tortelduif	**Blake Estate**		**Karendal**	**Denneoord**	**Cascade**
	Lower Dorp			**Stone**	**Kerk**	**SDR Kliniek**
	RMU Longlands			**Sonneblom**	**LaCollien**	**Hofman**
				Simonsberg	**Kromrivier**	**Kayamandi**
						Watergang
						Papegaairand

7.1.3 Stellenbosch Open Points

The following is a list of the open points considered in the network analysis. These were taken from the Single Line Diagrams provided by STLM as a reference point, however some points on the SLD result in unsupplied areas. Thus, to ensure that all areas were supplied, the final list of open point were adapted to these represented in Table 7-2

Table 7-2: STLM Open – Point Configuration

Supply Area						
	Main SS	Markotter SS	Golf SS	Jan Marais SS	University SS	Cloetesville SS
Open Points	**KleinVallei MS**	**Volkskombuis MS**	**Captic RMU**	**Lelie MS**	**Bosman SS**	**Hendrikse MS**
		Valerida MS	**Boord SS**	**Student Village MS**	**Bosman SS**	**Lakay 1 MS**
		Blake Estate SS	**Boord SS**	**Stone SS**	**Bosman SS**	**Sour Fig MS A2A**
		Blake Estate SS	**Boord SS**	**Woodman MS**	**Bosman SS**	**Fir SS**
		Braak SS	**Lovell 2 MS**	**Uitsig MS**	**Mcdonalds MS**	**Tennant SS**
			Serruria MS		**Stadsaal SS**	**Tennant SS**
					Kerk SS	**Tennant SS**
						Bokomo MS
						Hofman SS

7.1.4 Analysis

Network simulations were conducted on the existing and future networks. The network simulations included:

1. Steady-state analysis. Simulations were conducted on various network load levels and configurations to effectively identify thermal and voltage violations occurring due to existing and future load growth. In case of any violations, alternatives are identified and tested to ensure that all proposed solutions are technically viable.

2. Selective contingency analysis to define, investigate and plan for component outage and failure scenarios. Furthermore, in case of any violations, solutions are proposed and tested to mitigate consequential voltage and thermal violations because of possible component outage and failure scenarios.

All the line loading results as a percentage of the conductor rated ampacity during normal operating conditions are documented in Appendix D: Results of line loading under normal operation. The bus loading results as a per unit value of the bus rated voltage during normal operating conditions are documented in Appendix E: Results of busbar loading under normal operation. Only areas with identified network constraints are detailed in this chapter. It is important to note that the risk analysis in the context of overload analysis involves evaluating the impact or consequences in the event of thermal overload i.e., when line-flow in the conductor exceeds the permissible value.

Stellenbosch Analysis

Load flow simulations were conducted as shown in the following sections present load flow simulation results over the 20-year expected future load growth presented in Load Forecast section of this report.

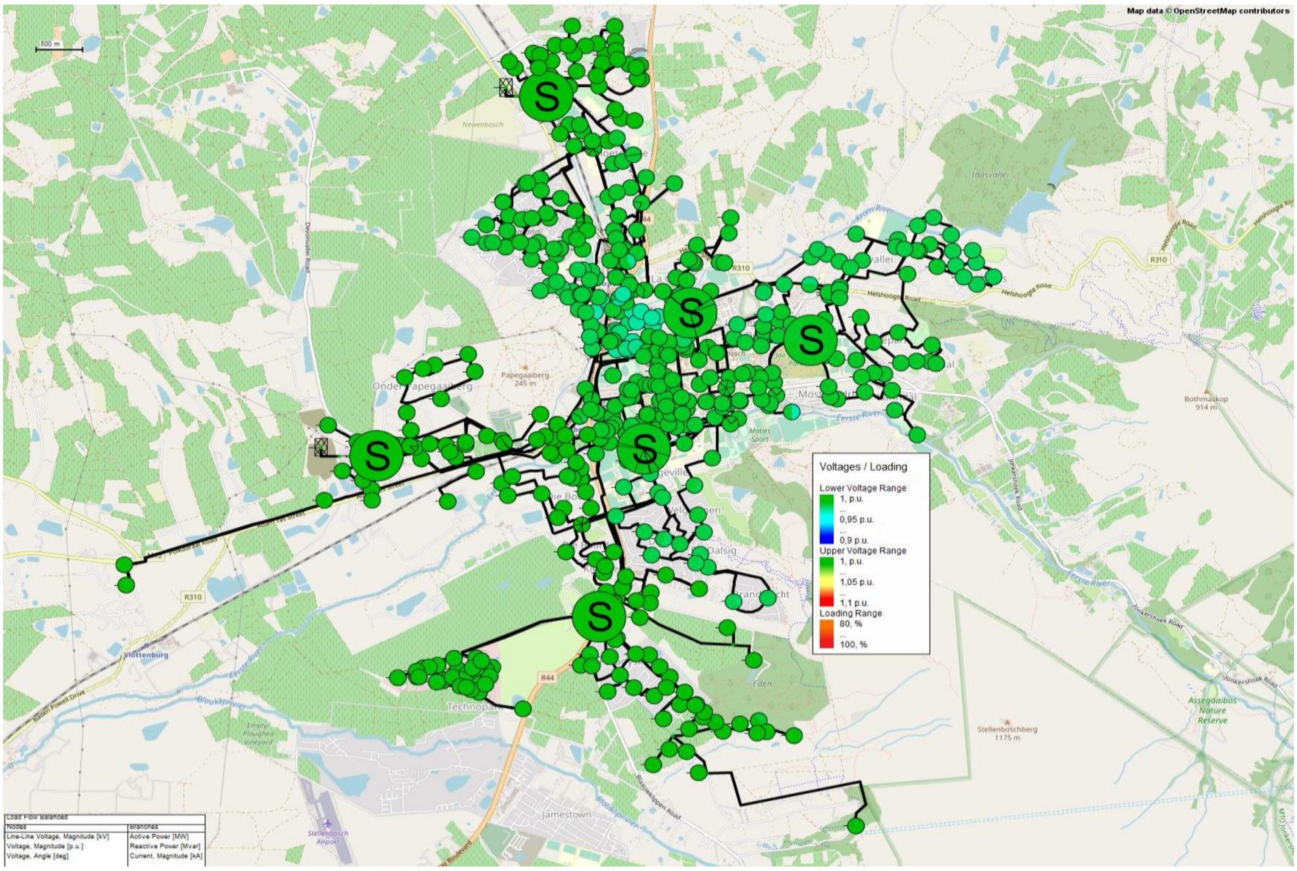


Figure 7-2: Load Flow Analysis in 2023

Stellenbosch Network Violations

This section only represents areas where Violations were seen under normal conditions for load flow calculations run for a 20-year period, simulating growth in the network (Detailed Results can be found in Appendix D). Main SS supply area is the only supply area that experiences violations during its growth period. The following feeders are predicted to exceed 80% and 100% of its thermal rating:

i. Polkadraai SS/MBR 1 MS 11kV - Exceeds 80% in 2034 and 100% in 2036
ii. Main Industrial SS/Devon Valley SS 11kV - Exceeds 80% in 2035 and 100% in 2039
iii. Main Industrial SS/Polkadraai SS 11kV 2 - Exceeds 80% in 2035 and 100% in 2039

Table 7-3: Normal condition limit warnings/violations for lines in Main supply area

Area	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
MAIN SS	Polkadraai SS/MBR 1 MS 11kV	0,245	11	31,8	31,8	32,4	33	36,5	47,2	59	69,5	74,4	75,7	76,3	82,3	97,1	104,9	106,5	107,2	116,1	124,9	132,3	136,5
MAIN SS	Main Industrial SS/Devon Valley SS 11kV	0,245	11	31,7	31,7	32,2	32,7	35,6	44,3	54,1	62,7	66,8	67,9	68,3	73,3	85,4	91,9	93,1	93,7	101	108,1	114,1	117,6
MAIN SS	Main Industrial SS/Polkadraai SS 11kV 2	0,245	11	27,5	27,6	28,1	28,6	31,6	40,9	51,1	60,3	64,5	65,7	66,2	71,4	84,2	91,1	92,4	93	100,8	108,4	114,9	118,6

The corresponding normal condition p.u busbar results are represented in Table 7-4. As per the planning criteria in Table 6-5 above no violations were observed. A full list of all busbar results can be seen in Appendix E.

Table 7-4: Normal condition limit warnings/violations for busbars in Main supply area

Area	Line Name	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
MAIN SS	Devon Valley SS_11BB	11	0,999	0,999	0,999	0,999	0,998	0,997	0,996	0,995	0,994	0,994	0,994	0,993	0,991	0,990	0,990	0,990	0,988	0,987	0,985	0,984
MAIN SS	Devon Valley SS_11BB(1)	11	0,998	0,998	0,998	0,998	0,998	0,996	0,995	0,993	0,993	0,992	0,992	0,991	0,989	0,987	0,987	0,987	0,985	0,984	0,982	0,981
MAIN SS	MBR 1 MS_11BB	11	0,998	0,998	0,998	0,998	0,998	0,996	0,995	0,994	0,993	0,993	0,993	0,992	0,989	0,988	0,987	0,987	0,986	0,984	0,982	0,981
MAIN SS	MBR 2 MS_11BB	11	0,998	0,998	0,998	0,998	0,998	0,996	0,995	0,994	0,993	0,993	0,993	0,992	0,989	0,988	0,987	0,987	0,986	0,984	0,982	0,981
MAIN SS	Polkadraai MS_11BB	11	0,999	0,999	0,999	0,999	0,999	0,999	0,998	0,997	0,997	0,997	0,997	0,996	0,994	0,994	0,993	0,993	0,992	0,991	0,990	0,989
MAIN SS	Polkadraai SS_11BB	11	0,999	0,999	0,999	0,999	0,999	0,999	0,998	0,997	0,997	0,997	0,997	0,996	0,994	0,994	0,993	0,993	0,992	0,991	0,990	0,989
MAIN SS	Polkadraai SS_11BB(1)	11	0,999	0,999	0,999	0,999	0,999	0,999	0,998	0,997	0,997	0,997	0,997	0,996	0,994	0,994	0,993	0,993	0,992	0,991	0,990	0,989
MAIN SS	Polkadraai SS_11BB(2)	11	0,999	0,999	0,999	0,998	0,998	0,997	0,996	0,995	0,994	0,994	0,994	0,993	0,991	0,989	0,989	0,989	0,987	0,986	0,984	0,983

Key		
	> 80%	*Depicts a condition where the conductor loading is greater than 80% of the rated ampacity.*
	≥ 100%	*Depicts a condition where the conductor loading is greater than or equal to 100% of the rated ampacity. In this case a thermal limit has been violated.*

Stellenbosch N-1 Contingency Analysis

HV Network Contingency Analysis

N-1 contingency analysis is a critical aspect of power system planning and operation. It involves evaluating the system's performance under the assumption that any single component, such as a transmission line or substation, might fail or be taken out of service. By analyzing the network's behavior under such contingencies, potential vulnerabilities can be identified, ensuring the system remains resilient and reliable even during component failures. An N-1 contingency analysis was run on the Stellenbosch 66kV ring to assess the networks' reliability along with the growth in demand for the 20-year period. This section aims to highlight only portions of the network where violations occur, however for the 20-year study period no violations were observed under N-1 contingency conditions. The detailed results can be found in Appendix F.

The normal network thermal loading analysis for the Stellenbosch HV network presents a comprehensive view of the system's capacity utilization and performance under standard operating conditions. This analysis does not consider N-1 contingency conditions, which would evaluate the network's behavior under single-component failure scenarios. The thermal loading results for the normal network for the first 5 years (2023 to 2027) and selected years 10 (2032), 15 (2037), and 20 (2042) are tabulated below illustrate the load growth over time:

Table 7-5: Normal Conditions Thermal Loading – Stellenbosch 66kV Ring

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2032 (%)	2037 (%)	2042 (%)-
Normal Network	Golf SS/Markotter SS 66kV	0,511	66	9,7	9,7	9,7	9,8	9,8	9,7	12,0	12,7
Normal Network	Main SS/Golf SS_S2 66kV	0,755	66	8,8	8,8	8,8	8,8	8,9	8,8	10,9	11,5
Normal Network	Main SS/Markotter SS_S2 66kV	0,437	66	27,7	27,7	27,8	27,9	27,9	27,7	34,9	36,7
Normal Network	Main SS/University SS_S2 66kV	0,437	66	31,0	31,0	31,1	31,1	31,2	31,0	37,2	38,5
Normal Network	Markotter SS/Golf SS_S2 66kV	0,511	66	10,8	10,8	10,9	10,9	11,0	10,8	13,1	13,8
Normal Network	Markotter SS/Jan Marais SS_S2 66kV	0,235	66	21,4	21,4	21,3	21,3	21,3	21,4	21,7	21,1
Normal Network	Markotter SS/University SS_S2 66kV	0,511	66	4,1	4,1	4,0	4,0	4,0	4,1	3,6	3,4
Normal Network	University SS/Jan Marais SS_S2 66kV	0,235	66	11,3	11,3	11,4	11,4	11,4	11,3	16,8	18,5
Normal Network	University SS/Main SS_S2 66kV	0,437	66	31,0	31,0	31,1	31,1	31,2	31,0	37,2	38,5
Normal Network	University SS/Markotter SS 66kV	0,511	66	4,1	4,1	4,0	4,0	4,0	4,1	3,6	3,4

The column "Contingency" indicates the applied contingency event on the network to evaluate its impact on the rest of the system. In the case of the results represented in Table 7-5, there is no contingency event applied. No violations are observed in the HV network under normal operating conditions.

Table 7-6 represents the results for contingency event Golf SS/Markotter SS 66kV. The thermal loading results for the Stellenbosch HV network demonstrate that most lines operate comfortably within their rated capacities under this contingency event.

Table 7-6: Results of Contingency Event – Golf SS/Markotter SS 66kV

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2032 (%)	2037 (%)	2042 (%)
Golf SS/Markotter SS 66kV	Golf SS/Markotter SS 66kV	0,511	66	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Golf SS/Markotter SS 66kV	Main SS/Golf SS_S2 66kV	0,755	66	10,0	10,0	10,1	10,2	10,2	10,8	12,2	12,9
Golf SS/Markotter SS 66kV	Main SS/Markotter SS_S2 66kV	0,437	66	23,9	23,9	23,9	23,9	24,0	26,5	30,2	31,7
Golf SS/Markotter SS 66kV	Main SS/University SS_S2 66kV	0,437	66	28,1	28,2	28,2	28,2	28,3	30,8	33,6	34,7
Golf SS/Markotter SS 66kV	Markotter SS/Golf SS_S2 66kV	0,511	66	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Golf SS/Markotter SS 66kV	Markotter SS/Jan Marais SS_S2 66kV	0,235	66	21,5	21,5	21,4	21,4	21,4	22,6	21,5	20,8
Golf SS/Markotter SS 66kV	Markotter SS/University SS_S2 66kV	0,511	66	4,1	4,1	4,1	4,1	4,1	4,1	3,5	3,1
Golf SS/Markotter SS 66kV	University SS/Jan Marais SS_S2 66kV	0,235	66	11,9	11,9	12,0	12,0	12,0	13,9	16,8	18,2
Golf SS/Markotter SS 66kV	University SS/Main SS_S2 66kV	0,437	66	28,1	28,2	28,2	28,2	28,3	30,8	33,6	34,7
Golf SS/Markotter SS 66kV	University SS/Markotter SS 66kV	0,511	66	4,1	4,1	4,1	4,1	4,1	4,1	3,5	3,1

The absence of violations in the contingency analysis is reassuring, further evaluation under N-1 contingency conditions can be found in Appendix F.

MV Network Contingency Analysis

N-1 contingency analysis was conducted on the entire Stellenbosch 11kV network. This section of the report discusses portions of the network where thermal violations above 80% and 100% were observed only. The Devon Valley and Polkadraai Areas were the only portions which exhibited thermal loading violations in the Normal network.

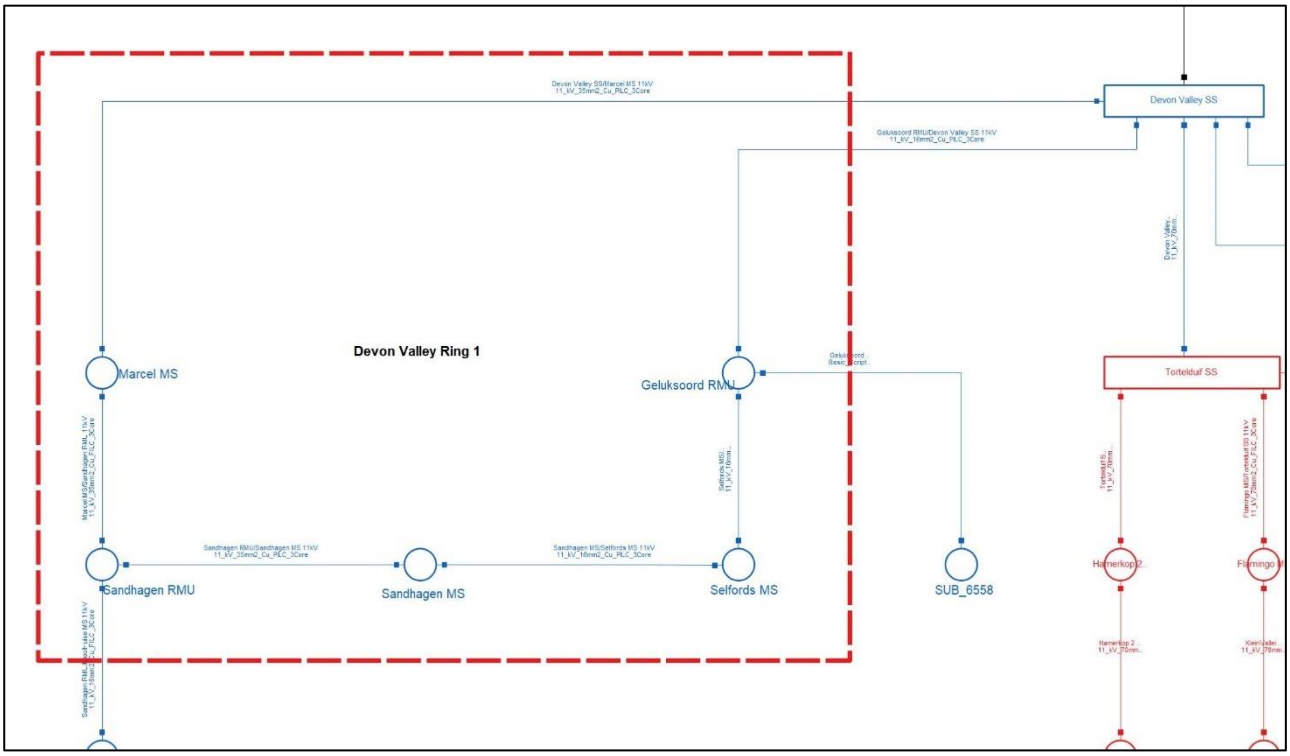


Figure 7-3: Devon Valley Ring 1

Table 7-7 represents the results under normal conditions for the Devon Valley Ring 1. Devon Valley Ring 1 refers to the ring formed with MS Marcel and Geluksoord RMU as seen in Figure 7-3. As discussed in the previous section thermal loading above 80% occur on the backbone Feeder “Main Industrial SS/Devon Valley SS 11kV” starting in year 2035 and proceeds to increase above 100% in 2035. The Feeder “Devon Valley SS/Marcel MS 11kV” begins to exceed 80% in 2042 while the rest of the feeders remain stable under normal operating conditions as seen in the table below.

Table 7-7: Normal Conditions Thermal Loading – Devon Valley Ring 1

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2032 (%)	2035 (%)	2037 (%)	2039 (%)	2042 (%)
Normal Network	Main Industrial SS/Devon Valley SS 11kV	0,311	11	32	32	32	33	36	68	85	93	101	118
Normal Network	Geluksoord RMU/SUB_6558 11kV	1	11	0	0	0	0	0	1	1	1	1	1
Normal Network	Geluksoord RMU/Devon Valley SS 11kV	0,082	11	8	8	8	8	9	18	23	25	28	32
Normal Network	Selfords MS/Geluksoord RMU 11kV	0,082	11	4	4	4	4	5	10	13	14	15	18
Normal Network	RioolHuise MS/Kompos MS 11kV	0,082	11	2	2	2	2	3	5	7	7	8	9
Normal Network	Marcel MS/Sandhagen RMU 11kV	0,131	11	2	2	2	2	3	5	7	7	8	9
Normal Network	Sandhagen RMU/RioolHuise MS 11kV	0,082	11	2	2	2	2	3	5	7	7	8	9
Normal Network	Sandhagen MS/Selfords MS 11kV	0,082	11	3	3	3	3	3	6	8	8	9	11
Normal Network	Devon Valley SS/Marcel MS 11kV	0,131	11	19	19	19	19	22	45	57	63	69	81
Normal Network	Sandhagen RMU/Sandhagen MS 11kV	0,131	11	1	1	1	1	1	2	3	3	3	3

Table 7-8 represents the results for contingency event Devon Valley SS/Marcel MS 11kV. Thermal loading exceedances can be observed starting at year 2030 on “Geluksoord RMU/Devon Valley SS 11kV” with the line experiencing above 80% loading and exceeding 100% by 2035. Similarly, violations are observed at “Selfords MS/Geluksoord RMU 11kV” and “Sandhagen MS/Selfords MS 11kV”. This indicates that this portion of the network will not be sufficient to supply the ring with the loss of “Devon Valley SS/Marcel MS 11kV” and requires some strengthening to accommodate the increasing demand by 2030.

Table 7-8: Results of Contingency Event – Devon Valley SS/Marcel MS 11kV

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2030 (%)	2034 (%)	2035 (%)	2039 (%)	2042 (%)
Devon Valley SS/Marcel MS 11kV	Main Industrial SS/Devon Valley SS 11kV	0,311	11	32	32	33	36	32	63	74	86	102	102
Devon Valley SS/Marcel MS 11kV	Geluksoord RMU/SUB_6558 11kV	1	11	0	0	0	0	0	1	1	1	1	1
Devon Valley SS/Marcel MS 11kV	Geluksoord RMU/Devon Valley SS 11kV	0,082	11	38	38	39	43	38	83	98	116	140	140
Devon Valley SS/Marcel MS 11kV	Selfords MS/Geluksoord RMU 11kV	0,082	11	34	35	35	39	34	75	89	106	127	127
Devon Valley SS/Marcel MS 11kV	RioolHuise MS/Kompos MS 11kV	0,082	11	2	2	2	3	2	5	6	7	8	8
Devon Valley SS/Marcel MS 11kV	Marcel MS/Sandhagen RMU 11kV	0,131	11	17	17	17	19	17	37	44	52	62	62
Devon Valley SS/Marcel MS 11kV	Sandhagen RMU/RioolHuise MS 11kV	0,082	11	2	2	2	3	2	5	6	7	8	8
Devon Valley SS/Marcel MS 11kV	Sandhagen MS/Selfords MS 11kV	0,082	11	33	33	34	37	33	72	85	101	121	121
Devon Valley SS/Marcel MS 11kV	Devon Valley SS/Marcel MS 11kV	0,131	11	0	0	0	0	0	0	0	0	0	0
Devon Valley SS/Marcel MS 11kV	Sandhagen RMU/Sandhagen MS 11kV	0,131	11	18	18	19	21	18	40	47	56	67	67

Furthermore, the results for contingency event Geluksoord RMU/Devon Valley SS 11kV (Appendix F) Shows that “Devon Valley SS/Marcel MS 11kV” will violate sooner compared to its normal operating conditions.

Thus, the recommendation is to upgrade the entire ring to 70mm² Al cables to accommodate the coming load growth. Additionally, the backbone feeder, “Main Industrial SS/Devon Valley SS 11kV” represented above and the 150mm² cables to **Mondi Timbers** leading to **SS Begraafplaas** should be upgraded to 185 mm² Al cables to support the downstream loading.

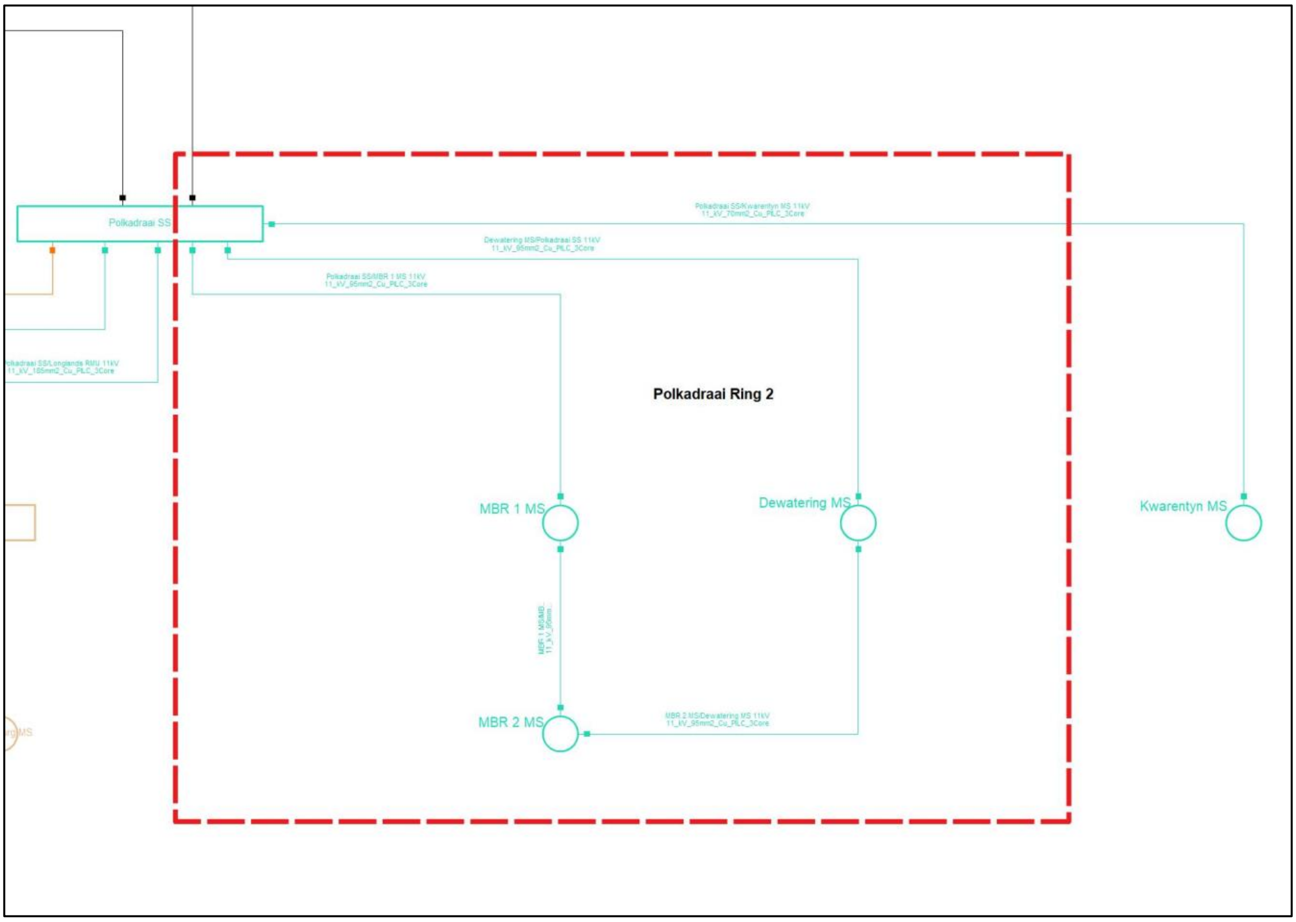


Figure 7-4: Polkadraai Ring 2

Table 7-9: Normal Conditions Thermal Loading – Polkadraai Ring 2

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2034 (%)	2036 (%)	2040 (%)	2041 (%)	2042 (%)
Normal Network	Polkadraai SS/MBR 1 MS 11kV	0,245	11	32	32	32	33	37	82	105	125	132	136
Normal Network	Dewatering MS/Polkadraai SS 11kV	0,245	11	13	13	14	14	15	34	44	52	55	57
Normal Network	MBR 2 MS/Dewatering MS 11kV	0,245	11	5	5	5	5	5	13	16	20	21	22
Normal Network	MBR 1 MS/MBR 2 MS 11kV	0,245	11	18	18	19	19	21	48	61	72	77	79
Normal Network	Main Industrial SS/Polkadraai SS 11kV 1	0,4	11	32	32	33	33	35	61	74	85	89	92
Normal Network	Main Industrial SS/Polkadraai SS 11kV 2	0,4	11	30	30	30	30	32	56	68	78	82	85

Table 7-10 represents the results for contingency event Polkadraai SS/MBR 1 MS 11kV. Thermal loading exceedances can be observed starting at year 2029 on "Dewatering MS/Polkadraai SS 11kV" with the line experiencing above 80% loading and exceeding 100% by 2031. Similarly, violations are observed at "MBR 2 MS/Dewatering MS 11kV". This indicates that this portion of the network will not be sufficient to supply the ring with the loss of "Polkadraai SS/MBR 1 MS 11kV" and requires some strengthening to accommodate the increasing demand by 2031.

Table 7-10: Results of Contingency Event – Polkadraai SS/MBR 1 MS 11kV

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2029 (%)	2031 (%)	2035 (%)	2039 (%)	2040 (%)	2042 (%)
Normal Network	Polkadraai SS/MBR 1 MS 11kV	0,245	11	0	0	0	0	0	0	0	0	0	0	0
Normal Network	Dewatering MS/Polkadraai SS 11kV	0,245	11	45	45	46	47	52	84	106	138	166	189	195
Normal Network	MBR 2 MS/Dewatering MS 11kV	0,245	11	27	27	28	28	31	50	64	83	99	113	117
Normal Network	MBR 1 MS/MBR 2 MS 11kV	0,245	11	13	14	14	14	16	25	32	41	49	56	58
Normal Network	Main Industrial SS/Polkadraai SS 11kV 1	0,4	11	32	32	33	33	35	48	56	69	80	90	92
Normal Network	Main Industrial SS/Polkadraai SS 11kV 2	0,4	11	30	30	30	30	32	44	52	64	74	83	85

Table 7-11 represents the results for contingency event Dewatering MS/Polkadraai SS 11kV. The opposite impact is observed with this contingency event with "Polkadraai SS/MBR 1 MS 11kV" exceeding 100% of its thermal rating by 2029.

Table 7-11: Results of Contingency Event – Dewatering MS/Polkadraai SS 11kV

Contingency	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2029 (%)	2031 (%)	2035 (%)	2039 (%)	2040 (%)	2042 (%)
Normal Network	Polkadraai SS/MBR 1 MS 11kV	0,245	11	45	45	46	47	52	84	105	138	165	177	194
Normal Network	Dewatering MS/Polkadraai SS 11kV	0,245	11	0	0	0	0	0	0	0	0	0	0	0
Normal Network	MBR 2 MS/Dewatering MS 11kV	0,245	11	18	18	18	19	21	33	42	55	67	72	79
Normal Network	MBR 1 MS/MBR 2 MS 11kV	0,245	11	32	32	32	33	36	59	74	97	116	125	137
Normal Network	Main Industrial SS/Polkadraai SS 11kV 1	0,4	11	32	32	33	33	35	48	56	69	80	85	92
Normal Network	Main Industrial SS/Polkadraai SS 11kV 2	0,4	11	30	30	30	30	32	44	52	64	74	78	85

Thus, the recommendation is to upgrade the entire ring to 185mm^2 Al cables to accommodate the coming load growth. Since the backbone feeders, "Main Industrial SS/Polkadraai SS 11kV 1" and "Main Industrial SS/Polkadraai SS 11kV 2" are beginning to exhibit warning conditions, they may not require strenghthening at this stage.

1.3 Franschhoek Network

7.1.5 Franschhoek MV Network

The Franschhoek Area of supply is supplied by a 66kV intake point at Franschhoek SS. It distributes 11kV at 3 switching stations namely Groendal SS, Heugenote SS and Monument. Figure 7-5 is the geospatial representation of the Franschhoek 11kV network.

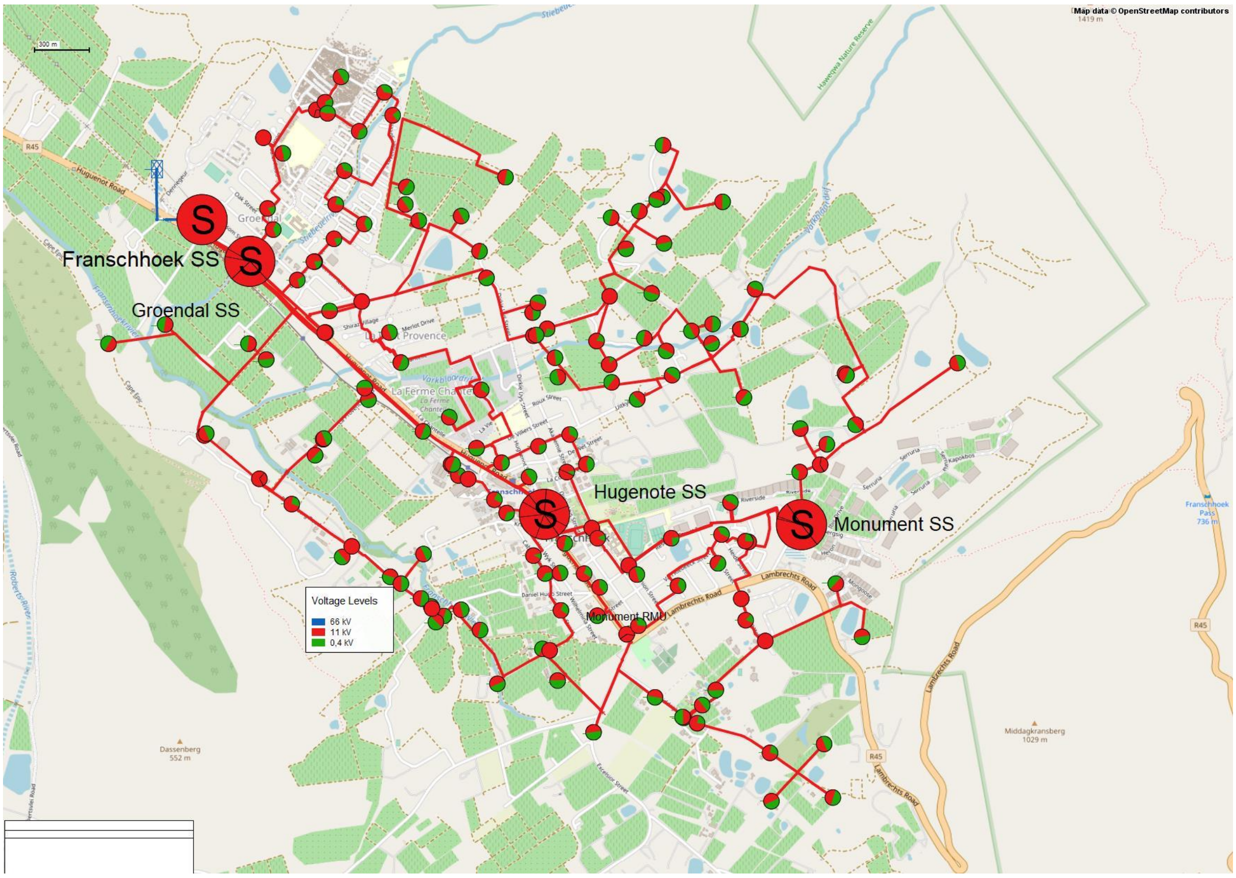


Figure 7-5: Franschhoek Geospatial 11kV Network

7.1.6 Franschhoek Open Points

The following is a list of the open points considered in the network analysis. These were taken from the Single Line Diagrams provided by STLM. Table 7-12 also shows the different distribution Switching stations and in which distribution area the open points are located.

Table 7-12: Franschhoek Distribution Network Area and Open Points

	Groendal SS	Hugenote SS	Monument SS
Open Points	**Groendal Bus Coupler**	**Hugenote Bus Coupler**	**Monument Bus Coupler**
	La Recendense		
	RMU Hugo		
	Dassenberg RMU		

7.1.7 Franschhoek Analysis

Network simulations were conducted on the existing and future networks as described in Analysis above.

Load flow simulations were conducted as shown in the following sections present load flow simulation results over the 20-year expected future load growth presented in Load Forecast section of this report.

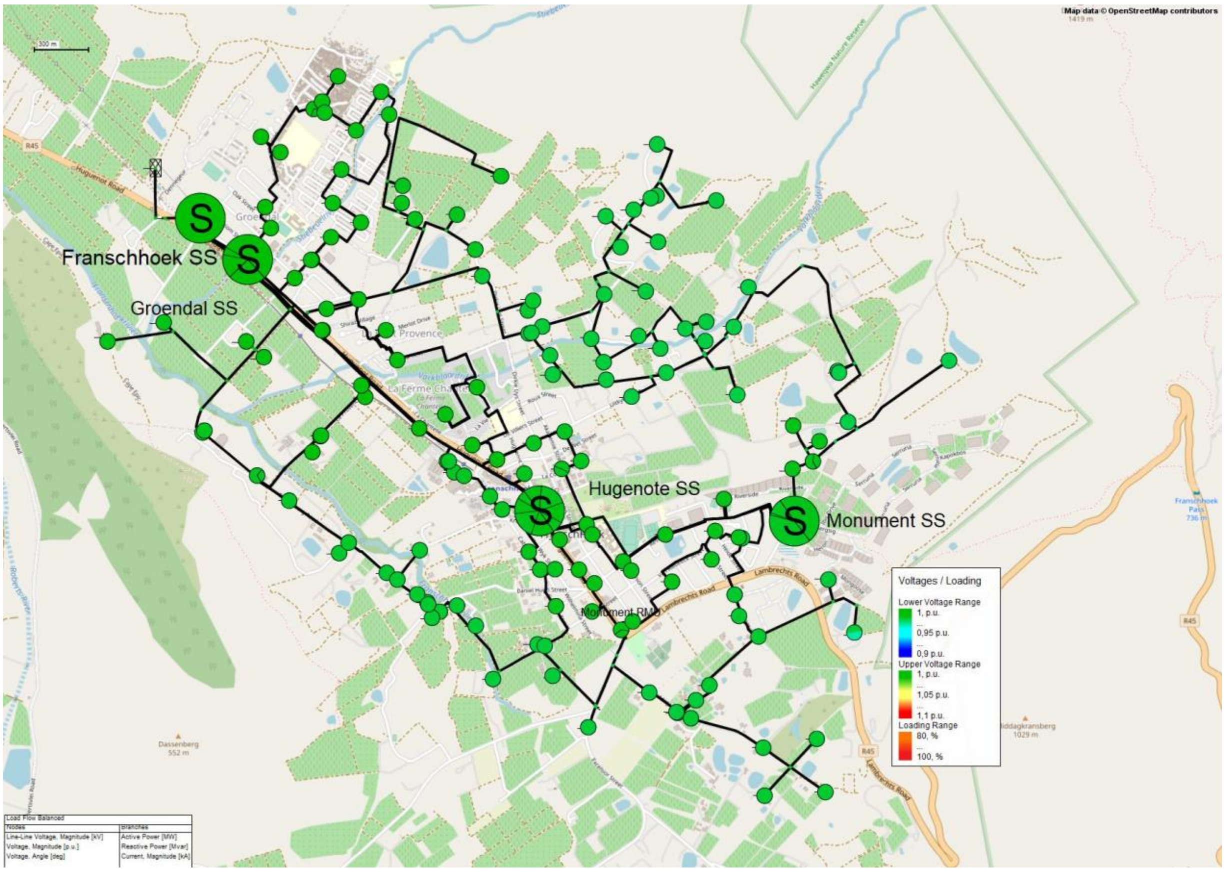


Figure 7-6: Franschhoek Load Flow Analysis in 2023

Franschhoek Network Violations

No violations were observed in the Franschhoek Area of supply under normal conditions. The Per Unit bus results and Line Thermal loading is document in Appendix D and E.

1.4 Pniel Network

7.1.8 Pniel MV Network

The Pniel supply area is comprised of three 11kV intake points located at RMU points namely Hollandse Molen, Riversmeet (Pniel) and RFG.

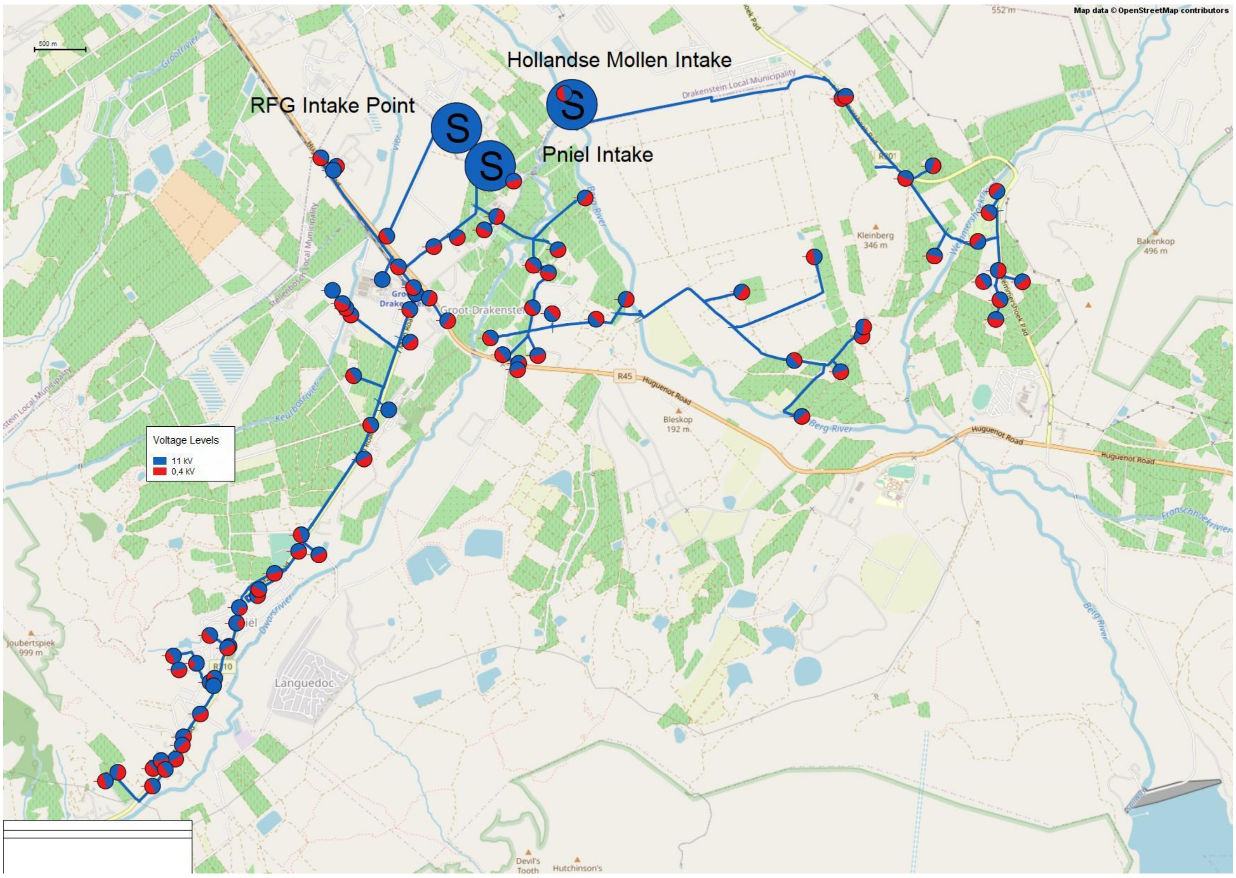


Figure 7-7: Franschhoek Geospatial 11kV Network

7.1.9 Pniel Open Points

The following is a list of the open points considered in the network analysis for Pniel Supply area. An open fuse link splits the Riversmeet and RFG supply area. The network is primarily radial thus no open points exist besides the aforementioned.

Table 7-13: Pniel Distribution Network Area and Open Points

	Hollandse Mollen	Riversmeet (Pniel)	RFG
Open Points			**Fuse Link Open**

7.1.10 Pniel Analysis

Network simulations were conducted on the existing and future networks as described in Analysis above.

Load flow simulations were conducted as shown in the following sections present load flow simulation results over the 20-year expected future load growth presented in Load Forecast section of this report.

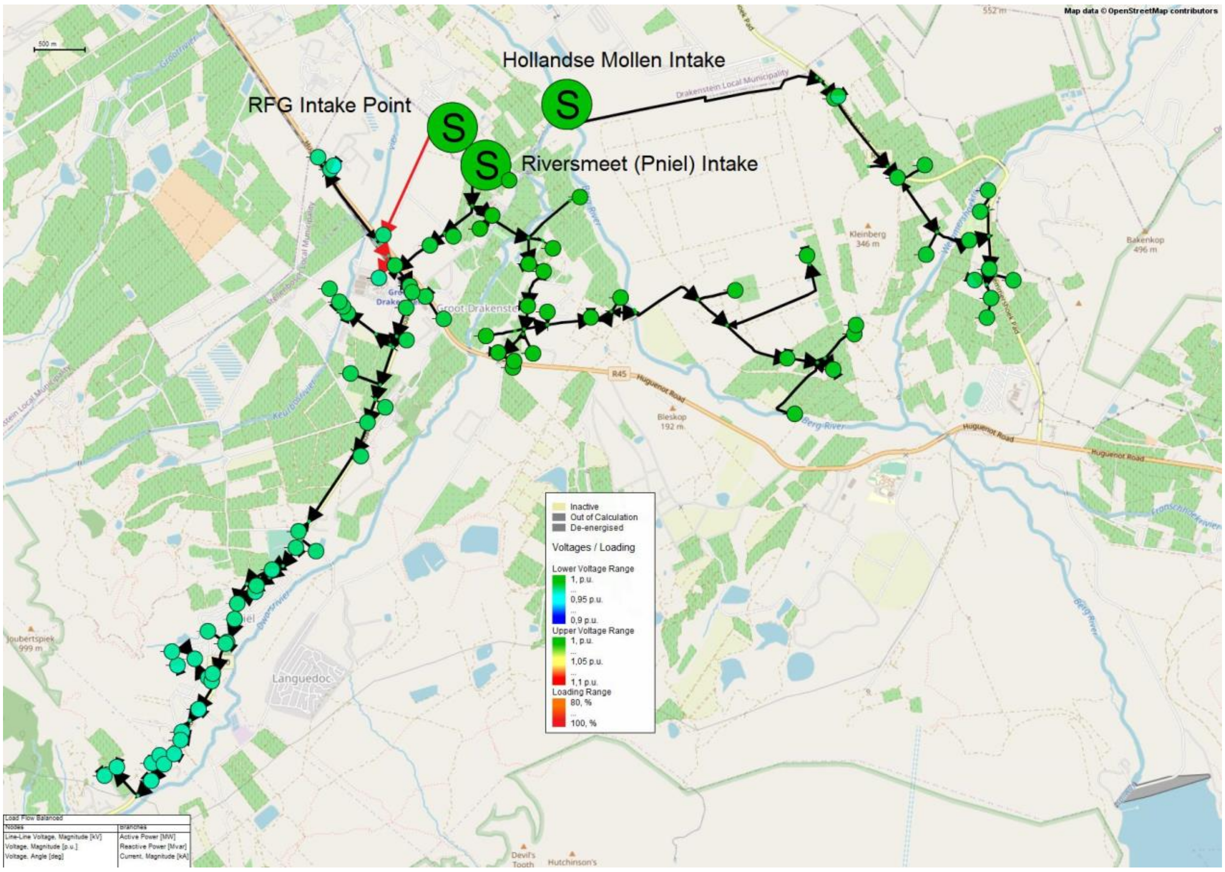


Figure 7-8: Franschhoek Load Flow Analysis in 2023

Pniel Network Violations

This section only represents areas where violations were seen under normal conditions for load flow calculations run for a 20-year period, simulating growth in the network (Detailed Results can be found in Appendix D). The RFG supply area is the only supply area that experiences violations during its growth period. The following feeders are predicted to exceed 80% and 100% of its thermal rating:

i. CON_640 - Exceeds 80% in 2039 and 100% in 2040
ii. CON_644 - Exceeds 80% in 2039 and 100% in 2041
iii. CON_388 - Exceeds 80% in 2040 and 100% in 2041
iv. CON_649 - Exceeds 80% in 2004 and 100% in 2041

Table 7-14: Normal condition limit warnings/violations for lines in RFG supply area

Area	Line Name	Inom (kA)	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
RFG	CON_640	0,292	11	30,2	30,2	30,2	30,3	30,1	31	41,4	55,7	60,1	60,4	60,5	61,3	62,4	62,8	62,6	64,3	85,2	114,1	123,1	123,5
RFG	CON_644	0,292	11	30,2	30,2	30,2	30,3	30,1	31	41,4	55,7	60,1	60,4	60,5	61,3	62,4	62,8	62,6	64,3	85,2	114,1	123,1	123,5
RFG	CON_388	0,292	11	23,7	23,7	23,6	23,7	23,6	24,4	33,7	46,6	50,6	50,8	51	51,7	52,6	53	52,8	54,4	73,2	99,2	107,3	107,6
RFG	CON_649	0,292	11	23,7	23,7	23,6	23,7	23,6	24,4	33,7	46,6	50,6	50,8	51	51,7	52,6	53	52,8	54,4	73,2	99,2	107,3	107,6

The corresponding normal condition p.u busbar results are represented in Table 7-15. As per the planning criteria in Table 6-5 above no violations were observed. A full list of all busbar results can be seen in Appendix E.

Table 7-15: Normal condition limit warnings/violations for busbars in RFG supply area

Area	Line Name	Uk (kV)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
RFG	PMT Post Office_11BB	11	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,997	0,997	0,997	0,997	0,997	0,997	0,997	0,997	0,996
RFG	PMT Romnick_11BB	11	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,997	0,997	0,997	0,997	0,997	0,996	0,996	0,996	0,996	0,996
RFG	PMT Werda_11BB	11	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,997	0,997	0,997	0,997	0,997	0,996	0,996	0,996	0,996	0,996
RFG	RFG Intake Point_11BB	11	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
RFG	RFG Metering Unit_11BB	11	0,998	0,998	0,998	0,998	0,998	0,998	0,997	0,997	0,997	0,997	0,997	0,997	0,996	0,996	0,996	0,996	0,996	0,996	0,996	0,996
RFG	RMU Werda_11BB	11	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,998	0,997	0,997	0,997	0,997	0,997	0,996	0,996	0,996	0,996	0,996

Key		
Key	> 80%	*Depicts a condition where the conductor loading is greater than 80% of the rated ampacity.*
	≥ 100%	*Depicts a condition where the conductor loading is greater than or equal to 100% of the rated ampacity. In this case a thermal limit has been violated.*

8 IMPACT OF RENEWABLE ENERGY ON THE GRID

8.1 Introduction

The traditional power system was originally designed as a centralised system. Power is generated in large power plants situated at the source of the primary energy and far away from consumer loads. Power is then evacuated in one direction from the generating station at high voltage levels along large passive distribution infrastructure and then stepped down to appropriate low voltage levels at the consumer end. The need for cleaner energy, better energy security, and decreasing technology costs is driving the increase in embedded generation (EG).

The integration of renewable energy on the municipal electrical grid has some of the following advantages:

- Environmental benefits – a decrease in the supply of electricity generated from fossil fuels due to an increase in renewable energy on the grid leads to a reduction of CO2 emissions.
- Economic benefits – alternative energy from renewable sources supports economic growth against the crippling effects of load shedding. Renewable energy projects also open up job opportunities related to the operations and maintenance of systems.
- Eases the over-reliance and constraint on traditional central generation systems/grid network.

It is crucial that all embedded generation systems are registered with the electricity authorities and comply with regulations because:

i. Safety regulations must be enforced. The safety and quality of the entire grid may be compromised if EG systems are not compliant.
ii. Poorly installed EG systems could cause catastrophic fires and other hazards.
iii. The safety of staff and customers must be ensured. Unauthorized EG systems energize the grid that is believed to be switched off posing risk of injury or death to maintenance personnel.
iv. The integrity of the grid infrastructure must be ensured. Unknown EG systems capacity and schedules can cause quality and stability problems within the electricity grid.
v. Future grid upgrades and maintenance should be appropriately planned for.

Stellenbosch LM, like any other local regulator, planner and distributor of electricity, has a crucial role to play in managing the grid interface with all consumers of power within their network.

Figure 8-1 shows components of a typical solar PV Small-Scale Embedded Generation (SSEG) system tied into a municipal grid as illustrated by the City of Cape Town [3]. There are three typical configurations for residential and commercial EG systems:

i. **Grid-tied feed-in generator systems.** These systems are connected to the utility. The electricity generated is used locally on the property and any excess electricity is exported into the grid.
ii. **Grid-tied non-feed-in generator systems.** These systems provide electricity to the property when there is a demand for it but uses a reverse-power-flow blocking device to stop the export of any excess electricity generated into the grid.
iii. **Standalone or off grid generator systems.** These operate continuously, independent of the local utility grid. Thus, there is no utility connection, and the system is usually equipped with batteries and a charge controller as a base supply.

Other embedded generation system configurations are hybrids or combinations of the abovementioned systems.

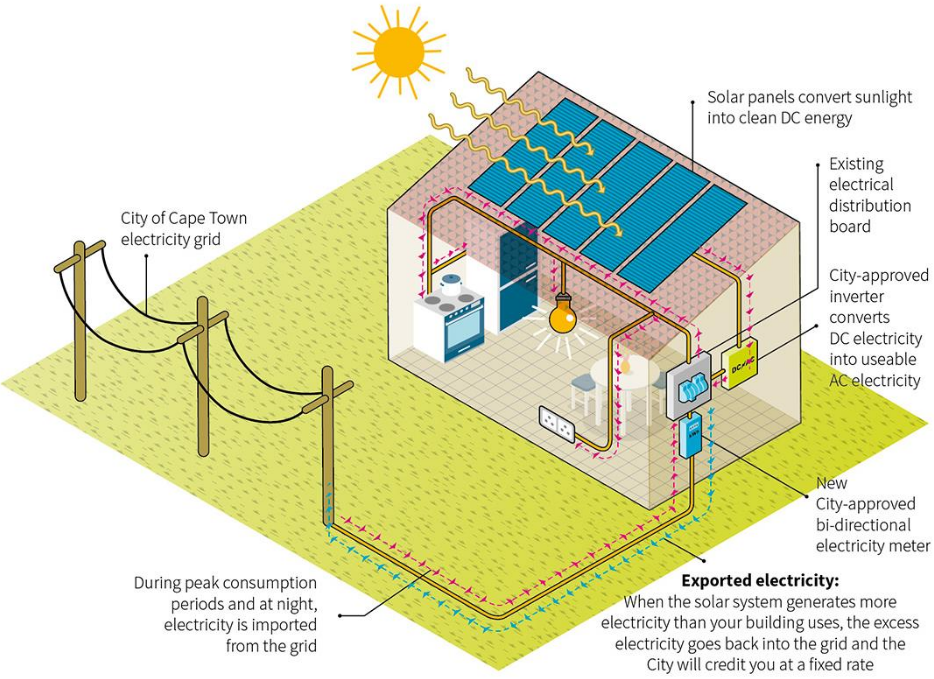


Figure 8-1: Components of a grid-tied solar PV SSEG system [3]

Embedded generation is characterised by power generated at or near the consumer load and varies with the availability and variability of primary energy. Power flow in embedded generation is bidirectional. Addition of embedded generation to already established traditional power systems therefore potentially pose a threat of power quality problems, degradation in system reliability, reduction in the efficiency, over voltages and safety issues [4]. However, embedded generation can contribute towards reduced transmission losses due to their proximity to the consumer loads and improved voltage support. Thus, embedded generation should be added to the power system with consideration to various limits to ensure its stability and avoid poor voltage profiles, voltage flickers, harmonics, and damage to equipment.

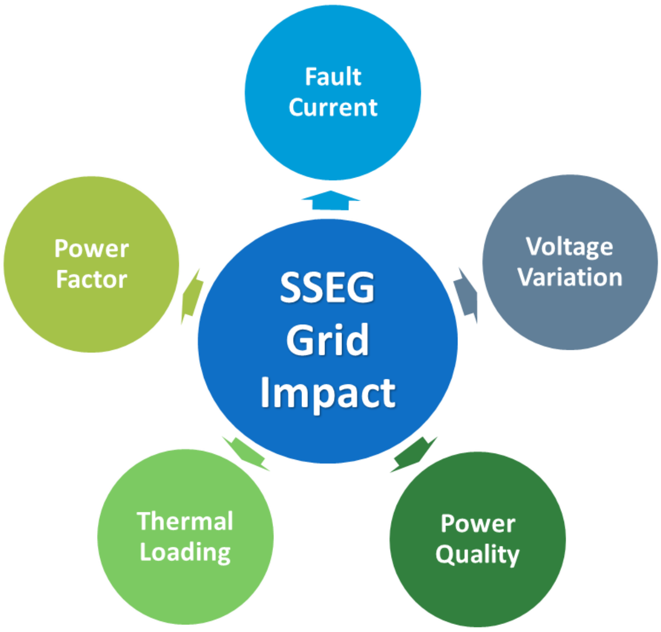


Figure 8-2: Grid Impact Assessment Technical Considerations

Grid impact studies are therefore critical to ensure that all embedded generation systems are carefully planned for, comply with regulations to ensure the integrity of the grid infrastructure, and avoid quality and stability problems. Figure 8-2 shows the critical technical parameters to consider when assessing electrical grid impact assessments [5].

Thermal Loading. The thermal loading of the apparatus must not exceed the rating as specified by manufacturers name plate.

Fault Currents. The maximum three-phase short-circuit currents and the maximum single-phase to ground short-circuit currents should be calculated according to IEC60909:2016. The maximum short-circuit currents can be assessed by considering the current-limiting properties of circuit breakers, if applicable.

Voltage Variation. Voltage variation concerns the rapid changes in the voltage. This could be because of switching of network components or sudden drops in active power. According to NRS 048-4, voltage variation must not exceed 4%.

Power quality, i.e., voltage regulation, unbalance, and flicker and harmonic distortion, at the Point of Common Coupling (PCC) and other customer points of supply, may not exceed the compatibility levels or limits as prescribed in NRS 048-2. Power quality is dependent on harmonic distortions, power factor and voltage sag. Unbalanced loads and harmonic sources destabilize the electrical network. This causes continuous variation on every cycle of the power system and lead to changes in load profiles potentially causing reverse power flows [6]. Voltage and current harmonics are the most important aspects of power quality. Harmonic sources tend to increase temperature of machines, transformers, and cables. This leads to life span deterioration, decreased system reliability and increased power loss [7]. The power factor is defined as the ratio of active power to the apparent power flowing in the circuit. The acceptable, efficient PF for a network is between the range of 0.9 to 1. The power factor is defined as the ratio of active power to the apparent power flowing in the circuit. Voltage sag occurs when there is an unscheduled switch between the RE source and the grid network.

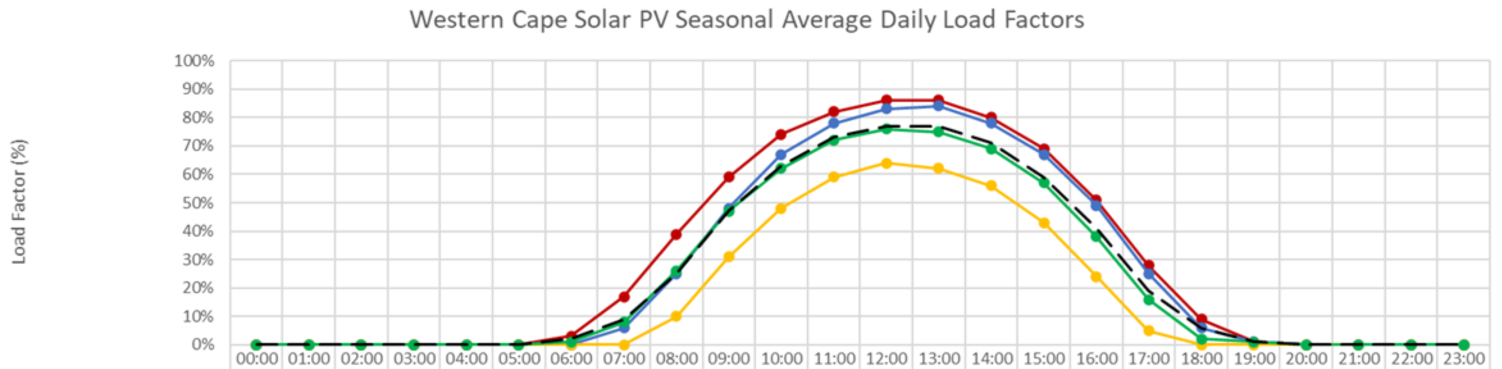
1.5 Rooftop Solar PV

There is an increasing global trend of grid connected rooftop PV systems in urban networks. In South Africa this trend is driven in part by, firstly, the increasing tariff which has been on the rise for the past decade. Secondly, due to the constraint electricity supply which had led to rotational load-shedding. And thirdly, but perhaps to a lesser extent for the South African landscape, the need to combat the impact on climate change.

The geospatial analysis conducted in the CSIR study identified rooftop areas for the municipality according to customer classes. Notably, residential customers were found to account for nearly 60% of the total identified rooftop space. The calculated installable photovoltaic (PV) capacity amounted to approximately 580 MW of rooftop PV, a capacity approximately 8 times greater than the municipality's maximum demand (MD) [8].It is therefore crucial to assess and understand the impact of this excess PV production on the MV/LV network. For this SSEG impact study, the area's most likely to experience an increase in SSEG installations are assessed.

1.6 Solar PV Load Factors

Figure 8-3 shows the seasonal average daily solar PV daily load factors in Western Cape [9] used in this study. Summer yields the best load factors with a peak of 0.86 at both 12:00 and 13:00 times of the day. Autumn peaks with a load factor of 0.84 at 13:00, spring with 0.76 at 12:00 and winter with 0.64 at 12:00. The yearly average daily solar PV load factor has a peak of 0.77 at both 12:00 and 13:00. The loading and PV dispatch will be simulated at the PV peak load factor time.



	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Summer (Dec-Feb)	0%	0%	0%	0%	0%	0%	3%	17%	39%	59%	74%	82%	86%	86%	80%	69%	51%	28%	9%	1%	0%	0%	0%	0%
Autumn (Mar-May)	0%	0%	0%	0%	0%	0%	0%	6%	25%	48%	67%	78%	83%	84%	78%	67%	49%	25%	6%	1%	0%	0%	0%	0%
Winter (Jun-Aug)	0%	0%	0%	0%	0%	0%	0%	0%	10%	31%	48%	59%	64%	62%	56%	43%	24%	5%	0%	0%	0%	0%	0%	0%
Spring (Sep-Nov)	0%	0%	0%	0%	0%	0%	1%	8%	26%	47%	62%	72%	76%	75%	69%	57%	38%	16%	2%	1%	0%	0%	0%	0%
Yearly	0%	0%	0%	0%	0%	0%	2%	9%	25%	47%	63%	73%	77%	77%	71%	59%	41%	19%	6%	1%	0%	0%	0%	0%

Figure 8-3: Western Cape Solar PV Seasonal Average Daily Load Factors

1.7 SSEG Planning Criteria

This assessment of the impact of renewable energy on the STLM electricity grid is limited to:

i. **Impact of Renewable Energy on electrical demand.** This task assesses the effect of renewable energy production on the load demand.

ii. **Impact of Renewable Energy on the electrical network.** This is a steady state study task, thus only considering the voltage levels and thermal loading impact of renewable energy.

As a point of departure, the impact of rooftop PV penetration as per the capacity limitations specified in the NRS 097-2-3 [10] as illustrated in Figure 8-4 will be considered. The POC for installations was chosen to be on the LV side of respective mini subs in each supply Area to assess the impact on the Municipal network. The assessment is a steady state study, thus only considering the voltage levels and thermal loading. Conductors and busbars highlighted in this master plan report will include those close to and falling outside of the prescribed limits in the NRS 097-2-3. Under the NRS 097-2-3 limitations the worst-case scenario is assessed, the network is observed to identify any violations and propose potential mitigation strategies.

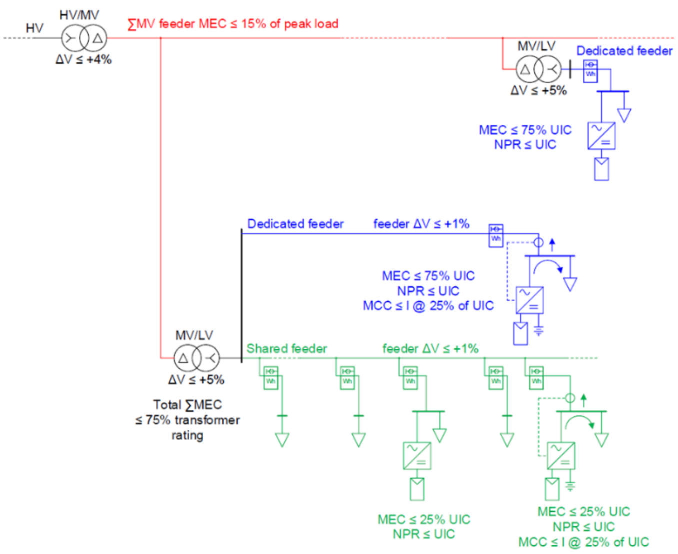


Figure 8-4: NRS 097-2-3 Simplified Connection Criteria [10]

1.8 RE Impact on the Electrical Network

All the line loading results with RE integration is shown in Table 8-1". The RE integration is simulated at a MEC of 75% of the installed capacity for year 2023 and in 5 years' time, 2028. The presence of PV's results in an increase of the thermal loading of the cables/conductors in the network. **Error! Reference source not found.** s hows the results for one of the Techno Park Rings in the Golf Supply Area. These were the only cables that experienced above 80% of its thermal rating.

Table 8-1: Selected percentage line loading results with RE integration

Line/Cable	Inom (kA)	As Is	2023	2024	2025	2026	2027	2028
Golf Club SS/Techno Park MS 11kV FD1	0,4	9	53	53	53	53	53	53
Golf Club SS/Techno Park MS 11kV FD2	0,4	22	53	53	53	53	53	53
Reutech MS/Techno Park MS 11kV	0,207	22	97	97	96	96	96	96
ISS International MS/Reutech MS 11kV	0,207	13	85	85	85	85	85	85
Platinum Place MS/Tegno Park Pomp MS 11k	0,207	3	36	36	36	36	36	36
Times Square MS/Elektron 1 MS 11kV	0,207	0	0	0	0	0	0	0
Quantum 3 MS/Quantum 2 MS 11kV	0,207	5	40	40	40	40	40	40
Tegno Park 1 MS/ISS International MS 11k	0,207	11	79	79	79	79	79	79
Tegno Park 2 MS/NOK MS 11kV	0,207	5	70	70	70	69	69	69
Elektron 2 MS/Carpe Di-Em MS 11kV	0,207	1	12	12	12	12	12	12
NOK MS/Electron 3 MS 11kV	0,207	5	64	64	64	64	64	64
Tegno Park Pomp MS/Proton MS 11kV	0,207	3	30	30	30	30	30	30
Electron House RMU/Elektron 2 MS 11kV	0,207	0	6	6	6	6	6	6
Proton MS/Termo MS 11kV	0,207	2	22	22	22	22	22	22
Electron 3 MS/Cotlinplace MS 11kV	0,207	4	54	54	54	54	54	54
DataVoice RMU/Tegno Park 1 MS 11kV	0,207	10	73	73	73	73	73	73
Quantum 1 MS/Quantum 3 MS 11kV	0,207	5	34	34	34	34	34	34
Techno Park MS/Tegno Park 2 MS 11kV	0,207	6	76	76	75	75	75	75
Elektron 1 MS/Electron House RMU 11kV	0,207	0	6	6	6	6	6	6
Cotlinplace MS/Platinum Place MS 11kV	0,207	3	45	45	45	45	45	45
Termo MS/Times Square MS 11kV	0,207	1	15	15	15	15	15	15
Carpe Di-Em MS/Quantum 1 MS 11kV	0,207	3	27	27	27	27	27	27
Quantum 2 MS/DataVoice RMU 11kV	0,207	6	50	50	50	50	50	50

The corresponding bus loading results with RE integration is shown in Table 8-2. There are no observed bus overloads up to 100% RE integration (i.e., all buses in the study area remain less than 1.05 per unit voltage even at the worst-case export capacity of 75% of UIC). Table 8-2 represents the busbar voltages for the main backbone feeders to Techno Park and the Reutech and ISS International MS. The busbar voltages for Electron 1,2 and 3 are also shown, to represent the volt drop at different points in this ring. The base analysis shows that the voltage is steady at 1.00 p.u. with the introduction of the PV an increase of 0.1 is observed at the upstream Techno Park. Voltage increases of 0.2 is observed downstream throughout the ring. However, even with the increase in voltage it is still within acceptable limits.

Table 8-2: Selected per unit bus loading results with RE integration.

Busbar	Uk (kV)	As Is	2023	2024	2025	2026	2027	2028
Techno Park MS_11BB	11	1,00	1,01	1,01	1,01	1,01	1,01	1,01
Reutech MS_11BB	11	1,00	1,01	1,01	1,01	1,01	1,01	1,01
ISS International MS_11BB	11	1,00	1,02	1,02	1,02	1,02	1,02	1,02
Elektron 1 MS_11BB	11	1,00	1,02	1,02	1,02	1,02	1,02	1,02
Elektron 2 MS_11BB	11	1,00	1,02	1,02	1,02	1,02	1,02	1,02
Elektron 1 MS_11BB	11	1,00	1,02	1,02	1,02	1,02	1,02	1,02

Conclusion

Little to no infrastructure upgrades would be needed to add SSEG installations on to the Stellenbosch electricity network as long as the MEC ≤ 75% of UIC is adhered to as per the NRS097-08-03. Thermal loading on backbone feeders will decrease with increasing demand and use of SSEG systems. This is because the increased load will consume more power thus reducing the export capacity. Ultimately over time this would theoretically increase the hosting capacity of the network, allowing for the ability to connect more to maintain 75% export capacity. The current infrastructure seems capable of sustaining 111 MW of capacity in 2023. The CSIR study identified physical space for 580MW, thus 111 MW can be achieved.

9 NETWORK REFURBISHMENT AND REPLACEMENT PLANS

9.1 Introduction

Determining the priority for replacing and refurbishing key assets is an important part of asset management. This study evaluated the condition of Stellenbosch Municipality's High Voltage (HV) distribution electrical transformers. Using a detailed methodology, the study further ranked these key assets in order of the need and urgency to perform specific asset life cycle tasks. This process assists the municipality in customizing their equipment maintenance plans for better inspection, maintenance, replacement, and refurbishment whilst better stewarding the time, financial and labour resources available.

i. The study tasks are classified into the following:
ii. Analysis of asset age and condition information
iii. Assessment and analysis of failure modes for different equipment
iv. Assigning of risk categories to be assessed
v. Assigning weighting factors and risk scores for different categories
vi. Ranking of equipment in order of the need and urgency of replacement or refurbishment

9.2 Methodology

9.2.1 Overview

Electrical assets are subject to performance deterioration and failure the longer they are operated. It is therefore crucial to strategize, prioritize and manage asset refurbishment and replacement plans to guarantee continuous supply of satisfactory quality of power. The GLS asset replacement and refurbishment prioritization methodology calculate a prioritization score for each electrical network asset ranked against similar equipment in the network. This methodology is well informed by Asset Data, Asset Performance, Statutory requirements (NRS079-1: Mineral Insulating Oils, IEEE C57,104-1991- Total Dissolved Combustible Gases and ISO 9001- Quality Management), improvement in technology or standardization, Stellenbosch Local Municipality requirements and integration with other projects.

The prioritization score is a product of the Likelihood of Failure (LoF) score and the Consequence of Failure (CoF) score for each asset considered as illustrated in Figure 9-1. Assets whose conditions are deteriorating are more likely to fail and thereby are given a higher LoF score. Similarly, assets whose impact of failure result in more devastating consequences are given a higher CoF score. Overall, a higher prioritization score indicates an asset which is more likely to fail with more devastating consequences compared to other assets considered. It is these higher-ranking prioritization score assets that should receive preferential attention to perform specific asset life cycle tasks – refurbishment or replacement.

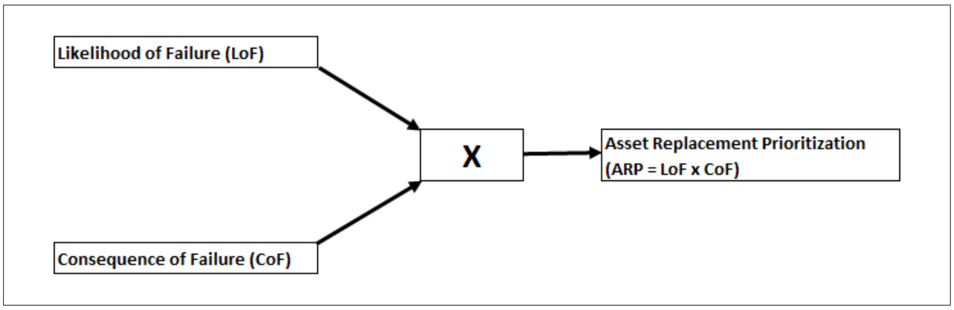


Figure 9-1: Calculation of the Asset Replacement Prioritization Score

Where:

- **ARP Score** is the Overall Asset Replacement Prioritization Score for each electrical network asset considered.

- **Likelihood of Failure (LoF) Score** is the sum of weighted factors which quantify the probability/possibility of detrimental incidents occurring on the electrical network for each asset considered.

Consequence of Failure (CoF) Score is the sum of weighted factors which quantify the impact/effect of detrimental incidents occurring on the electrical network for each asset considered.

Weighting factors used in the condition assessment methodology recognize that some indicators affect the score to a greater or lesser degree than other indicators. Therefore, GLS makes provision for clients to define their own choice of weighting values (for both the LoF and CoF factors) for each group of related criteria to tailor the solution according to their organizational standards and operational philosophies.

9.2.2 Consequence of Failure Factors

Each Consequence of Failure (CoF) factor defines a specific impact/effect of an electrical network asset failure. GLS employs the default CoF weighting values across the network's electrical assets as shown in Figure 9-2.

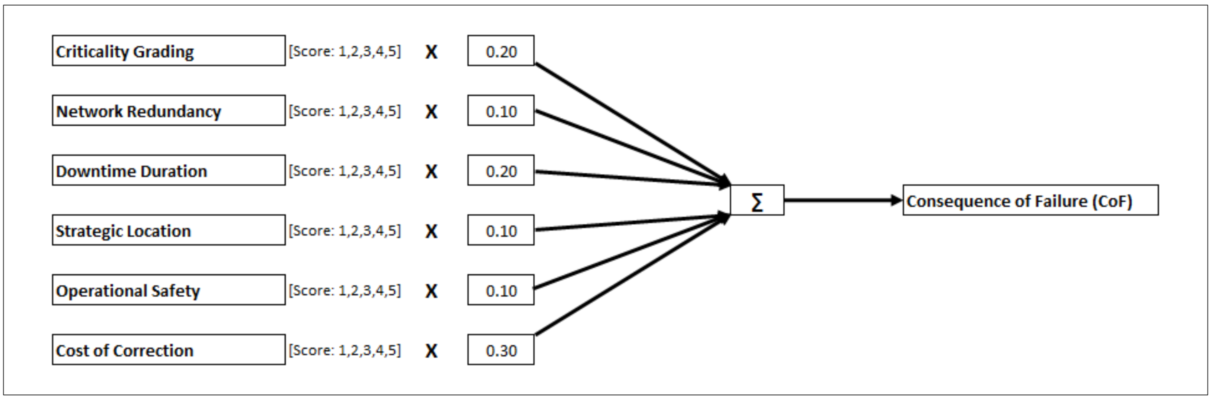


Figure 9-2: GLS Default Weighting of Consequence of Failure Factors

Where:

i. ***Criticality Grading*** is the percentage customer or demand base served by the electrical network.

ii. ***Network Redundancy*** assesses the availability of duplicate or alternative critical system components with the intention of increasing reliability of the network system, usually in the case of a backup or fail-safe.

iii. ***Downtime Duration*** is the outage duration as a result of the asset failure.

iv. ***Strategic Location*** is the defined economic zone in which the asset falls within.

v. ***Operational Safety*** assesses the severity of the failure on personnel and the environment.

vi. ***Cost of Correction*** is the required cost to rectify the failure.

Based on the severity of the consequence of failure for each network asset, each CoF factor is assigned a score grade between 1 to 5 where 1 is a minor impact and 5 is a major significant impact.

9.2.3 Likelihood of Failure Factors

Each Likelihood of Failure (LoF) factor defines a specific probability/possibility of an electrical network asset failure. Each type of electrical network asset has a set of relevant LoF factors. Based on the possibility of occurrence of the factor considered, each LoF factor is assigned a score grade between 1 to 5 where 1 is least likelihood and 5 is most likelihood of occurrence.

9.2.3.1.1 Underground Cables LoF Factors

GLS employs default LoF factors and weighting values for underground cables as shown Figure 9-3

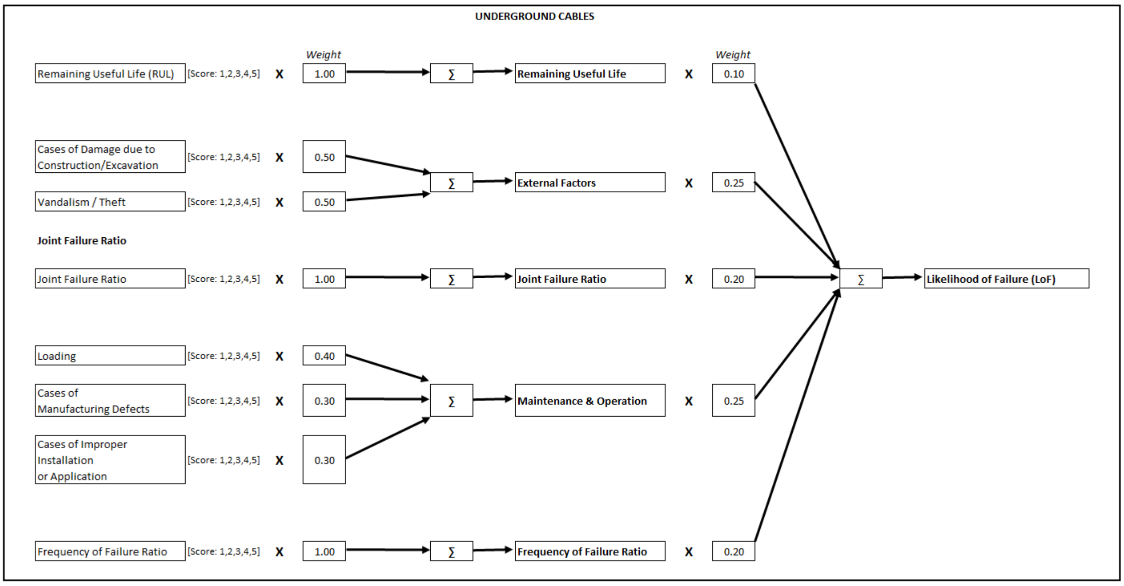


Figure 9-3: GLS Default Weighting of Underground Cables LoF Factors

9.2.3.1.2 HV Transformers LoF Factors

GLS employs the following default LoF factors and weighting values for HV transformers as shown in Figure 9-4.

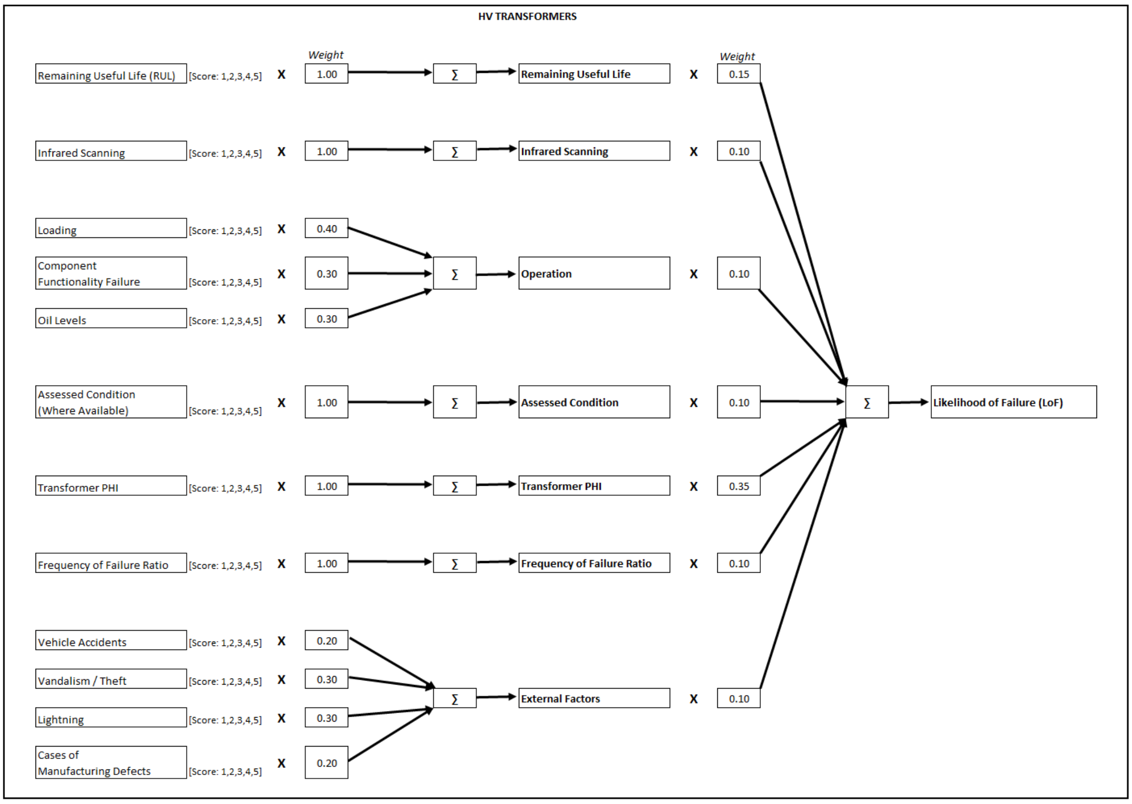


Figure 9-4: GLS Default Weighting of High Voltage Transformers LoF Factors

The following subsections explain the transformer Plant Health Index methodology.

Transformer Plant Health Index (PHI)

The transformer Plant Health Index employed is a realistic formulation method for power transformers using any existing asset data. It is a convenient tool to combine the condition monitoring data into categories related to the asset's condition and provides a basic overview condition of the transformer. The method considers practical limitations on obtaining data, and the possible constraints on the parameters. It utilizes the South African Institute of Electrical Engineers (SAIEE) calculation criteria [11] for condition parameters.

Transformer PHI Methodology

The PHI addresses the weighting between long term assessments (paper degradation), and short to medium term assessments (dissolved gas analysis). It is the sum of the weighted DP score (Degree of Polymerization via Furan Analysis), DGA score (Dissolved Gas Analysis), Moisture score and Oil Quality score to categorize the transformer.

Table 9-1 presents the priority chart for parameter scores.

Table 9-1: Priority chart for parameter scores

Parameter	Comment
Degree of Polymerization (DP)	Long term, end of life criteria as paper cannot be fixed. Medium priority. The solid insulation in a transformer is cellulose based products. Cellulose consists of long chains of glucose rings. When degradation of the cellulose occurs, these chains get shorter. Degree of polymerization (DP) is the average number of these rings in the chain and indicates the condition of the paper. New paper has an average DP number of 1200-1400. A DP less than 200 means that the paper has reached a so poor mechanical strength that it no longer can fulfil its function
Dissolved Gas Analysis (DGA)	Short to medium term, can indicate overall health or a fault, problem can be identified and fixed. Medium priority unless faulting. DGA is a condition monitoring technique and diagnostic tool for detecting and evaluating incipient thermal and electrical faults by analyzing the gas generation within the transformer. A fault is in this context defined as a process that causes abnormal dissipation of energy within the transformer. When a fault occurs in the transformer, the insulation system will undergo chemical degradation which leads to a production of various gases (hydrogen, methane, ethylene– ethane, acetylene, propene, propane, carbon monoxide, carbon dioxide, oxygen, and nitrogen) that dissolves in the oil. These gases are often referred to as key gases, and their concentrations can by various interpreting methods be related to different types of faults in the transformer. This PHI methodology only concentrates on three components of the DGA: i. TDCG – the total dissolved combustible gases. ii. LTPHI – the LTPHI relates the dissolved quantity of the individual dissolved gas to a score. iii. BGR – the Basic Gas Ratio.
Moisture in Oil/Paper insulation system	Short to medium term, paper can be dried (oil replaced). Medium priority. The major causes of oil deterioration are moisture and oxygen coupled with heat. Moisture and oxygen cause the paper insulation to decay at a higher rate than normal. When the oil oxidizes, acid, sludge and water are produced. The sludge settles on the windings and reduce the heat transfer from the windings to the oil. These sludge formation cause, over the time, temperature rise inside the transformer. The oil oxidation begins as soon as the transformer is energized and cannot be eliminated but it is possible to slow down the process by different preventive maintenance actions. A low moisture content is necessary to obtain and maintain acceptable electrical strength and low dielectric losses in the insulation system. Excessive moisture in oil increases the ageing rate of both the oil and the paper. In extreme cases this can result in arcing and short circuits within the windings. During the service life of transformer, the moisture content may increase by breathing damp air, natural ageing of the cellulose insulation, oil oxidation, condensation or by accidental means. The water content in the oil also indirectly gives information about the moisture level in the solid insulation.
Oil Quality	Short to medium term, oil can be replaced. Low priority unless poor quality. The life of the transformer is ascertained by the life of the paper, which in turn relies on the quality of the insulating oil. Performing tests to evaluate the quality of the transformer oil

Parameter	Comment
	constitute an important part for the condition monitoring of transformers. The oil provides dielectric strength, and facilitates cooling of the transformer. The quality of the oil plays a major role in the insulation system of the transformer and if it is allowed to oxidize, sludge and degrade, it will place the transformer at a greater risk of failure. The key oil quality indexes are electric strength, moisture in the oil, acidity, dissipation factor (tan delta) and interfacial tension (IFT). Only the electric strength, moisture in oil and acidity are used as they are readily available. The moisture in oil and acidity are important components of the ageing of the paper and high values lead to an increase in the rate of ageing. This PHI methodology only concentrates on three components of the oil quality: i. Moisture in oil ii. Acidity iii. Electric field strength The highest value (worst case score) of these components is used to ascertain the oil quality score.

GLS employs default factors and weighting values for transformers PHI as shown in Figure 9-5.

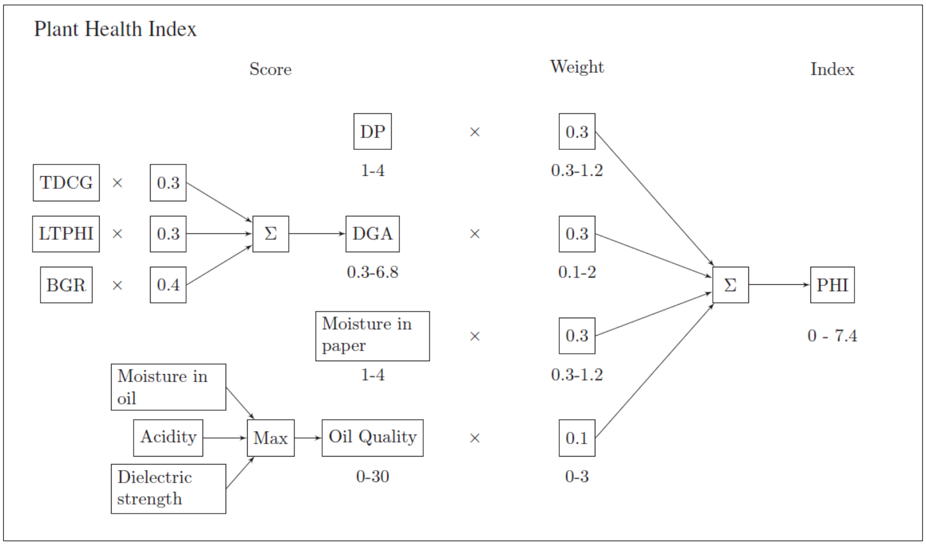


Figure 9-5: Default Transformer Plant Health Index Methodology

PHI Default Scoring Categories:

- A – Healthy (score < 1.01)
- B – Moderately Healthy (1.01 ≤ score < 2.01)
- C – Moderately Unhealthy (2.01 ≤ score < 3.01)
- D – Unhealthy (score ≥ 3.01)

9.3 Asset Details

Stellenbosch Local Municipality provided GLS with the transformer test reports for analysis. The reports contain transformer information including the Acid test, Density, Electric Strength, Interfacial Tension, Water, Moisture in Paper and Total Combustible Gases. Table 9-2 summarizes the asset information available for analysis.

Table 9-2: HV Transformer Asset List

Asset Description	Serial No.	Year of Manufacture	Degree of Polymerization	TDCG (ppm)	Acetylene (ppm)	Carbon Monoxide (ppm)	Ethane (ppm)	Ethylene (ppm)	Hydrogen (ppm)	Methane (ppm)	BGR Score	Moist. in Oil (mg/kg)	Acidity (mg KOH/g)	Dielectric (kV)
Cloetesville Sub TRF 01, T/C 20 MVA	CLOETESVILLE 1-TC				0							34	0.04	47
Cloetesville Sub TRF 01 20 MVA	CLOETESVILLE 1-MT			304	0	289	0	1	12	2		14	0.12	78
Cloetesville Sub TRF 02 20 MVA	CLOETESVILLE 2-MT			394	0	375	1	2	15	1		9	0.12	84
Cloetesville Sub TRF 02, T/C 20 MVA	CLOETESVILLE 2-TC											22	0.03	29
Franschoek sub TRF 01, T/C 20 MVA	035027-001	2003										14	0.02	77
Franschhoek sub TRF 02, T/C 20 MVA	35027003	2003										17	0.03	72
Franschhoek sub TRF 01 20 MVA	30281601	2003		388	1	375	0	1	8	3		9	0.05	73
Franschoek sub TRF 02 20 MVA	30281602	2003		288	1	268	0	1	14	4		7	0.04	58
Golf Club TRF 01 20 MVA	30288601	2006		243	0	238	0	1	0	4		8	0.05	74
Golf Club TRF 02 20 MVA	30288602	2006		541	0	530	1	1	6	3		8	0.06	72
Golf Club TRF 01, T/C 20 MVA	80922/1	2006										43	0.03	29
Golf Club TRF 02, T/C 20 MVA	80922/2	2006										23	0.03	65
Jan Marais TRF 02 10 MVA	PE20396	1979		387	0	378	1	1	0	7		25	0.05	33
Jan Marais TRF 01 10 MVA	PE20377	1979		221	0	216	0	1	0	4		23	0.04	47
Jan Marais TRF 02, T/C 10 MVA	T0035	1979										30	0.04	20
Jan Marais TRF 01, T/C 10 MVA	T0036	1979										42	0.03	33
Main Sub TRF 01 7.5 MVA	194052/1	1971		479	0	465	2	1	0	11		9	0.07	71
Main Sub TRF 02 7.5 MVA	194052/3	2015		254	6	234	0	0	7	5		15	0.03	69
Main Sub TRF 03 7.5 MVA	194052/5	1971		444	0	336	0	3	99	6		16	0.09	73
Main Sub TRF 03, T/C 7.5 MVA	3330	2017										15	0.03	66
Main Sub TRF 01, T/C 7.5 MVA	IZSC8719350	1971										16	0.03	67
Main Sub TRF 02, T/C 7.5 MVA	IZSC8720488	2015										16	0.03	77
Markotter TRF 01 7.5 MVA	194052/2	1971		384	2	352	0	26	0	4		12	0.04	62

Asset Description	Serial No.	Year of Manufacture	Degree of Polymerization	TDCG (ppm)	Acetylene (ppm)	Carbon Monoxide (ppm)	Ethane (ppm)	Ethylene (ppm)	Hydrogen (ppm)	Methane (ppm)	BGR Score	Moist. in Oil (mg/kg)	Acidity (mg KOH/g)	Dielectric (kV)
Markotter TRF 02 7.5 MVA	194052/4	2016		323	0	318	0	1	0	4		8	0.03	83
Markotter TRF 03 7.5 MVA	2209/1	1973		287	1	277	3	1	0	5		14	0.06	65
Markotter TRF 01, T/C 7.5 MVA	3338	1971										31	0.04	28
Markotter TRF 02, T/C 7.5 MVA	3385a	2016										43	0.05	30
Markotter TRF 03, T/C 7.5 MVA	IZSC2719349	1973										20	0.03	76
University Sub TRF 02, T/C 15 MVA	144098	1996										11	0.03	29
University Sub TRF 03, T/C 15 MVA	1851394	2017										71	0.03	18
University Sub TRF 01 15 MVA	PE51930	1987		236	1	226	0	0	9	0		12	0.04	83
University Sub TRF 02 15 MVA	PE61170	1989		233	3	225	4	1	0	4		9	0.05	71
University Sub TRF 03 15 MVA	PE68215	1994		255	0	198	15	1	20	21		8	0.04	81
University Sub TRF 01, T/C 15 MVA	135939	1987										21	0.03	38

GLS customized the replacement/refurbishment prioritization methodology for **Stellenbosch Local Municipality's** HV distribution transformers as illustrated in Figure 9-6.

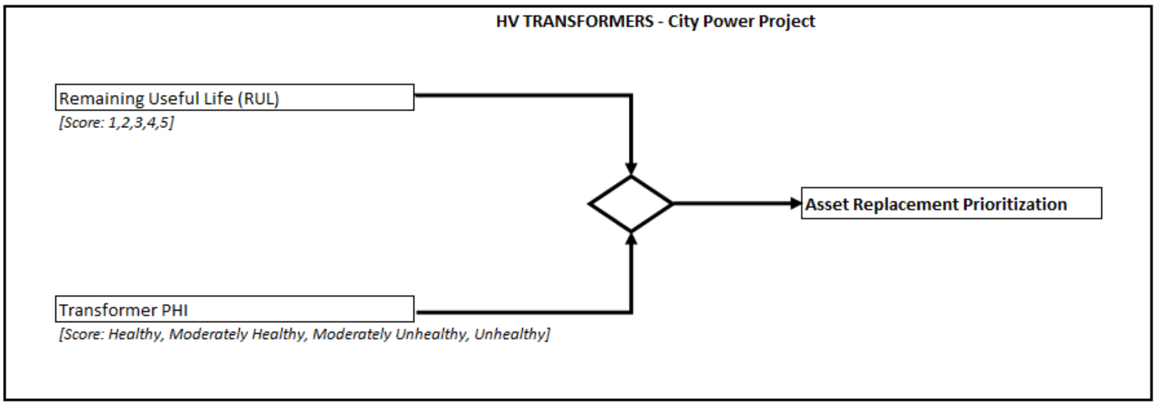


Figure 9-6: HV Distribution Transformers Assessment Ranking Methodology

The age of each transformer was calculated from the acquired installation dates. Different entities use different transformer life estimates. The asset life estimation variance can be attributed to differences in design, loading, insulating paper and oil degradation, system faults, spares, rating requirements, high temperature, and moisture levels. By using an estimated useful life of 50 years [12], the remaining useful life of each transformer was calculated. Table 9-3 shows the RUL LoF scoring rules for Stellenbosch Municipality's HV Transformers.

Table 9-3: HV Transformers Remaining Useful Life LoF Scoring Rules

Condition (Years)	Score
RUL < 5	5
5 ≤ RUL < 20	4
20 ≤ RUL < 35	3
35 ≤ RUL < 50	2
RUL ≥ 50	1
RUL Information Unavailable	5

The Plant Health Index for each transformer was calculated. Using the PHI scoring of Table 9-4, each transformer was placed into one of the four possible categories: ‘Healthy’ (A), ‘Moderately healthy’ (B), ‘Moderately unhealthy’ (C) and ‘Unhealthy’ (D).

Table 9-4: HV Transformer PHI Scores

Condition	Category	Description
PHI ≥ 3.01	D	Unhealthy
2.01 ≤ PHI < 3.01	C	Moderately unhealthy
1.01 ≤ PHI < 2.01	B	Moderately healthy
PHI < 1.01	A	Healthy

Recommended transformer maintenance plan of action decision rules were devised using transformer parameter scores of Table 9-1, RUL scores of Table 9-3 and PHI scores of Table 9-4. These rules are presented in Table 9-5 but not all-encompassing. Normal operation should continue for ‘Moderately healthy’ and ‘Healthy’ transformers. Plan of action for some transformers classified as “Unhealthy” and “Moderately unhealthy” were not conclusive and hence left blank. These cases will require further investigation into the assessed and / or missing parameters to prescribe corrective measures.

Table 9-5: Transformer maintenance plan of action decision rules

Condition	Description	Recommendation
DP < 200	Insulation has reached the end of life.	Replacement
RUL < 0 D - Unhealthy	Transformer is in an unhealthy state and the Useful Life has been depleted.	Replacement
RUL < 0 C - Moderately Unhealthy	Transformer is in a moderately unhealthy state and the Useful Life has been depleted.	Replacement
TDCG > 5,630ppm	Excessive decomposition of cellulose insulation and/or oil. Continued operation could result in failure of the transformer.	Refurbishment
D - Unhealthy	The transformer is in an unhealthy state.	Refurbishment
RUL < 0	The Useful Life of the transformer has been depleted.	Replacement
Dielectric Strength < 40 kV	Poor oil quality	Replace oil

9.4 Computational Results

9.4.1 Underground Cables

Appendix C presents the underground cables asset information available to GLS. Based on the information available, GLS customized a refurbishment/replacement prioritization methodology for STLM's underground cables as illustrated in Figure 9-7. The LoF factor score was made up of the RUL (35%) score and the line loading score (65%). The CoF factor score was made up of the network redundancy score.

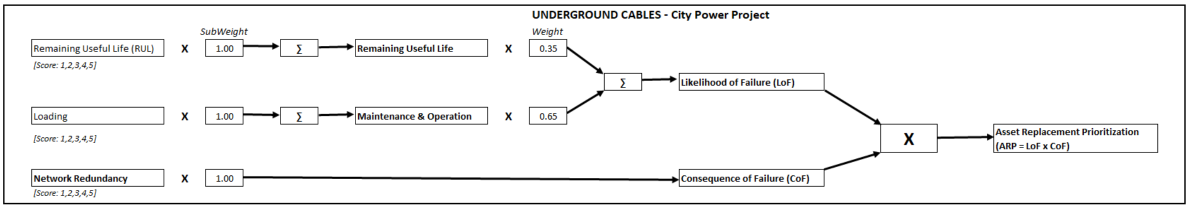


Figure 9-7: Underground Cables Assessment Ranking Methodology

The age of each cable was calculated from the estimated installation dates from scrutinizing the assets' data. By using an estimated useful life of 54 years [1], the remaining useful life of each cable was calculated. A score (1-5) was assigned to each cable's remaining useful life where a depleted life or least remaining useful life expose the cable to a high likelihood of failure. Table 9-6 shows the RUL LoF scoring rules for STLM's HV and MV Underground Cables.

Table 9-6: HV Underground Cables Remaining Useful Life LoF Scoring Rules

Condition (Years)	Score
RUL < 5	5
5 ≤ RUL < 20	4
20 ≤ RUL < 30	3
30 ≤ RUL < 50	2
RUL ≥ 50	1
RUL Information Unavailable	5

The electrical network was analyzed by computing power flow analysis studies. A score (1-5) was assigned to each cable's normal use loading where a high-loaded or overloaded cable has a high probability of failure. Table 9-7 shows the Loading LoF scoring rules for STLM's HV Underground Cables.

Table 9-7: HV Underground Cables Loading LoF Scoring Rules

Loading Condition	Score
Overloaded (Loading>=100%)	5
At Capacity (80%<=Loading<100%)	4
Normal Use (50%<=Loading<80%)	3
Under Used (0%<Loading<50%)	2
Not Used (Loading=0%)	1
Loading Information Unavailable	3

Furthermore, contingency studies were computed to applicable lines to evaluate the impact of the cable's failure on the network. A score (1-5) was assigned to the cables based on the results of the contingency analysis. Failure of cables which result in massive network violations (e.g. causing excessing overloading in other cables) were assigned higher scores to denote the severity of the failure impact. Table 9-8 shows the Network Redundancy CoF scoring rules for STLM's HV Underground Cables.

Table 9-8: HV Underground Cables Network Redundancy CoF Scoring Rules

Redundancy Condition	Score
Lack of Redundancy	5
Backfeeding Capacity < 50%	4
Partial Capacity 50-60% Backfeeding	3
Partial Backfeeding Capacity > 60%	2
Full Capacity Backfeeding	1
Redundancy Condition	Score

The final prioritization score for each cable was calculated – a product of the weighted likelihood of failure factors and consequence of failure factors.

The following assumptions were made:

i. Where the installation dates for the underground cables were neither available nor deducible from the project data, it was assumed that such cables still have 20-30 years of remaining useful life.

ii. Where redundancy checks could not be established, it was assumed that full back-feeding capacity was available in the network in case of failure of such underground cables.

A total of 10 underground cables were considered with a combined length of 32.75km. Figure 9-8 Figure 9-8:shows the distribution of the cables across age groups. The average age of the underground cables is 35 years.

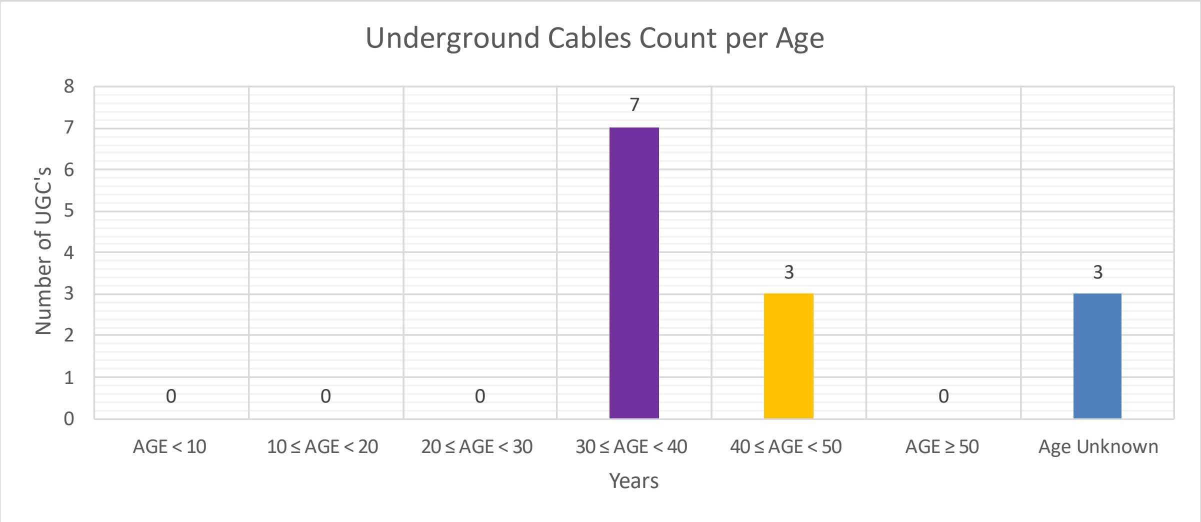


Figure 9-8:

Figure 9-9 shows the number of underground cables per remaining useful life group. The average remaining useful life of the cables is 18.7 years. The analysis does not reveal that any cables have reached the end of its life span, however the 3 cables with known ages are approaching their remaining useful life.

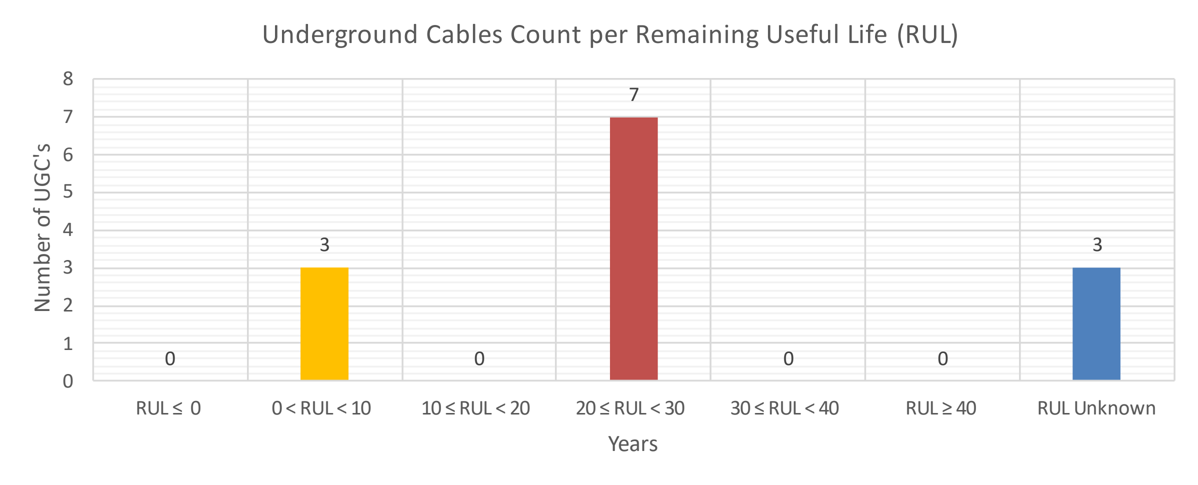


Figure 9-9

9.4.2 Transformers

Table 9-9 shows the resultant transformer refurbishment / replacement rank list with the recommended actions.

Table 9-9: HV Transformer Asset Refurbishment/Replacement Prioritization List

Transformer	Serial Number	Age	RUL	Score	Rank	Category	Description	Assessed Condition
Jan Marais TRF 02 10 MVA	PE20396	44	6	4.38	100.00%	D	Unhealthy	The transformer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Jan Marais TRF 01 10 MVA	PE20377	44	6	2.58	93.70%	C	Moderately unhealthy	
Main Sub TRF 03 7.5 MVA	194052/5	52	-2	1.94	81.20%	B	Moderately healthy	The transformer has depleted its useful life. It should be replaced.
Main Sub TRF 02 7.5 MVA	194052/3	8	42	1.94	81.20%	B	Moderately healthy	
Cloetesville Sub TRF 02 20 MVA	CLOETESVILLE2-MT			1.88	62.50%	B	Moderately healthy	
Cloetesville Sub TRF 01 20 MVA	CLOETESVILLE1-MT			1.88	62.50%	B	Moderately healthy	
Franschoek sub TRF 02 20 MVA	30281602	20	30	1.88	62.50%	B	Moderately healthy	
Markotter TRF 01 7.5 MVA	194052/2	52	-2	1.58	43.70%	B	Moderately healthy	The transformer has depleted its useful life. It should be replaced.
Markotter TRF 03 7.5 MVA	2209/1	50	0	1.58	43.70%	B	Moderately healthy	
University Sub TRF 01 15 MVA	PE51930	36	14	1.58	43.70%	B	Moderately healthy	
Golf Club TRF 02 20 MVA	30288602	17	33	1.47	37.50%	B	Moderately healthy	
Main Sub TRF 01 7.5 MVA	194052/1	52	-2	1.38	0.00%	B	Moderately healthy	The transformer has depleted its useful life. It should be replaced.
University Sub TRF 02 15 MVA	PE61170	34	16	1.38	0.00%	B	Moderately healthy	
University Sub TRF 03 15 MVA	PE68215	29	21	1.38	0.00%	B	Moderately healthy	
Franschoek sub TRF 01 20 MVA	30281601	20	30	1.38	0.00%	B	Moderately healthy	
Golf Club TRF 01 20 MVA	30288601	17	33	1.38	0.00%	B	Moderately healthy	

Transformer	Serial Number	Age	RUL	Score	Rank	Category	Description	Assessed Condition
Markotter TRF 02 7.5 MVA	194052/4	7	43	1.38	0.00%	B	Moderately healthy	

A total of 17 HV transformers, with a combined capacity of 230 MVA, were considered for evaluation. The average age of the transformers is 32.1 years, and the corresponding average remaining useful life is 17.9 years. Figure 3-8 illustrates the distribution of transformers across different age groups, while Figure 3-9 displays the total capacity per age group. There are at least 2 transformers below 10 years of age with a combined capacity of 15MVA. Conversely, there are at least 4 transformers between 10 and 20 years of age with combined capacity of 80MVA, there is at least 1 transformer between 20 and 30 years of age with a capacity of 15MVA, 2 transformers between 30 and 40 years of age with combined capacity of 30MVA, and 2 transformers between 40 and 50 years of age with combined capacity of 20MVA. There are 4 transformers above 50 years old with combined capacity of 30MVA. The age of the two transformers at Cloetesville substation is unknown. However, these have a combined installed capacity of 40MVA.

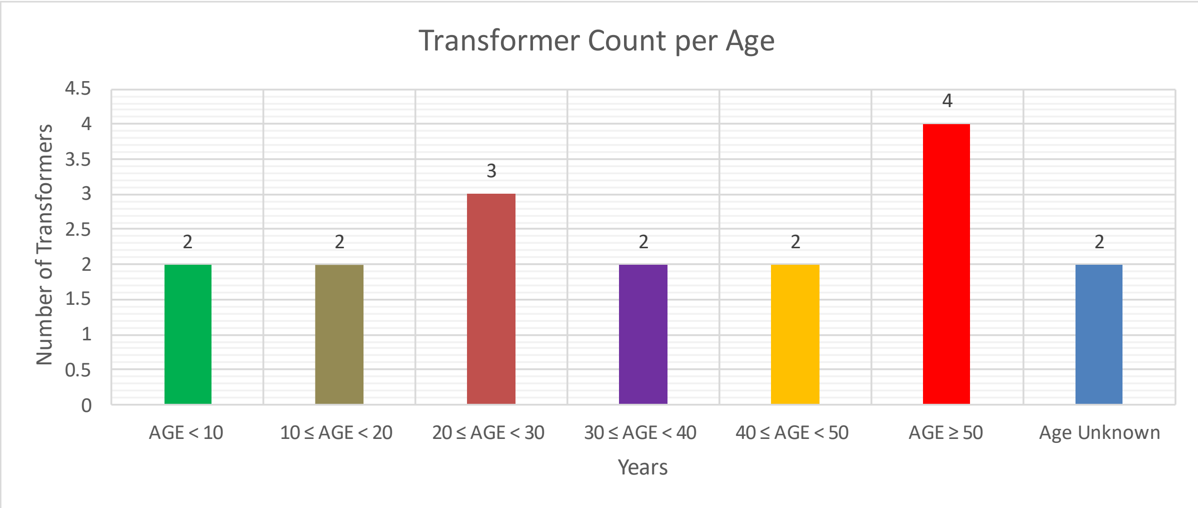


Figure 9-10: Transformer count per age group

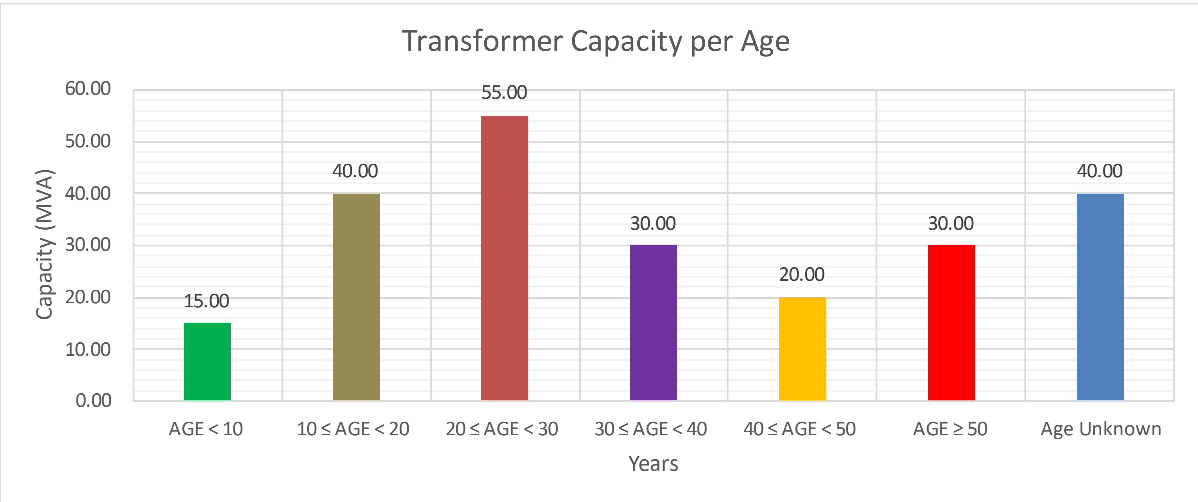


Figure 9-11: Transformer total capacity per age group

Figure 9-12 shows the number of transformers per remaining useful life group. Figure 9-13 shows the corresponding total capacity per remaining useful life group. At least 4 transformers with a combined capacity of 30MVA have depleted their useful life.

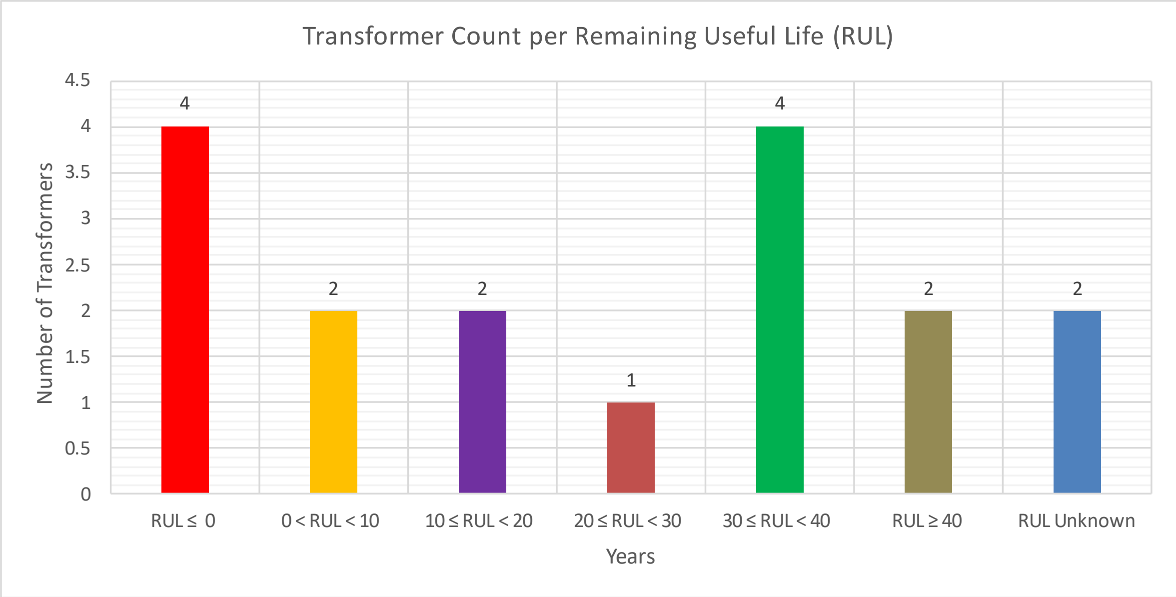


Figure 9-12: Transformer count per remaining useful life group

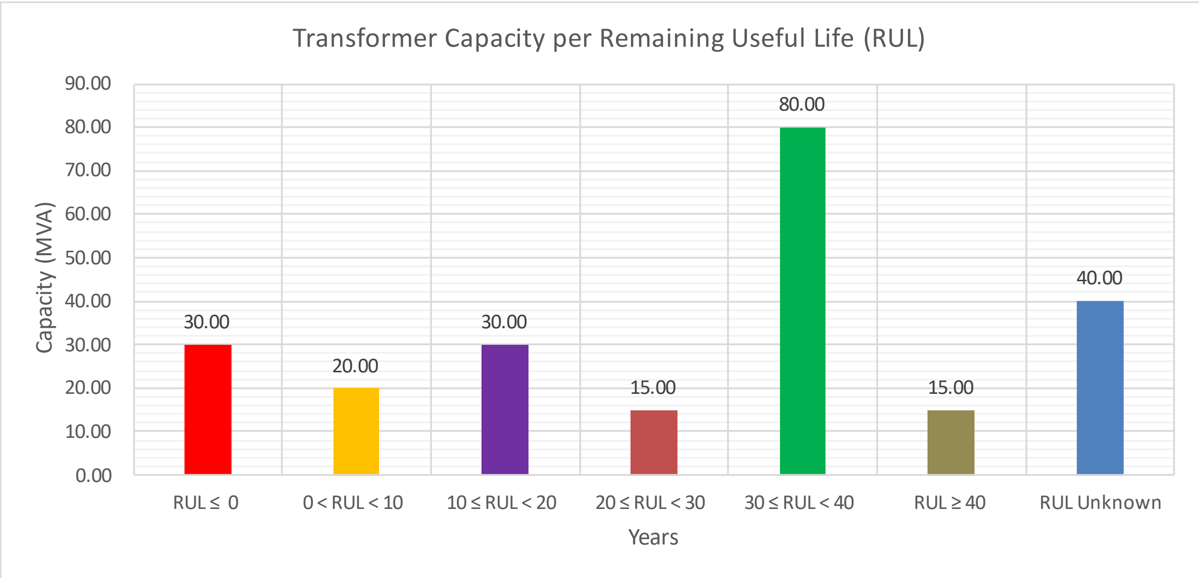


Figure 9-13: Transformer total capacity per remaining useful life group

Figure 9-14 shows the number of transformers per plant health index category with the corresponding capacity shown in Figure 9-15. Only 1 transformer is classified as unhealthy with a capacity of 10 MVA. Unhealthy transformers require preferential corrective attention before possible failure. There is only one moderately unhealthy transformer with a capacity of 10MVA. Moderately unhealthy transformers have a PHI score of at least 2.01 but below 3.01. The remaining 15 transformers with a combined capacity of 210 MVA have a PHI score of between 1.01 and 2.01. These are classified as moderately healthy transformers.

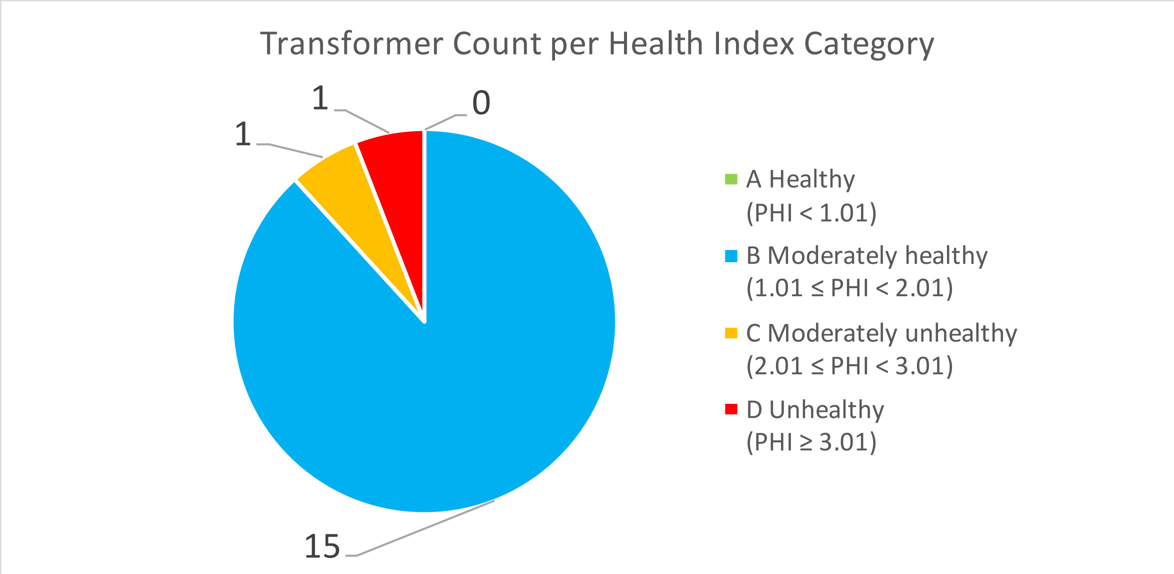


Figure 9-14: Transformer count per Plant Health Index category

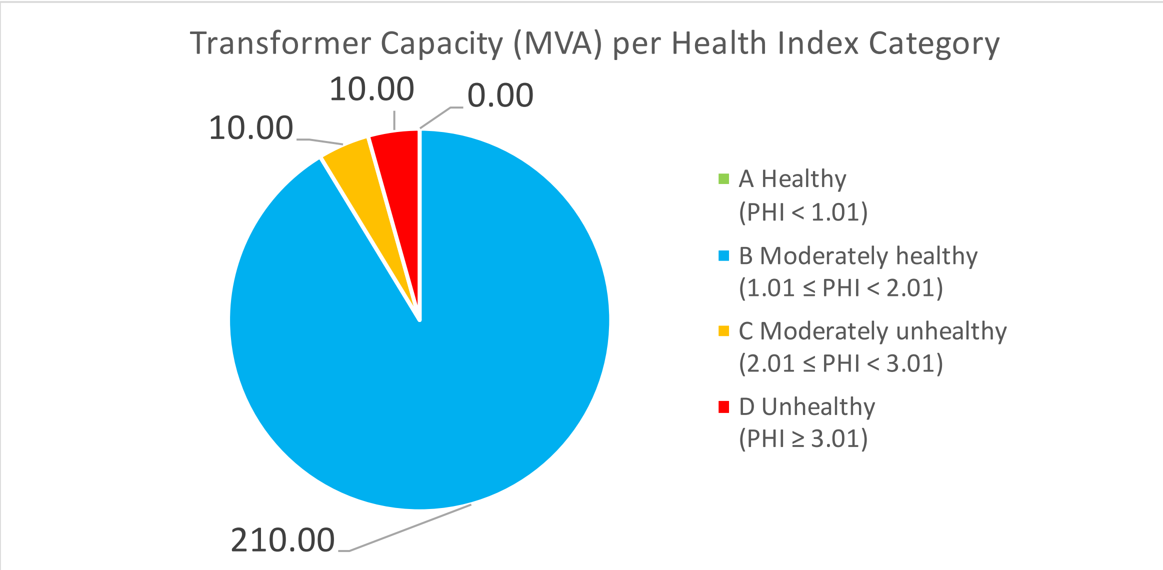


Figure 9-15: Transformer total capacity per Plant Health Index category

It is recommended that 3 transformers with a combined capacity of 22.5 MVA require replacement as illustrated in Figure 9-16 and Figure 9-17. The quality of the insulation oil of one transformer is very poor. This oil should be replaced. The rest of the transformers should be monitored with special attention and investigation applied to the high-ranking units on the output replacement / refurbishment priority list.

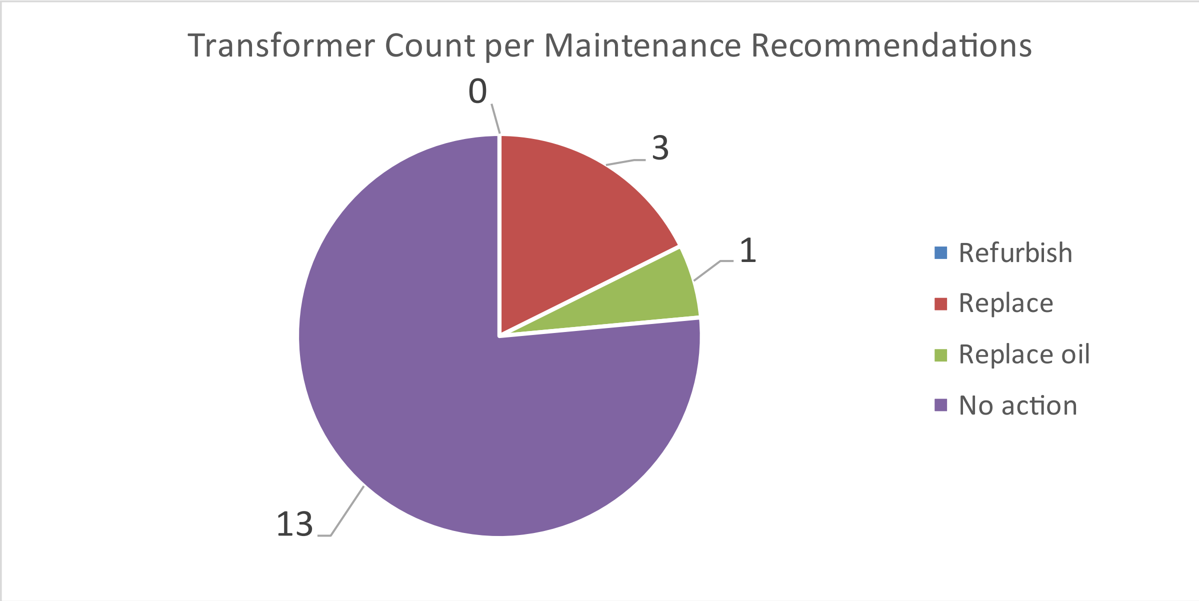


Figure 9-16: Transformer count per maintenance recommendations

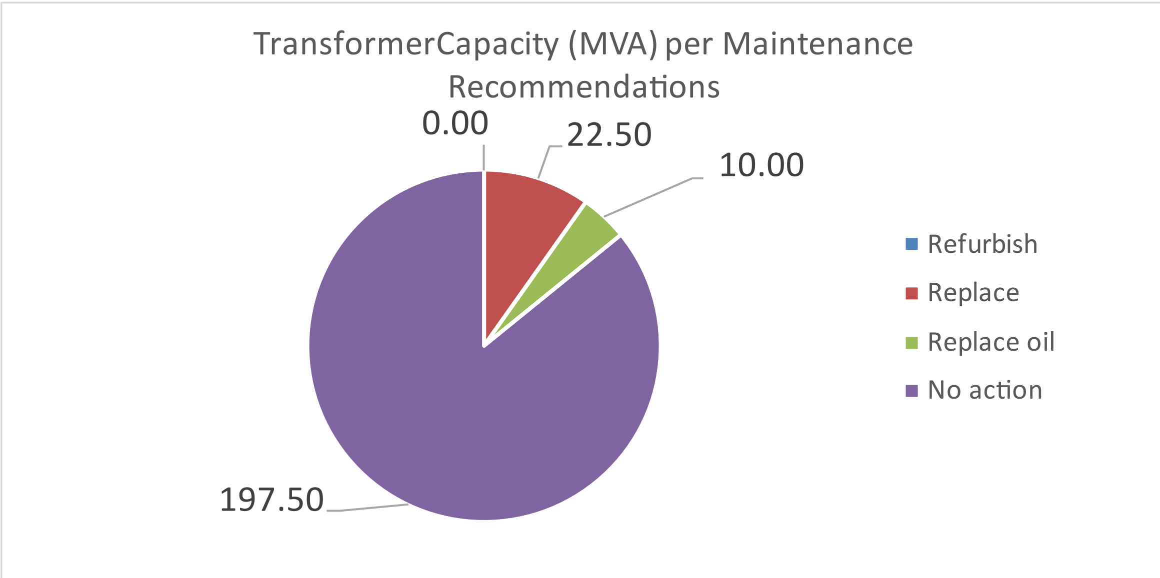


Figure 9-17: Transformer total capacity per maintenance recommendations

9.4.3 Tap Changers

Table 9-10 shows the resultant transformer tap changer refurbishment / replacement rank list with the recommended actions.

Table 9-10: HV Transformer T/C Asset Refurbishment/Replacement Prioritization List

Transformer T/C	Serial Number	Age	RUL	Score	Rank	Category	Description	Assessed Condition
Markotter TRF 01, T/C 7.5 MVA	3338	52	-2	3.78	50.00%	D	Unhealthy	Transformer tap changer is in an unhealthy state and the Useful Life has been depleted. Very poor insulating oil quality. Transformer tap changer must be replaced or at least replace oil.

Transformer T/C	Serial Number	Age	RUL	Score	Rank	Category	Description	Assessed Condition
Jan Marais TRF 02, T/C 10 MVA	T0035	44	6	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Jan Marais TRF 01, T/C 10 MVA	T0036	44	6	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
University Sub TRF 01, T/C 15 MVA	135939	36	14	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
University Sub TRF 02, T/C 15 MVA	144098	27	23	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Golf Club TRF 01, T/C 20 MVA	80922/1	17	33	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Markotter TRF 02, T/C 7.5 MVA	3385a	7	43	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
University Sub TRF 03, T/C 15 MVA	1851394	6	44	3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Cloetesville Sub TRF 02, T/C 20 MVA	CLOETESVILLE2-TC	0		3.78	50.00%	D	Unhealthy	The transformer tap changer is in an unhealthy state. Very poor insulating oil quality. Replace oil.
Cloetesville Sub TRF 01, T/C 20 MVA	CLOETESVILLE1-TC	0		1.98	43.70%	B	Moderately healthy	
Golf Club TRF 02, T/C 20 MVA	80922/2	17	33	1.18	37.50%	B	Moderately healthy	
Main Sub TRF 01, T/C 7.5 MVA	IZSC8719350	52	-2	0.98	0.00%	A	Healthy	The transformer tap changer has depleted its useful life. It should be replaced.
Markotter TRF 03, T/C 7.5 MVA	IZSC2719349	50	0	0.98	0.00%	A	Healthy	The transformer tap changer has depleted its useful life. It should be replaced.
Franschoek sub TRF 02, T/C 20 MVA	35027003	20	30	0.98	0.00%	A	Healthy	
Franschoek sub TRF 01, T/C 20 MVA	035027-001	20	30	0.98	0.00%	A	Healthy	
Main Sub TRF 02, T/C 7.5 MVA	IZSC8720488	8	42	0.98	0.00%	A	Healthy	
Main Sub TRF 03, T/C 7.5 MVA	3330	6	44	0.98	0.00%	A	Healthy	

A total of 17 HV transformer tap changers were considered for evaluation. The average age of these equipment is 27.1 years, and the corresponding average remaining useful life is 22.9 years. Figure 9-18 illustrates the distribution of transformers across different age groups. There are at least 2 transformer tap changers below 10 years of age, 2 between 10 and 20 years of age, 3 between 20 and 30 years of age, 1 between 30 and 40 years of age, 2 between 40 and 50 years of age, and 3 above 50 years of age.

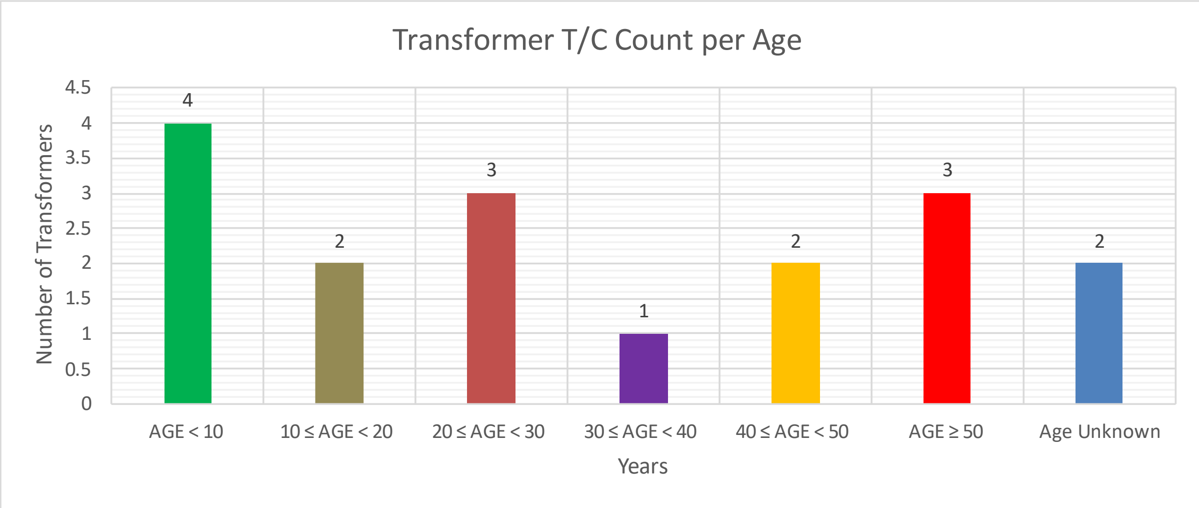


Figure 9-18: Transformer T/C count per age group

Figure 9-19 shows the number of transformer tap changers per remaining useful life group. At least 3 tap changers have depleted their useful life.

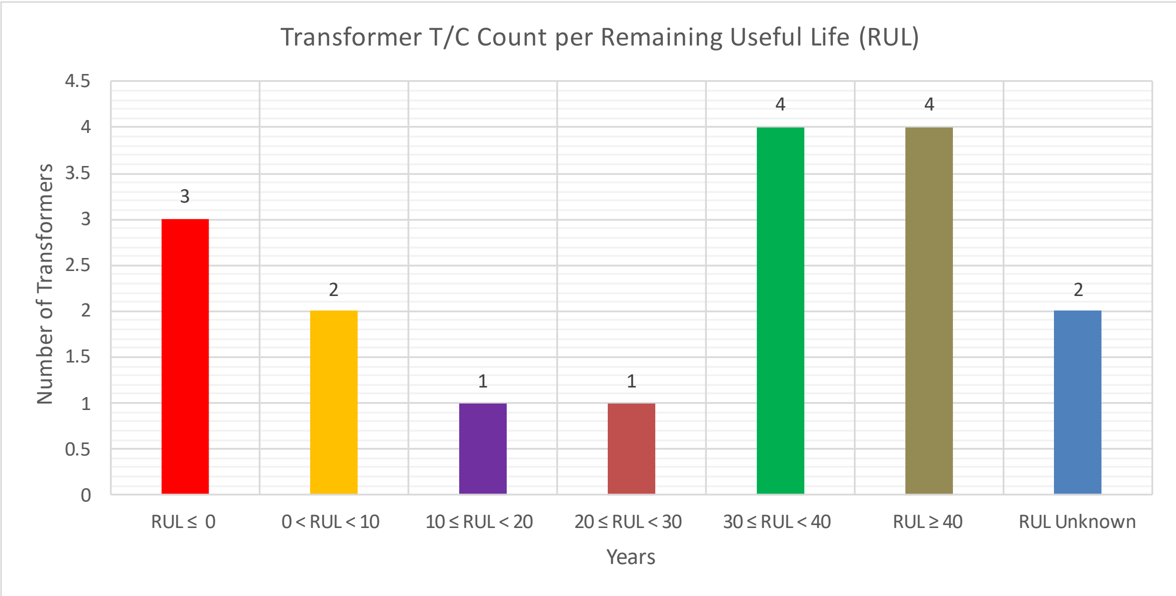


Figure 9-19: Transformer T/C count per remaining useful life group

Figure 9-20 shows the number of transformer tap changers per plant health index category. Nine transformer tap changers are classified as unhealthy, 2 as moderately healthy and the remaining 6 as healthy.

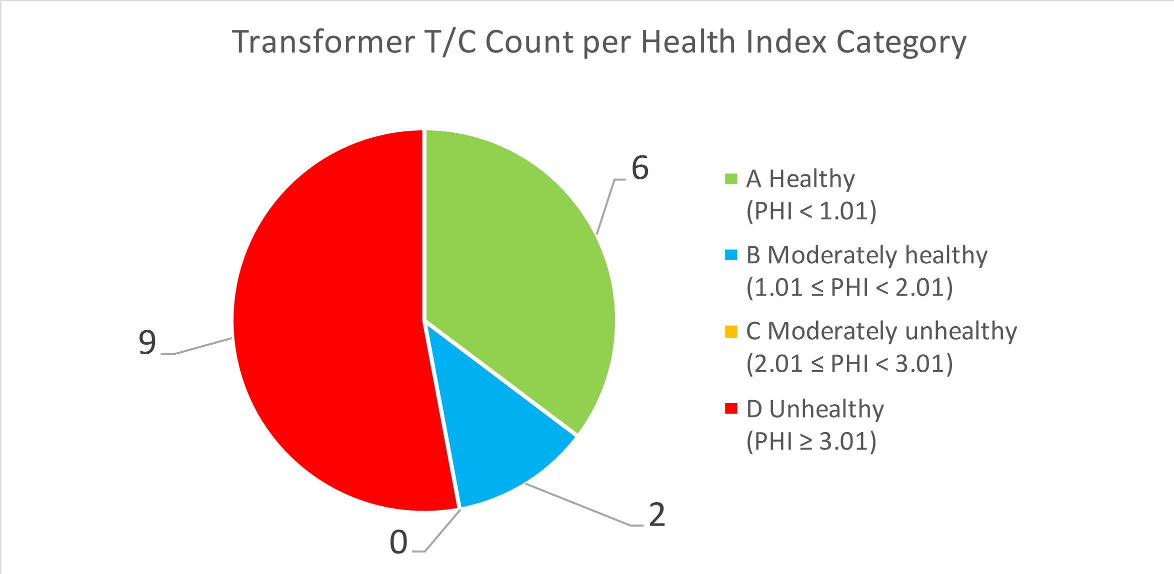


Figure 9-20: Transformer T/C count per Plant Health Index category

A summary of the recommendation actions are shown in Figure 9-21. It is recommended that 3 of the tap changers should be replaced. A total of 8 tap changers requires replacement of the insulating oil. The rest of the tap changers should be monitored with special attention and investigation applied to the high-ranking units on the output replacement / refurbishment priority list.

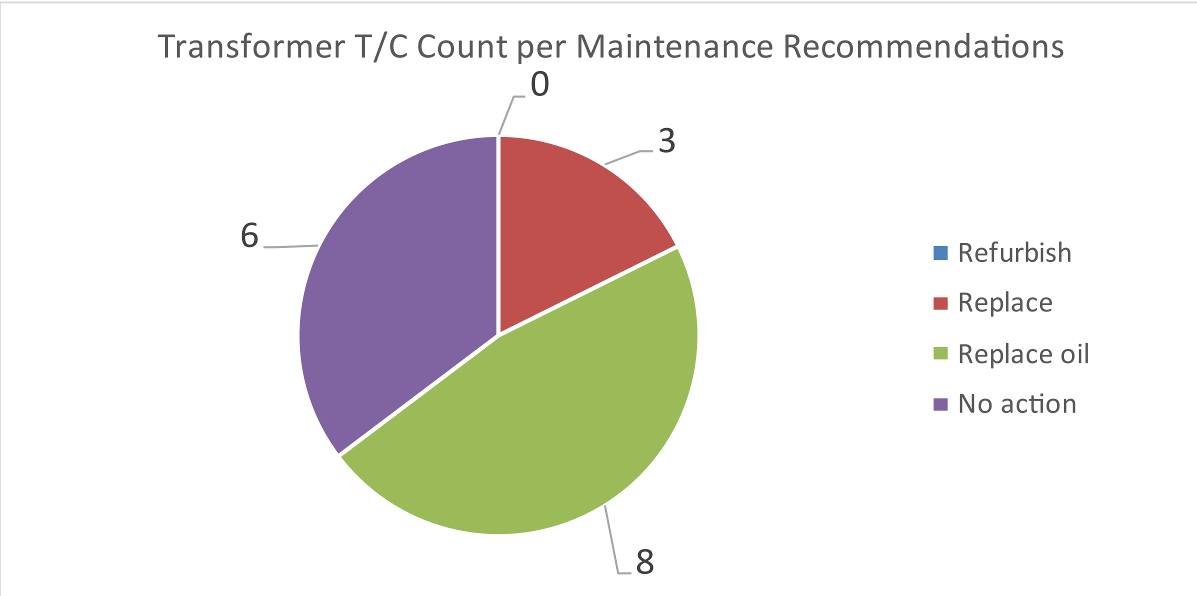


Figure 9-21: Transformer T/C count per maintenance recommendations

10 NETWORK DEVELOPMENT PLANS

1.9 Transformer Upgrades

The table below represents the demand forecast for a period of 20 years for each Main substation. Its purpose is to assess each main substations installed and firm capacity over the 20-year period to ascertain when the municipality can expect the transformers to be overloaded. In doing so this will inform the upgrade year and cost allocation for any transformer installations or replacements.

Table 10-1: Primary Substation Demand Forecast - 20 year period [MVA]

Substation	Transformer Status	Installed Capacity	Firm Capacity	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
SS Main	3 x 7.5MVA	22,5	15	8	8	8	9	9	12	15	18	19	19	20	21	25	27	27	27	29	32	33	34	35
SS Cloetesville	2 x 20MVA	40	20	12	12	12	12	12	13	15	16	17	17	17	19	23	24	25	25	25	26	26	26	26
SS University	3 x 15MVA	45	30	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16
SS Jan Marais	2 x 10MVA	20	10	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12
SS Markotter	3 x 7.5MVA	22,5	15	9	9	9	9	9	9	9	10	10	10	10	11	13	14	14	14	16	16	16	16	16
SS Golf	2 x 20MVA	40	20	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12	12
SS Franschhoek	2 x 20MVA	40	20	11	11	11	11	12	13	14	15	15	16	16	16	17	17	17	17	18	18	18	18	18

10.1.1 Observations

From Table 10-1 above the following is observed:

i. SS Main – Fim Capacity exceeded by 2029 and Installed Capacity exceeded in 2035.

ii. SS Cloetesville – Firm Capacity exceeded by 2035.

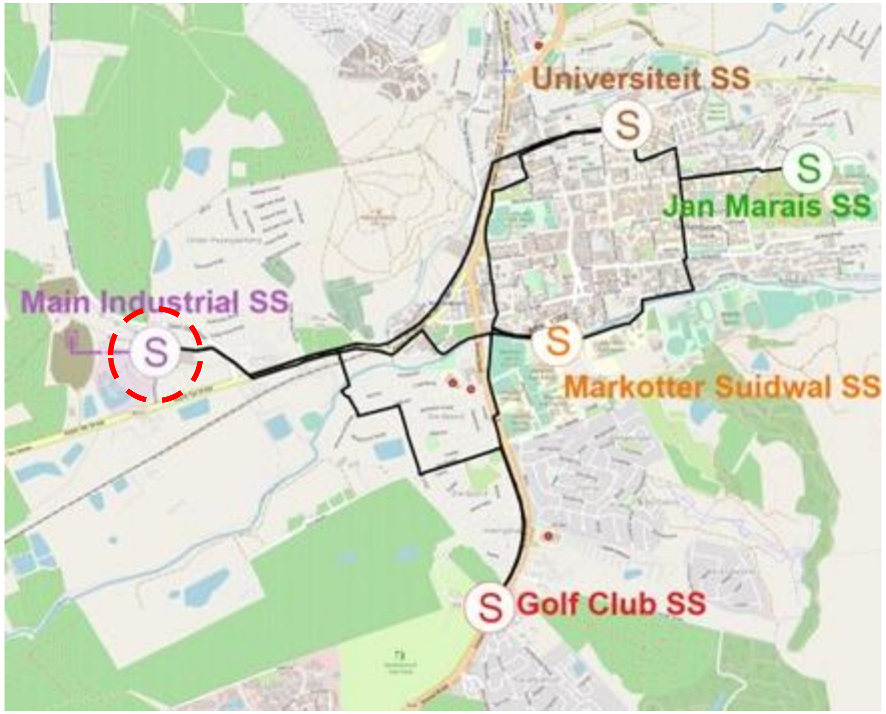
iii. SS Jan Marais – Firm Capacity is already exceeded.

iv. SS Markotter – Firm Capacity exceeded by 2039.

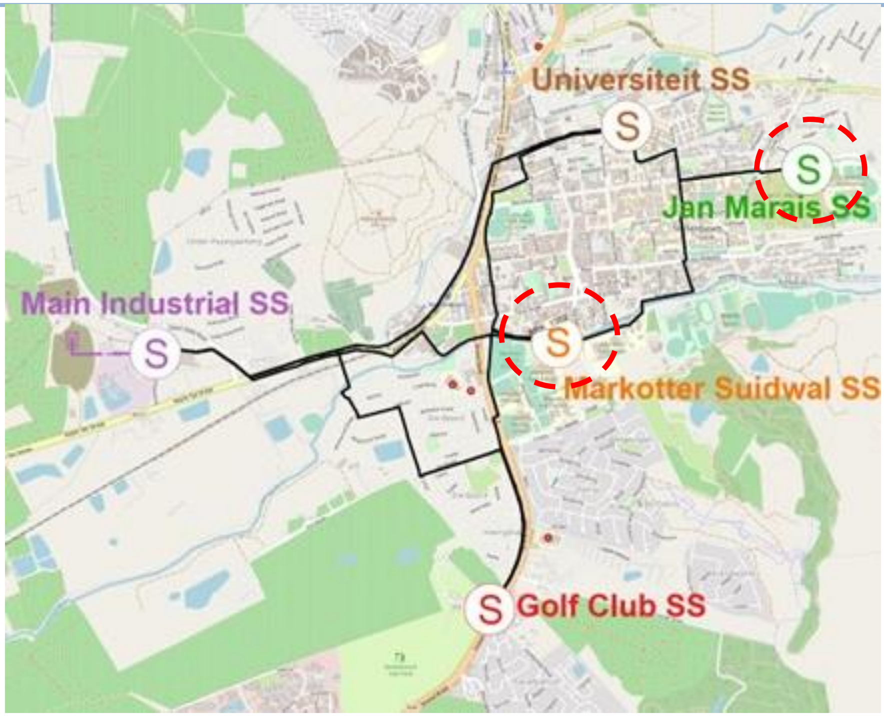
10.1.2 Transformer Interventions

The following network developments are proposed to mitigate the observations above. These interventions were proposed based on the findings of Network Refurbishment and replacement plans in combination with the demand forecast findings represented in Table 10-1.

Table 10-2: STLM Transformer interventions

Location	Description
	**SS MAIN** Project Name: Main Sub TRF 03 7.5 MVA Project Desc.: Replace TRFR Rated MVA: 7,5MVA Type: Transformer Categ.: Refurbishment Violation Year: 2023 Condition: The transformer has depleted its useful life. Intervention: Year: 2023 - It should be replaced with a 7,5MVA Transformer Project Name: Main Sub TRF 01 7.5 MVA Project Desc.: Replace TRFR Rated MVA: 7,5MVA Type: Transformer Categ.: Refurbishment Violation Year: 2023 Condition: The transformer has depleted its useful life. Intervention: Year: 2023 - It should be replaced with a 7,5MVA Transformer Project Name: Main Substation - TRFR Phase 1 - 3 Project Desc.: Replace TRFR Rated MVA: 7,5MVA Type: Transformer Categ.: Strengthening Violation Year: 2029 Condition: The substation will begin to exceed its firm capacity by 2029 reaching above 15MVA and its installed capacity by 2035 reaching 24MVA. The substation is forecasted to reach a demand of approximately 35MVA by 2043 year 20. Intervention: - The Transformers should be upgraded in three phases over the next 20 years with a 20MVA transformer in each phase. Year: 2028 : Phase 1 – Install 20MVA TRFR Year: 2038 : Phase 2 – Install 20MVA TRFR Year: 2042 : Phase 3 – Install 20MVA TRFR

Location	Description
	**SS CLOETESVILLE** Project Name: Cloetesville Substation - TRFR Phase 1 Project Desc.: Install Transformer Rated MVA: 20MVA Type: Substation Categ.: Strengthening Violation Year: 2035 Condition: The substation will begin to exceed its firm capacity in 2035 reaching above 22MVA. The substation is forecasted to reach a demand of approximately 26MVA by 2043 year 20. Intervention: An additional 20MVA transformer should be installed along with a third feeder bay to strengthen the substation firm capacity. Year: 2034 : Install 20MVA TRFR
	SS JAN MARAIS Project Name: Jan Marais Substation - TRFR Phase 1 Project Desc.: Install Transformer Rated MVA: 10MVA Type: Substation Categ.: Strengthening Violation Year: 2023 Condition: The substation is already exceeding its firm capacity in 2023 reaching above 10MVA. Intervention: The substation is forecasted to reach a demand of approximately 12,27MVA by 2043 year 20. Upgrade 10 MVA transformers to 20MVA. (1 x 20MVA will be installed at Jan Marais in the next year already) Year: 2024: Install additional 20MVA transformer

Location	Description
	See below

SS MARKOTTER

Project Name: Markotter TRF 01 7.5 MVA
Project Desc.: Replace TRFR
Rated MVA: 7,5MVA
Type: Transformer
Categ.: Refurbishment
Violation Year: 2023
Condition: The transformer has depleted its useful life.

Intervention: It should be replaced with a 7,5MVA Transformer

Year: 2023: Replace the Transformer 1 with a 7.5MVA TRFR

Project Name: Markotter Substation - TRFR Phase 1
Project Desc.: Install Transformer
Rated MVA: 7,5MVA
Type: Substation
Categ.: Strengthening
Violation Year: 2039
Condition: The substation will begin to exceed its firm capacity in 2039 reaching above 15MVA. The substation is forecasted to reach a demand of aproximately 16MVA by 2043 year 20.

Intervention: An additional 7,5MVA transformer should be installed along with a thrid feeder bay to strengthen the substation firm capacity.

Year: 2038: Move the replaced 7,5MVA transformer at SS MAIN and install it as a third transformer at SS MARKOTTER

10.1.3 Results after Interventions

Table 10-3 below represents what the previous Table 10-1 would look like after the interventions above are made.

Table 10-3: Primary Substation Demand Forecast - 20 year period [MVA] (After interventions)

Substation	Transformer Status	Installed Capacity	Firm Capacity	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
SS Main	3 x 7.5MVA	60	40	8	8	8	9	9	12	15	18	19	19	20	21	25	27	27	27	29	32	33	34	35
SS Cloetesville	2 x 20MVA	60	40	12	12	12	12	12	13	15	16	17	17	17	19	23	24	25	25	25	26	26	26	26
SS University	3 x 15MVA	45	30	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16
SS Jan Marais	2 x 10MVA	30	20	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12
SS Markotter	3 x 7.5MVA	30	22,5	9	9	9	9	9	9	9	10	10	10	10	11	13	14	14	14	16	16	16	16	16
SS Golf	2 x 20MVA	40	20	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12	12
SS Franschhoek	2 x 20MVA	40	20	11	11	11	11	12	13	14	15	15	16	16	16	17	17	17	17	18	18	18	18	18

1.10 Line/ Cable Upgrades

10.1.4 Observations

The analysis of the Stellenbosch Network Violations, page 78, reveals notable trends and concerns within the network's behavior over the simulated 20-year period. In examining the load flow calculations, it becomes apparent that the identified violations occur primarily in the Main SS supply area during its growth phase.

A closer look at the predicted violations indicates that certain feeders within the network are expected to surpass critical thermal ratings, raising alarms about their long-term sustainability. The following feeders exhibit concerning projections:

i. Polkadraai SS/MBR 1 MS 11kV:

   Exceeds 80% in 2034.

   Exceeds 100% in 2036.

ii. Main Industrial SS/Devon Valley SS 11kV:

   Exceeds 80% in 2035.

   Exceeds 100% in 2039.

iii. Main Industrial SS/Polkadraai SS 11kV 2:

   Exceeds 80% in 2035.

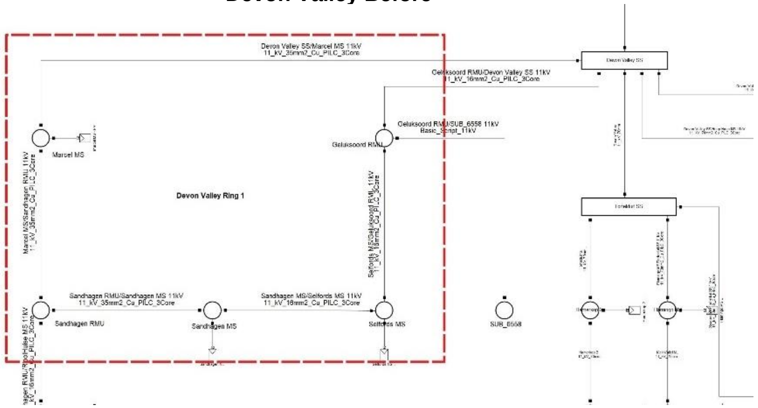
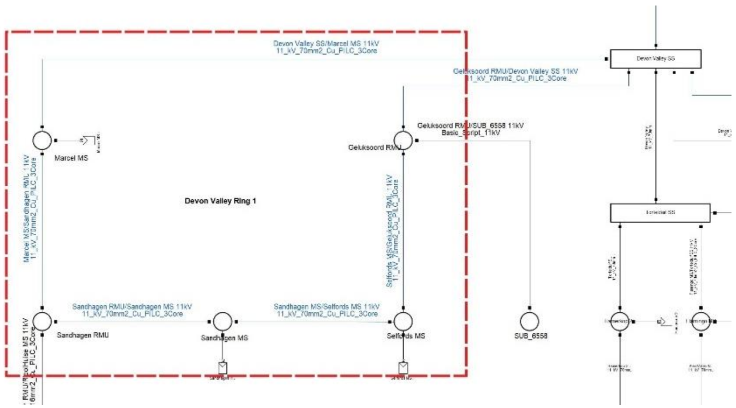
   Exceeds 100% in 2039.

These projections highlight the critical years when these feeders are expected to operate at or beyond their thermal limits. The significance of these observations lies in the need for proactive measures to address the potential overloading of these feeders, ensuring the reliability and efficiency of the Stellenbosch Network as it undergoes growth and development. For a more detailed breakdown of the results, please refer to Appendix D.

10.1.5 Line Interventions

The recommended network developments for Main supply area are presented in this section. Table 10-4 shows recommended developments in Devon Valley.

Table 10-4: Devon Valley interventions

Location	Description
Devon Valley Before 	Line: Devon Valley SS/Marcel MS 11kV Length: 0,251433km Rated Current: 0,131kA Type: 11_kV_35mm2_Cu_PILC_3Core Year: 2030 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Al PILC 3Core (Eskom) Underg Year: 2030
	Line: Geluksoord RMU/Devon Valley SS 11kV Length: 0,238482km Rated Current: 0,082kA Type: 11_kV_16mm2_Cu_PILC_3Core Year: 2030 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Al PILC 3Core (Eskom) Underg Year: 2030
Devon Valley After 	Line: Marcel MS/Sandhagen RMU 11kV Length: 0,17152km Rated Current: 0,131kA Type: 11_kV_35mm2_Cu_PILC_3Core Year: 2030 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg Year: 2030
	Line: Sandhagen MS/Selfords MS 11kV Length: 0,261428km Rated Current: 0,082kA Type: 11_kV_16mm2_Cu_PILC_3Core Year: 2030 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg Year: 2030

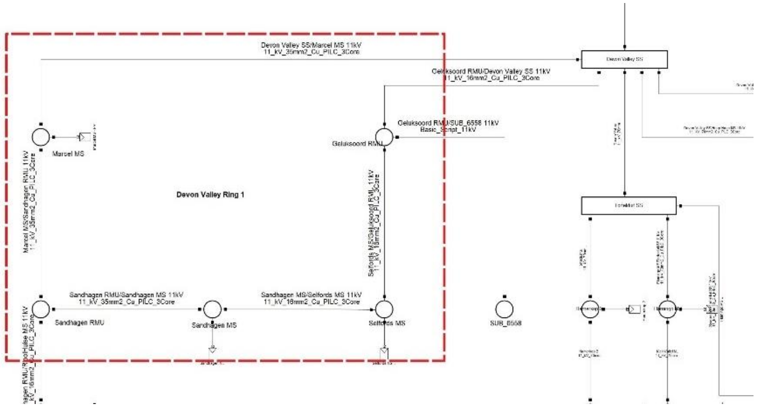
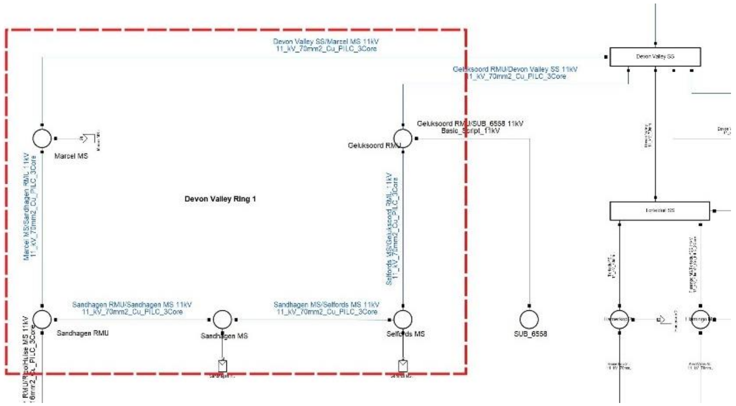
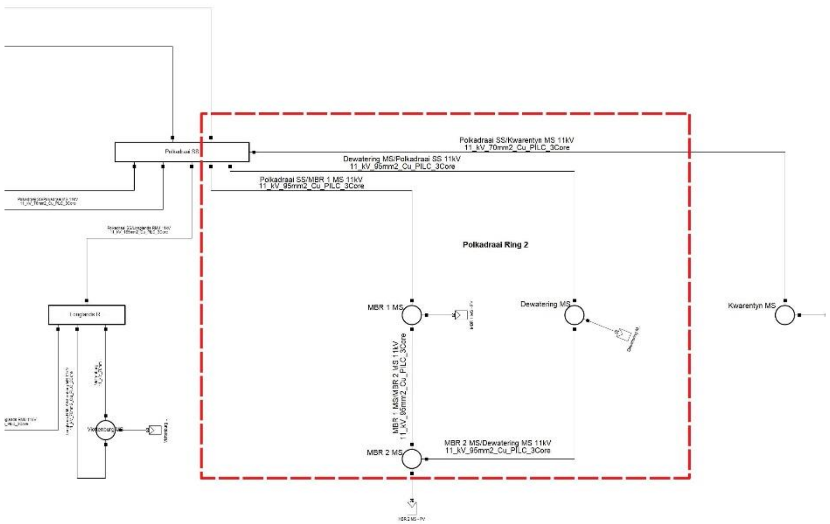
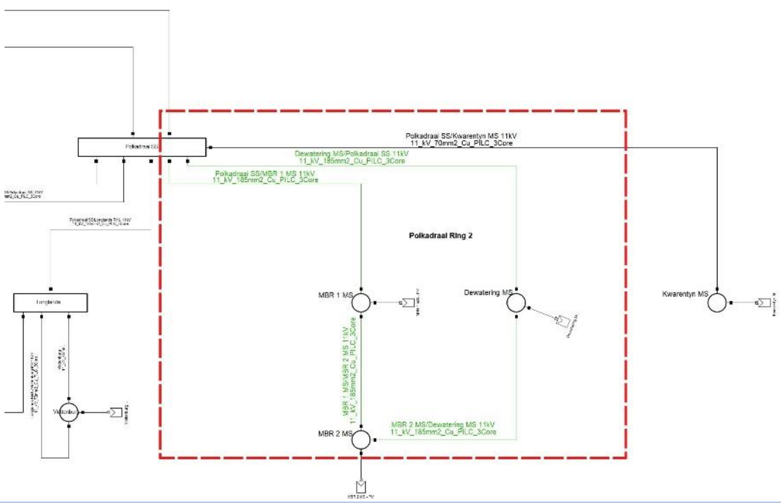
Location	Description
Devon Valley Before 	Line: Sandhagen RMU/Sandhagen MS 11kV Length: 0,003775km Rated Current: 0,131kA Type: 11_kV_35mm2_Cu_PILC_3Core Year: 2030 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg Year: 2030
	Line: Devon Valley SS/Mondi Timbers TRF 11kV Length: 0,39528132297km Rated Current: 0,245kA Type: 11 kV 150mm2 Al PILC 3Core (Eskom) Underg Year: 2039 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2035
Devon Valley After 	Line: Main Industrial SS/Devon Valley SS 11kV Length: 0,45092471467km Rated Current: 0,245kA Type: 11 kV 150mm2 Al PILC 3Core (Eskom) Underg Year: 2039 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2035
	Line: Mondi Timbers TRF/Begraafplaas SS 11kV Length: 0,39528133418km Rated Current: 0,147kA Type: 11 kV 150mm2 Al PILC 3Core (Eskom) Underg Year: 2039 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2035

Table 10-5 below shows recommended developments in Polkadraai.

Table 10-5: Polkadraai interventions

Location	Description
Polkdraai Before  	Line: Dewatering MS/Polkadraai SS 11kV Length: 0,509039km Rated Current: 0,245kA Type: 11 kV 95mm2 Cu PILC 3Core (Eskom) Underg Year: 2034 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2034
	Line: MBR 1 MS/MBR 2 MS 11kV Length: 0,002457km Rated Current: 0,245kA Type: 11 kV 95mm2 Cu PILC 3Core (Eskom) Underg Year: 2034 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2034
	Line: MBR 2 MS/Dewatering MS 11kV Length: 0,28275km Rated Current: 0,245kA Type: 11 kV 95mm2 Cu PILC 3Core (Eskom) Underg Year: 2034 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2034
	Line: Polkadraai SS/MBR 1 MS 11kV Length: 0,1679km Rated Current: 0,245kA Type: 11 kV 95mm2 Cu PILC 3Core (Eskom) Underg Year: 2034 Condition: Overloaded under normal operating conditions. Intervention: Strengthen entire Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under Year: 2034

<table>
<tr><th>Location</th><th>Description</th></tr>
<tr><td>Polkadraai After


</td>
<td>Line: Polkadraai SS/MBR 1 MS 11kV
Length: 0,1679km
Rated Current: 0,245kA
Type: 11 kV 95mm2 Cu PILC 3Core (Eskom) Underg
Year: 2034
Condition: Overloaded under normal operating conditions.

Intervention: Strengthen entire Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under
Year: 2034</td></tr>
</table>

10.1.6 Results after Interventions

The following subsections present the necessary development plans per substation supply area.

1.11 NMD Increases

Based on the demand forecast the following Substations will exceed their NMD's. The table below shows the current NMD's and the recommended increases.

Table 10-6: NMD Upgrade points

Substation	Uk (kV)	Current NMD [MVA]	2023	2028	2033	2035	2037
SS Cloetesville	66	16		25			30
SS Main	66	60		80		90	
SS Franschhoek	66	10	16		25		
Pniel	11	4	8				

10.2 New Substations

La Terra 11kV – Franschhoek

The intervention proposed for the La Terra 11kV switching station project encompasses a comprehensive scope of works aimed at ensuring the successful establishment of the new facility. In the preliminary phase, the contractor is tasked with identifying existing services within the construction area and its vicinity. This involves the crucial task of locating and, if necessary, relocating the 70mm^2 11kV underground cable running across the construction zone. In cases where the existing cable is deemed unfit for use, the intervention includes the relocation of the 2 x 185mm^2 11kV underground cable along the construction area. These 185mm^2 cables have already been installed from SR Santa Rosa to the new La Terra.

Additionally, the removal of soil and bricks obstructing the construction site is incorporated into the preliminary works. The electrical design scope of works is extensive, encompassing the design, supply, delivery, and installation of essential components such as 11kV metalclad switchgear, auxiliary equipment, and cables with specified terminations. The proposed intervention also involves the design and installation of MV mini substations at designated points around the Franschhoek area, ranging from 315kVA to 500kVA. A crucial aspect of the intervention is the thorough testing and commissioning of all electrical equipment, ensuring the reliability and functionality of the new La Terra switching station. For the purpose of this Master plan the integration of the new substation was modelled as part of the expansion stages as seen in the Figure below.

11 CAPITAL COST ESTIMATES

A thorough examination and assessment of the municipal electrical grid's requirements for enhancement, expansion, and heightened reliability has culminated in the identification of vital capital projects. The per-unit cost of the equipment has been meticulously calculated, encompassing considerations for both labor and transportation expenses. Furthermore, the project cost estimation incorporates a prudent 10% contingency and a 7.5% consultant fee, ensuring a comprehensive and realistic financial projection. The cumulative estimated cost for the successful implementation of the proposed grid strengthening projects stands at R112 million Rand. This financial evaluation reflects a holistic approach to address the evolving needs of the electrical infrastructure, emphasizing both efficiency and fiscal responsibility in the pursuit of a resilient and reliable municipal power grid. **Error! Reference source not found.** presents a detailed breakdown of the p roject costing per each year. The following insights are gained from the compilation of projects and allocation of capital expenditure.

11.1 Diversified Project Portfolio

The masterplan incorporates a diversified portfolio of projects, spanning equipment replacement, capacity expansion, infrastructure strengthening, and substation upgrades. This approach ensures a comprehensive strategy to address various aspects of the electrical infrastructure.

11.2 Geographical Focus

Projects are strategically distributed across different supply areas, including MAIN, MARKOTTER, FRANSCHHOEK, and CLOETESVILLE. This geographic focus reflects an inclusive effort to enhance the electrical grid's reliability and resilience in various regions.

11.3 Long-Term Vision:

The timeline of projects extends from the current year (2023) to future years (up to 2042), underscoring a long-term vision for sustainable infrastructure development. This forward-looking approach aligns with the anticipated growth and evolution of the electrical grid.

11.4 Capacity Expansion Strategies:

Significant emphasis is placed on capacity expansion, evident in projects such as NMD capacity increases (PROJ4, PROJ5, PROJ8, PROJ9) and phased upgrades of Main Substation (PROJ10, PROJ26, PROJ28). These initiatives demonstrate a commitment to meeting the rising demands of electricity consumption.

11.5 Technological Advancements:

The masterplan incorporates technology upgrades, including the establishment of new switching stations (PROJ6), phased installation of transformers (PROJ10, PROJ26, PROJ28), and transformer refurbishments and relocations (PROJ27). These advancements signify a commitment to adopting modern technologies for improved grid performance.

11.6 Financial Considerations:

The costing for each project is reflective of the scale and complexity of the associated improvements. The financial commitment underscores the dedication to providing a robust and sustainable electrical infrastructure that meets both current and future requirements.

11.7 Comprehensive Infrastructure Strengthening:

Infrastructure strengthening projects (PROJ11 to PROJ21, PROJ23 to PROJ25) are strategically dispersed, showcasing a systematic effort to reinforce critical components of the electrical distribution system. This approach enhances the overall resilience and reliability of the grid.

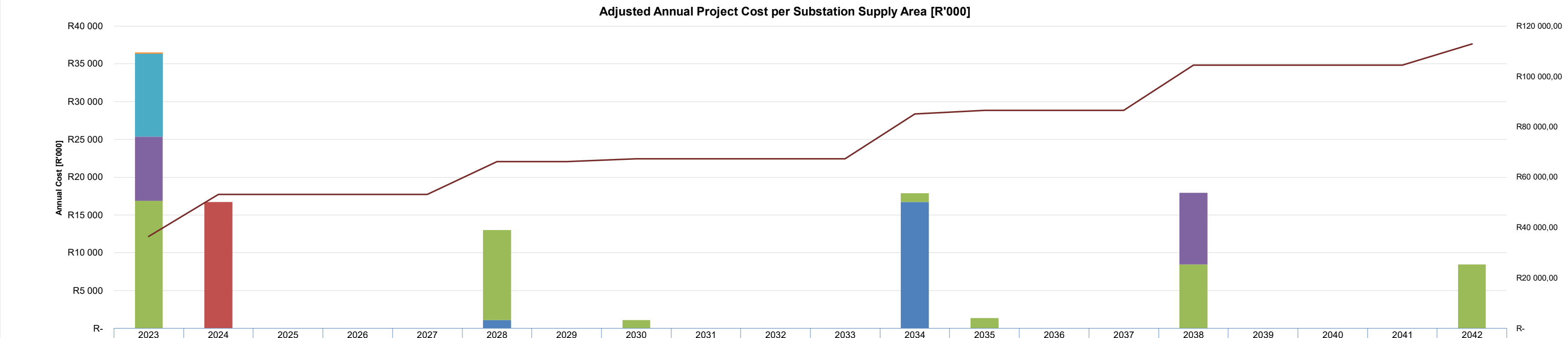
The insights gathered from the masterplan highlight a holistic and forward-thinking approach to managing and enhancing the electrical infrastructure. This strategic vision ensures the adaptability of the electrical grid to evolving demands, technological advancements, and geographical considerations.

Table 11-1: Detailed Project List Costing

Project	Year	Supply Area	Project Name	Project Description	Project Type	Costing
PROJ1	2023	MAIN	TRF Replacement	Replace TRF 03 7.5 MVA. TRFR 7,5MVA	Equipment Replacement	R8 446 032,00
PROJ2	2023	MARKOTTER	TRF Replacement	Replace Markotter TRF 01 7.5 MVA. TRFR 7,5MVA	Equipment Replacement	R8 446 032,00
PROJ3	2023	MAIN	TRF Replacement	Replace Main Sub TRF 01 7.5 MVA. TRFR 7,5MVA	Equipment Replacement	R8 446 032,00
PROJ4	2023	FRANSCHHOEK	NMD Increase Franschhoek	Increase NMD capacity by 25MVA	Capacity Expansion	R1 155 600,00
PROJ5	2023	PNIEL	NMD Increase Pniel	Increase NMD capacity by 8MVA	Capacity Expansion	R119 840,00
PROJ6	2023	FRANSCHHOEK	New Switching Station	Establish New Switching Station at La Terra da Luc Farm	New Infrastructure	R9 895 953,64
PROJ7	2024	JANMARAIS	Jan Marais Substation Phase 1	Upgrade Jan Marais Substation, install 20MVA transformer	Substation Upgrade (Phase 1)	R16 703 383,90
PROJ8	2028	CLOETESVILLE	NMD Increase Cloetesville	Increase NMD capacity by 30MVA	Capacity Expansion	R1 078 560,00
PROJ9	2028	MAIN	NMD Increase MAIN	Increase NMD capacity by 90MVA	Capacity Expansion	R3 468 000,00
PROJ10	2028	MAIN	Main Substation Phase 1	Upgrade Main Substation, install transformers in three phases, reaching 35MVA	Substation Upgrade (Phases 1-3)	R8 446 032,00
PROJ11	2030	MAIN	Devon Valley Ring Strengthening	Strengthen Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R101 725,76
PROJ12	2030	MAIN	Geluksoord RMU Strengthening	Strengthen Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R96 485,99
PROJ13	2030	MAIN	Marcel MS Strengthening	Strengthen Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R69 394,24
PROJ14	2030	MAIN	Sandhagen MS Strengthening	Strengthen Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R675 670,94
PROJ15	2030	MAIN	Sandhagen RMU Strengthening	Strengthen Devon Valley Ring from Marcel to Geluksoord 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R1 527,30
PROJ16	2030	MAIN	Selfords MS Strengthening	Strengthen Devon Valley Ring from Marcel MS to Geluksoord RMU 11 kV 70mm2 Cu PILC 3Core (Eskom) Underg	Infrastructure Strengthening	R169 832,62
PROJ17	2034	MAIN	Dewatering MS Strengthening	Strengthen Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under	Infrastructure Strengthening	R492 130,76
PROJ18	2034	MAIN	MBR 1 MS Strengthening	Strengthen Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under	Infrastructure Strengthening	R2 686,02
PROJ19	2034	MAIN	MBR 2 MS Strengthening	Strengthen Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under	Infrastructure Strengthening	R309 105,01
PROJ20	2034	MAIN	Polkadraai SS to MBR 1 MS Strengthening	Strengthen Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under	Infrastructure Strengthening	R183 549,89

Project	Year	Supply Area	Project Name	Project Description	Project Type	Costing
PROJ21	2034	MAIN	Polkadraai SS to MBR 1 MS Strengthening	Strengthen Polkadraai Ring from MBR1 MS to Dewatering MS 11 kV 185mm2 Cu PILC 3Core (Eskom) Under	Infrastructure Strengthening	R183 549,89
PROJ22	2035	CLOETESVILLE	Cloetesville Substation Phase 1	Upgrade Cloetesville Substation, install 20MVA transformer and third feeder bay	Substation Upgrade (Phase 1)	R16 703 383,90
PROJ23	2035	MAIN	Devon Valley to Mondi Timbers TRF	Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Al PILC 3Core (Eskom) Under	Infrastructure Strengthening	R432 125,34
PROJ24	2035	MAIN	Main Industrial to Devon Valley SS	Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Al PILC 3Core (Eskom) Under	Infrastructure Strengthening	R492 955,23
PROJ25	2038	MAIN	Mondi Timbers TRF to Begraafplaas SS	Strengthen entire Devon Valley backbone including the 150mm2 Al cables to Begraafplaas SS via Mondi Timbers 11 kV 185mm2 Al PILC 3Core (Eskom) Under	Infrastructure Strengthening	R432 125,35
PROJ26	2038	MAIN	Main Substation Phase 2	Upgrade Main Substation, install transformers in three phases, reaching 47.5MVA	Substation Upgrade (Phases 1-3)	R8 446 032,00
PROJ27	2042	MARKOTTER	Markotter Substation Phase 1	Upgrade Markotter Substation, install 7.5MVA transformer and third feeder bay. Refurbish replaced 7.5MVA transformer at SS MAIN and install as a third transformer at SS MARKOTTER	Substation Upgrade (Phase 1)	R9 472 575,58
PROJ28	2042	MAIN	Main Substation Phase 3	Upgrade Main Substation, install transformers in three phases, reaching 60MVA	Substation Upgrade (Phases 1-3)	R8 446 032,00
TOTAL COST						**R112 916 353,35**

The annual project costs per substation supply area are shown in Figure 11-1



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
SS PNIEL	R 119,84	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS FRANSCHHOEK	R11 051,55	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS MARKOTTER	R8 446,03	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS MAIN	R16 892,06	R-	R-	R-	R-	R11 914,03	R-	R1 114,64	R-	R-
SS JAN MARAIS	R-	R16 703,38	R-	R-	R-	R-	R-	R-	R-	R-
SS CLOETESVILLE	R-	R-	R-	R-	R-	R1 078,56	R-	R-	R-	R-
Year Sum	R36 509,49	R16 703,38	R-	R-	R-	R12 992,59	R-	R1 114,64	R-	R-
Cumulative Total	R36 509,49	R53 212,87	R53 212,87	R53 212,87	R53 212,87	R66 205,47	R66 205,47	R67 320,10	R67 320,10	R67 320,10

	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
SS PNIEL	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS FRANSCHHOEK	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS MARKOTTER	R-	R-	R-	R-	R-	R9 472,58	R-	R-	R-	R-
SS MAIN	R-	R1 171,02	R1 357,21	R-	R-	R8 446,03	R-	R-	R-	R8 446,03
SS JAN MARAIS	R-	R-	R-	R-	R-	R-	R-	R-	R-	R-
SS CLOETESVILLE	R-	R16 703,38	R-	R-	R-	R-	R-	R-	R-	R-
Year Sum	R-	R17 874,41	R1 357,21	R-	R-	R17 918,61	R-	R-	R-	R8 446,03
Cumulative Total	R67 320,10	R85 194,51	R86 551,71	R86 551,71	R86 551,71	R104 470,32	R104 470,32	R104 470,32	R104 470,32	R112 916,35

Figure 11-1: Annual Project Cost per Substation Supply Area

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APPENDIX A: STELLENBOSCH AREA OF SUPPLY

APPENDIX B: ESKOM GEO-BASED LOAD FORECAST STANDARD EXTRACT

Eskom Assumptions of Final Saturation Load Density for Non-Domestic Load Subclasses [2]

Major SIC Group	Sector	Detail	kVA/100m^2 [17]	FSR [18]	Demand	Notes
SIC 1 – Farming & agriculture	Crops	Normal (Dry) farming	4.5		4.5 kVA/point	Base assumption of 10Ha per stand was assumed. This assumption is also appropriate basis for smallholdings.
		Irrigation farming	15		1.50 kVA/Ha	It was assumed an average 10Ha farm will have 8 pivot points and one will be running at all times. 65m pivot with 15m open space on both sides will cover 1Ha. Centre pivot amps @ 400V = 15A, Centre pivot demand requirement = 10.4kVA Ref: http://www.senter360.co.za/products-2.asp
		Mixed farming			5.29 kVA/point	Mean value per point was taken from LR data analysis [1], p9.
		Game farming			7 kVA/point	Mean value per point was taken from LR data analysis [1], p10.
		Forestry			7.5 kVA/point	Mean value per point from LR data analysis [1], p11.
	Smallholding	Smallholding	4.5		2.25 kVA/Ha	Base assumption of 2Ha/stand for small holdings
		Smallholding & business	9		4.50 kVA/Ha	Base assumption of 2Ha/stand for combined function smallholdings.
SIC 3 - Manufacturing	3A furniture		0.74	0.8	60 kVA/Ha	Mean value per point was taken from LR data analysis [1], p14.
	3B Heavy industry, pulp & paper, melting & smelting	3B High	4.5	0.7	315 kVA/Ha	Netgroup and GLF Workgroup estimate
		3B Med	3.5	0.7	245 kVA/Ha	Netgroup estimate, roughly comparable to mean value per point from LR data analysis [1], p17.
		3B Low	2.5	0.7	175 kVA/Ha	Netgroup and GLF Workgroup estimate
	3C Equipment & Machinery		0.8	0.8	64 kVA/Ha	Unused.
	3D Food and textiles		0.692	0.8	55 kVA/Ha	Netgroup and GLF Workgroup estimate
	Industrial	Extra High	6	0.7	420kVA/Ha	Unused.
		High	4.5	0.7	315 kVA/Ha	Unused.
		Medium	3.5	0.7	245 kVA/Ha	Unused.

Major SIC Group	Sector	Detail	kVA/100m^2 [17]	FSR [18]	Demand	Notes
		Low	2.5	0.7	175 kVA/Ha	Unused.
		Extra Low	1	0.7	70 kVA/Ha	Unused.
SIC 6 – Wholesale & Retail	6A Commerce retail	Retail High Storey	5	0.6	300 kVA/Ha	Unused.
		Retail	4	0.6	240 kVA/Ha	Netgroup estimate for mostly retail commerce.
		Retail Low	2	0.6	160 kVA/Ha	Netgroup estimate for mostly retail commerce.
	6B Hotel & Hospitality	6B Hotel			2 kVA/Room	This value was estimated at 2KVA/room, based upon domestic load research estimate (small dwelling).
		6B Hospitality	0.5	0.8	60 kVA/Ha	Netgroup and GLF Workgroup estimate
SIC 7 – Transport, storage & communications	7B Warehousing	7B-S Warehousing	0.7	0.5	35 kVA/Ha	Netgroup and GLF Workgroup estimate
SIC 8 – Finance & insurance	8b Commerce office	High	5	0.8	400 KVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
		Medium	4	0.8	320 kVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
		Low	2	0.8	160 kVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
SIC 9 – Community & social	9A - Sport	Major stadiums only			240 kVA/Ha	Netgroup and GLF Workgroup estimate
	9B Water & sewerage				25 kVA/Ha	Netgroup and GLF Workgroup estimate
	9C Hospitals and universities	Clinic	2	0.6	120 kVA/Ha	Unused.
		Hospital	4	0.6	240 kVA/Ha	Netgroup and GLF Workgroup estimate
		College			18 kVA/Ha	Netgroup and GLF Workgroup estimate for educational institutions (universities etc.).
	9D Government & Defence	Single storey	4	0.6	240	Netgroup and GLF Workgroup estimate.
		Double storey	8	0.6	480	Unused.

APPENDIX C: STELLENBOSCH MUNICIPALITY LIST OF RENEWABLE ENERGY PROJECTS

APPENDIX D: RESULTS OF LINE LOADING UNDER NORMAL OPERATION

APPENDIX E: RESULTS OF BUSBAR LOADING UNDER NORMAL OPERATION

APPENDIX F: RESULTS OF LINE LOADING UNDER CONTINGENCY OPERATING CONDITIONS

APPENDIX G: RESULTS OF RE IMPACT ON LINE LOADING

STELLENBOSCH MUNICIPALITY

ELECTRICITY MASTER PLAN

APPENDIX

November 2023

GLS Consulting (PTY) LTD

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Appendix A: Stellenbosch area of supply

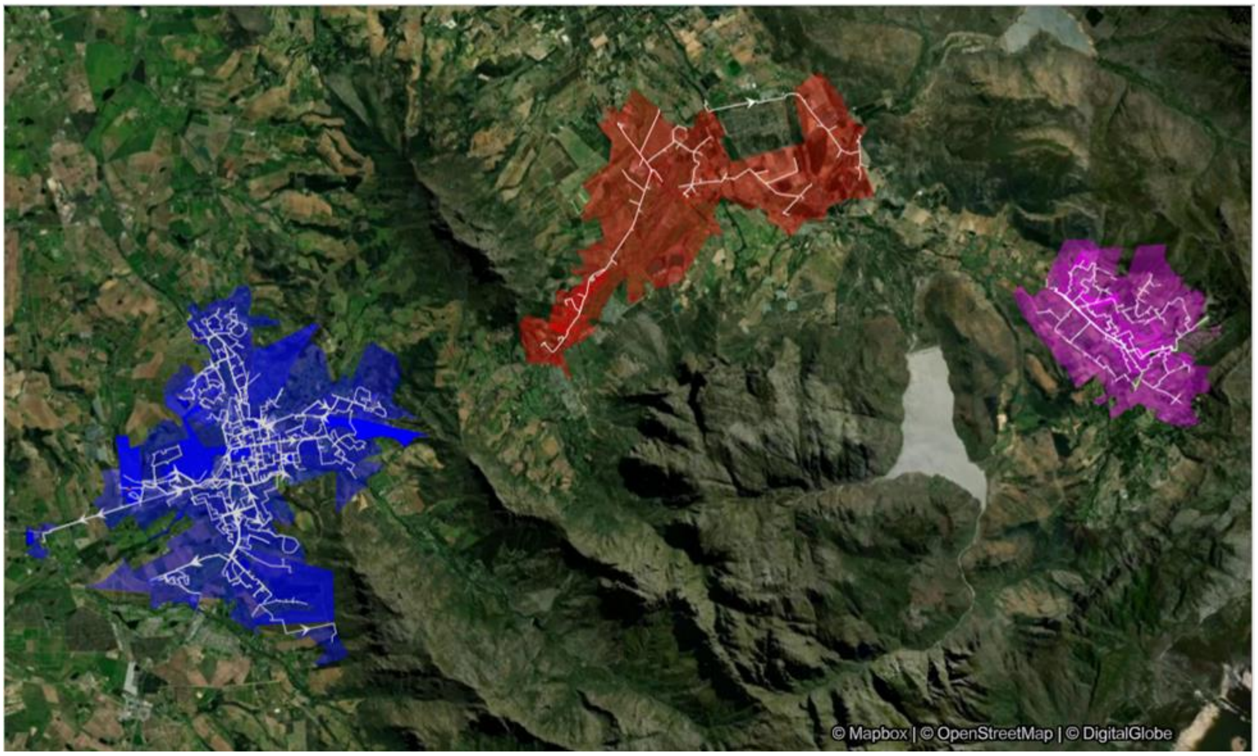

Figure 1: Stellenbosch area of supply

Appendix B: Eskom Geo-based Load Forecast Standard Extract

Table 1: Eskom Assumptions of Final Saturation Load Density for Non-Domestic Load Subclasses [1]

Major SIC Group	Sector	Detail	kVA/100m^2[17]	FSR[18]	Demand	Notes
SIC 1 – Farming & agriculture	Crops	Normal (Dry) farming	4.5		4.5 kVA/point	Base assumption of 10Ha per stand was assumed. This assumption is also appropriate basis for smallholdings.
		Irrigation farming	15		1.50 kVA/Ha	It was assumed an average 10Ha farm will have 8 pivot points and one will be running at all times. 65m pivot with 15m open space on both sides will cover 1Ha. Centre pivot amps @ 400V = 15A. Centre pivot demand requirement = 10.4kVA Ref: http://www.senter360.co.za/products-2.asp
		Mixed farming			5.29 kVA/point	Mean value per point was taken from LR data analysis [1], p9.
		Game farming			7 kVA/point	Mean value per point was taken from LR data analysis [1], p10.
		Forestry			7.5 kVA/point	Mean value per point from LR data analysis [1], p11.
	Smallholding	Smallholding	4.5		2.25 kVA/Ha	Base assumption of 2Ha/stand for small holdings
		Smallholding & business	9		4.50 kVA/Ha	Base assumption of 2Ha/stand for combined function smallholdings.
SIC 3 - Manufacturing	3A furniture		0.74	0.8	60 kVA/Ha	Mean value per point was taken from LR data analysis [1], p14.
	3B Heavy industry, pulp & paper, melting & smelting	3B High	4.5	0.7	315 kVA/Ha	Netgroup and GLF Workgroup estimate
		3B Med	3.5	0.7	245 kVA/Ha	Netgroup estimate, roughly comparable to mean value per point from LR data analysis [1], p17.
		3B Low	2.5	0.7	175 kVA/Ha	Netgroup and GLF Workgroup estimate
	3C Equipment & Machinery		0.8	0.8	64 kVA/Ha	Unused.
	3D Food and textiles		0.692	0.8	55 kVA/Ha	Netgroup and GLF Workgroup estimate
	Industrial	Extra High	6	0.7	420kVA/Ha	Unused.
		High	4.5	0.7	315 kVA/Ha	Unused.
		Medium	3.5	0.7	245 kVA/Ha	Unused.

Major SIC Group	Sector	Detail	kVA/100m^2[17]	FSR[18]	Demand	Notes
		Low	2.5	0.7	175 kVA/Ha	Unused.
		Extra Low	1	0.7	70 kVA/Ha	Unused.
SIC 6 – Wholesale & Retail	6A Commerce retail	Retail High Storey	5	0.6	300 kVA/Ha	Unused.
		Retail	4	0.6	240 kVA/Ha	Netgroup estimate for mostly retail commerce.
		Retail Low	2	0.6	160 kVA/Ha	Netgroup estimate for mostly retail commerce.
	6B Hotel & Hospitality	6B Hotel			2 kVA/Room	This value was estimated at 2KVA/room, based upon domestic load research estimate (small dwelling).
		6B Hospitality	0.5	0.8	60 kVA/Ha	Netgroup and GLF Workgroup estimate
SIC 7 – Transport, storage & communications	7B Warehousing	7B-S Warehousing	0.7	0.5	35 kVA/Ha	Netgroup and GLF Workgroup estimate
SIC 8 – Finance & insurance	8b Commerce office	High	5	0.8	400 KVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
		Medium	4	0.8	320 kVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
		Low	2	0.8	160 kVA/Ha	Netgroup and GLF Workgroup estimate for mostly office commerce.
SIC 9 – Community & social	9A - Sport	Major stadiums only			240 kVA/Ha	Netgroup and GLF Workgroup estimate
	9B Water & sewerage				25 kVA/Ha	Netgroup and GLF Workgroup estimate
	9C Hospitals and universities	Clinic	2	0.6	120 kVA/Ha	Unused.
		Hospital	4	0.6	240 kVA/Ha	Netgroup and GLF Workgroup estimate
		College			18 kVA/Ha	Netgroup and GLF Workgroup estimate for educational institutions (universities etc.).
	9D Government & Defence	Single storey	4	0.6	240	Netgroup and GLF Workgroup estimate.
		Double storey	8	0.6	480	Unused.

Appendix C: Stellenbosch Municipality List of Renewable Energy Projects

This Appendix section will document the list of RE projects in Stellenbosch Municipality.

Table 2: Stellenbosch Municipality List of Renewable Energy Projects

RE Technology	Size (kWp)	Location	GPS Coordinates	Feeding into grid?	Year of Commission	Transformer / Minisub / Substation	Main Substation

Appendix D: Results of line loading under normal operation

This appendix section documents the set of load flow line loading results under normal operating conditions.

Table 3: Line Loading Load Flow Results (%) – HV Lines

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/ Main SS _ S1 66kV	0.755	9.8	9.8	9.9	9.9	9.9	9.9	10.3	10.5	10.5	10.6	10.6	10.9	11.6	12	12.1	12.1	12.5	12.8	12.8	12.8
Golf SS/Markotter SS 66kV	0.511	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Jan Marais SS/Markotter SS 66kV	0.306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/University SS 66kV	0.306	24.9	24.9	24.9	24.9	24.9	25	26.3	27.2	27.3	27.3	27.3	27.7	28.5	28.9	29	29	29.4	29.6	29.6	29.6
Main SS/Golf SS_S166kV	0.755	10.2	10.2	10.4	10.4	10.4	10.4	10.7	10.9	11	11	11.1	11.3	12	12.3	12.4	12.4	12.8	13.1	13.1	13.1
Main SS/Golf SS_S2 66kV	0.755	10.2	10.2	10.4	10.4	10.4	10.4	10.7	10.9	11	11	11.1	11.3	12	12.3	12.4	12.4	12.8	13.1	13.1	13.1
Main SS/Markotter SS _S1 66kV	0.437	10.4	10.4	10.4	10.5	10.5	10.6	11	11.8	12.3	12.4	12.4	13.1	15.6	16.9	17.1	17.1	18.5	19.1	19.2	19.2
Main SS/Markotter SS_S2 66kV	0.437	10.4	10.4	10.4	10.5	10.5	10.6	11	11.8	12.3	12.4	12.4	13.1	15.6	16.9	17.1	17.1	18.5	19.1	19.2	19.2
Main SS/University SS_S1 66kV	0.437	41.7	41.7	41.7	41.7	41.8	42	43.3	44.5	44.9	45	45	45.4	46.4	46.9	47	47	47.3	47.5	47.6	47.6
Main SS/University SS_S2 66kV	0.437	41.7	41.7	41.7	41.7	41.8	42	43.3	44.5	44.9	45	45	45.4	46.4	46.9	47	47	47.3	47.5	47.6	47.6
Markotter SS/Golf SS_S1 66kV	0.511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/Golf SS_S2 66kV	0.511	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Markotter SS/Jan Marais SS_S1 66kV	0.306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/Jan Marais SS_S2 66kV	0.235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/Main SS_S1 66kV	0.437	10.4	10.4	10.4	10.5	10.5	10.6	11	11.8	12.3	12.4	12.4	13.1	15.6	16.9	17.1	17.1	18.5	19.1	19.2	19.2
Markotter SS/University SS_S1 66kV	0.511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/University SS_S2 66kV	0.511	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
University SS/Jan Marais SS_S1 66kV	0.306	24.9	24.9	24.9	24.9	24.9	25	26.3	27.2	27.3	27.3	27.3	27.7	28.5	28.9	29	29	29.4	29.6	29.6	29.6
University SS/Jan Marais SS_S2 66kV	0.235	32.4	32.4	32.4	32.4	32.5	32.6	34.3	35.4	35.5	35.5	35.5	36.1	37.1	37.7	37.7	37.7	38.3	38.6	38.6	38.6
University SS/Main SS_S2 66kV	0.437	41.7	41.7	41.7	41.7	41.8	42	43.3	44.5	44.9	45	45	45.4	46.4	46.9	47	47	47.3	47.5	47.6	47.6
University SS/Markotter SS 66kV	0.511	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

Table 4: Line Loading Load Flow Results (%) – Main

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	9.1	9.1	9.2	9.4	10.4	13.4	16.8	19.8	21.2	21.6	21.7	23.4	27.6	29.8	30.2	30.4	32.9	35.4	37.4	38.6
Begraafplaas SS/Cemetary RMU 11kV	0.082	1.3	1.3	1.4	1.4	1.5	1.9	2.4	2.8	3	3.1	3.1	3.4	3.9	4.2	4.3	4.3	4.7	5	5.3	5.5
Begraafplaas SS/Distell SS 11kV	0.245	32.1	32.1	32.1	32.1	32.1	32.1	32.2	32.2	32.2	32.2	32.2	32.3	32.3	32.4	32.4	32.4	32.4	32.5	32.5	32.5
Begraafplaas SS/Liberte MS 11kV	0.131	31.2	31.2	31.2	31.2	31.3	31.4	31.7	31.8	31.9	32	32	32.1	32.4	32.5	32.6	32.6	32.7	32.9	33.1	33.2
Begraafplaas SS/Lower Dorp SS 11kV	0.4	2.6	2.6	2.6	2.7	3	3.8	4.7	5.6	6	6.1	6.1	6.6	7.8	8.4	8.5	8.6	9.3	10	10.5	10.9
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	2.7	2.7	2.7	2.8	3.1	3.9	4.9	5.7	6.1	6.3	6.3	6.8	8	8.6	8.8	8.8	9.5	10.2	10.8	11.2
Blersch MS/Ruper Museum MS 11kV	0.131	0.4	0.4	0.4	0.4	0.5	0.6	0.8	0.9	1	1	1	1.1	1.3	1.4	1.4	1.4	1.5	1.6	1.7	1.8
Bosmans Crossing MS/KWV Park MS 11kV	0.207	6.6	6.6	6.7	6.8	7.6	9.8	12.2	14.4	15.4	15.7	15.8	17.1	20.1	21.7	22	22.2	24	25.8	27.3	28.2
Cabernet MS 11kV	0.131	30.7	30.7	30.7	30.7	30.8	30.8	30.9	31	31	31	31	31	31.2	31.2	31.2	31.2	31.3	31.4	31.4	31.5
Cemetary RMU/Oude Libertas MS 11kV	0.082	1.1	1.1	1.1	1.1	1.2	1.6	2	2.3	2.5	2.5	2.6	2.8	3.2	3.5	3.6	3.6	3.9	4.2	4.4	4.5
Cemetary RMU/Papegaai Pomp MS 11kV	0.082	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.9	0.9	1
Devon Valley SS/Hoep Hoep MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Devon Valley SS/Marcel MS 11kV	0.131	18.7	18.7	19.1	19.4	21.5	27.8	34.8	41	43.9	44.7	45	48.6	57.4	62.1	63.1	63.5	68.8	74.1	78.6	81.2
Devon Valley SS/Mondi Timbers TRF 11kV	0.245	12.5	12.5	12.6	12.7	13.3	15.1	17	18.8	19.6	19.9	20	21	23.4	24.8	25	25.1	26.6	28.1	29.3	30
Devon Valley SS/Tortelduif SS 11kV	0.207	18.4	18.5	18.8	19.1	21.2	27.3	34.2	40.2	43.1	43.8	44.1	47.6	56.1	60.6	61.5	61.9	67	72	76.2	78.6
Dewatering MS/Polkadraai SS 11kV	0.245	13.2	13.2	13.5	13.7	15.2	19.6	24.5	28.9	31	31.5	31.7	34.3	40.5	43.8	44.5	44.7	48.5	52.2	55.4	57.2
Distell SS/Polkadraai SS 11kV	0.245	51.5	51.5	51.6	51.7	52.4	54.6	57	59.1	60.1	60.4	60.5	61.7	64.7	66.3	66.6	66.7	68.5	70.3	71.8	72.6
Distell SS/Vredenburg MS 11kV	0.131	3.5	3.5	3.6	3.6	4	5.2	6.5	7.6	8.1	8.3	8.3	9	10.6	11.4	11.6	11.7	12.6	13.5	14.3	14.8
Flamingo MS/Tortelduif SS 11kV	0.207	4.9	4.9	5	5.1	5.6	7.2	9	10.6	11.4	11.6	11.7	12.6	14.9	16	16.3	16.4	17.7	19.1	20.2	20.8
Geluksoord RMU/Devon Valley SS 11kV	0.082	7.5	7.5	7.7	7.8	8.6	11.2	14	16.4	17.6	17.9	18	19.5	23	24.8	25.2	25.4	27.5	29.5	31.3	32.3
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	5	5	5.1	5.2	5.7	7.4	9.2	10.9	11.6	11.8	11.9	12.9	15.1	16.4	16.6	16.7	18.1	19.4	20.6	21.2
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	6.2	6.2	6.3	6.5	7.1	9.2	11.5	13.6	14.6	14.8	14.9	16.1	19	20.5	20.8	20.9	22.6	24.3	25.7	26.6
Hoep Hoep MS/Swawel MS 11kV	0.207	0.7	0.7	0.7	0.7	0.8	1	1.3	1.5	1.6	1.6	1.6	1.8	2.1	2.2	2.3	2.3	2.5	2.6	2.8	2.9
Jan Frederik MS 11kV	0.207	1.4	1.4	1.5	1.5	1.6	2.1	2.7	3.1	3.3	3.4	3.4	3.7	4.3	4.7	4.8	4.8	5.2	5.6	5.9	6.1
KWV Park MS/Sonop Wyne RMU 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
KleinVallei MS/Flamingo MS 11kV	0.207	3	3	3	3.1	3.4	4.4	5.5	6.5	6.9	7	7.1	7.7	9	9.8	9.9	10	10.8	11.6	12.3	12.7
Liberte MS/Cabernet MS 11kV	0.131	31	31	31	31	31	31.2	31.3	31.5	31.5	31.6	31.6	31.7	31.9	32	32	32	32.2	32.3	32.4	32.5
Loerie MS 11kV	0.207	1.4	1.4	1.5	1.5	1.6	2.1	2.6	3.1	3.3	3.4	3.4	3.7	4.3	4.7	4.8	4.8	5.2	5.6	5.9	6.1
Loerie MS 11kV(1)	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Longlands RMU/Vlottenburg MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lower Dorp MS/Blersch MS 11kV	0.131	4.1	4.1	4.2	4.3	4.7	6.1	7.6	8.9	9.6	9.7	9.8	10.6	12.4	13.4	13.6	13.7	14.8	15.9	16.8	17.4
Lower Dorp SS/Lower Dorp MS 11kV	0.131	5.6	5.6	5.7	5.8	6.4	8.2	10.3	12.1	13	13.2	13.3	14.3	16.9	18.2	18.5	18.6	20.1	21.6	22.8	23.6
Lower Dorp SS/Oude Molen RMU 11kV	0.082	2.6	2.6	2.7	2.7	3	3.9	4.9	5.7	6.1	6.2	6.3	6.8	8	8.6	8.7	8.8	9.5	10.2	10.8	11.1
Lower Dorp SS/Weidenhof MS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MBR 1 MS/MBR 2 MS 11kV	0.245	18.4	18.4	18.7	19	21.1	27.3	34.1	40.2	43.1	43.8	44.1	47.6	56.2	60.8	61.7	62.1	67.3	72.5	76.8	79.3
MBR 2 MS/Dewatering MS 11kV	0.245	4.7	4.7	4.8	4.9	5.4	7	8.9	10.5	11.3	11.5	11.5	12.5	14.9	16.2	16.4	16.6	18.1	19.6	20.9	21.7
Main Industrial SS/Begraafplaas SS 11kV	0.4	24.5	24.6	24.6	24.7	25.3	27	28.8	30.5	31.2	31.4	31.5	32.5	34.8	36	36.3	36.4	37.8	39.1	40.3	40.9
Main Industrial SS/Begraafplaas SS(12)	0.4	12.5	12.5	12.7	12.8	13.5	15.7	18.1	20.3	21.3	21.6	21.7	23	26	27.6	28	28.1	29.9	31.7	33.2	34.1
Main Industrial SS/Bison Board SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Industrial SS/Devon Valley SS 11kV	0.245	31.7	31.7	32.2	32.7	35.6	44.3	54.1	62.7	66.8	67.9	68.3	73.3	85.4	91.9	93.1	93.7	101	108.1	114.1	117.6
Main Industrial SS/Polkadraai SS 11kV 2	0.245	27.5	27.6	28.1	28.6	31.6	40.9	51.1	60.3	64.5	65.7	66.2	71.4	84.2	91.1	92.4	93	100.8	108.4	114.9	118.6
Main Industrial SS/Polkadraai SS 11kV 1	0.4	36.1	36.1	36.2	36.4	37.3	40.1	43.2	46	47.3	47.6	47.8	49.4	53.2	55.3	55.7	55.9	58.2	60.5	62.5	63.6
Marcel MS/Sandhagen RMU 11kV	0.131	2.2	2.2	2.3	2.3	2.6	3.3	4.1	4.8	5.1	5.2	5.2	5.6	6.6	7.1	7.2	7.2	7.8	8.4	8.8	9.1
Millinia Park SS/Stellentia RMU 11kV	0.131	1.7	1.7	1.8	1.8	2	2.5	3.2	3.7	4	4.1	4.1	4.4	5.2	5.6	5.7	5.8	6.2	6.7	7.1	7.3
Mondi Timbers TRF/Begraafplaas SS 11kV	0.245	5.7	5.7	5.7	5.7	5.5	5.1	4.6	4.3	4.2	4.2	4.2	4.1	4	4.1	4.1	4.1	4.3	4.5	4.8	4.9
Polkadraai MS/Recycling Plant MS 11kV	0.207	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Polkadraai SS/Kwarentyn MS 11kV	0.207	8.7	8.7	8.9	9.1	10	13	16.3	19.2	20.6	21	21.2	22.9	27.2	29.5	30	30.2	32.8	35.5	37.9	39.2
Polkadraai SS/Longlands RMU 11kV	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Polkadraai SS/MBR 1 MS 11kV	0.245	31.8	31.8	32.4	33	36.5	47.2	59	69.5	74.4	75.7	76.3	82.3	97.1	104.9	106.5	107.2	116.1	124.9	132.3	136.5
Polkadraai SS/Polkadraai MS 11kV	0.207	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
Recycling Plant MS/Longlands RMU 11kV	0.207	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
RioolHuise MS/Kompos MS 11kV	0.082	2.2	2.2	2.2	2.3	2.5	3.2	4	4.8	5.1	5.2	5.2	5.6	6.6	7.2	7.3	7.3	7.9	8.5	9	9.3
Ruper Museum MS/Millinia Park SS 11kV	0.131	1.7	1.7	1.8	1.8	2	2.5	3.2	3.7	4	4.1	4.1	4.4	5.2	5.6	5.7	5.8	6.2	6.7	7.1	7.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Sandhagen MS/Selfords MS 11kV	0.082	2.5	2.5	2.5	2.6	2.9	3.7	4.6	5.4	5.8	5.9	6	6.4	7.6	8.2	8.3	8.4	9.1	9.8	10.4	10.8
Sandhagen RMU/RioolHuise MS 11kV	0.082	2.2	2.2	2.2	2.3	2.5	3.2	4	4.8	5.1	5.2	5.2	5.6	6.6	7.2	7.3	7.3	7.9	8.5	9	9.3
Sandhagen RMU/Sandhagen MS 11kV	0.131	0.9	0.9	0.9	1	1	1.3	1.6	1.9	2	2	2	2.2	2.5	2.7	2.7	2.7	2.9	3.1	3.2	3.3
Selfords MS/Geluksoord RMU 11kV	0.082	4.1	4.1	4.2	4.3	4.7	6.1	7.6	8.9	9.6	9.8	9.8	10.6	12.5	13.5	13.7	13.8	15	16.1	17.1	17.6
Sonop Wyne RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stellenoord 1 MS/Vineyard MS 11kV	0.207	17.7	17.7	17.6	17.6	17.4	16.9	16.3	15.7	15.5	15.4	15.4	15.1	14.4	14	13.9	13.9	13.4	13	12.6	12.4
Stellenoord 2 MS 11kV	0.131	30.7	30.7	30.7	30.7	30.8	30.8	30.9	31	31	31	31	31	31.2	31.2	31.2	31.2	31.3	31.4	31.4	31.5
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	29	29	29	28.9	28.8	28.3	27.7	27.2	27	26.9	26.9	26.6	25.9	25.6	25.5	25.5	25.1	24.7	24.3	24.1
Stellentia RMU/Lower Dorp SS 11kV	0.131	1.7	1.7	1.8	1.8	2	2.6	3.2	3.7	4	4.1	4.1	4.4	5.2	5.6	5.7	5.8	6.2	6.7	7.1	7.3
Swawel MS/Tortelduif SS 11kV	0.207	4.5	4.5	4.6	4.6	5.1	6.6	8.3	9.8	10.5	10.6	10.7	11.6	13.6	14.7	14.9	15	16.3	17.5	18.5	19.1
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	9.1	9.1	9.3	9.4	10.4	13.5	16.8	19.8	21.2	21.6	21.8	23.5	27.7	29.9	30.3	30.5	33	35.5	37.6	38.8
Vineyard MS/Distell SS 11kV	0.131	22.4	22.4	22.2	22.1	21.2	18.5	15.6	13	11.9	11.6	11.4	10	6.9	5.6	5.4	5.3	4.7	5.1	6	6.7
Vlottenburg MS/Longlands RMU 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
WPK MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WPK MS/Lower Dorp SS 11kV	0.207	4.4	4.4	4.5	4.6	5	6.5	8.2	9.6	10.3	10.5	10.5	11.4	13.4	14.5	14.7	14.8	16	17.2	18.3	18.8

Table 5: Line Loading Load Flow Results (%) – Markotter

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
AlexForbes MS/Amatoni RMU 11kV	0.131	4.2	4.2	4.3	4.3	4.3	4.3	4.5	4.8	5	5	5	5.3	6.2	6.7	6.8	6.8	7.3	7.6	7.6	7.6
Alexander MS/Poskantoor SS 11kV	0.207	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1.1	1.3	1.4	1.4	1.4	1.5	1.6	1.6	1.6
Amatoni RMU/Maesland MS 11kV	0.131	4.2	4.2	4.2	4.2	4.3	4.3	4.4	4.8	5	5	5	5.3	6.2	6.7	6.8	6.8	7.3	7.5	7.5	7.5
Barry MS 11kV	0.131	2	2	2	2	2	2	2.1	2.3	2.4	2.4	2.4	2.5	3	3.2	3.3	3.3	3.5	3.7	3.7	3.7
Bast Molen MS/Alexander MS 11kV	0.207	7	7	7.1	7.1	7.2	7.2	7.4	8.1	8.4	8.4	8.4	8.9	10.6	11.5	11.6	11.6	12.6	13	13	13
Binnekring MS/Dalsig Wes RMU 11kV	0.207	6.3	6.3	6.3	6.3	6.4	6.4	6.6	7.2	7.5	7.5	7.5	8	9.4	10.2	10.3	10.4	11.2	11.6	11.6	11.6
Blake Estate SS/Distillers SS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Blake Estate SS/Van Der Stel Sport MS 11	0.131	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.8	2.9	2.9	2.9	3.1	3.7	4	4	4	4.3	4.5	4.5	4.5
Bloemhof MS/Krige SS 11kV	0.207	6.4	6.4	6.4	6.4	6.5	6.5	6.7	7.3	7.6	7.6	7.6	8.1	9.5	10.3	10.5	10.5	11.3	11.7	11.7	11.7
Boland Bank RMU/De Wets MS 11kV	0.082	3.9	3.9	3.9	3.9	3.9	4	4.1	4.4	4.6	4.6	4.6	4.9	5.8	6.3	6.4	6.4	7	7.2	7.2	7.2
Braak MS/OK Bazaar MS 11kV	0.131	10.8	10.8	10.8	10.9	11	11.1	11.4	12.3	12.8	12.9	12.9	13.7	16.2	17.6	17.8	17.8	19.2	19.9	19.9	19.9
Braak SS/Bast Molen MS 11kV	0.207	7.9	8	8	8	8.1	8.2	8.4	9.1	9.5	9.5	9.5	10.1	11.9	13	13.1	13.1	14.2	14.7	14.7	14.7
Braak SS/Batkrosier SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Braak SS/Blake Estate SS 11kV	0.4	7.2	7.2	7.2	7.3	7.3	7.4	7.6	8.2	8.5	8.6	8.6	9.1	10.8	11.7	11.8	11.8	12.8	13.3	13.3	13.3
Braak SS/Braak MS 11kV	0.131	11	11.1	11.1	11.1	11.2	11.3	11.7	12.6	13.1	13.2	13.2	14	16.6	18	18.2	18.2	19.7	20.4	20.4	20.4
Braak SS/Meulplein SS 11kV	0.082	5	5	5	5	5.1	5.1	5.3	5.7	5.9	6	6	6.3	7.5	8.1	8.2	8.2	8.8	9.2	9.2	9.2
Braak SS/Stadsaal SS 11kV	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1	1	1	1
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	4.9	4.9	4.9	4.9	5	5	5.1	5.6	5.8	5.8	5.8	6.2	7.3	7.9	8	8	8.6	8.9	8.9	8.9
Brandwacht SS/Faber RMU 11kV	0.1	4.6	4.6	4.6	4.6	4.7	4.7	4.8	5.2	5.4	5.5	5.5	5.8	6.9	7.5	7.6	7.6	8.2	8.5	8.5	8.5
Brandwacht SS/Olyf MS 11kV	0.081	4.6	4.6	4.6	4.6	4.7	4.7	4.8	5.2	5.4	5.5	5.5	5.8	6.9	7.5	7.5	7.5	8.2	8.5	8.5	8.5
Coetzenburg SS/Bosman SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coetzenburg SS/Bosman SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coetzenburg SS/Coetzenburg Sport MS 11kV	0.207	11.2	11.2	11.2	11.3	11.4	11.5	11.8	12.8	13.3	13.4	13.4	14.2	16.9	18.3	18.5	18.6	20.1	20.9	20.9	20.9
Dalsig Oos SS/Binnekring MS 11kV	0.207	9.9	9.9	9.9	10	10.1	10.2	10.5	11.3	11.8	11.9	11.9	12.6	14.9	16.2	16.3	16.4	17.7	18.3	18.3	18.3
Dalsig Oos SS/Brandwacht SS 11kV	0.207	8.8	8.9	8.9	8.9	9	9.1	9.4	10.1	10.5	10.6	10.6	11.2	13.3	14.4	14.6	14.6	15.8	16.3	16.3	16.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Koch SS 11kV	0.207	15.9	15.9	15.9	16	16.1	16.3	16.8	18.2	18.9	19	19	20.1	23.9	25.9	26.2	26.2	28.4	29.4	29.4	29.4
Dalsig Oos SS/Welgelegen Pomp TRF 11kV	0.082	9.4	9.4	9.4	9.5	9.5	9.6	9.9	10.7	11.2	11.2	11.2	11.9	14.1	15.3	15.4	15.5	16.7	17.3	17.3	17.3
Dalsig Oos SS/Welgelegen SS 11kV	0.207	1.9	1.9	1.9	2	2	2	2	2.2	2.3	2.3	2.3	2.5	3	3.4	3.4	3.4	3.8	3.9	3.9	3.9
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	4.4	4.5	4.5	4.5	4.5	4.6	4.7	5.1	5.3	5.3	5.3	5.6	6.7	7.3	7.4	7.4	8	8.3	8.3	8.3
De Waterkant RMU/Middebosch MS 11kV	0.131	7.2	7.2	7.2	7.2	7.3	7.4	7.6	8.2	8.5	8.6	8.6	9.1	10.8	11.7	11.8	11.8	12.8	13.2	13.2	13.2
De Wets MS/Braak SS 11kV	0.131	5.5	5.6	5.6	5.6	5.6	5.7	5.9	6.3	6.6	6.6	6.6	7	8.3	9.1	9.2	9.2	9.9	10.3	10.3	10.3
Distillers SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distillers SS/Blake Estate SS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Doornbosch MS 11kV	0.131	2	2	2	2	2	2	2.1	2.3	2.4	2.4	2.4	2.5	3	3.2	3.3	3.3	3.5	3.7	3.7	3.7
Doornbosch MS/Koch RMU 11kV	0.131	1	1	1	1	1	1	1	1.1	1.2	1.2	1.2	1.2	1.5	1.6	1.6	1.6	1.8	1.8	1.8	1.8
Dorp str 98 MS/Mark MS 11kV	0.131	4.7	4.7	4.7	4.7	4.8	4.8	5	5.4	5.6	5.6	5.6	6	7.1	7.7	7.8	7.8	8.4	8.7	8.7	8.7
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.5	2.5	2.5	2.6	3	3.2	3.3	3.3	3.5	3.6	3.6	3.6
Faber RMU/LeSeur MS 11kV	0.131	3.5	3.5	3.5	3.5	3.6	3.6	3.7	4	4.2	4.2	4.2	4.5	5.3	5.7	5.8	5.8	6.3	6.5	6.5	6.5
Gimnasium SS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gimnasium SS/Coetzenburg SS 11kV	0.207	10.1	10.1	10.2	10.2	10.3	10.4	10.7	11.6	12.1	12.1	12.1	12.8	15.2	16.5	16.7	16.7	18.1	18.7	18.7	18.7
Gimnasium SS/De Waterkant RMU 11kV	0.131	16	16	16.1	16.1	16.3	16.4	16.9	18.3	19	19.2	19.2	20.3	24	26.1	26.4	26.4	28.5	29.6	29.6	29.6
Goodhope MS 11kV	0.131	2.8	2.8	2.8	2.8	2.9	2.9	3	3.2	3.3	3.4	3.4	3.6	4.2	4.6	4.6	4.6	5	5.2	5.2	5.2
Goodhope MS/SA Perm SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isa Carstens MS/Piet Retief MS 11kV	0.245	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.9	2.3	2.5	2.5	2.5	2.7	2.8	2.8	2.8
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	2	2	2	2	2	2	2.1	2.2	2.3	2.3	2.3	2.5	2.9	3.1	3.2	3.2	3.4	3.5	3.5	3.5
Koch MS/Rhenish MS 11kV	0.131	11.2	11.2	11.2	11.3	11.4	11.5	11.8	12.8	13.3	13.4	13.4	14.2	16.9	18.3	18.5	18.5	20	20.8	20.8	20.8
Koch RMU/Koch MS 11kV	0.131	9.2	9.2	9.2	9.3	9.3	9.4	9.7	10.5	10.9	11	11	11.6	13.8	15	15.1	15.2	16.4	17	17	17
Koch RMU/Valerida MS 11kV	0.131	10.1	10.1	10.2	10.2	10.3	10.4	10.7	11.6	12.1	12.1	12.2	12.9	15.3	16.6	16.8	16.8	18.1	18.8	18.8	18.8
Koch SS/Barry MS 11kV	0.131	5.8	5.8	5.8	5.9	5.9	6	6.1	6.6	6.9	6.9	6.9	7.4	8.7	9.5	9.6	9.6	10.4	10.7	10.7	10.7
Krige SS/Braak SS 11kV	0.4	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.2	2.2	2.3	2.7	2.9	3	3	3.2	3.3	3.3	3.3
Krige SS/La Gratitude MS 11kV	0.131	22.5	22.6	22.6	22.7	22.9	23.1	23.8	25.8	26.8	27	27	28.6	33.9	36.8	37.2	37.3	40.3	41.8	41.8	41.8
Krige SS/Sports Institute MS 11kV	0.207	2	2	2	2	2	2.1	2.1	2.3	2.4	2.4	2.4	2.5	3	3.2	3.3	3.3	3.6	3.7	3.7	3.7
Kweekskool MS/Die Laan MS 11kV	0.131	2	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.5	2.5	2.6	3.1	3.3	3.4	3.4	3.6	3.8	3.8	3.8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
La Gratitude MS/Voorgelegen MS 11kV	0.131	15.8	15.8	15.9	16	16.1	16.2	16.7	18.1	18.8	19	19	20.1	23.8	25.9	26.2	26.2	28.3	29.3	29.4	29.4
Landros MS/Polisie SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeSeur MS/Brandwacht SS 11kV	0.081	7.6	7.6	7.6	7.6	7.7	7.8	8	8.6	9	9.1	9.1	9.6	11.4	12.3	12.5	12.5	13.5	14	14	14
Lower Dorp SS/Markotter Suidwal SS 11kV	0.245	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Lower Dorp SS/Markotter Suidwal SS(12)	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Maesland MS/Vila Roux MS 11kV	0.131	5.5	5.5	5.5	5.5	5.6	5.6	5.8	6.2	6.5	6.5	6.5	6.9	8.1	8.8	8.9	8.9	9.5	9.9	9.9	9.9
Mark 2 MS/Joles Park MS 11kV	0.131	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.5	2.5	2.5	2.6	3.1	3.3	3.4	3.4	3.6	3.8	3.8	3.8
Mark MS/Mark 2 MS 11kV	0.131	3.7	3.7	3.7	3.7	3.8	3.8	3.9	4.2	4.4	4.4	4.4	4.7	5.6	6.1	6.1	6.1	6.7	6.9	6.9	6.9
Markotter Suidwal SS/Braak SS 11kV	0.4	6.3	6.3	6.4	6.4	6.4	6.5	6.7	7.2	7.5	7.6	7.6	8	9.5	10.3	10.4	10.4	11.2	11.6	11.6	11.6
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	8.7	8.7	8.7	8.8	8.9	8.9	9.2	10	10.4	10.4	10.4	11	13.1	14.2	14.4	14.4	15.6	16.1	16.1	16.1
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	16.3	16.3	16.3	16.4	16.6	16.7	17.2	18.6	19.4	19.5	19.5	20.6	24.5	26.6	26.8	26.9	29.1	30.1	30.1	30.1
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	19.5	19.5	19.6	19.7	19.8	20	20.6	22.3	23.2	23.3	23.4	24.7	29.3	31.8	32.2	32.2	34.8	36.1	36.1	36.1
Markotter Suidwal SS/Helderberg RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Krige SS 11kV	0.4	13.5	13.5	13.6	13.6	13.7	13.9	14.3	15.4	16.1	16.2	16.2	17.1	20.3	22	22.3	22.3	24.1	25	25	25
Markotter Suidwal SS/Suidwal MS 11kV	0.245	5.9	6	6	6	6.1	6.1	6.3	6.8	7.1	7.1	7.1	7.5	8.9	9.7	9.8	9.8	10.6	10.9	10.9	10.9
Meulplein SS/Boland Bank RMU 11kV	0.082	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.9	1.9	1.9	2	2.4	2.6	2.6	2.6	2.8	2.9	2.9	2.9
Meulplein SS/Meulplein LTx 11kV	0.1	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.6	3.7	3.7	3.7	3.9	4.7	5.1	5.1	5.1	5.5	5.7	5.7	5.7
Middebosch MS/Kweekskool MS 11kV	0.131	5	5	5.1	5.1	5.1	5.2	5.3	5.8	6	6	6	6.4	7.6	8.2	8.3	8.3	9	9.3	9.3	9.3
OK Bazaar MS/Saambou RMU 11kV	0.131	10.8	10.8	10.8	10.9	11	11.1	11.4	12.3	12.8	12.9	12.9	13.7	16.2	17.6	17.8	17.8	19.3	19.9	20	20
Park MS/Welgevalen SS 11kV	0.207	10.3	10.3	10.3	10.4	10.5	10.5	10.9	11.8	12.2	12.3	12.3	13	15.4	16.7	16.9	16.9	18.3	19	19	19
Piet Retief MS/Braak SS 11kV	0.245	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.8	1.8	1.9	2.2	2.4	2.4	2.4	2.6	2.7	2.7	2.7
Poskantoor SS/Landros MS 11kV	0.131	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.6	1.6	1.6	1.6	1.7	2	2.2	2.2	2.2	2.4	2.5	2.5	2.5
Rhenish MS/Koch SS 11kV	0.131	19.3	19.3	19.4	19.5	19.6	19.8	20.4	22.1	23	23.1	23.1	24.5	29	31.5	31.8	31.9	34.5	35.7	35.7	35.7
Saambou RMU 11kV	0.131	2.8	2.8	2.8	2.8	2.9	2.9	3	3.2	3.3	3.4	3.4	3.6	4.2	4.6	4.6	4.6	5	5.2	5.2	5.2
Sports Institute MS/Stillewaters MS 11kV	0.207	2	2	2	2	2	2	2.1	2.3	2.4	2.4	2.4	2.5	3	3.2	3.3	3.3	3.5	3.7	3.7	3.7
Stellenryk MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Stillewaters MS/Stellenryk MS 11kV	0.207	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.2	2.2	2.2	2.3	2.7	3	3	3	3.2	3.4	3.4	3.4
Suidwal MS/Isa Carstens MS 11kV	0.245	5.6	5.6	5.7	5.7	5.7	5.8	6	6.4	6.7	6.7	6.7	7.1	8.4	9.2	9.3	9.3	10	10.4	10.4	10.4

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Valerida MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vila Roux MS/Blake Estate SS 11kV	0.131	6.3	6.3	6.3	6.4	6.4	6.5	6.7	7.2	7.5	7.5	7.5	8	9.4	10.2	10.3	10.3	11.1	11.5	11.5	11.5
Volkskombuis MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volkskombuis MS/Bloemhof MS 11kV	0.207	3.1	3.1	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.7	3.7	3.9	4.6	5	5.1	5.1	5.5	5.7	5.7	5.7
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	15	15	15	15.1	15.2	15.4	15.8	17.1	17.8	18	18	19	22.6	24.5	24.8	24.8	26.8	27.8	27.8	27.8
Weidenhof MS/Blake Estate SS 11kV	0.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6	5	5.2	5.2	5.2	5.5	6.6	7.1	7.2	7.2	7.8	8.1	8.1	8.1
Welgelegen SS/Park MS 11kV	0.207	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.5	2.5	2.6	3.2	3.5	3.6	3.6	3.9	4.1	4.1	4.1
Welgevalen SS/Coetzenburg SS 11kV	0.207	10.3	10.3	10.3	10.4	10.5	10.6	10.9	11.8	12.2	12.3	12.3	13	15.4	16.8	16.9	17	18.3	19	19	19

Table 6: Line Loading Load Flow Results (%) – Golf

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Anesta MS/Three Fountains MS 11kV	0.207	7.3	7.3	7.3	7.4	7.4	7.4	7.7	7.8	7.8	7.9	7.9	8.1	8.6	8.9	9	9	9.3	9.5	9.5	9.6
Blaauklippen RMU/Canterbury MS 11kV	0.131	11.5	11.5	11.7	11.7	11.7	11.7	12.2	12.4	12.5	12.5	12.6	12.9	13.7	14.2	14.3	14.3	14.8	15.1	15.2	15.2
Blaauklippen RMU/Repens MS 11kV	0.131	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.5	3.7	3.9	3.9	3.9	4	4.1	4.1	4.1
Blenheim MS/Shopping Centre RMU 11kV	0.213	23.5	23.5	23.8	24	24	24	24.8	25.3	25.4	25.6	25.7	26.3	28.1	29	29.2	29.3	30.3	30.9	31	31
Bon Cretien MS/Boord SS 11kV	0.213	16.7	16.7	16.9	17	17	17	17.6	17.9	18	18.1	18.2	18.6	19.9	20.5	20.7	20.7	21.4	21.9	22	22
Boord SS/Dalsig Oos SS 11kV	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Boord SS/Kleingeluk MS 11kV	0.131	4.2	4.2	4.2	4.3	4.3	4.3	4.4	4.5	4.5	4.5	4.6	4.7	5	5.1	5.2	5.2	5.4	5.5	5.5	5.5
Boord SS/Lovell 2 MS 11kV	0.12	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Boord SS/Markotter Suidwal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Markotter Suidwal SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Markotter Suidwal SS 11kV(2)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Rokewood MS 11kV	0.213	28.8	28.8	29.1	29.3	29.3	29.3	30.4	31	31.1	31.3	31.4	32.1	34.3	35.5	35.7	35.7	37	37.8	37.9	37.9
Brandwagt RMU/Tramali RMU 11kV	0.207	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
CON_527	0.12	5.1	5.1	5.2	5.2	5.2	5.2	5.4	5.5	5.5	5.6	5.6	5.7	6.1	6.3	6.3	6.4	6.6	6.7	6.7	6.7
CON_529	0.12	3.9	3.9	4	4	4	4	4.2	4.2	4.3	4.3	4.3	4.4	4.7	4.9	4.9	4.9	5.1	5.2	5.2	5.2
CON_531	0.12	2.7	2.7	2.8	2.8	2.8	2.8	2.9	3	3	3	3	3.1	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.6
CON_533	0.12	2.7	2.7	2.8	2.8	2.8	2.8	2.9	3	3	3	3	3.1	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.6
CON_537	0.12	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.9	3	3	3	3.1	3.2	3.2	3.2
CON_539	0.12	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.9	3	3	3	3.1	3.2	3.2	3.2
CON_543	0.12	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
CON_545	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_551	0.12	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6
CON_553	0.12	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CON_555	0.12	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CON_557	0.12	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canterbury MS/Paradyskloof MS 11kV	0.131	21.3	21.3	21.6	21.7	21.7	21.7	22.5	22.9	23	23.1	23.3	23.8	25.4	26.3	26.4	26.5	27.4	28	28.1	28.1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Captic RMU/Techno Park MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	3.3	3.3	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.6	3.6	3.7	3.9	4.1	4.1	4.1	4.2	4.3	4.3	4.4
Christiaan Brothers MS/Paradyskloof RMU	0.131	4.7	4.7	4.7	4.8	4.8	4.8	4.9	5	5.1	5.1	5.1	5.2	5.6	5.8	5.8	5.8	6	6.2	6.2	6.2
Cotlinplace MS/Platinum Place MS 11kV	0.207	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	4	4.2	4.4	4.4	4.4	4.5	4.6	4.7	4.7
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4.2	4.2	4.2	4.3	4.3	4.3	4.4	4.5	4.5	4.6	4.6	4.7	5	5.2	5.2	5.2	5.4	5.5	5.5	5.5
Cynariodes MS/Florida MS 11kV	0.131	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.3	3.3	3.4	3.6	3.8	3.8	3.8	3.9	4	4	4
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	11.8	11.8	11.9	12	12	12	12.4	12.7	12.7	12.8	12.9	13.2	14	14.5	14.6	14.6	15.1	15.5	15.5	15.5
De Oewer MS/Medi Kliniek SS 11kV	0.213	5.4	5.4	5.5	5.5	5.5	5.5	5.7	5.8	5.9	5.9	5.9	6.1	6.5	6.7	6.7	6.7	7	7.1	7.2	7.2
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8.1	8.1	8.1	8.1	8.4	8.6	8.6	8.6	8.7	8.9	9.5	9.8	9.9	9.9	10.2	10.5	10.5	10.5
Die werf RMU/Wingerd MS 11kV	0.131	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Eden MS/Paradyskloof SS 11kV	0.131	14.4	14.4	14.5	14.6	14.6	14.6	15.2	15.4	15.5	15.6	15.7	16	17.1	17.7	17.8	17.8	18.4	18.8	18.9	18.9
Eiestad Medi SS/River 1 MS 11kV	0.207	8.3	8.3	8.4	8.5	8.5	8.5	8.8	8.9	9	9	9.1	9.3	9.9	10.2	10.3	10.3	10.7	10.9	10.9	11
Elberta MS/Bon Cretien MS 11kV	0.213	13.9	13.9	14.1	14.2	14.2	14.2	14.7	15	15	15.1	15.2	15.5	16.6	17.2	17.3	17.3	17.9	18.3	18.3	18.3
Electron 3 MS/Cotlinplace MS 11kV	0.207	4.6	4.6	4.6	4.6	4.6	4.6	4.8	4.9	4.9	5	5	5.1	5.4	5.6	5.7	5.7	5.9	6	6	6
Electron House RMU/Elektron 2 MS 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Elektron 1 MS/Electron House RMU 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.9	2	2	2	2
Elsie MS/Brandwagt RMU 11kV	0.207	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Florida MS/Eden MS 11kV	0.131	7.1	7.1	7.1	7.2	7.2	7.2	7.4	7.6	7.6	7.7	7.7	7.9	8.4	8.7	8.7	8.8	9.1	9.3	9.3	9.3
Golf Club SS/Boord SS 11kV	0.245	13.6	13.6	13.8	13.8	13.8	13.8	14.4	14.6	14.7	14.8	14.8	15.2	16.2	16.8	16.9	16.9	17.5	17.9	17.9	17.9
Golf Club SS/Boord SS 11kV(1)	0.245	13.6	13.6	13.8	13.9	13.9	13.9	14.4	14.7	14.7	14.8	14.9	15.2	16.2	16.8	16.9	16.9	17.5	17.9	17.9	18
Golf Club SS/Boord SS 11kV(2)	0.245	13.2	13.2	13.3	13.4	13.4	13.4	13.9	14.2	14.2	14.3	14.4	14.7	15.7	16.2	16.3	16.3	16.9	17.3	17.3	17.3
Golf Club SS/Boord SS 11kV(3)	0.245	13.2	13.2	13.3	13.4	13.4	13.4	13.9	14.2	14.2	14.3	14.4	14.7	15.7	16.2	16.3	16.4	16.9	17.3	17.3	17.4
Golf Club SS/Golf Club MS 11kV	0.131	4.8	4.8	4.8	4.9	4.9	4.9	5	5.1	5.2	5.2	5.2	5.3	5.7	5.9	5.9	5.9	6.1	6.3	6.3	6.3
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19.2	19.3	19.3	19.3	20	20.4	20.5	20.6	20.7	21.2	22.6	23.4	23.5	23.5	24.4	24.9	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	9.8	9.8	9.9	10	10	10	10.3	10.5	10.6	10.7	10.7	10.9	11.7	12.1	12.1	12.2	12.6	12.9	12.9	12.9
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	9.8	9.8	9.9	10	10	10	10.3	10.5	10.6	10.6	10.7	10.9	11.7	12.1	12.1	12.1	12.6	12.8	12.9	12.9
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	19.2	19.4	19.4	19.4	20.1	20.5	20.6	20.7	20.8	21.2	22.6	23.4	23.6	23.6	24.4	24.9	25	25

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Solar MS 11kV	0.207	12.2	12.2	12.4	12.4	12.4	12.4	12.9	13.1	13.2	13.3	13.3	13.6	14.5	15	15.1	15.2	15.7	16	16.1	16.1
Golf Club SS/Techno Park MS 11kV	0.4	24.7	24.7	25	25.1	25.1	25.1	26	26.5	26.7	26.8	26.9	27.5	29.4	30.4	30.6	30.6	31.7	32.4	32.5	32.5
Golf Club SS/Techno Park MS 11kV(1)	0.4	9.6	9.6	9.7	9.8	9.8	9.8	10.1	10.3	10.4	10.4	10.5	10.7	11.4	11.8	11.9	11.9	12.3	12.6	12.7	12.7
Groenwyde TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HuisduPreez SS/Stellenbosch Hoërskool RM	0.082	6	6	6	6	6.1	6.1	6.4	6.6	6.6	6.6	6.6	6.7	6.9	7	7	7	7.1	7.2	7.2	7.2
ISS International MS/Reutech MS 11kV	0.207	14.4	14.4	14.5	14.6	14.6	14.6	15.2	15.5	15.5	15.6	15.7	16	17.1	17.7	17.8	17.8	18.5	18.8	18.9	18.9
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaapzicht Pomp TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaapzicht TRF 11kV	0.12	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Kaboeterbos TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingsview MS/Paradyskloof SS 11kV	0.207	12.7	12.7	12.9	12.9	12.9	12.9	13.4	13.7	13.7	13.8	13.9	14.2	15.1	15.7	15.7	15.8	16.3	16.7	16.7	16.7
Kleingeluk MS/Die werf RMU 11kV	0.131	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.9	3	3	3	3.1	3.1	3.2	3.2
L'Abrie TRF 11kV	0.12	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
La Pastorale 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
La Pastorale 2 MS/Montblanc MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LaPastorale MS/LeHermitage MS 11kV	0.207	3.7	3.7	3.8	3.8	3.8	3.8	3.9	4	4	4	4	4.1	4.4	4.6	4.6	4.6	4.8	4.9	4.9	4.9
Le Montier MS/Paradyskloof Villas MS 11k	0.207	9.8	9.8	9.9	10	10	10	10.3	10.5	10.6	10.6	10.7	10.9	11.7	12	12.1	12.1	12.6	12.8	12.9	12.9
LeHermitage MS/Anesta MS 11kV	0.207	5.4	5.4	5.5	5.5	5.5	5.5	5.7	5.8	5.9	5.9	5.9	6.1	6.5	6.7	6.7	6.7	7	7.1	7.1	7.1
Lovell 1 MS/Rhodes MS 11kV	0.12	11.8	11.8	12	12	12	12	12.5	12.7	12.8	12.9	12.9	13.2	14.1	14.6	14.7	14.7	15.2	15.5	15.6	15.6
Lovell 2 MS/Lovell 1 MS 11kV	0.12	6.8	6.8	6.9	6.9	6.9	6.9	7.2	7.3	7.3	7.4	7.4	7.6	8.1	8.4	8.4	8.4	8.7	8.9	8.9	9
Lovell 3 MS/Elberta MS 11kV	0.213	11.5	11.5	11.7	11.7	11.7	11.7	12.2	12.4	12.5	12.5	12.6	12.9	13.7	14.2	14.3	14.3	14.8	15.1	15.2	15.2
MTN/Tennis TRF 11kV	0.12	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	5.8	5.8	5.9	5.9	5.9	5.9	6.1	6.2	6.3	6.3	6.3	6.5	6.9	7.2	7.2	7.2	7.5	7.6	7.7	7.7
Medi Kliniek SS/Culemborg MS 11kV	0.213	5.4	5.4	5.5	5.5	5.5	5.5	5.7	5.8	5.9	5.9	5.9	6.1	6.5	6.7	6.7	6.7	7	7.1	7.2	7.2
Montblanc MS/LaPastorale MS 11kV	0.207	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9
Mulberry Farm TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOK MS/Electron 3 MS 11kV	0.207	5.7	5.7	5.8	5.8	5.8	5.8	6.1	6.2	6.2	6.2	6.3	6.4	6.8	7.1	7.1	7.1	7.4	7.5	7.5	7.5
Oakdale TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Octoplace MS/Captic RMU 11kV	0.207	20.3	20.3	20.5	20.6	20.6	20.6	21.4	21.8	21.9	22	22.1	22.6	24.2	25	25.1	25.2	26.1	26.6	26.7	26.7
Oewerpark MS/De Oewer MS 11kV	0.213	6.1	6.1	6.1	6.2	6.2	6.2	6.4	6.5	6.5	6.6	6.6	6.8	7.2	7.5	7.5	7.5	7.8	7.9	8	8
Orchardvale TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Padstal MS 11kV	0.131	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Padstal MS/Blaauklippen RMU 11kV	0.131	8.5	8.5	8.6	8.6	8.6	8.6	8.9	9.1	9.1	9.2	9.2	9.5	10.1	10.4	10.5	10.5	10.9	11.1	11.2	11.2
Paradyskloof MS/Paradyskloof SS 11kV	0.207	14.9	14.9	15	15.1	15.1	15.1	15.7	16	16.1	16.1	16.2	16.6	17.7	18.3	18.4	18.5	19.1	19.5	19.6	19.6
Paradyskloof RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof RMU 11kV(1)	0.131	4.7	4.7	4.7	4.8	4.8	4.8	4.9	5	5.1	5.1	5.1	5.2	5.6	5.8	5.8	5.8	6	6.2	6.2	6.2
Paradyskloof SS/Christiaan Brothers MS 1	0.131	6.1	6.1	6.2	6.2	6.2	6.2	6.5	6.6	6.6	6.6	6.7	6.8	7.3	7.5	7.6	7.6	7.9	8	8.1	8.1
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8.3	8.3	8.4	8.5	8.5	8.5	8.8	9	9	9	9.1	9.3	9.9	10.2	10.3	10.3	10.7	10.9	10.9	11
Paradyskloof SS/RMU 11kV	0.207	15.8	15.8	16	16.1	16.1	16.1	16.7	17	17.1	17.2	17.2	17.6	18.8	19.5	19.6	19.6	20.3	20.7	20.8	20.8
Paradyskloof SS/Schuilplaats MS 11kV	0.131	5.6	5.6	5.6	5.7	5.7	5.7	5.9	6	6	6	6.1	6.2	6.6	6.8	6.9	6.9	7.1	7.3	7.3	7.3
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	11.5	11.5	11.6	11.7	11.7	11.7	12.1	12.4	12.4	12.5	12.5	12.8	13.7	14.2	14.2	14.3	14.8	15.1	15.1	15.1
Paradyskloof Waterwerke TRF 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	3	3	3	3	3	3	3.1	3.2	3.2	3.2	3.2	3.3	3.5	3.6	3.7	3.7	3.8	3.9	3.9	3.9
Polytwine MS/Prindtel Park MS 11kV	0.207	4.4	4.4	4.4	4.4	4.4	4.4	4.6	4.7	4.7	4.7	4.7	4.9	5.2	5.4	5.4	5.4	5.6	5.7	5.7	5.7
Prindtel Park MS/Neutron MS 11kV	0.207	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1	1	1	1	1	1	1
Proton MS/Termo MS 11kV	0.207	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.9
Quantum 1 MS/Quantum 3 MS 11kV	0.207	5.3	5.3	5.4	5.4	5.4	5.4	5.6	5.7	5.7	5.8	5.8	5.9	6.3	6.5	6.6	6.6	6.8	7	7	7
Quantum 2 MS/DataVoice RMU 11kV	0.207	6.7	6.7	6.8	6.8	6.8	6.8	7.1	7.2	7.2	7.3	7.3	7.5	8	8.2	8.3	8.3	8.6	8.8	8.8	8.8
Quantum 3 MS/Quantum 2 MS 11kV	0.207	5.5	5.5	5.6	5.6	5.6	5.6	5.8	5.9	5.9	6	6	6.1	6.5	6.8	6.8	6.8	7.1	7.2	7.2	7.2
RMU/Medikliniek MS 11kV	0.207	12.4	12.4	12.5	12.6	12.6	12.6	13	13.3	13.4	13.4	13.5	13.8	14.7	15.2	15.3	15.4	15.9	16.2	16.3	16.3
RMU/Parmalat MS 11kV	0.131	2.8	2.8	2.9	2.9	2.9	2.9	3	3.1	3.1	3.1	3.1	3.2	3.4	3.5	3.5	3.5	3.6	3.7	3.7	3.7
RMU/Tramali RMU 11kV	0.207	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
Repens MS/Cynariodes MS 11kV	0.131	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Reutech MS/Techno Park MS 11kV	0.207	25	25	25.3	25.4	25.4	25.4	26.4	26.9	27	27.1	27.3	27.9	29.7	30.8	31	31	32.1	32.8	32.9	32.9
Rhodes MS/Boord SS 11kV	0.12	17.7	17.7	18	18.1	18.1	18.1	18.7	19.1	19.2	19.3	19.4	19.8	21.1	21.9	22	22	22.8	23.3	23.4	23.4
River 1 MS/River 2 MS 11kV	0.207	3.7	3.7	3.7	3.8	3.8	3.8	3.9	4	4	4	4	4.1	4.4	4.6	4.6	4.6	4.7	4.8	4.9	4.9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
River 2 MS/Elsie MS 11kV	0.207	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9
Rokewood MS/Blenheim MS 11kV	0.213	25.5	25.5	25.8	26	26	26	26.9	27.5	27.6	27.7	27.9	28.5	30.4	31.5	31.7	31.7	32.8	33.5	33.6	33.7
Rokewood Pomp MS/DeBosch MS 11kV	0.213	5.8	5.8	5.9	5.9	5.9	5.9	6.1	6.2	6.3	6.3	6.3	6.5	6.9	7.2	7.2	7.2	7.5	7.6	7.6	7.7
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	3.8	3.8	3.9	3.9	3.9	3.9	4.1	4.1	4.1	4.2	4.2	4.3	4.6	4.7	4.8	4.8	4.9	5	5	5.1
Serruria MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23.1	23.1	23.4	23.5	23.5	23.5	24.4	24.9	25	25.1	25.2	25.8	27.5	28.5	28.7	28.7	29.7	30.3	30.4	30.5
Site 11 Paradyskloof Erf373/8/9 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skietbaan TRF 11kV	0.584	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Solar MS/Techno Park MS 11kV	0.207	11.9	11.9	12	12.1	12.1	12.1	12.5	12.8	12.8	12.9	13	13.3	14.1	14.6	14.7	14.7	15.2	15.6	15.6	15.6
Stellenbosch 101 MS/Serruria MS 11kV	0.131	3.4	3.4	3.5	3.5	3.5	3.5	3.6	3.7	3.7	3.7	3.7	3.8	4.1	4.2	4.2	4.3	4.4	4.5	4.5	4.5
Stellenbosch LM 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Stellenpark Hotel MS 11kV	0.207	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Techno Park MS/Octoplace MS 11kV	0.207	31.7	31.7	32.1	32.3	32.3	32.3	33.5	34.2	34.3	34.5	34.7	35.5	37.8	39.1	39.4	39.5	40.8	41.7	41.8	41.9
Techno Park MS/Polytwine MS 11kV	0.207	5	5	5	5	5	5	5.2	5.3	5.4	5.4	5.4	5.5	5.9	6.1	6.1	6.2	6.4	6.5	6.5	6.5
Techno Park MS/Stellenpark Hotel MS 11kV	0.207	9.3	9.3	9.4	9.4	9.4	9.4	9.8	10	10	10.1	10.1	10.3	11	11.4	11.5	11.5	11.9	12.2	12.2	12.2
Techno Park MS/Tegno Park 2 MS 11kV	0.207	6.7	6.7	6.8	6.8	6.8	6.8	7.1	7.2	7.2	7.3	7.3	7.5	8	8.2	8.3	8.3	8.6	8.8	8.8	8.8
Tegno Park 1 MS/ISS International MS 11k	0.207	12.3	12.3	12.4	12.5	12.5	12.5	13	13.2	13.3	13.4	13.4	13.7	14.6	15.1	15.2	15.3	15.8	16.1	16.2	16.2
Tegno Park 2 MS/NOK MS 11kV	0.207	6.1	6.1	6.2	6.2	6.2	6.2	6.4	6.6	6.6	6.6	6.7	6.8	7.3	7.5	7.6	7.6	7.8	8	8	8
Tegno Park Pomp MS/Proton MS 11kV	0.207	2.9	2.9	3	3	3	3	3.1	3.2	3.2	3.2	3.2	3.3	3.5	3.6	3.7	3.7	3.8	3.9	3.9	3.9
Termo MS/Times Square MS 11kV	0.207	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1	1	1	1	1	1	1
Three Fountains MS/Le Montier MS 11kV	0.207	8	8	8.1	8.2	8.2	8.2	8.5	8.7	8.7	8.7	8.8	9	9.6	9.9	10	10	10.3	10.5	10.6	10.6
Times Square MS/Elektron 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tonnel TRF 11kV	0.12	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Tramali RMU 11kV	0.131	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Tramali RMU/Brandwag Park MS 11kV	0.207	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.7	2.8	2.8	2.8	2.9	3	3	3
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vriesenhof Pomp TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vriesenhof TRF 11kV	0.584	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Water Reservoir TRF[...]	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.131	5.9	5.9	6	6	6	6	6.2	6.3	6.4	6.4	6.4	6.6	7	7.3	7.3	7.3	7.6	7.7	7.8	7.8

Table 7: Line Loading Load Flow Results (%) – University

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
1st National MS/University SS 11kV	0.207	5.8	5.8	5.8	5.8	5.8	5.8	5.9	6.1	6.1	6.1	6.1	6.2	6.3	6.3	6.3	6.3	6.3	6.4	6.4	6.4
ABSA MS/Ecclesia RMU 11kV	0.131	4.9	4.9	4.9	4.9	4.9	5	5	5.2	5.2	5.2	5.2	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Amadeus MS/NH Kerk MS 11kV	0.207	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Andmar MS/Kerk SS 11kV	0.131	14	14	14	14	14	14.1	14.3	14.7	14.9	14.9	14.9	15	15.2	15.3	15.4	15.4	15.4	15.4	15.4	15.4
Andringa MS/Hagerhof RMU 11kV	0.131	12.9	12.9	12.9	12.9	13	13	13.3	13.6	13.8	13.8	13.8	13.9	14.1	14.2	14.2	14.2	14.2	14.3	14.3	14.3
Azalia RMU/Nyasa RMU 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4	4.1	4.1	4.1
BJ Vorster SS/Macdonalds MS 11kV	0.207	18.9	18.9	18.9	18.9	18.9	19.1	19.4	19.9	20.2	20.2	20.2	20.3	20.6	20.8	20.8	20.8	20.9	20.9	21	21
Banhoek MS/Kromrivier SS 11kV	0.207	6.9	6.9	6.9	6.9	6.9	7	7.1	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.6	7.6	7.6	7.7	7.7
Batkrosier SS/Stadsaal SS 11kV	0.082	19.4	19.4	19.4	19.4	19.4	19.6	19.9	20.4	20.7	20.7	20.7	20.8	21.1	21.3	21.3	21.4	21.4	21.4	21.5	21.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.9	7.9	8	8.3	8.4	8.4	8.4	8.4	8.6	8.6	8.6	8.6	8.6	8.7	8.7	8.7
Bergville MS/Drama SS 11kV	0.131	10.4	10.4	10.4	10.4	10.4	10.5	10.7	11	11.1	11.1	11.1	11.2	11.4	11.4	11.5	11.5	11.5	11.5	11.5	11.5
Bergzicht Plaza MS/Merriman SS 11kV	0.207	14	14	14	14	14	14.1	14.3	14.7	14.9	14.9	14.9	15	15.2	15.3	15.4	15.4	15.4	15.4	15.5	15.5
Beyerhof MS/Coetzenburg Galary MS 11kV	0.207	6.1	6.1	6.1	6.1	6.1	6.2	6.3	6.5	6.5	6.6	6.6	6.6	6.7	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Binne Plein MS/Kromrivier SS 11kV	0.131	7.9	7.9	7.9	7.9	7.9	7.9	8.1	8.3	8.4	8.4	8.4	8.4	8.6	8.6	8.7	8.7	8.7	8.7	8.7	8.7
Bosman SS/Amadeus MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bosman SS/Conservatorium SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bosman SS/Denneoord SS 11kV	0.245	11.2	11.2	11.2	11.2	11.2	11.3	11.4	11.7	11.9	11.9	11.9	12	12.2	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Bosman SS/Kerk SS 11kV	0.207	16.1	16.1	16.1	16.1	16.1	16.2	16.5	16.9	17.1	17.2	17.2	17.3	17.5	17.7	17.7	17.7	17.7	17.8	17.8	17.8
Caltex Bergzight MS/Pick and Pay RMU 11k	0.207	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Coetzenburg Galary MS/Drostdy RMU 11kV	0.207	6.8	6.8	6.8	6.8	6.8	6.9	7	7.2	7.3	7.3	7.3	7.3	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6
Conservatorium SS/Azalia RMU 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cyrus MS/Merriman SS 11kV	0.207	21.4	21.4	21.4	21.4	21.4	21.6	21.9	22.5	22.8	22.8	22.8	22.9	23.3	23.5	23.5	23.5	23.6	23.6	23.7	23.7
D'Ouwe Werf MS/Ou Kollege MS 11kV	0.131	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.6	8.7	8.7
De Camoran MS/Kerk SS 11kV	0.207	7.2	7.2	7.2	7.2	7.3	7.3	7.4	7.6	7.7	7.7	7.7	7.8	7.9	8	8	8	8	8	8	8
De Canha MS/Libertas Slaghuis MS 11kV	0.131	10.1	10.1	10.1	10.1	10.1	10.2	10.4	10.7	10.8	10.8	10.8	10.9	11	11.1	11.1	11.1	11.2	11.2	11.2	11.2
De Villiers MS/Banhoek MS 11kV	0.207	6	6	6	6	6	6.1	6.2	6.3	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6
De Waal MS(1)/Denneoord SS 11kV	0.207	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
De Waal MS/Bergville MS 11kV	0.131	9.9	9.9	9.9	9.9	9.9	10	10.1	10.4	10.5	10.6	10.6	10.6	10.8	10.9	10.9	10.9	10.9	10.9	11	11
De Watergracht MS/Cyrus MS 11kV	0.207	21.2	21.2	21.2	21.2	21.2	21.4	21.7	22.3	22.6	22.6	22.6	22.7	23.1	23.3	23.3	23.3	23.3	23.4	23.4	23.4
Die Laan MS/Rattray MS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Die Rand RMU/Die Rand MS 11kV	0.131	5.2	5.2	5.2	5.2	5.2	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.7	5.8	5.8	5.8	5.9	5.9	5.9	5.9	5.9	6	6	6
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15.1	15.2	15.4	15.9	16.1	16.1	16.1	16.2	16.5	16.6	16.6	16.6	16.7	16.7	16.7	16.7
Drama SS/Elckerlyc MS 11kV	0.207	17.5	17.5	17.5	17.5	17.6	17.7	18	18.4	18.7	18.7	18.7	18.8	19.1	19.3	19.3	19.3	19.3	19.4	19.4	19.4
Drama SS/Monika SS 11kV	0.082	30.1	30.1	30.1	30.1	30.2	30.4	30.9	31.7	32.1	32.2	32.2	32.3	32.9	33.1	33.2	33.2	33.2	33.3	33.4	33.4
Drostdy RMU/Helderzight MS 11kV	0.207	10.7	10.7	10.7	10.7	10.8	10.8	11	11.3	11.4	11.5	11.5	11.5	11.7	11.8	11.8	11.8	11.8	11.9	11.9	11.9
East Neetling/Kollege RMU 11kV	0.131	7.1	7.1	7.1	7.1	7.1	7.2	7.3	7.5	7.6	7.6	7.6	7.6	7.7	7.8	7.8	7.8	7.8	7.9	7.9	7.9
Ecclesia RMU/Kerk SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elckerlyc MS/De Watergracht MS 11kV	0.207	21	21	21	21	21	21.2	21.5	22.1	22.4	22.4	22.4	22.5	22.9	23.1	23.1	23.1	23.1	23.2	23.2	23.2
Hagerhof RMU/Lavanda MS 11kV	0.131	14.6	14.6	14.6	14.6	14.6	14.7	15	15.4	15.6	15.6	15.6	15.7	15.9	16	16.1	16.1	16.1	16.1	16.2	16.2
Helderberg RMU/Louw MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Helderzight MS/Bergzicht Plaza MS 11kV	0.207	12.7	12.7	12.7	12.7	12.7	12.8	13	13.3	13.5	13.5	13.5	13.6	13.8	13.9	14	14	14	14	14	14
Hetbeginhof MS/De Villiers MS 11kV	0.207	5.3	5.3	5.3	5.3	5.3	5.4	5.5	5.6	5.7	5.7	5.7	5.7	5.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Huis Piron MS/Sonvida MS 11kV	0.131	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
JanKats MS/Oudehoek MS 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4.1	4.1	4.1	4.1
Kollege MS/Denneoord SS 11kV	0.131	15.8	15.8	15.8	15.8	15.9	16	16.2	16.7	16.9	16.9	16.9	17	17.2	17.4	17.4	17.4	17.4	17.5	17.5	17.5
Kollege RMU/Kollege MS 11kV	0.131	10.4	10.4	10.4	10.4	10.4	10.5	10.7	10.9	11.1	11.1	11.1	11.2	11.3	11.4	11.4	11.4	11.5	11.5	11.5	11.5
Kollege RMU/Koloniesland TRF 11kV	0.131	2.9	2.9	2.9	2.9	2.9	3	3	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.5	10.6	10.8	11.1	11.2	11.2	11.2	11.3	11.5	11.6	11.6	11.6	11.6	11.6	11.7	11.7
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.8	8.8	9	9.2	9.3	9.3	9.3	9.4	9.5	9.6	9.6	9.6	9.6	9.7	9.7	9.7
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.3
Langenhoven SS/Merriman SS 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.9	4	4	4	4	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.2
Lavanda MS/Kromrivier SS 11kV	0.131	24.2	24.2	24.2	24.2	24.3	24.4	24.8	25.5	25.8	25.8	25.9	26	26.4	26.6	26.6	26.6	26.7	26.8	26.8	26.8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Libertas Slaghuis MS/Andringa MS 11kV	0.131	11.6	11.6	11.6	11.6	11.6	11.7	11.9	12.2	12.4	12.4	12.4	12.5	12.7	12.8	12.8	12.8	12.8	12.8	12.9	12.9
Louw MS/Stellenbosch Hotel MS 11kV	0.207	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1	1
Macdonalds MS/Merriman/Bird SS 11kV	0.207	14.2	14.2	14.2	14.2	14.3	14.4	14.6	15	15.2	15.2	15.2	15.3	15.5	15.7	15.7	15.7	15.7	15.8	15.8	15.8
Mcdonalds MS/Oudewaal MS 11kV	0.207	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Merriman SS/BJ Vorster SS 11kV	0.207	35.7	35.7	35.7	35.7	35.8	36.1	36.6	37.6	38.1	38.1	38.1	38.3	38.9	39.3	39.3	39.3	39.4	39.5	39.5	39.5
Merriman SS/Hetbeginhof MS 11kV	0.207	4.6	4.6	4.6	4.6	4.6	4.6	4.7	4.8	4.9	4.9	4.9	4.9	5	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Merriman SS/Langenhoven SS 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9	4	4	4	4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Merriman SS/Smuts SS 11kV	0.207	11.5	11.5	11.5	11.5	11.5	11.6	11.8	12.1	12.3	12.3	12.3	12.4	12.6	12.7	12.7	12.7	12.7	12.7	12.8	12.8
Merriman/Bird MS/De Canha MS 11kV	0.131	9.7	9.7	9.7	9.7	9.8	9.8	10	10.2	10.4	10.4	10.4	10.4	10.6	10.7	10.7	10.7	10.7	10.8	10.8	10.8
Merriman/Bird SS/Merriman/Bird MS 11kV	0.131	6.3	6.3	6.3	6.3	6.3	6.3	6.4	6.6	6.7	6.7	6.7	6.7	6.9	6.9	6.9	6.9	6.9	6.9	7	7
NH Kerk MS/Schuman SS 11kV	0.207	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Neethlinghuis MS/ABSA MS 11kV	0.131	10.9	10.9	10.9	10.9	10.9	11	11.1	11.4	11.6	11.6	11.6	11.7	11.8	11.9	12	12	12	12	12	12
Nyasa RMU/De Camoran MS 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4	4.1	4.1	4.1
Ou Kollege MS/Andmar MS 11kV	0.131	11.7	11.7	11.7	11.7	11.8	11.8	12	12.3	12.5	12.5	12.5	12.6	12.8	12.9	12.9	12.9	12.9	13	13	13
Oudehoek MS/1st National MS 11kV	0.207	4.9	4.9	4.9	4.9	4.9	4.9	5	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4
Oudewaal MS/De Waal MS(1) 11kV	0.207	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Pick and Pay RMU/Merriman/Bird SS 11kV	0.131	27.7	27.7	27.7	27.7	27.8	28	28.4	29.2	29.6	29.6	29.6	29.8	30.2	30.5	30.5	30.5	30.6	30.7	30.7	30.7
Plumbago MS/Caltex Bergzight MS 11kV	0.207	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Polisie SS/SDR Du Toit str RMU 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.7	8.7	8.9	9.1	9.2	9.2	9.3	9.3	9.5	9.5	9.5	9.5	9.6	9.6	9.6	9.6
Rattray MS/Huis Piron MS 11kV	0.131	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SA Perm SS/Stadsaal SS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SDR Du Toit str RMU/Batkrosier SS 11kV	0.131	12.1	12.1	12.1	12.1	12.2	12.3	12.5	12.8	12.9	13	13	13	13.2	13.4	13.4	13.4	13.4	13.4	13.4	13.4
Schuman SS/Merriman SS 11kV	0.131	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2	2	2	2	2	2	2	2	2	2	2.1	2.1	2.1
Sonvida MS/East Neetling 11kV	0.131	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Stadsaal SS/Beyerhof MS 11kV	0.207	6	6	6	6	6	6	6.1	6.3	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Stadsaal SS/D'Ouwe Werf MS 11kV	0.131	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Stadsaal SS/De Waal MS 11kV	0.131	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.3	8.3	8.4	8.5	8.6	8.6	8.6	8.6	8.6	8.6	8.6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Stadsaal SS/Eikestad Mall SS 11kV	0.4	16.5	16.5	16.5	16.5	16.6	16.7	16.9	17.4	17.6	17.6	17.6	17.7	18	18.1	18.2	18.2	18.2	18.2	18.3	18.3
Stadsaal SS/Eikestad Mall SS 11kV(1)	0.4	18	18	18	18	18.1	18.2	18.5	19	19.2	19.2	19.2	19.3	19.6	19.8	19.8	19.8	19.9	19.9	19.9	20
Stadsaal SS/Neethlinghuis MS 11kV	0.131	18.7	18.7	18.7	18.7	18.7	18.8	19.1	19.6	19.9	19.9	19.9	20	20.3	20.5	20.5	20.5	20.6	20.6	20.6	20.7
Stellenbosch Hotel MS/JanKats MS 11kV	0.207	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4.1	4.1	4.1	4.1
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
The Niche MS/Plumbago MS 11kV	0.207	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Universiteit SS/Bosman SS 11kV	0.4	15.2	15.2	15.2	15.2	15.2	15.3	15.6	16	16.2	16.2	16.2	16.3	16.5	16.7	16.7	16.7	16.7	16.8	16.8	16.8
Universiteit SS/Merriman SS 11kV	0.245	31.5	31.5	31.5	31.5	31.5	31.8	32.3	33.1	33.5	33.6	33.6	33.7	34.3	34.6	34.6	34.6	34.6	34.7	34.8	34.8
Universiteit SS/Merriman SS 11kV(1)	0.245	34.5	34.5	34.5	34.5	34.6	34.8	35.4	36.3	36.7	36.8	36.8	37	37.6	37.9	37.9	37.9	38	38.1	38.1	38.2
Universiteit SS/Stadsaal SS 11kV	0.4	23.8	23.8	23.8	23.8	23.8	24	24.4	25	25.3	25.4	25.4	25.5	25.9	26.1	26.1	26.2	26.2	26.3	26.3	26.3
Universiteit SS/Stadsaal SS 11kV(1)	0.4	23.1	23.1	23.1	23.1	23.1	23.3	23.7	24.3	24.6	24.7	24.7	24.8	25.2	25.4	25.4	25.4	25.4	25.5	25.6	25.6
Universiteit SS/Universiteit Werkswinkel	0.245	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Universiteit SS/University Engineering F	0.311	47	47	47	47	47.1	47.5	48.2	49.5	50.1	50.2	50.2	50.4	51.2	51.7	51.7	51.7	51.8	51.9	52	52
Universiteit SS/University RMU 11kV	0.4	20.3	20.3	20.3	20.3	20.4	20.5	20.8	21.4	21.7	21.7	21.7	21.8	22.1	22.3	22.4	22.4	22.4	22.5	22.5	22.5
University Engineering Faculty SS/Univer	0.311	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
University RMU/CSIR SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
University RMU/Kromrivier SS 11kV	0.207	39.3	39.3	39.3	39.3	39.4	39.6	40.3	41.3	41.8	41.9	41.9	42.1	42.8	43.2	43.2	43.2	43.3	43.4	43.5	43.5
University SS/Stadsaal SS 11kV	0.131	9.1	9.1	9.1	9.1	9.1	9.2	9.3	9.6	9.7	9.7	9.7	9.8	9.9	10	10	10	10	10	10.1	10.1
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Van Der Stel/Van Riebeeck MS/Denneoord S	0.082	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Vergezicht MS/Binne Plein MS 11kV	0.207	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9

Table 8: Line Loading Load Flow Results (%) – Jan Marais

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
AP Venter MS/Van Coppenhagen MS 11kV	0.082	8.4	8.4	8.4	8.4	8.4	8.4	8.9	9.2	9.2	9.2	9.2	9.3	9.6	9.8	9.8	9.8	9.9	10	10	10
Amoi MS/Helshoogte Village MS 11kV	0.207	7.1	7.1	7.1	7.1	7.1	7.1	7.5	7.7	7.8	7.8	7.8	7.9	8.1	8.2	8.3	8.3	8.4	8.5	8.5	8.5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23.1	24.3	25.1	25.2	25.2	25.2	25.6	26.3	26.7	26.8	26.8	27.2	27.4	27.4	27.4
Bartlett MS/Packham MS 11kV	0.131	11.7	11.7	11.7	11.7	11.7	11.7	12.4	12.8	12.8	12.8	12.8	13	13.4	13.6	13.6	13.6	13.8	13.9	13.9	13.9
Beltana MS/Sonneblom MS 11kV	0.207	29.4	29.4	29.4	29.4	29.4	29.6	31.1	32	32.2	32.2	32.2	32.7	33.7	34.1	34.2	34.2	34.7	34.9	34.9	35
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Bloekem/Adendorf MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bloekem/Adendorf MS/Stone SS 11kV	0.131	4.1	4.1	4.1	4.1	4.1	4.1	4.3	4.5	4.5	4.5	4.5	4.6	4.7	4.8	4.8	4.8	4.9	4.9	4.9	4.9
Bothmashoogte MS/Tindal SS 11kV	0.131	20.2	20.2	20.2	20.2	20.2	20.3	21.4	22	22.1	22.1	22.2	22.5	23.2	23.5	23.5	23.5	23.9	24.1	24.1	24.1
Botmazicht MS/Merriman SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cannerie SS/Sonneblom SS 11kV	0.207	6.8	6.8	6.8	6.8	6.9	6.9	7.2	7.5	7.5	7.5	7.5	7.6	7.8	8	8	8	8.1	8.2	8.2	8.2
Cape Dutch MS/Driehoek MS 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cluver Circle MS/Soeteweide RMU 11kV	0.207	53.2	53.2	53.2	53.2	53.2	53.4	56.3	58	58.3	58.3	58.3	59.2	61	61.9	62	62	62.9	63.4	63.4	63.4
Cluver MS/Verreweide MS 11kV	0.207	13.7	13.7	13.7	13.7	13.7	13.8	14.5	15	15	15	15	15.3	15.7	15.9	16	16	16.2	16.3	16.3	16.3
Driehoek MS/Sonneblom SS 11kV	0.207	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Du Plessis MS/Rowan MS 11kV	0.207	4.9	4.9	4.9	4.9	4.9	4.9	5.2	5.3	5.3	5.3	5.3	5.4	5.6	5.6	5.6	5.7	5.7	5.8	5.8	5.8
Eikenbos MS/HIV Centre MS 11kV	0.207	2	2	2	2	2	2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Endler MS/Morkel MS 11kV	0.207	6	6	6	6	6	6	6.3	6.5	6.5	6.5	6.5	6.6	6.8	6.9	6.9	6.9	7	7.1	7.1	7.1
Glenelie RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gorridon MS/Stone SS 11kV	0.131	11.1	11.1	11.1	11.1	11.1	11.1	11.7	12.1	12.1	12.2	12.2	12.3	12.7	12.9	12.9	12.9	13.1	13.2	13.2	13.2
Groeneweide MS/The Merriman MS 11kV	0.207	50.2	50.2	50.2	50.2	50.3	50.5	53.2	54.8	55.1	55.1	55.1	55.9	57.6	58.4	58.5	58.5	59.4	59.9	59.9	59.9
HIV Centre MS/Botmazicht MS 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Hector MS/Bartlett MS 11kV	0.131	18	18	18	18	18	18.1	19	19.6	19.7	19.7	19.7	20	20.6	20.9	21	21	21.3	21.4	21.4	21.4
Hellshoogte MS/Seven Eleven MS 11kV	0.131	41.3	41.3	41.3	41.3	41.4	41.5	43.7	45	45.2	45.3	45.3	45.9	47.3	47.9	48	48	48.7	49.1	49.1	49.1
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4.3	4.3	4.3	4.3	4.3	4.4	4.6	4.7	4.8	4.8	4.8	4.8	5	5.1	5.1	5.1	5.1	5.2	5.2	5.2
Hospitaal RMU/Morris MS 11kV	0.207	16.8	16.8	16.8	16.8	16.8	16.9	17.8	18.3	18.4	18.4	18.4	18.7	19.3	19.6	19.6	19.6	19.9	20	20	20

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Idas 1 MS/Idas 2 MS 11kV	0.207	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9
Idas 2 MS/Stone SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Idasvallei Sport RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Infruitec SS/Cannerie SS 11kV	0.207	6.8	6.8	6.8	6.8	6.9	6.9	7.2	7.5	7.5	7.5	7.5	7.6	7.8	8	8	8	8.1	8.2	8.2	8.2
Jan Marais SS/Bosman SS 11kV	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Jan Marais SS/Cluver MS 11kV	0.207	15.4	15.4	15.4	15.4	15.4	15.5	16.3	16.8	16.9	16.9	16.9	17.2	17.7	17.9	18	18	18.2	18.4	18.4	18.4
Jan Marais SS/HuisduPreez SS 11kV	0.131	20.8	20.8	20.8	20.8	20.9	20.9	22.1	22.7	22.8	22.8	22.8	23.2	23.9	24.2	24.3	24.3	24.6	24.8	24.8	24.8
Jan Marais SS/Jonkerzicht MS 11kV	0.207	54.7	54.7	54.7	54.7	54.8	55	57.9	59.7	60	60	60	60.9	62.8	63.7	63.8	63.8	64.8	65.2	65.3	65.3
Jan Marais SS/Marais Park SS 11kV	0.207	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.4	3.4	3.5	3.5	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Jan Marais SS/Simonswyk RMU 11kV	0.207	45.2	45.2	45.2	45.2	45.2	45.4	47.8	49.2	49.5	49.5	49.5	50.2	51.7	52.4	52.5	52.5	53.3	53.7	53.7	53.7
Jan Marais SS/Tindal SS 11kV	0.4	25.3	25.3	25.3	25.3	25.3	25.4	26.8	27.6	27.7	27.8	27.8	28.2	29	29.4	29.5	29.5	29.9	30.1	30.1	30.1
Jan Marais SS/Unielaan MS 11kV	0.131	15.3	15.3	15.3	15.3	15.3	15.4	16.2	16.7	16.7	16.7	16.7	17	17.5	17.7	17.8	17.8	18	18.2	18.2	18.2
Jan Marais SS/Uniepark SS 11kV	0.4	17.1	17.1	17.1	17.1	17.1	17.1	18	18.6	18.7	18.7	18.7	19	19.5	19.8	19.8	19.9	20.2	20.3	20.3	20.3
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	17.1	17.1	17.1	17.1	17.2	17.2	18.1	18.7	18.8	18.8	18.8	19.1	19.6	19.9	19.9	19.9	20.2	20.4	20.4	20.4
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	8	8	8	8	8	8.1	8.5	8.8	8.8	8.8	8.8	8.9	9.2	9.3	9.3	9.3	9.5	9.6	9.6	9.6
Jonkershoek MS/Karendal SS 11kV	0.207	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7
Jonkerzicht MS/Cluver Circle MS 11kV	0.207	54	54	54	54	54.1	54.3	57.2	59	59.2	59.3	59.3	60.2	62	62.9	63	63	64	64.4	64.4	64.4
Karendal SS/Du Plessis MS 11kV	0.207	2.8	2.8	2.8	2.8	2.8	2.8	2.9	3	3	3	3	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.3	3.3
Karendal SS/Zwaanswyk MS 11kV	0.082	11.3	11.3	11.3	11.3	11.3	11.3	11.9	12.3	12.3	12.3	12.3	12.5	12.9	13.1	13.1	13.1	13.3	13.4	13.4	13.4
Khaler MS/Bothmashoogte MS 11kV	0.131	10.9	10.9	10.9	10.9	10.9	10.9	11.5	11.8	11.9	11.9	11.9	12.1	12.4	12.6	12.6	12.6	12.8	12.9	12.9	12.9
La Daulphine MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lelie MS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lelie MS/Protea MS 11kV	0.131	2.8	2.8	2.8	2.8	2.8	2.8	3	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.4
Marais Park SS/La Daulphine MS 11kV	0.207	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1
Marais Park SS/Stias MS 11kV	0.082	5.7	5.7	5.7	5.7	5.7	5.8	6.1	6.3	6.3	6.3	6.3	6.4	6.6	6.7	6.7	6.7	6.8	6.8	6.8	6.8
Mcdonalds MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Merton MS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Morkel MS/Jonkershoek MS 11kV	0.207	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Morris MS/Smuts SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Packham MS/Merton MS 11kV	0.131	6.2	6.2	6.2	6.2	6.2	6.2	6.6	6.8	6.8	6.8	6.8	6.9	7.1	7.2	7.2	7.2	7.3	7.4	7.4	7.4
Pendoring MS/Amoi MS 11kV	0.131	13.7	13.7	13.7	13.7	13.7	13.8	14.5	14.9	15	15	15	15.2	15.7	15.9	16	16	16.2	16.3	16.3	16.3
Protea MS/Khaler MS 11kV	0.131	6.8	6.8	6.8	6.8	6.8	6.8	7.2	7.4	7.4	7.4	7.4	7.5	7.8	7.9	7.9	7.9	8	8.1	8.1	8.1
Provinsie MS/Uniepark SS 11kV	0.207	4.3	4.3	4.3	4.4	4.4	4.4	4.6	4.7	4.8	4.8	4.8	4.8	5	5.1	5.1	5.1	5.1	5.2	5.2	5.2
Rowan MS/Jannasch 2 MS 11kV	0.207	6.4	6.4	6.4	6.4	6.4	6.4	6.8	7	7	7	7	7.1	7.3	7.4	7.4	7.4	7.6	7.6	7.6	7.6
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	3	3	3	3	3	3	3.1	3.2	3.2	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.5	3.5
Seven Eleven MS/Tindal SS 11kV	0.131	36.9	36.9	36.9	36.9	36.9	37.1	39	40.2	40.4	40.4	40.4	41	42.2	42.8	42.8	42.9	43.5	43.8	43.8	43.8
Simonsberg SS/Hospitaal RMU 11kV	0.207	16.8	16.8	16.8	16.8	16.8	16.9	17.8	18.3	18.4	18.4	18.4	18.7	19.3	19.6	19.6	19.6	19.9	20	20	20
Simonsrust 1 MS/Beltana MS 11kV	0.207	29.5	29.5	29.5	29.5	29.5	29.6	31.2	32.1	32.3	32.3	32.3	32.8	33.7	34.2	34.3	34.3	34.8	35	35	35
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0.207	41.4	41.4	41.4	41.4	41.4	41.6	43.7	45.1	45.3	45.3	45.3	46	47.4	48	48.1	48.1	48.8	49.2	49.2	49.2
Simonswyk RMU/Simonsrust 2 MS 11kV	0.207	42.4	42.4	42.4	42.4	42.5	42.6	44.9	46.2	46.5	46.5	46.5	47.2	48.6	49.2	49.3	49.4	50.1	50.4	50.5	50.5
Soeteweide RMU/Groeneweide MS 11kV	0.207	53.2	53.2	53.2	53.2	53.2	53.4	56.3	58	58.3	58.3	58.3	59.2	61	61.9	62	62	62.9	63.4	63.4	63.4
Sonneblom MS/Hellshoogte MS 11kV	0.207	26.2	26.2	26.2	26.2	26.2	26.3	27.7	28.5	28.7	28.7	28.7	29.1	29.9	30.4	30.4	30.4	30.9	31.1	31.1	31.1
Sonneblom SS/Eikenbos MS 11kV	0.207	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Sonneblom SS/Glenelie RMU 11kV	0.082	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sonneblom SS/Infruitec SS 11kV	0.207	8.2	8.2	8.2	8.2	8.2	8.3	8.7	9	9	9	9	9.1	9.4	9.6	9.6	9.6	9.7	9.8	9.8	9.8
Sonneblom SS/Tindal SS 11kV	0.207	19.5	19.5	19.5	19.5	19.5	19.6	20.5	21.1	21.2	21.2	21.2	21.5	22.1	22.4	22.4	22.5	22.7	22.9	22.9	22.9
Stias MS/Van Der Stel/Van Riebeeck MS 11	0.082	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Stone MS/Stone SS 11kV	0.207	7.1	7.1	7.1	7.1	7.1	7.1	7.5	7.7	7.8	7.8	7.8	7.9	8.1	8.2	8.2	8.2	8.4	8.4	8.4	8.4
Stone SS/Assegaai MS 11kV	0.131	28.9	28.9	28.9	28.9	28.9	29	30.6	31.5	31.7	31.7	31.7	32.2	33.2	33.6	33.7	33.7	34.2	34.5	34.5	34.5
Stone SS/Hector MS 11kV	0.131	20.5	20.5	20.5	20.5	20.5	20.6	21.7	22.4	22.5	22.5	22.5	22.8	23.5	23.8	23.9	23.9	24.3	24.4	24.4	24.4
Stone SS/Universiteit SS 11kV	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
The Merriman MS/Simonsberg SS 11kV	0.207	48.2	48.2	48.2	48.2	48.2	48.4	51	52.6	52.8	52.8	52.8	53.6	55.2	56	56.1	56.1	57	57.4	57.4	57.4
Tindal SS/Bloekem MS 11kV	0.207	4.7	4.7	4.7	4.7	4.7	4.7	5	5.1	5.2	5.2	5.2	5.3	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Tindal SS/Stone SS 11kV	0.4	17.5	17.5	17.5	17.5	17.5	17.6	18.5	19.1	19.2	19.2	19.2	19.5	20.1	20.4	20.4	20.4	20.7	20.9	20.9	20.9
Twee Pieke MS/Karendal SS 11kV	0.207	4.9	4.9	4.9	4.9	4.9	4.9	5.2	5.3	5.4	5.4	5.4	5.4	5.6	5.7	5.7	5.7	5.8	5.8	5.8	5.8
Uitsig MS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	4.7	4.7	4.7	4.7	4.7	4.7	5	5.1	5.2	5.2	5.2	5.3	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6
Unielaan MS/Uniepark SS 11kV	0.131	11.6	11.6	11.6	11.6	11.6	11.6	12.2	12.6	12.7	12.7	12.7	12.9	13.2	13.4	13.4	13.4	13.7	13.8	13.8	13.8
Uniepark SS/AP Venter MS 11kV	0.082	14.2	14.2	14.2	14.2	14.2	14.3	15	15.5	15.6	15.6	15.6	15.8	16.3	16.5	16.5	16.5	16.8	16.9	16.9	16.9
Uniepark SS/Endler MS 11kV	0.207	8	8	8	8	8	8	8.4	8.7	8.7	8.7	8.7	8.9	9.1	9.2	9.3	9.3	9.4	9.5	9.5	9.5
Uniepark SS/Twee Pieke MS 11kV	0.207	6.9	6.9	6.9	6.9	6.9	6.9	7.3	7.5	7.6	7.6	7.6	7.7	7.9	8	8	8	8.2	8.2	8.2	8.2
Uniepark SS/Waterwerke MS 11kV	0.207	14.3	14.3	14.3	14.3	14.4	14.4	15.2	15.6	15.7	15.7	15.7	15.9	16.4	16.6	16.7	16.7	16.9	17	17	17
Van Coppenhagen MS/Waterweg MS 11kV	0.082	3.8	3.8	3.8	3.8	3.8	3.9	4.1	4.2	4.2	4.2	4.2	4.3	4.4	4.5	4.5	4.5	4.5	4.6	4.6	4.6
Verreweide MS/Student Village MS 11kV	0.207	3.1	3.1	3.1	3.1	3.1	3.1	3.3	3.4	3.4	3.4	3.4	3.5	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7
Waterweg MS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waterwerke MS/Stone MS 11kV	0.207	9.5	9.5	9.5	9.5	9.5	9.6	10.1	10.4	10.4	10.4	10.4	10.6	10.9	11	11.1	11.1	11.2	11.3	11.3	11.3
Woodman MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Woodman MS/Gorridon MS 11kV	0.131	7.5	7.5	7.5	7.5	7.5	7.6	8	8.2	8.3	8.3	8.3	8.4	8.6	8.8	8.8	8.8	8.9	9	9	9
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Table 9: Line Loading Load Flow Results (%) – Cloetesville

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
10th Street 8 MS/School Crescent 9 MS 11	0.131	12.1	12.1	12.1	12.1	12.2	12.5	13.4	14.2	14.6	14.8	14.8	15	15.6	16	16	16	16.2	16.8	17.1	17.1
13th Street 17 MS/Kayamandi Sport Field	0.131	16.4	16.4	16.4	16.4	16.5	17	18.2	19.3	19.9	20	20.1	20.3	21.2	21.7	21.8	21.8	22	22.7	23.1	23.2
19 Planken str MS/Papegaaiberg Ind Park	0.207	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
3 MS/4 MS 11kV	0.131	28	28	28	28	28.2	29	31.1	33	34	34.3	34.4	34.8	36.3	37.2	37.3	37.3	37.7	39	39.7	39.8
4 MS/5 MS 11kV	0.131	25.4	25.4	25.4	25.4	25.6	26.3	28.3	30	30.9	31.2	31.3	31.7	33.1	33.8	33.9	33.9	34.3	35.5	36.1	36.2
6th Avenue 5 MS/7th Avenue 13 MS 11kV	0.131	6.6	6.6	6.6	6.6	6.7	6.9	7.4	7.8	8	8.1	8.1	8.2	8.6	8.8	8.8	8.8	8.9	9.2	9.4	9.4
7th Avenue 13 MS/Bassilong 14 11kV	0.131	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8
Agape MS/Jonkersview MS 11kV	0.207	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8	2.8	2.9	3	3
Akkerhof MS/Schoongezicht MS 11kV	0.131	26.2	26.2	26.2	26.2	26.4	27.1	29.1	30.9	31.8	32.1	32.2	32.6	34	34.8	34.9	34.9	35.3	36.5	37.1	37.2
Alley MS/Lappen 1 MS 11kV	0.131	9.3	9.3	9.3	9.3	9.4	9.6	10.3	11	11.3	11.4	11.4	11.6	12	12.3	12.4	12.4	12.5	12.9	13.2	13.2
Anthony MS/Curry SS 11kV	0.131	11.6	11.6	11.6	11.6	11.7	12	12.9	13.7	14.1	14.2	14.3	14.5	15.1	15.4	15.5	15.5	15.6	16.2	16.5	16.5
Bassi MS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bassilong 14 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belladonne MS C3 11kV	0.207	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Belladonne MS C3/Olive MS C2 11kV	0.207	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.9	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3
Bergipres MS/Essenhout MS 11kV	0.207	5.3	5.3	5.3	5.3	5.3	5.5	5.9	6.2	6.4	6.5	6.5	6.6	6.8	7	7	7	7.1	7.3	7.5	7.5
Bokomo MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bokomo MS/Cascade SS 11kV	0.207	1.8	1.8	1.8	1.8	1.8	1.9	2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.6
Boschenpark MS/Dermont MS 11kV	0.131	26.9	26.9	26.9	26.9	27.1	27.8	29.9	31.7	32.6	32.9	33	33.4	34.9	35.7	35.8	35.8	36.2	37.4	38.1	38.2
Boulevard MS/Gate C8 MS 11kV	0.207	9.1	9.1	9.1	9.1	9.2	9.4	10.1	10.7	11	11.1	11.2	11.3	11.8	12	12.1	12.1	12.2	12.6	12.9	12.9
Bridge 1 MS/Papegaaiberg Ind Park 1 MS 1	0.207	6.9	6.9	6.9	6.9	6.9	7.1	7.7	8.1	8.4	8.4	8.4	8.6	8.9	9.1	9.2	9.2	9.3	9.6	9.7	9.8
Bridge 2 MS/Bridge 1 MS 11kV	0.207	6.9	6.9	6.9	6.9	6.9	7.1	7.7	8.1	8.4	8.4	8.4	8.6	8.9	9.1	9.2	9.2	9.3	9.6	9.7	9.8
Cascade SS/Rembrandt/Bird SS 11kV	0.069	21	21	21	21	21.2	21.8	23.4	24.8	25.5	25.7	25.8	26.1	27.2	27.8	27.9	27.9	28.2	29.2	29.7	29.8
Cascade SS/SDR Clinic SS 11kV	0.4	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.7	3.8	3.9	3.9	3.9	4.1	4.2	4.2	4.2	4.3	4.4	4.5	4.5
Cascade SS/VW Rand str MS 11kV	0.131	6.8	6.8	6.7	6.8	6.8	7	7.5	8	8.2	8.3	8.3	8.4	8.8	9	9	9	9.1	9.4	9.6	9.6
Cascade SS/Vrugtepakkers SS 11kV	0.069	19.2	19.2	19.2	19.2	19.4	19.9	21.3	22.6	23.3	23.5	23.5	23.9	24.9	25.4	25.5	25.5	25.8	26.7	27.1	27.2
Cherrywood MS/Small Holdings MS 11kV	0.207	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Chestnut MS/Cherrywood MS 11kV	0.207	2.4	2.4	2.4	2.4	2.5	2.5	2.7	2.9	3	3	3	3	3.2	3.2	3.2	3.2	3.3	3.4	3.4	3.4
Cloetesville Central MS/Jacaranda MS 11k	0.245	10.2	10.2	10.2	10.2	10.3	10.6	11.4	12.1	12.4	12.5	12.5	12.7	13.3	13.6	13.6	13.6	13.7	14.2	14.5	14.5
Cloetesville SS/Curry SS 11kV	0.245	35.1	35.1	35.1	35.1	35.4	36.4	39	41.4	42.6	43	43.1	43.6	45.5	46.5	46.7	46.7	47.2	48.8	49.7	49.8
Cloetesville SS/Curry SS 11kV(1)	0.245	35.1	35.1	35.1	35.1	35.4	36.3	39	41.4	42.5	42.9	43	43.6	45.5	46.5	46.6	46.6	47.1	48.7	49.6	49.7
Cloetesville SS/Curry SS 11kV(2)	0.245	40.2	40.2	40.2	40.2	40.5	41.6	44.6	47.3	48.6	49.1	49.2	49.8	52	53.1	53.3	53.3	53.9	55.7	56.7	56.9
Cloetesville SS/Curry SS 11kV(3)	0.245	40.1	40.1	40.1	40.1	40.4	41.5	44.6	47.3	48.6	49	49.2	49.8	51.9	53.1	53.3	53.3	53.8	55.7	56.7	56.8
Cloetesville SS/Holly Oak MS 11kV	0.207	8	8	8	8	8	8.2	8.8	9.4	9.6	9.7	9.7	9.9	10.3	10.5	10.6	10.6	10.7	11	11.2	11.2
Cloetesville SS/Mount Simon RMU 11kV	0.207	13.4	13.4	13.4	13.4	13.5	13.9	14.9	15.8	16.2	16.3	16.4	16.6	17.3	17.7	17.7	17.8	17.9	18.5	18.9	18.9
Cloetesville SS/Seger MS 11kV	0.207	9.9	9.9	9.9	9.9	10	10.3	11	11.7	12	12.1	12.1	12.3	12.8	13.1	13.2	13.2	13.3	13.7	14	14
Cloetesville SS/Stasie MS 11kV	0.207	8.1	8.1	8.1	8.1	8.2	8.4	9	9.5	9.8	9.9	9.9	10.1	10.5	10.7	10.7	10.8	10.9	11.2	11.4	11.5
Cloetesville SS/Welgevonden SS 11k(1)	0.4	7	7	7	7	7.1	7.3	7.8	8.3	8.5	8.6	8.6	8.7	9.1	9.3	9.3	9.3	9.4	9.7	9.9	9.9
Cloetesville SS/Welgevonden SS 11kV	0.4	7.8	7.8	7.8	7.8	7.9	8.1	8.7	9.2	9.5	9.6	9.6	9.7	10.1	10.4	10.4	10.4	10.5	10.9	11	11.1
Costa RMU/Watergang RMU 11kV	0.207	8.7	8.7	8.7	8.7	8.7	9	9.6	10.2	10.5	10.6	10.6	10.7	11.2	11.4	11.5	11.5	11.6	12	12.2	12.2
Crombi MS/Oliphant MS 11kV	0.131	2.9	2.9	2.9	2.9	3	3	3.3	3.5	3.5	3.6	3.6	3.6	3.8	3.9	3.9	3.9	3.9	4.1	4.1	4.1
Cupido MS/Davidse MS 11kV	0.131	4.9	4.9	4.9	4.9	4.9	5.1	5.5	5.8	6	6	6	6.1	6.4	6.5	6.6	6.6	6.6	6.9	7	7
Curry SS/Costa RMU 11kV	0.207	16.3	16.3	16.3	16.3	16.4	16.9	18.1	19.2	19.7	19.9	20	20.2	21.1	21.6	21.6	21.7	21.9	22.6	23	23.1
Curry SS/Crombi MS 11kV	0.131	4.9	4.9	4.9	4.9	5	5.1	5.5	5.8	6	6	6	6.1	6.4	6.5	6.5	6.5	6.6	6.8	6.9	7
Curry SS/Kayamandi SS 11kV	0.4	3.2	3.2	3.2	3.2	3.2	3.3	3.6	3.8	3.9	3.9	3.9	4	4.1	4.2	4.2	4.2	4.3	4.4	4.5	4.5
Curry SS/Kayamandi SS 11kV(1)	0.4	6.3	6.3	6.3	6.3	6.3	6.5	7	7.4	7.6	7.7	7.7	7.8	8.1	8.3	8.3	8.3	8.4	8.7	8.9	8.9
Curry SS/Tennant SS 11kV	0.4	22.7	22.7	22.7	22.7	22.9	23.5	25.2	26.7	27.5	27.7	27.8	28.1	29.3	30	30.1	30.1	30.4	31.5	32	32.1
Curry SS/Tennant SS 11kV(1)	0.4	18.1	18.1	18.1	18.1	18.2	18.7	20.1	21.3	21.9	22.1	22.1	22.4	23.4	23.9	24	24	24.3	25.1	25.5	25.6
Curry SS/Tennant SS 11kV(2)	0.4	18.1	18.1	18.1	18.1	18.2	18.7	20.1	21.3	21.9	22.1	22.1	22.4	23.4	23.9	24	24	24.2	25.1	25.5	25.6
Daghospitaal MS/Taylor MS 11kV	0.131	3.3	3.3	3.3	3.3	3.4	3.4	3.7	3.9	4	4.1	4.1	4.1	4.3	4.4	4.4	4.4	4.5	4.6	4.7	4.7
Davidse MS/Anthony MS 11kV	0.131	8	8	8	8	8	8.2	8.9	9.4	9.7	9.8	9.8	9.9	10.3	10.6	10.6	10.6	10.7	11.1	11.3	11.3
Dennesig MS/The Niche MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Dermont MS/Molteno Park MS 11kV	0.131	27.4	27.4	27.4	27.4	27.6	28.4	30.4	32.3	33.2	33.5	33.6	34	35.5	36.3	36.4	36.4	36.8	38.1	38.8	38.9
Drukkers MS/Simonsberg Kaas RMU 11kV	0.082	13.3	13.3	13.3	13.3	13.4	13.8	14.8	15.7	16.1	16.3	16.3	16.5	17.2	17.6	17.7	17.7	17.9	18.5	18.8	18.9
Du Toit SS/Nooitgedacht MS 11kV	0.207	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.6	2.7	2.7	2.7	2.8	2.9	2.9	2.9	2.9	3	3.1	3.1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Enkanini MS(4)/Enkanini MS(3) 11kV	0.245	2.3	2.3	2.3	2.3	2.4	2.4	2.6	2.8	2.8	2.9	2.9	2.9	3	3.1	3.1	3.1	3.1	3.2	3.3	3.3
Enkanini MS/Enkanini MS(4) 11kV	0.245	2.3	2.3	2.3	2.3	2.4	2.4	2.6	2.8	2.8	2.9	2.9	2.9	3	3.1	3.1	3.1	3.1	3.2	3.3	3.3
Entrance C7 MS/Klein Welgevonden C4 MS 1	0.207	2.8	2.8	2.8	2.8	2.8	2.9	3.1	3.3	3.4	3.4	3.4	3.5	3.6	3.7	3.7	3.7	3.7	3.9	3.9	3.9
Essenhout MS/Waaierpalm MS 11kV	0.207	6.3	6.3	6.3	6.3	6.3	6.5	6.9	7.4	7.6	7.6	7.6	7.7	8.1	8.3	8.3	8.3	8.4	8.7	8.8	8.8
Fir SS/North End MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gate C8 MS/Stone Square RMU 11kV	0.207	7.8	7.8	7.8	7.8	7.8	8	8.6	9.1	9.4	9.5	9.5	9.6	10	10.3	10.3	10.3	10.4	10.8	10.9	11
George Blake North MS/George Blake South	0.131	30.1	30.1	30.1	30.1	30.3	31.1	33.4	35.5	36.5	36.8	36.9	37.4	39	39.9	40	40	40.4	41.8	42.6	42.7
George Blake South MS/Lubbe MS 11kV	0.131	31.4	31.4	31.4	31.4	31.7	32.5	34.9	37	38.1	38.4	38.5	39	40.7	41.6	41.8	41.8	42.2	43.7	44.5	44.6
Hani MS/Mdala End 12 MS 11kV	0.131	16.6	16.6	16.6	16.6	16.7	17.2	18.4	19.6	20.1	20.3	20.4	20.6	21.5	22	22.1	22.1	22.3	23.1	23.5	23.5
Hendrikse MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hofman SS/Blake Estate SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hofman SS/Blake Estate SS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hofman SS/Latsky MS 11kV	0.131	22.8	22.8	22.8	22.8	22.9	23.6	25.3	26.8	27.6	27.9	27.9	28.3	29.5	30.2	30.3	30.3	30.6	31.7	32.2	32.3
Hofman SS/Melrose Square MS 11kV	0.207	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Hofman SS/Papegaairand SS 11kV	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hofman SS/Universiteit SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Holly Oak MS/Chestnut MS 11kV	0.131	6.6	6.6	6.6	6.6	6.6	6.8	7.3	7.8	8	8	8.1	8.2	8.5	8.7	8.7	8.7	8.8	9.1	9.3	9.3
Hullet MS/Bridge 2 MS 11kV	0.207	6.7	6.7	6.7	6.7	6.8	6.9	7.5	7.9	8.1	8.2	8.2	8.3	8.7	8.9	8.9	8.9	9	9.3	9.5	9.5
ICA MS/RMU 11kV	0.207	2.5	2.5	2.5	2.5	2.5	2.6	2.8	2.9	3	3	3	3.1	3.2	3.3	3.3	3.3	3.3	3.4	3.5	3.5
Jacaranda MS/Orleans MS 11kV	0.213	7.8	7.8	7.8	7.8	7.8	8.1	8.6	9.2	9.4	9.5	9.5	9.7	10.1	10.3	10.3	10.3	10.4	10.8	11	11
Jonkersview MS/Muller MS 11kV	0.207	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2	2	2
KM Corridor MS/Kayamandi SS 11kV	0.131	17.2	17.2	17.2	17.2	17.4	17.8	19.1	20.3	20.9	21	21.1	21.4	22.3	22.8	22.9	22.9	23.1	23.9	24.3	24.4
Katbos MS A1/Welgevonden SS 11kV	0.207	8.7	8.7	8.7	8.7	8.8	9	9.7	10.2	10.5	10.6	10.7	10.8	11.3	11.5	11.5	11.5	11.7	12.1	12.3	12.3
Kayamandi SS/6th Avenue 5 MS 11kV	0.131	8.5	8.5	8.5	8.5	8.6	8.8	9.5	10.1	10.3	10.4	10.4	10.6	11	11.3	11.3	11.3	11.4	11.8	12	12.1
Kayamandi SS/Bassi MS 11kV	0.131	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7
Kayamandi SS/Mondi Crescent 11 MS 11kV	0.131	2	2	2	2	2	2	2.2	2.3	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.8
Kayamandi Sport Field MS/Hani MS 11kV	0.131	16.5	16.5	16.5	16.5	16.6	17.1	18.3	19.4	20	20.2	20.2	20.5	21.3	21.8	21.9	21.9	22.1	22.9	23.3	23.3
Klein Welgevonden C4 MS/Hendrikse MS 11k	0.207	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
La Rez MS/Mastertreads MS 11kV	0.131	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.8	1.8	1.9	1.9	2	2	2	2	2	2.1	2.1	2.1
Lakay 1 MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lakay 2 MS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lakay 2 MS/Langstraat Suid MS 11kV	0.131	2	2	2	2	2	2.1	2.2	2.3	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.8
Lang Williams MS/Fir SS 11kV	0.245	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Langenhoven MS/Agape MS 11kV	0.131	4.6	4.6	4.6	4.6	4.6	4.7	5.1	5.4	5.5	5.6	5.6	5.7	5.9	6.1	6.1	6.1	6.1	6.4	6.5	6.5
Langstraat Suid MS/Lakay 1 MS 11kV	0.131	4.4	4.4	4.4	4.4	4.4	4.6	4.9	5.2	5.3	5.4	5.4	5.5	5.7	5.8	5.9	5.9	5.9	6.1	6.2	6.3
Langstraat Suid MS/Langstraat Woonstelle	0.131	5.5	5.5	5.5	5.5	5.6	5.7	6.1	6.5	6.7	6.7	6.8	6.8	7.1	7.3	7.3	7.3	7.4	7.7	7.8	7.8
Lappen 1 MS/Noble MS 11kV	0.131	1.4	1.4	1.4	1.4	1.4	1.4	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2	2	2.1	2.1
Lappen 2 MS/Tennant MS 11kV	0.131	12.7	12.7	12.7	12.7	12.8	13.2	14.1	15	15.4	15.6	15.6	15.8	16.5	16.9	16.9	16.9	17.1	17.7	18	18.1
Lappen 3 MS/Du Toit SS 11kV	0.207	4.2	4.2	4.2	4.2	4.2	4.3	4.6	4.9	5.1	5.1	5.1	5.2	5.4	5.5	5.6	5.6	5.6	5.8	5.9	5.9
Last MS/Tehuis MS 11kV	0.207	5.1	5.1	5.1	5.1	5.1	5.3	5.7	6	6.2	6.2	6.2	6.3	6.6	6.7	6.7	6.8	6.8	7.1	7.2	7.2
Latsky MS/Akkerhof MS 11kV	0.131	23.1	23.1	23.1	23.1	23.3	23.9	25.6	27.2	28	28.2	28.3	28.7	29.9	30.6	30.7	30.7	31	32.1	32.7	32.7
Linton MS/Papegaaiberg Ind Park 5 MS 11k	0.207	5.9	5.9	5.9	5.9	5.9	6.1	6.5	6.9	7.1	7.2	7.2	7.3	7.6	7.8	7.8	7.8	7.9	8.1	8.3	8.3
Long 6 MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long 6 MS/New School MS 11kV	0.131	2.6	2.6	2.6	2.6	2.6	2.7	2.9	3	3.1	3.2	3.2	3.2	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.7
Lubbe MS/Papegaairand SS 11kV	0.131	32.9	32.9	32.9	32.9	33.1	34	36.5	38.8	39.9	40.2	40.3	40.9	42.6	43.6	43.7	43.7	44.2	45.7	46.5	46.7
Luyolo 10 MS/Sesihlanu 16 MS 11kV	0.131	3.3	3.3	3.3	3.3	3.4	3.4	3.7	3.9	4	4.1	4.1	4.1	4.3	4.4	4.4	4.4	4.5	4.6	4.7	4.7
Makapula 3 MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makapula 3 MS/Luyolo 10 MS 11kV	0.131	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9	1.9	2	2	2
Maritech RMU/Papegaairand SS 11kV	0.131	4.3	4.3	4.3	4.3	4.3	4.4	4.7	5	5.1	5.1	5.2	5.2	5.4	5.5	5.6	5.6	5.6	5.8	5.9	5.9
Masitandane 1 MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Masitandane 1 MS/Sokoqala 15 MS 11kV	0.131	3	3	3	3	3	3.1	3.4	3.6	3.7	3.7	3.7	3.7	3.9	4	4	4	4	4.2	4.3	4.3
Mastertreads MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mdala 2 MS/KM Corridor MS 11kV	0.131	17.1	17.1	17.1	17.1	17.2	17.7	19	20.1	20.7	20.9	20.9	21.2	22.1	22.6	22.7	22.7	22.9	23.7	24.1	24.2
Mdala End 12 MS/Mdala 2 MS 11kV	0.131	17.1	17.1	17.1	17.1	17.2	17.7	19	20.1	20.7	20.9	20.9	21.2	22.1	22.6	22.7	22.7	22.9	23.7	24.1	24.2
Melkhout MS/Cloetesville SS 11kV	0.207	11.2	11.2	11.2	11.2	11.3	11.6	12.5	13.2	13.6	13.7	13.7	13.9	14.5	14.8	14.9	14.9	15	15.5	15.8	15.9
Melrose Square MS/Dennesig MS 11kV	0.207	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Molteno Park MS/Sabosela RMU 11kV	0.131	27.7	27.7	27.7	27.7	27.9	28.7	30.8	32.7	33.6	33.9	34	34.4	35.9	36.7	36.9	36.9	37.3	38.5	39.2	39.3
Mondi Crescent 11 MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mount Simon 1 MS/Mount Simon 2 MS 11kV	0.207	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.9	3	3	3	3	3.2	3.2	3.3	3.3	3.3	3.4	3.5	3.5
Mount Simon RMU/Mount Simon 1 MS 11kV	0.207	5.7	5.7	5.7	5.7	5.7	5.9	6.3	6.7	6.9	6.9	7	7.1	7.4	7.5	7.5	7.5	7.6	7.9	8	8
Mount Simon RMU/Twee Spruit MS 11kV	0.207	7.7	7.7	7.7	7.7	7.8	8	8.5	9.1	9.3	9.4	9.4	9.6	10	10.2	10.2	10.2	10.3	10.7	10.9	10.9
Mountain Silver MS/Waterboom MS 11kV	0.207	1	1	1	1	1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5
Mulberry Place MS/Skool MS 11kV	0.245	14.2	14.2	14.2	14.2	14.3	14.7	15.7	16.7	17.2	17.3	17.4	17.6	18.4	18.8	18.8	18.8	19	19.7	20	20.1
Muller MS/Nouveau RMU 11kV	0.131	3.6	3.6	3.6	3.6	3.7	3.8	4	4.3	4.4	4.5	4.5	4.5	4.7	4.8	4.8	4.9	4.9	5.1	5.2	5.2
New School MS/Snake Valley MS 11kV	0.131	4.6	4.6	4.6	4.6	4.6	4.7	5.1	5.4	5.5	5.6	5.6	5.7	5.9	6	6.1	6.1	6.1	6.3	6.5	6.5
Noble MS/Tennant SS 11kV	0.131	3.6	3.6	3.6	3.6	3.6	3.7	4	4.2	4.4	4.4	4.4	4.5	4.7	4.8	4.8	4.8	4.8	5	5.1	5.1
Nooitgedacht MS/Vergezicht MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North End MS/Langstraat Suid MS 11kV	0.207	3.6	3.6	3.6	3.6	3.6	3.7	4	4.3	4.4	4.4	4.4	4.5	4.7	4.8	4.8	4.8	4.9	5	5.1	5.1
Nuutgevonden MS/Nuutgevonden 1 MS 11kV	0.207	4.4	4.4	4.4	4.4	4.4	4.6	4.9	5.2	5.3	5.4	5.4	5.5	5.7	5.8	5.8	5.8	5.9	6.1	6.2	6.2
Oewersig RMU/George Blake North MS 11kV	0.131	29.4	29.4	29.4	29.4	29.6	30.4	32.6	34.6	35.6	35.9	36	36.5	38.1	38.9	39	39.1	39.5	40.8	41.6	41.7
Oliphant MS/Cupido MS 11kV	0.131	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.8	2.9	2.9	2.9	2.9	3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.4
Olive MS C2/Sonnedou MS C1 11kV	0.207	3.5	3.5	3.5	3.5	3.5	3.6	3.8	4.1	4.2	4.2	4.2	4.3	4.5	4.6	4.6	4.6	4.6	4.8	4.9	4.9
Orleans MS/Lang Williams MS 11kV	0.213	2.8	2.8	2.8	2.8	2.8	2.9	3.1	3.3	3.4	3.4	3.5	3.5	3.6	3.7	3.7	3.7	3.8	3.9	4	4
Papegaaiberg Ind Park 1 MS/Papegaairand	0.207	7.5	7.5	7.5	7.5	7.6	7.8	8.3	8.8	9.1	9.2	9.2	9.3	9.7	9.9	10	10	10.1	10.4	10.6	10.6
Papegaaiberg Ind Park 2 MS/ICA MS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Papegaaiberg Ind Park 3 MS/19 Planken st	0.207	4.6	4.6	4.6	4.6	4.6	4.7	5.1	5.4	5.6	5.6	5.6	5.7	5.9	6.1	6.1	6.1	6.2	6.4	6.5	6.5
Papegaaiberg Ind Park 5 MS/Winprint MS 1	0.207	5.6	5.6	5.6	5.6	5.6	5.8	6.2	6.6	6.8	6.8	6.8	6.9	7.2	7.4	7.4	7.4	7.5	7.8	7.9	7.9
Papegaairand SS/Linton MS 11kV	0.207	6.4	6.4	6.4	6.4	6.4	6.6	7.1	7.5	7.8	7.8	7.8	7.9	8.3	8.5	8.5	8.5	8.6	8.9	9	9.1
Papegaairand SS/Vrugtepakkers SS 11kV	0.207	6.4	6.4	6.4	6.4	6.4	6.6	7.1	7.5	7.7	7.8	7.8	7.9	8.3	8.4	8.5	8.5	8.6	8.9	9	9
Perdevy MS A4/Protea MS A3 11kV	0.207	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.7	2.7	2.7	2.7	2.9	2.9	2.9	2.9	3	3.1	3.1	3.1
Protea MS A3 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
RMU/Enkanini MS 11kV	0.245	2.3	2.3	2.3	2.3	2.4	2.4	2.6	2.8	2.8	2.9	2.9	2.9	3	3.1	3.1	3.1	3.1	3.2	3.3	3.3
RMU/Hullet MS 11kV	0.207	5.2	5.2	5.2	5.2	5.3	5.4	5.8	6.2	6.4	6.4	6.4	6.5	6.8	7	7	7	7	7.3	7.4	7.4
Randstraat MS 11kV	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Randstraat MS/Papegaairand SS 11kV	0.131	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.9	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3
Rankels MS A2/Katbos MS A1 11kV	0.207	5.8	5.8	5.8	5.8	5.9	6	6.5	6.9	7.1	7.1	7.1	7.2	7.5	7.7	7.7	7.7	7.8	8.1	8.2	8.3
Rembrandt/Bird SS/SDR Depot RMU 11kV	0.082	17.7	17.7	17.7	17.7	17.8	18.3	19.6	20.8	21.4	21.6	21.7	22	22.9	23.4	23.5	23.5	23.7	24.6	25	25.1
Rhode SS/Gabriels MS 11kV	0.207	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.8	1.9	1.9	1.9	2	2	2	2	2	2.1	2.1	2.1
Rhode SS/Ortell MS 11kV	0.207	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.9	2	2	2	2	2.1	2.1	2.1
SDR Clinic SS/Hofman SS 11kV	0.4	6.8	6.8	6.8	6.8	6.9	7.1	7.6	8.1	8.3	8.4	8.4	8.5	8.9	9.1	9.1	9.1	9.2	9.5	9.7	9.7
SDR Clinic SS/Langenhoven MS 11kV	0.131	6	6	6	6	6	6.2	6.6	7	7.2	7.3	7.3	7.4	7.7	7.9	7.9	7.9	8	8.3	8.5	8.5
SDR Clinic SS/Nouveau RMU 11kV	0.131	5.3	5.3	5.3	5.3	5.3	5.5	5.9	6.2	6.4	6.5	6.5	6.6	6.8	7	7	7	7.1	7.4	7.5	7.5
SDR Depot RMU/Drukkers MS 11kV	0.082	13.6	13.6	13.6	13.6	13.7	14.1	15.1	16.1	16.5	16.6	16.7	16.9	17.6	18	18.1	18.1	18.3	18.9	19.2	19.3
Sabosela RMU/Oewersig RMU 11kV	0.131	29.3	29.3	29.3	29.3	29.6	30.4	32.6	34.6	35.6	35.9	36	36.5	38.1	38.9	39	39.1	39.5	40.8	41.6	41.7
School Crescent 9 MS/13th Street 17 MS 1	0.131	13.4	13.4	13.4	13.4	13.5	13.8	14.8	15.7	16.2	16.3	16.4	16.6	17.3	17.7	17.7	17.8	17.9	18.5	18.9	18.9
Schoongezicht MS/Boschenpark MS 11kV	0.131	26.4	26.4	26.4	26.4	26.6	27.3	29.3	31.1	32	32.3	32.4	32.8	34.2	35	35.1	35.1	35.5	36.7	37.4	37.5
Seger MS/Stellita Park MS 11kV	0.207	7.6	7.6	7.6	7.6	7.7	7.9	8.4	8.9	9.2	9.3	9.3	9.4	9.8	10	10.1	10.1	10.2	10.5	10.7	10.7
Sesihlanu 16 MS/Costa RMU 11kV	0.131	7	7	7	7	7	7.2	7.7	8.2	8.4	8.5	8.5	8.6	9	9.2	9.2	9.2	9.3	9.7	9.8	9.8
Simonsberg Kaas RMU/Maritech RMU 11kV	0.082	13.3	13.3	13.3	13.3	13.4	13.7	14.7	15.7	16.1	16.2	16.3	16.5	17.2	17.6	17.6	17.6	17.8	18.4	18.8	18.8
Skool MS/Cloetesville Central MS 11kV	0.245	13.1	13.1	13.1	13.1	13.2	13.6	14.6	15.5	15.9	16	16.1	16.3	17	17.4	17.4	17.4	17.6	18.2	18.5	18.6
Small Holdings MS/Mountain Silver MS 11k	0.207	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Snake Valley MS/Vineyards 7 MS 11kV	0.131	7.5	7.5	7.5	7.5	7.6	7.8	8.3	8.8	9.1	9.2	9.2	9.3	9.7	9.9	10	10	10.1	10.4	10.6	10.6
Sokoqala 15 MS/Costa RMU 11kV	0.131	5.1	5.1	5.1	5.1	5.2	5.3	5.7	6	6.2	6.3	6.3	6.4	6.6	6.8	6.8	6.8	6.9	7.1	7.2	7.3
Sonnedou MS C1/Welgevonden SS 11kV	0.207	4.8	4.8	4.8	4.8	4.9	5	5.4	5.7	5.9	5.9	5.9	6	6.3	6.4	6.4	6.4	6.5	6.7	6.8	6.8
Sour Fig MS A2A 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sour Fig MS A2A/Rankels MS A2 11kV	0.207	3	3	3	3	3	3.1	3.4	3.6	3.7	3.7	3.7	3.7	3.9	4	4	4	4.1	4.2	4.3	4.3
Stasie MS/Last MS 11kV	0.207	7.7	7.7	7.7	7.7	7.8	8	8.6	9.1	9.4	9.4	9.5	9.6	10	10.2	10.3	10.3	10.4	10.7	10.9	10.9
Stellenbosch Motors MS/Cascade SS 11kV	0.4	7	7	7	7	7	7.2	7.7	8.2	8.4	8.5	8.5	8.6	9	9.2	9.2	9.2	9.3	9.6	9.8	9.8
Stellita Park MS/Gabriels MS 11kV	0.207	5.5	5.5	5.5	5.5	5.6	5.7	6.1	6.5	6.7	6.8	6.8	6.9	7.2	7.3	7.3	7.3	7.4	7.7	7.8	7.8
Stoffel Smit MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stone Square RMU/Entrance C7 MS 11kV	0.207	3	3	3	3	3.1	3.1	3.4	3.6	3.7	3.7	3.7	3.8	3.9	4	4	4	4.1	4.2	4.3	4.3
Stone Square RMU/Stone Square Local TRF	0.207	4.7	4.7	4.7	4.7	4.8	4.9	5.2	5.6	5.7	5.8	5.8	5.9	6.1	6.2	6.3	6.3	6.3	6.6	6.7	6.7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Taylor MS/La Rez MS 11kV	0.131	2.8	2.8	2.8	2.8	2.8	2.9	3.1	3.3	3.3	3.4	3.4	3.4	3.6	3.7	3.7	3.7	3.7	3.8	3.9	3.9
Tehuis MS/Ortell MS 11kV	0.207	2	2	2	2	2.1	2.1	2.3	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.7	2.7	2.8	2.9	2.9
Tennant MS/Alley MS 11kV	0.131	9.3	9.3	9.3	9.3	9.4	9.6	10.3	11	11.3	11.4	11.4	11.5	12	12.3	12.4	12.4	12.5	12.9	13.2	13.2
Tennant SS/Daghospitaal MS 11kV	0.131	7.4	7.4	7.4	7.4	7.4	7.6	8.2	8.7	9	9	9.1	9.2	9.6	9.8	9.8	9.8	9.9	10.3	10.4	10.5
Tennant SS/Du Toit SS 11kV	0.207	6.1	6.1	6.1	6.1	6.1	6.3	6.8	7.2	7.4	7.5	7.5	7.6	7.9	8.1	8.1	8.1	8.2	8.5	8.7	8.7
Tennant SS/Langstraat Suid MS 11kV	0.245	9.4	9.4	9.4	9.4	9.5	9.7	10.5	11.1	11.4	11.5	11.5	11.7	12.2	12.5	12.5	12.5	12.6	13.1	13.3	13.3
Tennant SS/Langstraat Suid MS 11kV(1)	0.245	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Tennant SS/Lappen 2 MS 11kV	0.131	15.3	15.3	15.3	15.3	15.5	15.9	17	18.1	18.6	18.8	18.8	19.1	19.9	20.3	20.4	20.4	20.6	21.3	21.7	21.8
Tennant SS/Lappen 3 MS 11kV	0.207	3.4	3.4	3.4	3.4	3.4	3.5	3.8	4	4.1	4.1	4.2	4.2	4.4	4.5	4.5	4.5	4.6	4.7	4.8	4.8
Tennant SS/Mulberry Place MS 11kV	0.245	17.2	17.2	17.2	17.2	17.4	17.8	19.1	20.3	20.9	21.1	21.1	21.4	22.3	22.8	22.9	22.9	23.1	23.9	24.3	24.4
Tennant SS/Nietvoorby SS 11kV	0.131	31.2	31.2	31.2	31.2	31.4	32.3	34.7	36.8	37.8	38.2	38.2	38.8	40.4	41.3	41.5	41.5	41.9	43.3	44.1	44.2
Tennant SS/Papegaairand SS 11kV	0.4	14.8	14.8	14.8	14.8	15	15.4	16.5	17.5	18	18.2	18.2	18.4	19.2	19.7	19.7	19.7	19.9	20.6	21	21
Tennant SS/Stellenbosch Motors MS 11kV	0.4	7.7	7.7	7.7	7.7	7.8	8	8.5	9.1	9.3	9.4	9.4	9.5	10	10.2	10.2	10.2	10.3	10.7	10.9	10.9
Tennant SS/Universiteit SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tennant SS/Universiteit SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tennant SS/Universiteit SS 11kV(2)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Twee Spruit MS/Nuutgevonden MS 11kV	0.207	6.3	6.3	6.3	6.3	6.3	6.5	7	7.4	7.6	7.7	7.7	7.8	8.1	8.3	8.3	8.3	8.4	8.7	8.9	8.9
VW Rand str MS/Stoffel Smit MS 11kV	0.131	5.6	5.6	5.6	5.6	5.6	5.8	6.2	6.6	6.8	6.8	6.9	6.9	7.2	7.4	7.4	7.4	7.5	7.8	7.9	7.9
Vineyards 7 MS/10th Street 8 MS 11kV	0.131	10.3	10.3	10.3	10.3	10.4	10.7	11.5	12.2	12.5	12.6	12.7	12.8	13.4	13.7	13.7	13.7	13.9	14.3	14.6	14.6
Waaierpalm MS/Melkhout MS 11kV	0.207	9.4	9.4	9.4	9.4	9.4	9.7	10.4	11	11.3	11.4	11.4	11.6	12.1	12.4	12.4	12.4	12.5	13	13.2	13.2
Waterboom MS/Bergipres MS 11kV	0.207	2.6	2.6	2.6	2.6	2.6	2.7	2.8	3	3.1	3.1	3.1	3.2	3.3	3.4	3.4	3.4	3.4	3.5	3.6	3.6
Watergang MS(1)/Watergang SS 11kV	0.131	9.1	9.1	9.1	9.1	9.2	9.4	10.1	10.7	11	11.1	11.2	11.3	11.8	12.1	12.1	12.1	12.2	12.6	12.9	12.9
Watergang RMU/Watergang MS 11kV	0.207	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Watergang RMU/Zone O MS 11kV	0.207	8.3	8.3	8.3	8.3	8.4	8.6	9.2	9.8	10	10.1	10.2	10.3	10.7	11	11	11	11.1	11.5	11.7	11.7
Watergang SS/3 MS 11kV	0.131	31.7	31.7	31.7	31.7	31.9	32.8	35.2	37.4	38.4	38.8	38.9	39.4	41.1	42	42.2	42.2	42.6	44.1	44.9	45
Watergang SS/Curry SS 11kV	0.207	20	20	20	20	20.2	20.7	22.3	23.7	24.3	24.5	24.6	24.9	26	26.6	26.7	26.7	27	27.9	28.4	28.5
Watergang SS/Watergang 1 MS 11kV	0.131	4.5	4.5	4.5	4.5	4.5	4.6	5	5.3	5.4	5.5	5.5	5.6	5.8	5.9	5.9	5.9	6	6.2	6.3	6.3
Watergang SS/Watergang 2 MS 11kV	0.131	4.6	4.6	4.6	4.6	4.7	4.8	5.1	5.5	5.6	5.7	5.7	5.8	6	6.1	6.2	6.2	6.2	6.4	6.6	6.6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevonden SS/Boulevard MS 11kV	0.207	10.9	10.9	10.9	10.9	11	11.2	12.1	12.8	13.2	13.3	13.3	13.5	14.1	14.4	14.4	14.4	14.6	15.1	15.3	15.4
Welgevonden SS/Perdevy MS A4 11kV	0.207	4.3	4.3	4.3	4.3	4.3	4.4	4.7	5	5.2	5.2	5.2	5.3	5.5	5.6	5.7	5.7	5.7	5.9	6	6
Winprint MS/Papegaaiberg Ind Park 3 MS 1	0.207	5.4	5.4	5.4	5.4	5.4	5.6	6	6.4	6.5	6.6	6.6	6.7	7	7.1	7.2	7.2	7.3	7.5	7.6	7.7
Zone O MS/Watergang MS(1) 11kV	0.207	7.6	7.6	7.6	7.6	7.6	7.8	8.4	8.9	9.2	9.2	9.3	9.4	9.8	10	10	10	10.1	10.5	10.7	10.7

Table 10: Line Loading Load Flow Results (%) – Franschoek

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_10	0.207	1.2	1.2	1.2	1.2	1.3	1.4	1.6	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.9	1.9	2	2	2	2
CON_102	0.207	2.1	2.1	2.1	2.1	2.2	2.4	2.7	2.9	2.9	2.9	3	3.1	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.4
CON_104	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_106	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_108	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_110	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_112	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_114	0.12	15	15	15.1	15.2	16.1	17.5	19.7	20.8	21.1	21.3	21.5	22.2	23.3	23.7	23.8	23.9	24.6	25	25.1	25.1
CON_116	0.12	8.5	8.6	8.6	8.7	9.2	10	11.2	11.8	12	12.1	12.2	12.6	13.2	13.4	13.5	13.5	13.9	14.1	14.1	14.1
CON_118	0.12	6.5	6.5	6.5	6.6	7	7.6	8.6	9.1	9.3	9.4	9.5	9.8	10.3	10.5	10.6	10.6	11	11.2	11.2	11.2
CON_12	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_120	0.12	6.5	6.5	6.5	6.6	7	7.6	8.6	9.1	9.3	9.4	9.5	9.8	10.3	10.5	10.6	10.6	11	11.2	11.2	11.2
CON_122	0.12	21.1	21.1	21.2	21.4	22.7	24.6	27.7	29.2	29.6	29.9	30.2	31.1	32.6	33.2	33.3	33.5	34.4	34.9	35	35
CON_125	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_127	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_130	0.12	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
CON_132	0.12	2.5	2.5	2.5	2.5	2.7	2.9	3.3	3.5	3.5	3.5	3.6	3.7	3.8	3.9	3.9	3.9	4.1	4.1	4.1	4.1
CON_137	0.207	3	3	3	3	3.2	3.5	4	4.2	4.2	4.3	4.3	4.4	4.7	4.8	4.8	4.8	4.9	5	5	5
CON_138	0.207	1.3	1.3	1.3	1.4	1.4	1.6	1.8	1.9	1.9	1.9	1.9	2	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3
CON_14	0.153	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_140	0.207	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1
CON_142	0.207	2.4	2.4	2.5	2.5	2.6	2.8	3.1	3.3	3.3	3.3	3.4	3.4	3.6	3.6	3.6	3.7	3.7	3.8	3.8	3.8
CON_144	0.207	2.8	2.8	2.8	2.9	3	3.2	3.6	3.8	3.8	3.9	3.9	4	4.1	4.2	4.2	4.3	4.3	4.4	4.4	4.4
CON_146	0.207	4.2	4.2	4.2	4.3	4.5	4.9	5.4	5.7	5.8	5.8	5.9	6	6.3	6.4	6.4	6.4	6.6	6.7	6.7	6.7
CON_148	0.207	7.1	7.1	7.2	7.2	7.6	8.3	9.2	9.7	9.8	9.9	10	10.3	10.7	10.9	11	11	11.3	11.4	11.5	11.5
CON_150	0.082	8.5	8.6	8.6	8.7	9.2	10	11.2	11.8	11.9	12	12.1	12.5	13.1	13.3	13.4	13.4	13.8	14	14	14
CON_152	0.207	10.5	10.5	10.6	10.7	11.3	12.2	13.7	14.4	14.5	14.7	14.8	15.2	15.9	16.2	16.2	16.3	16.7	17	17	17

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_153	0.207	34.1	34.2	34.3	34.7	36.7	39.7	44.6	46.9	47.5	47.9	48.4	49.7	52	53	53.2	53.4	54.9	55.6	55.8	55.8
CON_154	0.207	31.3	31.4	31.5	31.8	33.7	36.5	40.9	43.1	43.6	44	44.4	45.7	47.8	48.7	48.8	49.1	50.3	51	51.2	51.2
CON_155	0.207	30	30.1	30.2	30.5	32.3	35	39.3	41.3	41.8	42.2	42.6	43.8	45.8	46.7	46.8	47.1	48.3	49	49.1	49.1
CON_156	0.207	19.5	19.6	19.7	19.9	21.1	22.8	25.6	27	27.3	27.5	27.8	28.6	29.9	30.5	30.6	30.7	31.6	32	32.1	32.1
CON_157	0.207	18.7	18.8	18.8	19	20.2	21.8	24.5	25.8	26.1	26.4	26.6	27.4	28.6	29.2	29.3	29.4	30.2	30.6	30.7	30.7
CON_158	0.207	15.3	15.3	15.4	15.5	16.5	17.8	20	21.1	21.3	21.5	21.7	22.4	23.4	23.8	23.9	24	24.7	25	25.1	25.1
CON_159	0.207	11.8	11.8	11.9	12	12.7	13.7	15.4	16.2	16.4	16.6	16.7	17.2	18	18.4	18.4	18.5	19	19.3	19.3	19.3
CON_16	0.207	2.3	2.3	2.3	2.3	2.4	2.6	3	3.1	3.2	3.2	3.2	3.3	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.7
CON_160	0.207	6.5	6.5	6.5	6.6	7	7.5	8.5	8.9	9	9.1	9.2	9.4	9.9	10.1	10.1	10.2	10.4	10.6	10.6	10.6
CON_161	0.207	3.2	3.2	3.2	3.2	3.4	3.7	4.1	4.4	4.4	4.5	4.5	4.6	4.8	4.9	4.9	5	5.1	5.2	5.2	5.2
CON_164	0.207	5	5	5	5.1	5.4	5.8	6.5	6.9	7	7	7.1	7.3	7.6	7.8	7.8	7.8	8.1	8.2	8.2	8.2
CON_165	0.207	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
CON_167	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_169	0.207	9.7	9.8	9.8	9.9	10.5	11.4	12.8	13.4	13.6	13.7	13.8	14.3	14.9	15.2	15.2	15.3	15.7	16	16	16
CON_1705	0.207	2.4	2.4	2.4	2.5	2.6	2.8	3.2	3.3	3.4	3.4	3.4	3.5	3.7	3.8	3.8	3.8	3.9	3.9	4	4
CON_171	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_173	0.207	9.7	9.8	9.8	9.9	10.5	11.4	12.8	13.4	13.6	13.7	13.8	14.2	14.9	15.2	15.2	15.3	15.7	16	16	16
CON_1741	0.12	1.4	1.4	1.4	1.4	1.5	1.7	1.9	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
CON_175	0.207	9.7	9.8	9.8	9.9	10.5	11.3	12.7	13.4	13.6	13.7	13.8	14.2	14.9	15.2	15.2	15.3	15.7	15.9	16	16
CON_177	0.207	15.4	15.4	15.5	15.7	16.6	18	20.2	21.2	21.5	21.7	21.9	22.5	23.6	24	24.1	24.2	24.9	25.2	25.3	25.3
CON_1771	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CON_1773	0.12	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CON_1775	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_1777	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_179	0.207	19.7	19.8	19.9	20.1	21.2	23	25.8	27.2	27.5	27.8	28	28.8	30.2	30.8	30.8	31	31.8	32.3	32.4	32.4
CON_18	0.207	3.4	3.4	3.4	3.4	3.6	3.9	4.4	4.6	4.7	4.7	4.8	4.9	5.1	5.2	5.3	5.3	5.4	5.5	5.5	5.5
CON_181	0.207	20.2	20.3	20.4	20.6	21.8	23.6	26.5	27.9	28.3	28.5	28.8	29.6	31	31.6	31.6	31.8	32.7	33.1	33.2	33.2
CON_183	0.207	23.1	23.2	23.3	23.5	24.9	27	30.3	31.9	32.3	32.6	32.9	33.8	35.4	36.1	36.2	36.4	37.3	37.8	37.9	38

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_184	0.207	24.1	24.2	24.3	24.5	26	28.2	31.7	33.4	33.8	34.1	34.4	35.4	37.1	37.8	37.9	38.1	39.1	39.7	39.8	39.8
CON_187	0.207	5.8	5.8	5.9	5.9	6.3	6.8	7.6	8	8.1	8.2	8.2	8.5	8.9	9	9.1	9.1	9.3	9.5	9.5	9.5
CON_189	0.207	3.7	3.8	3.8	3.8	4	4.4	4.9	5.2	5.2	5.3	5.3	5.5	5.7	5.8	5.8	5.9	6	6.1	6.1	6.1
CON_1890	0.251	10.1	10.1	10.1	10.2	10.9	11.8	13.3	14	14.2	14.3	14.4	14.9	15.6	15.9	15.9	16	16.5	16.7	16.7	16.7
CON_1892	0.12	13.3	13.3	13.4	13.5	14.3	15.5	17.4	18.4	18.6	18.8	19	19.5	20.4	20.8	20.9	21	21.6	21.9	21.9	21.9
CON_1893	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1895	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_191	0.207	2.8	2.8	2.8	2.8	3	3.3	3.7	3.9	3.9	3.9	4	4.1	4.3	4.4	4.4	4.4	4.5	4.6	4.6	4.6
CON_193	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_195	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_197	0.12	20.6	20.7	20.8	21	22.2	24.1	27.1	28.5	28.9	29.1	29.4	30.3	31.7	32.3	32.4	32.6	33.4	33.9	34	34
CON_1985	0.082	6	6	6.1	6.1	6.5	7	7.9	8.3	8.5	8.5	8.6	8.9	9.3	9.5	9.5	9.5	9.8	9.9	10	10
CON_199	0.12	14.6	14.6	14.7	14.8	15.7	17	19.1	20.1	20.4	20.6	20.8	21.4	22.4	22.8	22.9	23	23.6	24	24	24
CON_2	0.207	9	9	9	9.1	9.7	10.5	11.8	12.4	12.5	12.7	12.8	13.1	13.8	14	14.1	14.1	14.5	14.7	14.8	14.8
CON_20	0.207	3.4	3.4	3.4	3.4	3.6	3.9	4.4	4.6	4.7	4.7	4.8	4.9	5.1	5.2	5.3	5.3	5.4	5.5	5.5	5.5
CON_201	0.12	14.1	14.2	14.2	14.3	15.2	16.5	18.5	19.5	19.8	19.9	20.1	20.7	21.7	22.1	22.2	22.3	22.9	23.2	23.3	23.3
CON_205	0.12	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1.1	1.1
CON_2067	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_207	0.12	13	13.1	13.1	13.2	14	15.2	17.1	18	18.2	18.4	18.6	19.1	20	20.4	20.4	20.6	21.1	21.4	21.5	21.5
CON_210	0.12	13	13.1	13.1	13.2	14	15.2	17.1	18	18.2	18.4	18.6	19.1	20	20.4	20.4	20.6	21.1	21.4	21.5	21.5
CON_2121	0.12	5	5	5.1	5.1	5.4	5.9	6.6	7	7.1	7.1	7.2	7.4	7.7	7.9	7.9	8	8.2	8.3	8.3	8.3
CON_213	0.207	2.9	3	3	3	3.2	3.4	3.9	4.1	4.1	4.2	4.2	4.3	4.5	4.6	4.6	4.7	4.8	4.9	4.9	4.9
CON_2131	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2133	0.12	4.4	4.4	4.4	4.5	4.7	5.1	5.8	6.1	6.1	6.2	6.3	6.4	6.7	6.9	6.9	6.9	7.1	7.2	7.2	7.2
CON_2135	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2137	0.12	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CON_2140	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_2142	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_2144	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_2146	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_215	0.15	16.5	16.6	16.6	16.8	17.8	19.3	21.7	22.8	23.1	23.3	23.5	24.2	25.3	25.8	25.9	26.1	26.8	27.1	27.2	27.2
CON_217	0.12	25.7	25.7	25.8	26.1	27.7	30	33.7	35.5	35.9	36.2	36.6	37.6	39.4	40.2	40.3	40.5	41.6	42.2	42.3	42.3
CON_22	0.207	9.2	9.2	9.3	9.4	9.9	10.8	12.1	12.7	12.9	13	13.1	13.5	14.2	14.4	14.5	14.5	14.9	15.2	15.2	15.2
CON_221	0.12	25.7	25.7	25.8	26.1	27.7	30	33.7	35.5	35.9	36.2	36.6	37.6	39.4	40.2	40.3	40.5	41.6	42.2	42.3	42.3
CON_2214	0.12	4.9	4.9	4.9	5	5.3	5.7	6.4	6.8	6.9	6.9	7	7.2	7.5	7.7	7.7	7.7	7.9	8.1	8.1	8.1
CON_2216	0.207	2.8	2.8	2.9	2.9	3.1	3.3	3.7	3.9	4	4	4	4.2	4.4	4.4	4.5	4.5	4.6	4.7	4.7	4.7
CON_2217	0.207	2.8	2.8	2.9	2.9	3.1	3.3	3.7	3.9	4	4	4	4.2	4.4	4.4	4.5	4.5	4.6	4.7	4.7	4.7
CON_2218	0.12	2.4	2.4	2.4	2.4	2.6	2.8	3.1	3.3	3.4	3.4	3.4	3.5	3.7	3.8	3.8	3.8	3.9	3.9	4	4
CON_2219	0.12	2.3	2.4	2.4	2.4	2.5	2.7	3.1	3.2	3.3	3.3	3.3	3.4	3.6	3.7	3.7	3.7	3.8	3.9	3.9	3.9
CON_2220	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2222	0.12	2.5	2.5	2.5	2.5	2.7	2.9	3.3	3.5	3.5	3.5	3.6	3.7	3.8	3.9	3.9	3.9	4.1	4.1	4.1	4.1
CON_2225	0.12	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CON_2227	0.12	2.3	2.4	2.4	2.4	2.5	2.7	3.1	3.2	3.3	3.3	3.3	3.4	3.6	3.7	3.7	3.7	3.8	3.9	3.9	3.9
CON_2229	0.207	2.1	2.1	2.2	2.2	2.3	2.5	2.8	3	3	3	3	3.1	3.3	3.3	3.3	3.4	3.5	3.5	3.5	3.5
CON_223	0.12	5.6	5.7	5.7	5.7	6.1	6.6	7.4	7.8	7.9	8	8	8.3	8.7	8.8	8.8	8.9	9.1	9.3	9.3	9.3
CON_2231	0.12	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_2234	0.12	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
CON_2236	0.12	1.5	1.5	1.5	1.5	1.6	1.8	2	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5
CON_2238	0.12	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
CON_2240	0.12	0.9	0.9	0.9	1	1	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6
CON_225	0.12	31.3	31.4	31.5	31.8	33.7	36.5	41.1	43.3	43.8	44.2	44.6	45.9	48.1	49	49.1	49.4	50.7	51.4	51.6	51.6
CON_227	0.12	1.3	1.3	1.3	1.3	1.4	1.5	1.7	1.8	1.8	1.8	1.9	1.9	2	2	2	2.1	2.1	2.1	2.1	2.1
CON_2283	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2285	0.12	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1.1	1.1
CON_229	0.12	32.6	32.7	32.8	33.2	35.1	38.1	42.8	45.1	45.6	46	46.5	47.8	50.1	51	51.2	51.4	52.8	53.6	53.7	53.7
CON_2293	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_2295	0.292	5.3	5.4	5.4	5.4	5.8	6.2	7	7.4	7.5	7.6	7.6	7.9	8.2	8.4	8.4	8.4	8.7	8.8	8.8	8.8
CON_2303	0.12	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
CON_2305	0.12	13.7	13.7	13.7	13.9	14.7	15.9	17.9	18.9	19.1	19.3	19.5	20	21	21.4	21.5	21.6	22.1	22.5	22.5	22.5
CON_231	0.207	18.9	19	19	19.2	20.4	22.1	24.8	26.1	26.5	26.7	26.9	27.7	29	29.6	29.7	29.8	30.6	31.1	31.1	31.1
CON_232	0.207	2.9	2.9	2.9	3	3.1	3.4	3.8	4	4.1	4.1	4.2	4.3	4.5	4.6	4.6	4.6	4.7	4.8	4.8	4.8
CON_234	0.207	21.7	21.8	21.9	22.1	23.4	25.4	28.5	30	30.4	30.7	31	31.9	33.4	34	34.1	34.3	35.2	35.8	35.8	35.9
CON_2356	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2358	0.12	13	13.1	13.1	13.2	14	15.2	17.1	18	18.2	18.4	18.6	19.1	20	20.4	20.4	20.6	21.1	21.4	21.5	21.5
CON_236	0.12	37.5	37.6	37.7	38.1	40.4	43.7	49.2	51.8	52.5	53	53.4	55	57.6	58.7	58.9	59.2	60.8	61.7	61.8	61.9
CON_2360	0.12	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
CON_2362	0.12	12.3	12.3	12.4	12.5	13.3	14.4	16.2	17	17.2	17.4	17.6	18.1	18.9	19.3	19.3	19.4	20	20.3	20.3	20.3
CON_2364	0.12	2.3	2.3	2.3	2.4	2.5	2.7	3	3.2	3.3	3.3	3.3	3.4	3.6	3.6	3.6	3.7	3.8	3.8	3.8	3.8
CON_2366	0.12	10	10	10	10.1	10.8	11.7	13.1	13.8	14	14.1	14.2	14.7	15.3	15.6	15.7	15.8	16.2	16.4	16.5	16.5
CON_2368	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_238	0.12	4.7	4.7	4.7	4.8	5	5.5	6.2	6.5	6.6	6.6	6.7	6.9	7.2	7.3	7.4	7.4	7.6	7.7	7.7	7.7
CON_24	0.245	23	23	23.1	23.4	24.8	26.9	30.2	31.9	32.3	32.6	32.9	33.9	35.5	36.2	36.3	36.5	37.5	38	38.1	38.2
CON_240	0.12	4.4	4.4	4.4	4.5	4.7	5.1	5.8	6.1	6.1	6.2	6.3	6.4	6.7	6.9	6.9	6.9	7.1	7.2	7.2	7.2
CON_242	0.12	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CON_2421	0.12	1.4	1.4	1.4	1.4	1.5	1.7	1.9	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
CON_2426	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2428	0.12	1.4	1.4	1.4	1.4	1.5	1.7	1.9	2	2	2	2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
CON_244	0.12	32.8	32.9	33	33.3	35.3	38.3	43	45.4	46	46.4	46.8	48.2	50.4	51.4	51.5	51.8	53.2	54	54.1	54.2
CON_246	0.207	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1
CON_248	0.12	31.7	31.7	31.9	32.2	34.1	37	41.6	43.8	44.4	44.8	45.2	46.5	48.7	49.6	49.8	50	51.4	52.1	52.3	52.3
CON_2491	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2493	0.12	5.2	5.2	5.3	5.3	5.6	6.1	6.9	7.2	7.3	7.4	7.5	7.7	8	8.2	8.2	8.3	8.5	8.6	8.6	8.6
CON_2495	0.12	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
CON_2497	0.207	2.6	2.6	2.6	2.7	2.8	3.1	3.5	3.6	3.7	3.7	3.8	3.9	4	4.1	4.1	4.2	4.3	4.3	4.3	4.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_2499	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_25	0.4	23	23.1	23.1	23.4	24.8	26.8	30.1	31.7	32.1	32.4	32.7	33.6	35.2	35.9	36	36.2	37.2	37.7	37.8	37.8
CON_250	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_252	0.12	31.7	31.7	31.9	32.2	34.1	37	41.6	43.8	44.4	44.8	45.2	46.5	48.7	49.6	49.8	50	51.4	52.1	52.3	52.3
CON_254	0.12	13.3	13.3	13.4	13.5	14.3	15.5	17.4	18.4	18.6	18.8	19	19.5	20.4	20.8	20.9	21	21.6	21.9	21.9	21.9
CON_2541	0.207	10.8	10.8	10.8	11	11.6	12.6	14.2	15	15.2	15.3	15.5	15.9	16.7	17	17.1	17.2	17.6	17.9	18	18
CON_2542	0.207	2.1	2.1	2.2	2.2	2.3	2.5	2.8	3	3	3	3	3.1	3.3	3.3	3.4	3.4	3.5	3.5	3.5	3.5
CON_2545	0.104	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1
CON_256	0.207	10.7	10.7	10.7	10.8	11.5	12.4	14	14.7	14.9	15.1	15.2	15.6	16.4	16.7	16.7	16.8	17.3	17.5	17.6	17.6
CON_258	0.207	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
CON_2604	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_262	0.207	6.9	6.9	6.9	7	7.4	8	9	9.5	9.6	9.7	9.8	10.1	10.6	10.8	10.8	10.9	11.2	11.3	11.4	11.4
CON_264	0.207	3	3	3.1	3.1	3.3	3.5	4	4.2	4.3	4.3	4.3	4.5	4.7	4.8	4.8	4.8	4.9	5	5	5
CON_266	0.12	5.2	5.2	5.3	5.3	5.6	6.1	6.9	7.2	7.3	7.4	7.5	7.7	8	8.2	8.2	8.3	8.5	8.6	8.6	8.6
CON_2666	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2668	0.12	13	13.1	13.1	13.2	14	15.2	17.1	18	18.2	18.4	18.6	19.1	20	20.4	20.4	20.6	21.1	21.4	21.5	21.5
CON_268	0.12	17.2	17.3	17.3	17.5	18.5	20.1	22.6	23.8	24.1	24.3	24.5	25.3	26.4	27	27	27.2	27.9	28.3	28.4	28.4
CON_2680	0.207	2.8	2.8	2.8	2.8	3	3.3	3.7	3.8	3.9	3.9	4	4.1	4.3	4.4	4.4	4.4	4.5	4.6	4.6	4.6
CON_2686	0.207	3	3.1	3.1	3.1	3.3	3.6	4	4.2	4.3	4.3	4.3	4.5	4.7	4.7	4.8	4.8	4.9	5	5	5
CON_27	0.207	14.1	14.2	14.2	14.4	15.2	16.5	18.5	19.5	19.8	20	20.1	20.7	21.7	22.1	22.2	22.3	22.9	23.2	23.3	23.3
CON_271	0.12	13.3	13.3	13.4	13.5	14.3	15.5	17.4	18.4	18.6	18.8	19	19.5	20.4	20.8	20.9	21	21.6	21.9	21.9	21.9
CON_273	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_277	0.12	1.1	1.1	1.1	1.2	1.2	1.3	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9
CON_279	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_281	0.12	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
CON_2815	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CON_2817	0.12	0.9	0.9	0.9	0.9	0.9	1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
CON_283	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_285	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CON_2866	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_287	0.12	14.8	14.8	14.9	15	15.9	17.3	19.4	20.5	20.7	20.9	21.1	21.7	22.7	23.2	23.2	23.4	24	24.3	24.4	24.4
CON_2871	0.12	4.5	4.5	4.6	4.6	4.9	5.3	6	6.3	6.4	6.4	6.5	6.7	7	7.1	7.1	7.2	7.4	7.5	7.5	7.5
CON_2873	0.207	6.8	6.8	6.8	6.9	7.3	7.9	8.9	9.3	9.5	9.5	9.6	9.9	10.4	10.6	10.6	10.7	11	11.1	11.1	11.2
CON_2874	0.147	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_2875	0.12	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CON_2876	0.207	6.8	6.8	6.8	6.9	7.3	7.9	8.9	9.3	9.5	9.5	9.6	9.9	10.4	10.6	10.6	10.7	11	11.1	11.1	11.1
CON_2877	0.12	4.5	4.5	4.6	4.6	4.9	5.3	6	6.3	6.4	6.4	6.5	6.7	7	7.1	7.1	7.2	7.4	7.5	7.5	7.5
CON_2877_ 1	0.207	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1
CON_2879_2	0.12	15.1	15.1	15.2	15.3	16.2	17.6	19.8	20.8	21.1	21.3	21.5	22.1	23.2	23.6	23.7	23.8	24.5	24.8	24.9	24.9
CON_2880	0.207	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1
CON_2881	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2882	0.12	16.1	16.2	16.2	16.4	17.4	18.8	21.2	22.3	22.6	22.8	23	23.7	24.8	25.3	25.4	25.5	26.2	26.6	26.6	26.6
CON_2883	0.12	4.5	4.5	4.6	4.6	4.9	5.3	6	6.3	6.4	6.4	6.5	6.7	7	7.1	7.1	7.2	7.4	7.5	7.5	7.5
CON_289	0.12	3.1	3.2	3.2	3.2	3.4	3.7	4.1	4.4	4.4	4.5	4.5	4.6	4.8	4.9	5	5	5.1	5.2	5.2	5.2
CON_29	0.207	11.1	11.1	11.1	11.2	11.9	12.9	14.5	15.3	15.5	15.6	15.7	16.2	17	17.3	17.3	17.4	17.9	18.2	18.2	18.2
CON_291	0.12	11.7	11.7	11.7	11.9	12.6	13.6	15.3	16.1	16.3	16.5	16.6	17.1	17.9	18.3	18.3	18.4	18.9	19.2	19.2	19.2
CON_2914	0.12	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
CON_2915	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2917	0.15	9.3	9.4	9.4	9.5	10.1	10.9	12.2	12.9	13.1	13.2	13.3	13.7	14.3	14.6	14.7	14.7	15.1	15.3	15.4	15.4
CON_2932	0.12	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_2934	0.12	1.3	1.3	1.3	1.3	1.4	1.5	1.7	1.8	1.8	1.8	1.8	1.9	2	2	2	2	2.1	2.1	2.1	2.1
CON_2935	0.207	3.3	3.3	3.3	3.3	3.5	3.8	4.3	4.5	4.6	4.6	4.7	4.8	5	5.1	5.1	5.2	5.3	5.4	5.4	5.4
CON_2937	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2938	0.207	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_2970	0.12	2.5	2.5	2.5	2.5	2.7	2.9	3.3	3.5	3.5	3.5	3.6	3.7	3.8	3.9	3.9	3.9	4.1	4.1	4.1	4.1
CON_2975	0.12	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_2982	0.12	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1	1	1	1	1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
CON_2985	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_2990	0.104	35.8	35.9	36	36.4	38.6	41.9	47.2	49.8	50.5	50.9	51.4	52.9	55.5	56.6	56.8	57.1	58.7	59.5	59.7	59.7
CON_3019	0.104	35.8	35.9	36	36.4	38.6	41.9	47.2	49.8	50.5	50.9	51.4	52.9	55.5	56.6	56.8	57.1	58.7	59.5	59.7	59.7
CON_3020	0.207	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CON_3022	0.207	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
CON_3025	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_31	0.207	6.5	6.5	6.5	6.6	7	7.5	8.5	8.9	9	9.1	9.2	9.5	9.9	10.1	10.1	10.2	10.5	10.6	10.6	10.6
CON_311	0.207	6.5	6.5	6.5	6.6	7	7.5	8.5	8.9	9.1	9.1	9.2	9.5	9.9	10.1	10.2	10.2	10.5	10.6	10.7	10.7
CON_313	0.207	6.5	6.5	6.5	6.6	7	7.5	8.5	8.9	9.1	9.1	9.2	9.5	9.9	10.1	10.2	10.2	10.5	10.6	10.7	10.7
CON_315	0.207	6.5	6.5	6.5	6.6	7	7.5	8.5	8.9	9.1	9.1	9.2	9.5	9.9	10.1	10.2	10.2	10.5	10.6	10.7	10.7
CON_317	0.207	3.6	3.6	3.6	3.6	3.8	4.2	4.7	4.9	5	5	5.1	5.2	5.5	5.6	5.6	5.6	5.8	5.9	5.9	5.9
CON_321	0.12	6.1	6.2	6.2	6.2	6.6	7.2	8	8.5	8.6	8.7	8.7	9	9.4	9.6	9.6	9.7	9.9	10.1	10.1	10.1
CON_323	0.207	3.6	3.6	3.6	3.6	3.8	4.2	4.7	4.9	5	5	5.1	5.2	5.5	5.6	5.6	5.6	5.8	5.9	5.9	5.9
CON_327	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_33	0.207	3.8	3.8	3.8	3.8	4	4.4	4.9	5.2	5.2	5.3	5.3	5.5	5.8	5.9	5.9	5.9	6.1	6.2	6.2	6.2
CON_331	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_333	0.082	1	1	1	1	1.1	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
CON_335	0.207	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
CON_337	0.207	1.3	1.3	1.3	1.3	1.4	1.5	1.7	1.7	1.8	1.8	1.8	1.8	1.9	2	2	2	2	2.1	2.1	2.1
CON_338	0.082	1.7	1.7	1.7	1.7	1.8	2	2.2	2.3	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8
CON_343	0.147	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_346	0.207	6.7	6.7	6.8	6.8	7.2	7.8	8.8	9.3	9.4	9.5	9.5	9.8	10.3	10.5	10.5	10.6	10.8	11	11	11
CON_348	0.207	4.4	4.4	4.4	4.5	4.7	5.1	5.7	6	6.1	6.2	6.2	6.4	6.7	6.8	6.8	6.9	7.1	7.2	7.2	7.2
CON_35	0.207	2	2	2	2.1	2.2	2.4	2.7	2.8	2.8	2.9	2.9	3	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.3
CON_350	0.251	1.1	1.1	1.1	1.1	1.2	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7
CON_351	0.4	32.3	32.4	32.5	32.9	34.8	37.8	42.5	44.8	45.3	45.7	46.2	47.5	49.8	50.7	50.9	51.2	52.5	53.3	53.4	53.5
CON_352	0.4	33.1	33.2	33.4	33.7	35.7	38.6	43.4	45.7	46.3	46.7	47.1	48.4	50.7	51.7	51.8	52.1	53.5	54.2	54.4	54.4

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_353	0.4	21.8	21.8	21.9	22.1	23.4	25.4	28.5	30	30.4	30.7	30.9	31.8	33.3	34	34.1	34.2	35.2	35.7	35.7	35.8
CON_37	0.207	1	1	1	1	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
CON_39	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_398	0.207	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9
CON_4	0.153	8.8	8.9	8.9	9	9.5	10.3	11.6	12.2	12.4	12.5	12.6	13	13.6	13.8	13.9	13.9	14.3	14.5	14.5	14.5
CON_41	0.207	11.3	11.4	11.4	11.5	12.2	13.2	14.8	15.6	15.8	16	16.1	16.6	17.3	17.7	17.7	17.8	18.3	18.6	18.6	18.6
CON_43	0.207	9.1	9.1	9.2	9.3	9.8	10.6	11.9	12.6	12.7	12.8	12.9	13.3	13.9	14.2	14.2	14.3	14.7	14.9	14.9	15
CON_45	0.104	4.8	4.8	4.8	4.8	5.1	5.6	6.2	6.6	6.7	6.7	6.8	7	7.3	7.4	7.5	7.5	7.7	7.8	7.8	7.8
CON_47	0.207	11.3	11.4	11.4	11.5	12.2	13.2	14.8	15.6	15.8	16	16.1	16.6	17.3	17.7	17.7	17.8	18.3	18.6	18.6	18.6
CON_49	0.207	13.5	13.5	13.6	13.7	14.5	15.7	17.7	18.6	18.8	19	19.2	19.7	20.6	21	21.1	21.2	21.8	22.1	22.1	22.1
CON_50	0.245	23.6	23.7	23.8	24	25.4	27.6	31	32.6	33	33.3	33.6	34.6	36.2	36.9	37	37.2	38.2	38.7	38.8	38.8
CON_52	0.245	17.4	17.5	17.6	17.7	18.8	20.3	22.9	24.1	24.4	24.6	24.8	25.5	26.7	27.2	27.3	27.5	28.2	28.6	28.7	28.7
CON_54	0.245	13.4	13.4	13.5	13.6	14.4	15.6	17.6	18.5	18.7	18.9	19.1	19.6	20.5	20.9	21	21.1	21.7	22	22	22
CON_56	0.245	8	8	8	8.1	8.6	9.3	10.4	11	11.1	11.2	11.3	11.6	12.2	12.4	12.4	12.5	12.8	13	13.1	13.1
CON_58	0.207	9.4	9.4	9.5	9.6	10.1	11	12.3	13	13.2	13.3	13.4	13.8	14.4	14.7	14.7	14.8	15.2	15.4	15.5	15.5
CON_6	0.207	5.2	5.2	5.3	5.3	5.6	6.1	6.8	7.2	7.3	7.4	7.4	7.6	8	8.2	8.2	8.2	8.4	8.6	8.6	8.6
CON_60	0.207	7.2	7.2	7.2	7.3	7.7	8.3	9.4	9.9	10	10.1	10.2	10.5	11	11.2	11.2	11.3	11.6	11.7	11.8	11.8
CON_62	0.207	5.4	5.4	5.4	5.5	5.8	6.3	7.1	7.4	7.5	7.6	7.7	7.9	8.2	8.4	8.4	8.5	8.7	8.8	8.8	8.8
CON_64	0.207	4.1	4.1	4.1	4.1	4.4	4.7	5.3	5.6	5.7	5.7	5.8	5.9	6.2	6.3	6.3	6.4	6.6	6.6	6.7	6.7
CON_66	0.207	2.2	2.2	2.2	2.2	2.3	2.5	2.8	3	3	3.1	3.1	3.2	3.3	3.4	3.4	3.4	3.5	3.6	3.6	3.6
CON_68	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_70	0.207	12.2	12.2	12.3	12.4	13.2	14.3	16.1	17	17.2	17.3	17.5	18	18.9	19.3	19.3	19.4	20	20.3	20.3	20.3
CON_72	0.207	12.2	12.2	12.3	12.4	13.2	14.3	16.1	17	17.2	17.3	17.5	18	18.9	19.3	19.3	19.4	20	20.3	20.3	20.3
CON_8	0.207	4.4	4.4	4.4	4.5	4.8	5.2	5.8	6.1	6.2	6.2	6.3	6.5	6.8	6.9	6.9	7	7.1	7.3	7.3	7.3
CON_96	0.12	1.9	1.9	1.9	2	2.1	2.3	2.5	2.7	2.7	2.7	2.7	2.8	3	3	3	3	3.1	3.2	3.2	3.2
CON_98	0.12	1.9	1.9	1.9	2	2.1	2.3	2.5	2.7	2.7	2.7	2.7	2.8	3	3	3	3	3.1	3.2	3.2	3.2

Table 11: Line Loading Load Flow Results (%) – Hollandse Molen

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_360	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_362	0.197	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_365	0.292	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2	2.8	5.1	8.7	12.8
CON_368	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_381	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_419	0.187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_421	0.187	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.1	4.4	7.9	13.6	19.9
CON_430	0.292	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2	2.8	5.1	8.7	12.8
CON_435	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_438	0.273	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	3	5.4	9.3	13.6
CON_440	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_445	0.292	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2	2.8	5.1	8.7	12.8
CON_448	0.187	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.1	4.4	7.9	13.6	19.9
CON_457	0.187	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.1	4.4	7.9	13.6	19.9
CON_461	0.122	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3	3.1	3	3.3	4.9	8.7	14.8	21.8
CON_472	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_474	0.122	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3	3.1	3	3.3	4.9	8.7	14.8	21.8
CON_476	0.187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_480	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_482	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_484	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_489	0.187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_492	0.104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_501	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_505	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_513	0.187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_518	0.187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_522	0.187	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.3	2.3	3.9	5.7
CON_527	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_532	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_537	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_542	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_543	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_545	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_548	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_555	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_557	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_559	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_566	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_568	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_573	0.122	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.9	3.5	5.9	8.7
CON_578	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 12: Line Loading Load Flow Results (%) – Pniel

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_1000	0.122	6.3	6.3	6.3	6.4	6.8	7.4	7.8	8.2	8.3	8.4	8.4	9.4	10.7	11.3	11.4	11.5	11.7	11.9	12.2	12.5
CON_1009	0.207	3.7	3.7	3.7	3.8	4	4.4	4.6	4.8	4.9	4.9	5	5.5	6.3	6.7	6.7	6.8	6.9	7	7.2	7.4
CON_1014	0.122	6.3	6.3	6.3	6.4	6.8	7.4	7.8	8.2	8.3	8.4	8.4	9.4	10.7	11.3	11.4	11.5	11.7	11.9	12.2	12.5
CON_1016	0.122	6.3	6.3	6.3	6.4	6.8	7.4	7.8	8.2	8.3	8.4	8.4	9.4	10.7	11.3	11.4	11.5	11.7	11.9	12.2	12.5
CON_1018	0.122	6.3	6.3	6.3	6.4	6.8	7.4	7.8	8.2	8.3	8.4	8.4	9.4	10.7	11.3	11.4	11.5	11.7	11.9	12.2	12.5
CON_1022	0.122	3.2	3.2	3.2	3.3	3.5	3.8	4	4.2	4.3	4.3	4.3	4.8	5.5	5.8	5.8	5.9	6	6.1	6.2	6.4
CON_1033	0.122	3	3	3	3	3.2	3.5	3.7	3.9	4	4	4	4.5	5.1	5.4	5.4	5.5	5.6	5.7	5.8	5.9
CON_1038	0.122	3.2	3.2	3.2	3.3	3.5	3.8	4	4.2	4.3	4.3	4.3	4.8	5.5	5.8	5.8	5.9	6	6.1	6.2	6.4
CON_1040	0.122	1.8	1.8	1.8	1.8	1.9	2.1	2.2	2.3	2.3	2.4	2.4	2.6	3	3.2	3.2	3.2	3.3	3.4	3.4	3.5
CON_1042	0.122	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1	1	1.1	1.1	1.1	1.1	1.1	1.1
CON_1046	0.122	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.6	1.8	2.1	2.2	2.2	2.2	2.3	2.3	2.4	2.4
CON_1057	0.122	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1	1	1.1	1.1	1.1	1.1	1.1	1.1
CON_1064	0.122	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9
CON_1070	0.122	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.6	1.8	2	2.1	2.2	2.2	2.2	2.3	2.3	2.4
CON_1073	0.131	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.7	1.9	2	2	2	2.1	2.1	2.2	2.2
CON_1075	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1084	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1092	0.122	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9
CON_1095	0.122	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_1096	0.122	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_1113	0.197	2.2	2.2	2.2	2.2	2.4	2.6	2.7	2.9	2.9	2.9	3	3.3	3.7	3.9	4	4	4.1	4.1	4.2	4.3
CON_1114	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1119	0.131	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
CON_1131	0.104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1133	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1140	0.104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1163	0.123	3.3	3.3	3.3	3.3	3.5	3.8	4.1	4.2	4.3	4.3	4.4	4.8	5.5	5.8	5.9	5.9	6	6.1	6.2	6.4

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_1165	0.123	3.3	3.4	3.4	3.4	3.6	3.9	4.1	4.3	4.4	4.4	4.4	4.9	5.6	5.9	5.9	6	6.1	6.2	6.3	6.5
CON_1183	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1190	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1196	0.131	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CON_1199	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1209	0.131	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_1210	0.122	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
CON_1213	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1214	0.122	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
CON_1223	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1228	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1231	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1235	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1244	0.122	3	3	3	3	3.2	3.5	3.7	3.9	4	4	4	4.4	5.1	5.3	5.4	5.4	5.5	5.6	5.7	5.8
CON_1247	0.209	1.5	1.5	1.5	1.5	1.6	1.8	1.9	2	2	2	2	2.2	2.6	2.7	2.7	2.7	2.8	2.8	2.9	3
CON_1251	0.131	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8
CON_1254	0.209	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.7	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3
CON_1255	0.209	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
CON_1262	0.209	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.7	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3
CON_1264	0.209	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.7	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3
CON_1266	0.209	1	1	1	1	1.1	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.9
CON_1268	0.209	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
CON_127	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1270	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1280	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1281	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1286	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1291	0.209	1.2	1.2	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.7	2	2.1	2.1	2.1	2.1	2.2	2.2	2.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_1293	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1297	0.122	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1	1	1	1	1	1.1	1.1
CON_1306	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1316	0.209	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
CON_1327	0.122	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
CON_1330	0.122	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
CON_136	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_1662	0.131	2.7	2.7	2.7	2.7	2.9	3.2	3.4	3.5	3.6	3.6	3.6	4	4.6	4.9	4.9	5	5	5.1	5.2	5.4
CON_1688	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_189	0.122	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
CON_248	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_407	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_409	0.292	14.2	14.3	14.3	14.4	15.3	16.7	17.6	18.5	18.8	18.8	19	21.1	24.2	25.4	25.7	26	26.3	26.8	27.4	28
CON_414	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_415	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_417	0.292	15.7	15.8	15.9	16	17	18.5	19.5	20.5	20.8	20.9	21.1	23.4	26.7	28.1	28.4	28.7	29.2	29.7	30.3	31
CON_586	0.4	11.5	11.6	11.6	11.6	12.4	13.5	14.3	14.9	15.2	15.2	15.4	17.1	19.5	20.5	20.8	21	21.3	21.6	22.1	22.7
CON_591	0.584	7.9	7.9	7.9	8	8.5	9.2	9.8	10.2	10.4	10.4	10.5	11.7	13.4	14.1	14.2	14.4	14.6	14.8	15.2	15.5
CON_593	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_597	0.123	3.5	3.6	3.6	3.6	3.8	4.1	4.4	4.6	4.7	4.7	4.7	5.2	6	6.3	6.3	6.4	6.5	6.6	6.7	6.9
CON_599	0.123	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_601	0.123	3.3	3.4	3.4	3.4	3.6	3.9	4.1	4.3	4.4	4.4	4.4	4.9	5.6	5.9	5.9	6	6.1	6.2	6.3	6.5
CON_604	0.197	2.3	2.3	2.3	2.3	2.5	2.7	2.9	3	3	3	3.1	3.4	3.9	4.1	4.1	4.2	4.2	4.3	4.4	4.5
CON_611	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_618	0.122	33.8	34.1	34.2	34.4	36.6	39.8	42.1	44.1	44.9	45	45.4	50.4	57.7	60.7	61.4	62	62.9	64	65.4	67
CON_620	0.207	20	20.2	20.2	20.3	21.6	23.5	24.9	26.1	26.5	26.6	26.8	29.8	34.1	35.8	36.2	36.6	37.1	37.8	38.6	39.6
CON_621	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_623	0.122	33.8	34.1	34.2	34.4	36.6	39.8	42.1	44.1	44.9	45	45.4	50.4	57.7	60.7	61.4	62	62.9	64	65.4	67

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_628	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_663	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_669	0.292	14	14.2	14.2	14.3	15.2	16.5	17.5	18.3	18.6	18.7	18.9	20.9	24	25.2	25.5	25.7	26.1	26.6	27.2	27.8
CON_674	0.292	13.8	13.9	14	14	14.9	16.3	17.2	18	18.3	18.4	18.6	20.6	23.6	24.8	25.1	25.3	25.7	26.1	26.7	27.4
CON_676	0.4	10.1	10.2	10.2	10.2	10.9	11.9	12.6	13.2	13.4	13.4	13.6	15	17.2	18.1	18.3	18.5	18.8	19.1	19.5	20
CON_687	0.292	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_689	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_691	0.292	13.9	14.1	14.1	14.2	15.1	16.4	17.4	18.2	18.5	18.5	18.7	20.8	23.8	25	25.3	25.6	25.9	26.4	27	27.6
CON_692	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_693	0.131	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
CON_696	0.197	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
CON_737	0.197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_744	0.197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_751	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_752	0.4	10.2	10.3	10.3	10.3	11	12	12.7	13.3	13.5	13.5	13.7	15.2	17.4	18.3	18.5	18.7	18.9	19.2	19.7	20.1
CON_757	0.292	13.8	13.9	14	14	14.9	16.3	17.2	18	18.3	18.4	18.6	20.6	23.6	24.8	25.1	25.3	25.7	26.1	26.7	27.4
CON_760	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_763	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_772	0.277	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.6	1.9	2	2	2	2	2.1	2.1	2.2
CON_774	0.292	1	1	1.1	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.5	1.8	1.9	1.9	1.9	1.9	2	2	2
CON_776	0.292	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CON_778	0.292	1	1	1.1	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.5	1.8	1.9	1.9	1.9	1.9	2	2	2
CON_781	0.123	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
CON_783	0.209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_785	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_812	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.4	23.8	24.2	24.7	25.3
CON_815	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_817	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_819	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_821	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_823	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_825	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_826	0.123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_840	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_843	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_855	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_870	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_875	0.292	12.8	12.9	12.9	13	13.8	15	15.9	16.7	17	17	17.2	19	21.8	23	23.2	23.5	23.8	24.2	24.7	25.3
CON_876	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_886	0.292	12.6	12.7	12.7	12.8	13.6	14.8	15.7	16.4	16.7	16.7	16.9	18.7	21.5	22.6	22.8	23.1	23.4	23.8	24.4	24.9
CON_895	0.292	11.9	12	12	12	12.8	14	14.8	15.5	15.7	15.8	15.9	17.7	20.3	21.3	21.5	21.8	22.1	22.5	23	23.5
CON_896	0.148	1.4	1.4	1.4	1.4	1.5	1.7	1.8	1.8	1.9	1.9	1.9	2.1	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8
CON_898	0.148	1.4	1.4	1.4	1.4	1.5	1.7	1.8	1.8	1.9	1.9	1.9	2.1	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8
CON_905	0.131	1.6	1.6	1.6	1.6	1.7	1.9	2	2.1	2.1	2.1	2.1	2.4	2.7	2.8	2.9	2.9	2.9	3	3.1	3.1
CON_908	0.292	10.5	10.6	10.6	10.7	11.4	12.4	13.1	13.7	14	14	14.2	15.7	18	18.9	19.1	19.3	19.6	19.9	20.4	20.9
CON_912	0.292	1.3	1.3	1.3	1.4	1.4	1.6	1.7	1.7	1.8	1.8	1.8	2	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.6
CON_917	0.292	8.9	9	9	9.1	9.7	10.5	11.1	11.6	11.8	11.9	12	13.3	15.2	16	16.2	16.4	16.6	16.9	17.3	17.7
CON_918	0.131	3.6	3.6	3.6	3.6	3.9	4.2	4.5	4.7	4.7	4.8	4.8	5.3	6.1	6.4	6.5	6.6	6.7	6.8	6.9	7.1
CON_926	0.245	10.6	10.7	10.7	10.8	11.5	12.5	13.3	13.9	14.1	14.2	14.3	15.9	18.2	19.1	19.3	19.5	19.8	20.1	20.6	21.1
CON_928	0.131	19.9	20.1	20.1	20.2	21.5	23.4	24.8	26	26.4	26.5	26.7	29.7	34	35.7	36.1	36.5	37	37.7	38.5	39.5
CON_932	0.207	12.6	12.7	12.7	12.8	13.6	14.8	15.7	16.4	16.7	16.8	16.9	18.8	21.5	22.6	22.9	23.1	23.4	23.8	24.4	25
CON_936	0.207	10.6	10.7	10.8	10.8	11.5	12.5	13.3	13.9	14.1	14.2	14.3	15.9	18.2	19.1	19.3	19.5	19.8	20.2	20.6	21.1
CON_949	0.122	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_950	0.104	3.9	3.9	3.9	3.9	4.2	4.6	4.8	5.1	5.1	5.2	5.2	5.8	6.6	7	7	7.1	7.2	7.3	7.5	7.7
CON_955	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CON_958	0.122	18	18.2	18.2	18.3	19.5	21.2	22.5	23.5	23.9	24	24.2	26.9	30.8	32.4	32.8	33.1	33.6	34.2	34.9	35.8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_970	0.122	16.2	16.4	16.4	16.5	17.6	19.1	20.2	21.2	21.5	21.6	21.8	24.2	27.7	29.2	29.5	29.8	30.2	30.8	31.5	32.2
CON_971	0.131	1.7	1.7	1.7	1.7	1.8	2	2.1	2.2	2.2	2.2	2.3	2.5	2.9	3	3	3.1	3.1	3.2	3.2	3.3
CON_977	0.104	19.1	19.2	19.3	19.4	20.6	22.4	23.8	24.9	25.3	25.4	25.6	28.4	32.6	34.3	34.7	35	35.5	36.2	37	37.9
CON_981	0.131	6.7	6.7	6.7	6.8	7.2	7.8	8.3	8.7	8.9	8.9	9	9.9	11.4	12	12.1	12.3	12.4	12.6	12.9	13.2
CON_983	0.122	9.1	9.2	9.2	9.2	9.8	10.7	11.3	11.9	12.1	12.1	12.2	13.5	15.5	16.3	16.5	16.7	16.9	17.2	17.6	18
CON_984	0.104	10.7	10.8	10.8	10.8	11.5	12.6	13.3	13.9	14.2	14.2	14.3	15.9	18.2	19.2	19.4	19.6	19.9	20.2	20.7	21.2
CON_986	0.131	4.8	4.9	4.9	4.9	5.2	5.7	6	6.3	6.4	6.4	6.5	7.2	8.3	8.7	8.8	8.9	9	9.2	9.4	9.6
CON_988	0.131	4.8	4.9	4.9	4.9	5.2	5.7	6	6.3	6.4	6.4	6.5	7.2	8.3	8.7	8.8	8.9	9	9.2	9.4	9.6
CON_993	0.131	2.7	2.7	2.7	2.7	2.9	3.2	3.4	3.5	3.6	3.6	3.6	4	4.6	4.9	4.9	5	5	5.1	5.2	5.4

Table 13: Line Loading Load Flow Results (%) – RFG

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
CON_640	0.292	30.2	30.2	30.2	30.3	30.1	31	41.4	55.7	60.1	60.4	60.5	61.3	62.4	62.8	62.6	64.3	85.2	114.1	123.1	123.5
CON_644	0.292	30.2	30.2	30.2	30.3	30.1	31	41.4	55.7	60.1	60.4	60.5	61.3	62.4	62.8	62.6	64.3	85.2	114.1	123.1	123.5
CON_388	0.292	23.7	23.7	23.6	23.7	23.6	24.4	33.7	46.6	50.6	50.8	51	51.7	52.6	53	52.8	54.4	73.2	99.2	107.3	107.6
CON_649	0.292	23.7	23.7	23.6	23.7	23.6	24.4	33.7	46.6	50.6	50.8	51	51.7	52.6	53	52.8	54.4	73.2	99.2	107.3	107.6
CON_386	0.4	22.1	22.1	22.1	22.1	22	22.6	30.2	40.7	43.9	44.1	44.2	44.8	45.5	45.8	45.7	47	62.2	83.3	89.9	90.1
CON_638	0.4	22.1	22.1	22.1	22.1	22	22.6	30.2	40.7	43.9	44.1	44.2	44.8	45.5	45.8	45.7	47	62.2	83.3	89.9	90.1
CON_654	0.4	17.3	17.3	17.3	17.3	17.2	17.8	24.6	34	36.9	37.1	37.2	37.7	38.4	38.7	38.5	39.7	53.4	72.4	78.4	78.6
CON_706	0.123	15.7	15.7	15.7	15.7	15.6	15.8	18.3	21.6	22.7	22.7	22.8	23	23.2	23.3	23.2	23.7	28.6	35.3	37.4	37.5
CON_709	0.131	5.8	5.8	5.8	5.8	5.8	5.9	8.2	11.4	12.3	12.4	12.4	12.6	12.8	12.9	12.9	13.3	17.8	24.1	26.1	26.2
CON_732	0.131	5.8	5.8	5.8	5.8	5.8	5.9	8.2	11.4	12.3	12.4	12.4	12.6	12.8	12.9	12.9	13.3	17.8	24.1	26.1	26.2
CON_390	0.292	6.6	6.6	6.6	6.6	6.6	6.7	7.7	9.1	9.6	9.6	9.6	9.7	9.8	9.8	9.8	10	12.1	14.9	15.8	15.8
CON_698	0.292	6.6	6.6	6.6	6.6	6.6	6.7	7.7	9.1	9.6	9.6	9.6	9.7	9.8	9.8	9.8	10	12.1	14.9	15.8	15.8
CON_710	0.123	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.7	9.8	9.8	9.8
CON_712	0.123	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.7	9.8	9.8	9.8
CON_726	0.123	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.7	9.8	9.8	9.8
CON_394	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_646	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_651	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_656	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_714	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_719	0.292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix E: Results of busbar loading under normal operation

This appendix section documents the set of load flow bus loading results under normal operating conditions.

Table 14: Busbar Loading Results (Per Unit) – Primary Substations

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Main Industrial SS_66BB 1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Main Industrial SS_66BB 2	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Main Industrial SS_66BB 3	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Main Industrial SS_66BB 4	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Markotter Suidwal SS_66BB 1	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Markotter Suidwal SS_66BB 2	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Markotter Suidwal SS_66BB 3	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Markotter Suidwal SS_66BB 4	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Golf Club SS_66BB 1	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000
Golf Club SS_66BB 2	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000
Universiteit SS_66BB 1	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Universiteit SS_66BB 2	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Jan Marais SS_66BB 1	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Main Industrial SS_11BB 1	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.991
Main Industrial SS_11BB 2	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.991
Main Industrial SS_11BB 3	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.991
Markotter Suidwal SS_11BB 1	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Markotter Suidwal SS_11BB 2	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995
Markotter Suidwal SS_11BB 3	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Golf Club SS_11BB 1	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Golf Club SS_11BB 2	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Golf Club SS_11BB 3	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Universiteit SS_11BB 1	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Universiteit SS_11BB 2	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Universiteit SS_11BB 3	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Jan Marais SS_11BB 1	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Jan Marais SS_11BB 2	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992

Table 15: Busbar Loading Results (Per Unit) – Cloetesville

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
10th Street 8 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992
13th Street 17 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
19 Planken str MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
3 MS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990
4 MS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989
5 MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988
6th Avenue 5 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
7th Avenue 13 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994
Agape MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.979	0.979	0.978	0.978	0.978
Akkerhof MS_11BB	0.988	0.988	0.988	0.988	0.987	0.987	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981
Alley MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993
Anthony MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Bassi MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995
Bassilong 14_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Belladonne MS C3_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Bergipres MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Bokomo MS_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.978	0.978
Boschenpark MS_11BB	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.982	0.982
Boulevard MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Bridge 1 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Bridge 2 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Cascade SS_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978	0.978
Cascade SS_11BB(1)	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Cherrywood MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Chestnut MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Cloetesville Central MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Cloetesville SS_11BB 1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Cloetesville SS_11BB 2	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Costa RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Crombi MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Cupido MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995
Curry SS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Curry SS_11BB(1)	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Daghospitaal MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Davidse MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995
Dennesig MS_11BB	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.978
Dermont MS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983
Drukkers MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Du Toit SS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993
Enkanini MS(3)_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990
Enkanini MS(4)_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.990
Enkanini MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Entrance C7 MS_11BB	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Essenhout MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Fir SS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Gabriels MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Gate C8 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
George Blake North MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.987	0.987
George Blake South MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988
Hani MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Hendrikse MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Hofman SS_11BB	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978
Hofman SS_11BB(1)	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978
Holly Oak MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Hullet MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
ICA MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Jacaranda MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992
Jonkersview MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.979	0.979	0.978	0.978	0.978
KM Corridor MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Katbos MS A1_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Kayamandi SS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995
Kayamandi SS_11BB(1)	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Kayamandi Sport Field MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Klein Welgevonden C4 MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
La Rez MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Lakay 1 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Lakay 2 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Lang Williams MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991
Langenhoven MS_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.978	0.978
Langstraat Suid MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992
Langstraat Woonstelle MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Lappen 1 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Lappen 2 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Lappen 3 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Last MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Latsky MS_11BB	0.987	0.987	0.987	0.987	0.986	0.986	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981	0.981	0.980	0.979	0.979
Linton MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Long 6 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Lubbe MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Luyolo 10 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Makapula 3 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Maritech RMU_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991
Masitandane 1 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Mastertreads MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Mdala 2 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Mdala End 12 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Melkhout MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Melrose Square MS_11BB	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978
Molteno Park MS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.983	0.983
Mondi Crescent 11 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Mount Simon 1 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999
Mount Simon 2 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Mount Simon RMU_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999
Mountain Silver MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Mulberry Place MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Muller MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.979	0.979	0.978	0.978	0.978
New School MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Nietvoorby SS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
Noble MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Nooitgedacht MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993
North End MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Nouveau RMU_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.978	0.978
Nuutgevonden 1 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Nuutgevonden MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Oewersig RMU_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.988	0.988	0.988	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985
Oliphant MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995
Olive MS C2_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999
Orleans MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Ortell MS_11BB	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Papegaaiberg Ind Park 1 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Papegaaiberg Ind Park 2 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Papegaaiberg Ind Park 3 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Papegaaiberg Ind Park 5 MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Papegaairand SS_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Papegaairand SS_11BB(1)	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978
Perdevy MS A4_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Protea MS A3_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
RMU_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Randstraat MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991
Rankels MS A2_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Rembrandt/Bird SS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Rhode SS_11BB	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
SDR Clinic SS_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.978	0.978
SDR Depot RMU_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992
SUB_6530_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.982	0.982	0.982	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.978	0.978
SUB_6532_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992
SUB_6534_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.987	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984
SUB_6578_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991
Sabosela RMU_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.987	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984
School Crescent 9 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Schoongezicht MS_11BB	0.988	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.985	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.981	0.981
Seger MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Sesihlanu 16 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Simonsberg Kaas RMU_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991
Skool MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Small Holdings MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Snake Valley MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991
Sokoqala 15 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Sonnedou MS C1_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999
Sour Fig MS A2A_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Stasie MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Stellenbosch Motors MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994
Stellita Park MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Stoffel Smit MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.983	0.982	0.981	0.981	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978
Stone Square Local TRF_11BB	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Stone Square RMU_11BB	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Taylor MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Tehuis MS_11BB	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Tennant MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Tennant SS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Tennant SS_11BB(1)	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Twee Spruit MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
VW Rand str MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978
Vineyards 7 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991
Vrugtepakkers SS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991
Waaierpalm MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Waterboom MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Watergang 1 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Watergang 2 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992
Watergang MS(1)_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Watergang MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Watergang RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Watergang SS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Watergang SS_11BB(1)	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992
Welgevonden SS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Welgevonden SS_11BB(1)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Winprint MS_11BB	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Zone O MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993

Table 16: Busbar Loading Results (Per Unit) – Golf

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Anesta MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Blaauklippen RMU_11BB	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Blenheim MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
Bloemhof MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995
Bon Cretien MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997
Boord SS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998
Boord SS_11BB(1)	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Brandwag Park MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Brandwagt RMU_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Canterbury MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
Captic RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Carpe Di-Em MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Christiaan Brothers MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Cotlinplace MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Culemborg MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Cynariodes MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
DataVoice RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
De Oewer MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995
DeBosch MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Die werf RMU_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
Eden MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997
Eiestad Medi SS_11BB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Eiestad Medi SS_11BB(1)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Elberta MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997
Electron 3 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Electron House RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Elektron 1 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Elektron 2 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Elsie MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Florida MS_11BB	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Golf Club MS_11BB	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Groenwyde TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
ISS International MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
KWV Grondves 1 TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
KWV Grondves 2 TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Kaapzicht Pomp TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Kaapzicht TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Kaboeterbos TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Kingsview MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Kleingeluk MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
L'Abrie TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
La Pastorale 2 MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997
LaPastorale MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997
Le Montier MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
LeHermitage MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Lovell 1 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Lovell 2 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995
Lovell 3 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
MTN/Tennis TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Marina/Rokewood MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Medi Kliniek SS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Medikliniek MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998
Montblanc MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997
Mulberry Farm TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
NOK MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Neutron MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Oakdale TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Octoplace MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Oewerpark MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Orchardvale TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Padstal MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Paradyskloof MS_11BB	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Paradyskloof RMU_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998
Paradyskloof SS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Paradyskloof SS_11BB(1)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Paradyskloof SS_11BB(2)	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Paradyskloof Villas MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Paradyskloof Waterwerke TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Parmalat MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Platinum Place MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Polytwine MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Prindtel Park MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Proton MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Quantum 1 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
Quantum 2 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
Quantum 3 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
RMU_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Repens MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Reutech MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
Rhodes MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
River 1 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
River 2 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998
Rokewood MS_11BB	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Rokewood Pomp MS_11BB	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
SUB_6568_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
SUB_6571_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
SUB_6573_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
SUB_6576_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
SUB_6581_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Schuilplaats MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999
Serruria MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Shopping Centre RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Site 11 Paradyskloof Erf373/8/9_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998
Skietbaan TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Solar MS_11BB	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Stellenbosch 101 MS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999
Stellenbosch LM_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Stellenpark Hotel MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Techno Park MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Techno Park MS_11BB(1)	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Tegno Park 1 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996
Tegno Park 2 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Tegno Park Pomp MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Termo MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Three Fountains MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Times Square MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Tonnel TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Tramali RMU_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Vriesenhof Pomp TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Vriesenhof TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Water Reservoir TRF_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998
Wingerd MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997

Table 17: Busbar Loading Results (Per Unit) – Jan Marais

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
AP Venter MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Amoi MS_11BB	0.983	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Assegaai MS_11BB	0.984	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.981	0.981	0.981	0.981
Bartlett MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Beltana MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988
Blakesdrif Pomp RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Bloekem MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Bloekem/Adendorf MS_11BB	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Bothmashoogte MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984
Cannerie SS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Cape Dutch MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982
Cluver Circle MS_11BB	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.986
Cluver MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Driehoek MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982
Du Plessis MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Endler MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Glenelie RMU_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Gorridon MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
Groeneweide MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Hector MS_11BB	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Hellshoogte MS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Helshoogte Village MS_11BB	0.983	0.983	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980	0.980	0.979	0.979	0.979
Hospitaal RMU_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
HuisduPreez SS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Idas 1 MS_11BB	0.983	0.983	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
Idas 2 MS_11BB	0.983	0.983	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
Idasvallei Sport RMU_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Infruitec SS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Ival Sport MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Jannasch 1 MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Jannasch 2 MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Jonkershoek MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Jonkerzicht MS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Karendal SS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Khaler MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.984
La Daulphine MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
Lelie MS_11BB	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Marais Park SS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
Merton MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Morkel MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Morris MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Packham MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Pendoring MS_11BB	0.984	0.984	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980
Protea MS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Provinsie MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Rowan MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990
Rozendal Pomp RMU_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
SUB_11726_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SUB_6561_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
SUB_6563_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
SUB_6566_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Seven Eleven MS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Simonsberg SS_11BB	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Simonsberg SS_11BB(1)	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Simonsrust 1 MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Simonsrust 2 MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Simonswyk RMU_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Soeteweide RMU_11BB	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Sonneblom MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987
Sonneblom SS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Sonneblom SS_11BB(1)	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Stellenbosch Hoërskool RMU_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Stias MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Stone MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Stone SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Stone SS_11BB(1)	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Student Village MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
The Merriman MS_11BB	0.986	0.986	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.983	0.983
Tindal SS_11BB	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.985	0.985	0.985	0.985
Twee Pieke MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Uitsig MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Unielaan MS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Uniepark SS_11BB	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Van Coppenhagen MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Verreweide MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Waterweg MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
Waterwerke MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Woodman MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Zwaanswyk MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989

Table 18: Busbar Loading Results (Per Unit) – Main

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Amatoni RMU_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Begraafplaas SS_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.995	0.995	0.995	0.995	0.994	0.992	0.991	0.991	0.991	0.989	0.988	0.987	0.986
Begraafplaas SS_11BB(1)	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.995	0.995	0.995	0.995	0.994	0.992	0.991	0.991	0.991	0.989	0.988	0.987	0.986
Begraafplaas SS_11BB(2)	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.988	0.986	0.985	0.985
Bison Board SS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.991
Bison Board SS_11BB(1)	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.991
Blersch MS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.985	0.985
Bosmans Crossing MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.989	0.988	0.988	0.988	0.986	0.985	0.984	0.983
Cabernet MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.993	0.992	0.992	0.992	0.990	0.989	0.988	0.988	0.987	0.985	0.984	0.983
Cemetary RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.988	0.986	0.985	0.985
Devon Valley SS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.985	0.984
Devon Valley SS_11BB(1)	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.993	0.993	0.992	0.992	0.991	0.989	0.987	0.987	0.987	0.985	0.984	0.982	0.981
Dewatering MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.993	0.993	0.992	0.992	0.991	0.989	0.987	0.987	0.987	0.985	0.983	0.982	0.981
Distell SS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.988	0.987	0.987	0.987	0.986	0.984	0.983	0.982
Distell SS_11BB(1)	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.988	0.987	0.987	0.987	0.986	0.984	0.983	0.982
Flamingo MS_11BB	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.993	0.992	0.992	0.992	0.991	0.988	0.987	0.987	0.987	0.985	0.983	0.981	0.980
Geluksoord RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.994	0.994	0.994	0.993	0.993	0.990	0.989	0.989	0.989	0.987	0.986	0.984	0.983
Hamerkop 1 MS_11BB	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.992	0.992	0.991	0.991	0.990	0.988	0.986	0.986	0.986	0.984	0.982	0.980	0.979
Hamerkop 2 MS_11BB	0.998	0.998	0.998	0.998	0.997	0.996	0.994	0.993	0.992	0.992	0.992	0.991	0.988	0.986	0.986	0.986	0.984	0.982	0.981	0.980
Hoep Hoep MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.993	0.993	0.992	0.992	0.991	0.989	0.987	0.987	0.987	0.985	0.984	0.982	0.981
Jan Frederik MS_11BB	0.997	0.997	0.997	0.997	0.997	0.995	0.994	0.992	0.991	0.991	0.991	0.990	0.987	0.986	0.985	0.985	0.983	0.981	0.979	0.978
KWV Park MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.989	0.988	0.988	0.988	0.986	0.985	0.983	0.983
KleinVallei MS_11BB	0.998	0.998	0.998	0.998	0.997	0.996	0.994	0.993	0.992	0.992	0.992	0.991	0.988	0.987	0.986	0.986	0.984	0.982	0.981	0.980
Kompos MS_11BB	0.998	0.998	0.998	0.998	0.997	0.996	0.995	0.993	0.992	0.992	0.992	0.991	0.989	0.987	0.987	0.987	0.985	0.983	0.982	0.981
Kwarentyn MS_11BB	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.996	0.996	0.996	0.994	0.993	0.993	0.993	0.992	0.991	0.989	0.989
Liberte MS_11BB	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.993	0.993	0.992	0.992	0.992	0.990	0.989	0.988	0.988	0.987	0.985	0.984	0.983
Loerie MS_11BB	0.997	0.997	0.997	0.997	0.997	0.995	0.994	0.992	0.991	0.991	0.991	0.990	0.987	0.985	0.985	0.985	0.983	0.981	0.979	0.978

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Longlands RMU_11BB	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.994	0.993	0.992	0.991	0.990	0.989
Lower Dorp MS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.992	0.991	0.990	0.990	0.989	0.987	0.986	0.985
Lower Dorp SS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.992	0.991	0.990	0.990	0.989	0.987	0.986	0.985
Lower Dorp SS_11BB(1)	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.992	0.991	0.990	0.990	0.989	0.987	0.986	0.985
Lower Dorp SS_11BB(2)	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.992	0.991	0.990	0.990	0.989	0.987	0.986	0.985
MBR 1 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.989	0.988	0.987	0.987	0.986	0.984	0.982	0.981
MBR 2 MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.989	0.988	0.987	0.987	0.986	0.984	0.982	0.981
Marcel MS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.995	0.994	0.993	0.993	0.993	0.992	0.990	0.988	0.988	0.988	0.986	0.984	0.983	0.982
Millinia Park SS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.985	0.985
Mondi Timbers TRF_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.989	0.988	0.986	0.985	0.984
Oude Libertas MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.988	0.986	0.985	0.984
Oude Molen RMU_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.991	0.990	0.990	0.990	0.989	0.987	0.986	0.985
Papegaai Pomp MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.988	0.986	0.985	0.984
Polkadraai MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.989
Polkadraai SS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.989
Polkadraai SS_11BB(1)	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.989
Polkadraai SS_11BB(2)	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.989	0.989	0.989	0.987	0.986	0.984	0.983
Recycling Plant MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.993	0.993	0.992	0.991	0.990	0.989
RioolHuise MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.993	0.993	0.993	0.992	0.992	0.989	0.988	0.987	0.987	0.986	0.984	0.982	0.981
Ruper Museum MS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.985	0.984
SUB_6549_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.986	0.985
SUB_6552_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.991	0.990	0.990	0.990	0.989	0.987	0.986	0.985
SUB_6558_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.994	0.994	0.994	0.993	0.993	0.990	0.989	0.989	0.989	0.987	0.986	0.984	0.983
Sandhagen MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.989	0.988	0.988	0.988	0.986	0.984	0.983	0.982
Sandhagen RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.995	0.994	0.993	0.993	0.993	0.992	0.989	0.988	0.988	0.988	0.986	0.984	0.983	0.982
Selfords MS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.995	0.994	0.993	0.993	0.993	0.992	0.990	0.988	0.988	0.988	0.986	0.985	0.983	0.982
Sonop Wyne RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.989	0.988	0.988	0.988	0.986	0.985	0.983	0.983
Stellenoord 1 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.991	0.991	0.991	0.990	0.988	0.987	0.987	0.987	0.986	0.984	0.983	0.982
Stellenoord 2 MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.989	0.987	0.987	0.987	0.986	0.984	0.983	0.982

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Stellentia RMU_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.988	0.987	0.986	0.985
Swawel MS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.993	0.993	0.992	0.992	0.991	0.989	0.988	0.987	0.987	0.985	0.984	0.982	0.981
Tortelduif SS_11BB	0.998	0.998	0.998	0.998	0.998	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.989	0.988	0.988	0.987	0.986	0.984	0.982	0.982
Vineyard MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.991	0.991	0.991	0.990	0.988	0.987	0.987	0.987	0.985	0.984	0.983	0.982
Vlottenburg MS_11BB	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.994	0.993	0.992	0.991	0.990	0.989
Vredenburg MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.988	0.987	0.986	0.986	0.985	0.983	0.982	0.981
WPK MS_11BB	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.995	0.994	0.994	0.994	0.992	0.990	0.990	0.990	0.989	0.987	0.986	0.985

Table 19: Busbar Loading Results (Per Unit) – Markotter

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
AlexForbes MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Alexander MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Barry MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.989	0.989	0.989	0.989
Bast Molen MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Binnekring MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.993	0.993	0.992	0.992	0.992	0.991	0.991	0.991
Blake Estate SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Boland Bank RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Braak MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Braak SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Braak SS_11BB(1)	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Brandwacht 1 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.990	0.990	0.990
Brandwacht 2 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.990	0.990	0.990
Brandwacht SS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Coetzenburg SS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Coetzenburg SS_11BB(1)	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Coetzenburg Sport MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Dalsig Oos SS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992
Dalsig Wes RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991
De Waterkant RMU_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.993	0.993	0.993	0.993	0.992	0.991	0.991	0.991
De Wets MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995
Die Laan MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.990	0.990	0.990
Distillers SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Doornbosch MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Dorp str 98 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.993	0.993	0.993
Dorp/Papegaai MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Faber RMU_11BB	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.992	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Gimnasium SS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.993	0.993	0.993	0.992	0.992	0.992	0.992

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Goodhope MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Isa Carstens MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Joles Park MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Koch MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Koch RMU_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Koch SS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.992	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Krige SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Kweekskool MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.990	0.990	0.990
La Gratitude MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Landros MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
LeSeur MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.990	0.989	0.989	0.989
Maesland MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993
Mark 2 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Mark MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Meulplein LTx_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Meulplein SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Middebosch MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991
OK Bazaar MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Olyf MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.990	0.990	0.990
Park MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.992	0.991	0.991	0.991
Piet Retief MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Poskantoor SS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Rhenish MS_11BB	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.992	0.991	0.991	0.991	0.990	0.989	0.989	0.989
SUB_6538_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.993	0.993	0.993	0.993	0.992	0.991	0.991	0.991
SUB_6541_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991
SUB_6543_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
SUB_6546_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994
Saambou RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Sports Institute MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Stellenryk MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Stillewaters MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Suidwal MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.995	0.995	0.995	0.995
University SS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Valerida MS_11BB	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.992	0.991	0.990	0.989	0.989	0.988	0.988	0.988	0.988
Van Der Stel Sport MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Vila Roux MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Volkskombuis MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Voorgelegen MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Weidenhof MS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Welgelegen Pomp TRF_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Welgelegen SS_11BB	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.992	0.991	0.991	0.991
Welgevalen SS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.994	0.994	0.993	0.993	0.993	0.992	0.992	0.992

Table 20: Busbar Loading Results (Per Unit) – University

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
1st National MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
ABSA MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Amadeus MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Andmar MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Andringa MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Azalia RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
BJ Vorster SS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Banhoek MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Batkrosier SS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Berg en Dal MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Bergville MS_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Bergzicht Plaza MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Beyerhof MS_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Binne Plein MS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Bosman SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Bosman SS_11BB(1)	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Botmazicht MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982	0.982
CSIR SS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Caltex Bergzight MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Coetzenburg Galary MS_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Conservatorium SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Cyrus MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
D'Ouwe Werf MS_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
De Camoran MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
De Canha MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
De Villiers MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
De Waal MS(1)_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
De Waal MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
De Watergracht MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Denneoord SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Die Rand MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Die Rand RMU_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Dr Malan RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Drama SS_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Drostdy RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
East Neetling_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Ecclesia RMU_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Eikenbos MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982
Eikestad Mall SS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Elckerlyc MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
HIV Centre MS_11BB	0.985	0.985	0.985	0.985	0.985	0.985	0.984	0.984	0.983	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982	0.982	0.982	0.982
Hagerhof RMU_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Helderberg RMU_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Helderfontein SS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987
Helderzight MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Hetbeginhof MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Huis Piron MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Huise TRF_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
JanKats MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Kerk SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Kollege MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Kollege RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Koloniesland TRF_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Kromrivier SS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990
LaCollien SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Langenhoven SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Lavanda MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Libertas Slaghuis MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Louw MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Macdonalds MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Mcdonalds MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Merriman SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Merriman SS_11BB(1)	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Merriman/Bird MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Merriman/Bird SS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Monika SS_11BB	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987
NH Kerk MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Neethlinghuis MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Nyasa RMU_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Ou Kollege MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Oudehoek MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Oudewaal MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Pick and Pay RMU_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Plumbago MS_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Polisie SS_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Polisie TRF_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Prins Park MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Rattray MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SA Perm SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SDR Du Toit str RMU_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
SUB_6480_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SUB_6509_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
SUB_6511_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SUB_6513_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
SUB_6516_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
SUB_6519_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SUB_6522_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
SUB_6524_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
SUB_6527_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Schuman SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Smuts SS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Sonvida MS_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Stadsaal SS_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Stadsaal SS_11BB(1)	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
Stellenbosch Hotel MS_11BB	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.989
TV Toring GM_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
TV Toring RMU_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
The Niche MS_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988
Universiteit Werkswinkel SS_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
University Engineering Faculty SS_11BB	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991
University RMU_11BB	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Unknown_11BB	0.989	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Van Der Stel/Van Riebeeck MS_11BB	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Vergezicht MS_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990

Table 21: Busbar Loading Results (Per Unit) – Hollandse Molen

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PMT L'Arl D'Orleans_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.997	0.995	0.993
Hollandse Mollen MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.994	0.991
New Pump TX_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
PMT La Tramatane_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.996	0.993	0.990
PMT St Croix_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.994	0.991
PMT Lusthof 3_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.996	0.993	0.990
Hollandse Mollen Tx 1_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.994	0.991
PMT Lusthof 2_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.996	0.993	0.989
PMT Croix Estate_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.995	0.992
PMT Lusthof_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.996	0.993	0.990
PMT Moddervlei_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.996	0.993	0.990
Hollandse Mollen 3_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.994	0.991
PMT L'Arl D'Orleans(1)_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.995	0.992
Le Arc Berries_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.997	0.995	0.993
Hollandse Mollen Intake_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Table 22: Busbar Loading Results (Per Unit) – Franschoek

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Franschhoek SS_11BB	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Franschhoek SS_11BB(1)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999
SUB_2883_11BB	0.989	0.989	0.989	0.988	0.988	0.986	0.985	0.984	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980
PM 227_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
SUB_2878_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.983	0.982	0.981	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978	0.978
GM 15_11BB	0.986	0.986	0.986	0.986	0.985	0.984	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.977	0.977	0.977	0.976	0.976	0.976	0.976
PM 137_11BB	0.985	0.985	0.985	0.985	0.984	0.982	0.980	0.979	0.978	0.978	0.978	0.977	0.976	0.976	0.975	0.975	0.975	0.974	0.974	0.974
PM 306_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.980	0.980	0.980
GM 11_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
GM 001_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.980	0.980	0.980	0.980
PM 217_11BB	0.990	0.990	0.990	0.990	0.989	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983
PM 212_11BB	0.991	0.991	0.991	0.990	0.990	0.989	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984
PM 109_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
SUB_1967_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
PM 127_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.979	0.979
PM 405_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
SUB_2418_11BB	0.987	0.987	0.987	0.987	0.986	0.984	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.978	0.978	0.978	0.977	0.977	0.977	0.977
SUB_2993_11BB	0.993	0.993	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
PM 120_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 112A_11BB	0.991	0.991	0.991	0.990	0.990	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983
PM 121_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 222_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981
PM 122_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 205_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992
Waterval_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
GM 3_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.984	0.983	0.983	0.983	0.983	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979
GM 12(1)_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.983	0.983	0.983	0.983	0.983

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PM 115_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 111_11BB	0.992	0.992	0.992	0.992	0.991	0.990	0.989	0.988	0.988	0.988	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985
PM 104_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
PM 138_11BB	0.987	0.987	0.987	0.987	0.986	0.984	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.978	0.978	0.978	0.977	0.977	0.977	0.977
PM 123_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
SUB_2884_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.983	0.982	0.981	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978	0.978
PM 201_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
GM 2_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.980	0.980	0.979	0.979	0.979
PM 119_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 216_11BB	0.991	0.991	0.991	0.990	0.990	0.989	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984
PM 112_11BB	0.991	0.991	0.991	0.990	0.990	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983
GM 17_11BB	0.985	0.985	0.985	0.985	0.984	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.976	0.976	0.976	0.976	0.975	0.974	0.974	0.974
PM 226_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
PM 131_11BB	0.988	0.988	0.988	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978
LATDL2_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.980	0.980	0.980
PM 221_11BB	0.990	0.990	0.990	0.989	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
PM 136_11BB	0.985	0.985	0.985	0.985	0.984	0.983	0.980	0.979	0.979	0.978	0.978	0.977	0.976	0.976	0.976	0.976	0.975	0.974	0.974	0.974
MS 55 Chamonix_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.983	0.982	0.981	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.977	0.977
PM 103_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
PM 219_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983
PM 406_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
PM 110_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
PM 105_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
GM 12_11BB	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992
SUB_2306_11BB	0.991	0.991	0.991	0.991	0.990	0.989	0.988	0.987	0.987	0.987	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984	0.984	0.984
PM 130_11BB	0.988	0.988	0.988	0.987	0.986	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.980	0.979	0.979	0.979	0.978	0.978	0.978	0.978
PM 218_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983
SUB_2939_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.988	0.988	0.988	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985
Groendal SS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Hugenote SS_11BB	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Monument SS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Hampton Square RMU_11BB	0.991	0.991	0.991	0.991	0.990	0.989	0.987	0.987	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983	0.983
Keerom RMU_11BB	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Wynkelder MS_11BB	0.993	0.993	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Monument SS_11BB(1)	0.993	0.993	0.993	0.993	0.993	0.992	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
Laterra De Luc RMU & MS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995
Hugenote SS_11BB(1)	0.995	0.995	0.995	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989
Groendal SS_11BB(1)	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
Bagatelle RMU_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Langrug Res RMU_11BB	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995
SUB_2593_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Skool Safe Ring_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
Dassenberg RMU_11BB	0.993	0.993	0.993	0.993	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
Hauman SR_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
Warssop RMU_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Monument RMU_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991
La Vie RMU_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Harmony SR_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981
Mount Rochelle SR_11BB	0.990	0.990	0.990	0.990	0.989	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.984	0.984	0.984	0.984	0.984	0.983	0.983	0.983
Hugo RMU_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981
Les-CH RMU_11BB	0.986	0.986	0.986	0.986	0.985	0.984	0.981	0.980	0.980	0.980	0.980	0.979	0.978	0.977	0.977	0.977	0.976	0.976	0.976	0.976
La Avenue RMU_11BB	0.991	0.991	0.991	0.991	0.990	0.989	0.987	0.986	0.986	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Pakstoor RMU_11BB	0.993	0.993	0.993	0.993	0.992	0.992	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
Skool RMU_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Dennegeur RMU_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
La Montegne RMU_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.979	0.979	0.979	0.979
Dassenberg SR_11BB	0.991	0.991	0.991	0.991	0.991	0.990	0.988	0.988	0.988	0.987	0.987	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985	0.985
JC RMU_11BB	0.985	0.985	0.985	0.985	0.984	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.976	0.976	0.976	0.976	0.975	0.974	0.974	0.974

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
La Cote 2 MS_11BB	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987
Skool MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
Kerk MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Uitkyk MS_11BB	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Langrug 2 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Parklane MS_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
Reservoir MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.991	0.991
Le Roux Weg MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Fair Donne MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Bordeaux MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.991	0.991	0.991	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
Upper Lea Smith MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992
Langrug 1 MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
Jaftha Singel MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
La Cote MS_11BB	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.988	0.988	0.988	0.988	0.988	0.987	0.987	0.987
Louw MS_11BB	0.999	0.999	0.999	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996
De La Rey MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988
GD Sport MS_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994
Lower Lea Smith MS_11BB	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Berg Str MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991
Deudon MS_11BB	0.986	0.986	0.986	0.986	0.985	0.984	0.981	0.980	0.980	0.980	0.979	0.979	0.978	0.977	0.977	0.977	0.976	0.976	0.976	0.976
Kruger MS_11BB	0.995	0.995	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989
Domaine Des Anges MS_11BB	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Poskantoor MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
La Gare MS_11BB	0.993	0.993	0.993	0.993	0.992	0.992	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
Packham MS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Stubeul MS_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
La Recedance 2 MS_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
Bagatelle MS_11BB	0.991	0.991	0.991	0.990	0.990	0.989	0.987	0.986	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.982	0.982
Hugenote Noord MS_11BB	0.994	0.994	0.994	0.994	0.993	0.993	0.991	0.991	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
ABSA MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Village Artisen MS_11BB	0.993	0.993	0.993	0.993	0.992	0.992	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
Tuin MS_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990
Caberne MS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
L R Res MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Beu Caup du Leo MS_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993	0.993
Dirkie Uys North MS_11BB	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.988	0.988	0.988	0.988	0.987	0.987	0.987
Naude MS_11BB	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.989	0.988	0.988	0.988	0.988	0.987	0.987	0.987
Fabriek MS_11BB	0.993	0.993	0.993	0.993	0.992	0.991	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.986	0.986	0.986
Santa Rosa MS_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Dirkie Uys South MS_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991	0.991
Le Roux Park MS_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
La Recedance 1 MS_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.983	0.982	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
La Providence MS_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
Shiraz MS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Dalabuhl 301/2 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
Keerom MS_11BB	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
301/1 MS_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
Black Hole MS_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
Harmony MS_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981
Klein Dassenberg MS_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Louis Botha MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.989	0.989
La Grappe MS_11BB	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
La Provance MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
La Chantelle MS_11BB	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.993	0.993
Cabriere MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.991	0.991	0.991	0.990	0.990	0.990	0.989	0.989	0.989	0.989	0.988	0.988	0.988	0.988
PM 302_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981	0.980	0.980	0.980	0.980
PM 213_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983	0.983
PM 124_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PM-303_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
PM 117_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 106_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989	0.989
SUB_2431_11BB	0.988	0.988	0.988	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.980	0.979	0.979	0.979	0.979	0.978	0.978	0.978
PM 301_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.984	0.983	0.983	0.983	0.983	0.982	0.981	0.981	0.981	0.981	0.980	0.980	0.980
PM-304_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
PM 223_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981	0.981
PM 116_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.981	0.980	0.980	0.980	0.980	0.979	0.979	0.979	0.979
PM 300_11BB	0.989	0.989	0.989	0.988	0.988	0.987	0.985	0.984	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981	0.981	0.980	0.980
PM-305_11BB	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.985	0.985	0.985	0.985	0.984	0.983	0.983	0.983	0.982	0.982	0.981	0.981	0.981
Nerina MS_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
La Rochelle MS_11BB	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992	0.992	0.992	0.992	0.992
Close Cabrier MS_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981	0.981
Van Riebeeck MS_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990	0.990
SUB_344_11BB	0.986	0.986	0.986	0.986	0.985	0.984	0.982	0.980	0.980	0.980	0.980	0.979	0.978	0.978	0.977	0.977	0.977	0.976	0.976	0.976
Warssop MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990	0.990	0.990
Hauman MS_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
La Vie MS_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Hampton Square MS_11BB	0.995	0.995	0.995	0.995	0.994	0.993	0.992	0.992	0.992	0.992	0.992	0.991	0.991	0.990	0.990	0.990	0.990	0.990	0.990	0.990
Klein Cabriere MS_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.991	0.991	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988	0.988

Table 23: Busbar Loading Results (Per Unit) – Pniel

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
Delta Crest Tx_11BB	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997
Delta Pump_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
Groot Drakenstein RMU Bank_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
H.S.M Boschendal Line_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
H.S.M Boschendal Restaurant_11BB	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.991	0.991	0.991	0.991	0.991	0.990	0.990
MS Panorama_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.985	0.984	0.984	0.984	0.982	0.980	0.978	0.978	0.978	0.978	0.977	0.977	0.976
MS Pine Street_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.986	0.986	0.985	0.985	0.985	0.983	0.981	0.980	0.980	0.979	0.979	0.979	0.978	0.978
MS Pniel Council Offices_11BB	0.991	0.991	0.991	0.991	0.990	0.989	0.988	0.988	0.987	0.987	0.987	0.986	0.984	0.983	0.982	0.982	0.982	0.982	0.981	0.981
MS Pniel Main Road_11BB	0.991	0.991	0.991	0.991	0.990	0.989	0.989	0.988	0.988	0.988	0.988	0.986	0.984	0.983	0.983	0.983	0.983	0.982	0.982	0.981
MS Pniel_11BB	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.987	0.986	0.985	0.985	0.984	0.984	0.984	0.983	0.983
MS SA Police_11BB	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.994	0.994
MS Silwermyn Street_11BB	0.989	0.988	0.988	0.988	0.988	0.986	0.986	0.985	0.985	0.984	0.984	0.983	0.980	0.979	0.978	0.978	0.978	0.977	0.977	0.976
PMT AM Farm Houses 1_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
PMT AM Farm Houses(1)_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
PMT AM Farm Houses(2)_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
PMT AM Farm Houses(3)_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996
PMT AM Farm Houses(4)_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
PMT AM Farm Houses(5)_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996
PMT AM Farm Houses_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Bosbou Housing_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
PMT Boschendal Administrative Houses_11B	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.994	0.994	0.994	0.993	0.992	0.992	0.991	0.991	0.991	0.991	0.991	0.991
PMT Boschendal Farm Houses_11BB	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.992	0.991	0.990	0.990	0.990	0.990	0.990	0.989	0.989
PMT Boschendal Workers Homes_11BB	0.994	0.994	0.994	0.994	0.994	0.993	0.993	0.992	0.992	0.992	0.992	0.991	0.990	0.989	0.989	0.989	0.989	0.989	0.988	0.988
PMT Club House_11BB	0.993	0.992	0.992	0.992	0.992	0.991	0.991	0.990	0.990	0.990	0.990	0.989	0.987	0.986	0.986	0.986	0.986	0.985	0.985	0.985
PMT Cyster_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.985	0.984	0.984	0.984	0.982	0.979	0.978	0.978	0.978	0.977	0.977	0.976	0.976
PMT De Boordje_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.990	0.990	0.990	0.988	0.987	0.986	0.986	0.986	0.985	0.985	0.985	0.984
PMT Delta Meer(1)_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PMT Delta Meer_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
PMT Deltameer_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
PMT Farm House_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Farm Stall_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
PMT Games Club_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Golf Club_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997
PMT Groot Drakenstein Station_11BB	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.995
PMT Johannesdal 1_11BB	0.988	0.987	0.987	0.987	0.986	0.985	0.984	0.984	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.976	0.975	0.974
PMT Johannesdal 3_11BB	0.988	0.988	0.988	0.988	0.987	0.985	0.985	0.984	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.977	0.976	0.976	0.975	0.975
PMT Johannesdal_11BB	0.988	0.988	0.988	0.987	0.987	0.985	0.984	0.984	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.977	0.976	0.976	0.975	0.975
PMT Kykindiepot 1_11BB	0.988	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT Kykindiepot 2_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT Lekkerwyn Tea Room_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994
PMT Meerlust Dam_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
PMT Meerlust_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994
PMT Moores End_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT Mountain Woods_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.976	0.976	0.976	0.975	0.975	0.974
PMT New AM Farm_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
PMT New Oaks_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Pickstons(1)_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
PMT Pickstons_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999
PMT Pniel 2_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.989	0.988	0.988	0.988	0.988	0.987	0.984	0.984	0.983	0.983	0.983	0.983	0.982	0.982
PMT Pniel 3_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
PMT Pniel School_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984
PMT Pniel_11BB	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.987	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983
PMT Rachelfontein 2_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Rachelfontein_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Rosendal_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT School_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PMT Silver Oaks_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.976	0.976	0.976	0.975	0.975	0.974
PMT Simonsberg Woodwork_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
PMT Soloms Church_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Soloms Delta_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Sunburgh Inn Hotel_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.984	0.984	0.984	0.984	0.982	0.979	0.978	0.978	0.977	0.977	0.976	0.976	0.975
PMT Two Rivers_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
Pickstons Tx_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999
Pniel Intake_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pniel Tx_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
RMU Pniel 2_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.986	0.985	0.985	0.985	0.985	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.977	0.977
RMU Pniel_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
Unknown RMU_11BB	0.989	0.989	0.989	0.988	0.988	0.987	0.986	0.985	0.985	0.985	0.984	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.977	0.977
PMT Meerlust Dam_11BB	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
PMT Meerlust_11BB	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.994
PMT Moores End_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT Mountain Woods_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.976	0.976	0.976	0.975	0.975	0.974
PMT New AM Farm_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
PMT New Oaks_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Pickstons(1)_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
PMT Pickstons_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999
PMT Pniel 2_11BB	0.991	0.991	0.991	0.991	0.990	0.990	0.989	0.988	0.988	0.988	0.988	0.987	0.984	0.984	0.983	0.983	0.983	0.983	0.982	0.982
PMT Pniel 3_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
PMT Pniel School_11BB	0.992	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.990	0.990	0.989	0.988	0.986	0.986	0.985	0.985	0.985	0.985	0.984	0.984
PMT Pniel_11BB	0.992	0.992	0.992	0.992	0.991	0.990	0.990	0.989	0.989	0.989	0.989	0.987	0.985	0.985	0.984	0.984	0.984	0.984	0.983	0.983
PMT Rachelfontein 2_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Rachelfontein_11BB	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.995	0.994	0.993	0.993	0.993	0.993	0.992	0.992	0.992	0.992
PMT Rosendal_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.977	0.976	0.976	0.975	0.975	0.974
PMT School_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Silver Oaks_11BB	0.987	0.987	0.987	0.987	0.986	0.985	0.984	0.983	0.983	0.983	0.983	0.981	0.978	0.977	0.976	0.976	0.976	0.975	0.975	0.974

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PMT Simonsberg Woodwork_11BB	0.996	0.996	0.996	0.996	0.996	0.996	0.995	0.995	0.995	0.995	0.995	0.994	0.994	0.993	0.993	0.993	0.993	0.993	0.993	0.993
PMT Soloms Church_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Soloms Delta_11BB	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
PMT Sunburgh Inn Hotel_11BB	0.988	0.988	0.988	0.988	0.987	0.986	0.985	0.984	0.984	0.984	0.984	0.982	0.979	0.978	0.978	0.977	0.977	0.976	0.976	0.975
PMT Two Rivers_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996
Pickstons Tx_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999
Pniel Intake_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Pniel Tx_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
RMU Pniel 2_11BB	0.989	0.989	0.989	0.989	0.988	0.987	0.986	0.985	0.985	0.985	0.985	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.977	0.977
RMU Pniel_11BB	0.990	0.990	0.990	0.990	0.990	0.989	0.988	0.987	0.987	0.987	0.987	0.985	0.983	0.982	0.982	0.982	0.981	0.981	0.981	0.980
Unknown RMU_11BB	0.989	0.989	0.989	0.988	0.988	0.987	0.986	0.985	0.985	0.985	0.984	0.983	0.980	0.979	0.979	0.978	0.978	0.978	0.977	0.977

Table 24: Busbar Loading Results (Per Unit) – RFG

Busbar Name	2023 (p.u.)	2024 (p.u.)	2025 (p.u.)	2026 (p.u.)	2027 (p.u.)	2028 (p.u.)	2029 (p.u.)	2030 (p.u.)	2031 (p.u.)	2032 (p.u.)	2033 (p.u.)	2034 (p.u.)	2035 (p.u.)	2036 (p.u.)	2037 (p.u.)	2038 (p.u.)	2039 (p.u.)	2040 (p.u.)	2041 (p.u.)	2042 (p.u.)
PMT Post Office_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.996
PMT Romnick_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996
PMT Werda_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996
RFG Intake Point_11BB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
RFG Metering Unit_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996	0.996	0.996	0.996
RMU Werda_11BB	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.997	0.997	0.997	0.996	0.996	0.996	0.996	0.996

Appendix F: Results of line loading under contingency operating conditions

This appendix section documents the set of load flow line loading results under contingency operating conditions.

Table 25: Line Loading Load Flow Results (%) – HV Lines: Normal Conditions

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	9,7	9,7	9,7	9,8	9,8	9,8	10,1	10,4	10,5	10,6	10,6	10,8	11,5	11,9	12,0	12,0	12,4	12,6	12,6	12,7
Main SS/Golf SS_S2 66kV	0,755	8,8	8,8	8,8	8,8	8,9	8,9	9,2	9,4	9,5	9,6	9,6	9,8	10,5	10,8	10,9	10,9	11,2	11,4	11,5	11,5
Main SS/Markotter SS_S2 66kV	0,437	27,7	27,7	27,8	27,9	27,9	28,1	29,0	30,1	30,5	30,6	30,7	31,4	33,5	34,7	34,9	34,9	36,1	36,7	36,7	36,7
Main SS/University SS_S2 66kV	0,437	31,0	31,0	31,1	31,1	31,2	31,4	32,3	33,4	33,8	33,9	33,9	34,5	36,1	37,0	37,2	37,2	38,0	38,4	38,5	38,5
Markotter SS/Golf SS_S2 66kV	0,511	10,8	10,8	10,9	10,9	11,0	11,0	11,3	11,6	11,7	11,8	11,8	12,0	12,7	13,1	13,1	13,2	13,6	13,8	13,8	13,8
Markotter SS/Jan Marais SS_S2 66kV	0,235	21,4	21,4	21,3	21,3	21,3	21,4	22,1	22,5	22,6	22,6	22,5	22,5	22,0	21,7	21,7	21,7	21,3	21,1	21,1	21,1
Markotter SS/University SS_S2 66kV	0,511	4,1	4,1	4,0	4,0	4,0	4,0	4,1	4,1	4,1	4,1	4,1	4,0	3,8	3,6	3,6	3,6	3,5	3,4	3,4	3,4
University SS/Jan Marais SS_S2 66kV	0,235	11,3	11,3	11,4	11,4	11,4	11,4	12,4	13,1	13,2	13,3	13,3	13,9	15,7	16,7	16,8	16,9	18,0	18,5	18,5	18,5
University SS/Main SS_S2 66kV	0,437	31,0	31,0	31,1	31,1	31,2	31,4	32,3	33,4	33,8	33,9	33,9	34,5	36,1	37,0	37,2	37,2	38,0	38,4	38,5	38,5
University SS/Markotter SS 66kV	0,511	4,1	4,1	4,0	4,0	4,0	4,1	4,1	4,1	4,1	4,1	4,1	4,0	3,8	3,6	3,6	3,6	3,5	3,4	3,4	3,4

Table 26: Line Loading Load Flow Results (%) – HV Lines: Contingency on Golf SS/Markotter SS 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Main SS/Golf SS_S2 66kV	0,755	10.0	10.0	10.1	10.2	10.2	10.2	10.5	10.7	10.7	10.8	10.8	11.1	11.8	12.1	12.2	12.2	12.6	12.9	12.9	12.9
Main SS/Markotter SS_S2 66kV	0,437	23.9	23.9	23.9	23.9	24.0	24.2	24.9	26.0	26.4	26.5	26.5	27.1	29.0	30.0	30.2	30.2	31.2	31.7	31.7	31.7
Main SS/University SS_S2 66kV	0,437	28.1	28.2	28.2	28.2	28.3	28.4	29.3	30.3	30.7	30.8	30.8	31.3	32.7	33.5	33.6	33.6	34.3	34.7	34.7	34.7
Markotter SS/Golf SS_S2 66kV	0,511	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Markotter SS/Jan Marais SS_S2 66kV	0,235	21.5	21.5	21.4	21.4	21.4	21.5	22.3	22.6	22.6	22.6	22.6	22.5	21.9	21.5	21.5	21.5	21.0	20.8	20.8	20.8
Markotter SS/University SS_S2 66kV	0,511	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.1	4.1	4.0	3.7	3.5	3.5	3.5	3.2	3.1	3.1	3.1
University SS/Jan Marais SS_S2 66kV	0,235	11.9	11.9	12.0	12.0	12.0	12.0	13.0	13.7	13.9	13.9	13.9	14.4	15.9	16.7	16.8	16.9	17.8	18.2	18.2	18.2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University SS/Main SS_S2 66kV	0,437	28.1	28.2	28.2	28.2	28.3	28.4	29.3	30.3	30.7	30.8	30.8	31.3	32.7	33.5	33.6	33.6	34.3	34.7	34.7	34.7
University SS/Markotter SS 66kV	0,511	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.1	4.1	4.0	3.7	3.5	3.5	3.5	3.2	3.1	3.1	3.1

Table 27: Line Loading Load Flow Results (%) – HV Lines: Contingency on Main SS/Golf SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Main SS/Golf SS_S2 66kV	0,755	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main SS/Markotter SS_S2 66kV	0,437	34	34	34	35	35	35	36	37	38	38	38	39	41	43	43	43	45	45	45	45
Main SS/University SS_S2 66kV	0,437	35	35	35	35	35	35	36	37	38	38	38	39	41	42	42	42	43	43	43	43
Markotter SS/Golf SS_S2 66kV	0,511	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Markotter SS/Jan Marais SS_S2 66kV	0,235	13	13	13	13	13	13	14	14	14	14	14	13	12	12	11	11	11	10	10	10
Markotter SS/University SS_S2 66kV	0,511	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
University SS/Jan Marais SS_S2 66kV	0,235	19	19	19	19	20	20	21	22	22	22	22	23	25	26	27	27	28	29	29	29
University SS/Main SS_S2 66kV	0,437	35	35	35	35	35	35	36	37	38	38	38	39	41	42	42	42	43	43	43	43
University SS/Markotter SS 66kV	0,511	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 28: Line Loading Load Flow Results (%) – HV Lines: Contingency on Main SS/Markotter SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	14	14	14	14	14	14	15	15	15	15	15	16	17	17	18	18	18	18	18	18
Main SS/Golf SS_S2 66kV	0,755	16	16	16	16	16	16	16	17	17	17	17	18	19	19	19	19	20	20	21	21
Main SS/Markotter SS_S2 66kV	0,437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main SS/University SS_S2 66kV	0,437	50	50	50	51	51	51	53	54	55	55	55	56	60	61	62	62	63	64	64	64
Markotter SS/Golf SS_S2 66kV	0,511	15	15	15	15	15	15	16	16	17	17	17	17	18	19	19	19	19	20	20	20
Markotter SS/Jan Marais SS_S2 66kV	0,235	32	32	32	32	32	33	34	35	35	35	35	36	38	39	40	40	41	42	42	42
Markotter SS/University SS_S2 66kV	0,511	11	11	11	11	11	11	11	11	12	12	12	12	13	13	14	14	14	14	15	15

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University SS/Jan Marais SS_S2 66kV	0,235	35	35	36	36	36	36	38	39	40	40	40	41	45	47	47	47	50	51	51	51
University SS/Main SS_S2 66kV	0,437	35	35	35	35	35	35	36	37	38	38	38	39	41	42	42	42	43	43	43	43
University SS/Markotter SS 66kV	0,511	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 29: Line Loading Load Flow Results (%) – HV Lines: Contingency on Main SS/University SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Main SS/Golf SS_S2 66kV	0,755	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	18	19	19	19
Main SS/Markotter SS_S2 66kV	0,437	54	54	55	55	55	55	57	59	60	60	60	61	65	67	67	67	69	70	70	70
Main SS/University SS_S2 66kV	0,437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/Golf SS_S2 66kV	0,511	16	16	16	16	16	16	17	17	17	17	17	18	19	19	19	19	20	20	20	20
Markotter SS/Jan Marais SS_S2 66kV	0,235	59	59	59	59	60	60	62	64	64	64	64	65	66	67	67	67	68	68	68	68
Markotter SS/University SS_S2 66kV	0,511	18	18	18	18	18	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20
University SS/Jan Marais SS_S2 66kV	0,235	35	35	35	35	35	35	36	37	37	37	37	37	38	38	39	39	39	39	39	39
University SS/Main SS_S2 66kV	0,437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University SS/Markotter SS 66kV	0,511	18	18	18	18	18	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20

Table 30: Line Loading Load Flow Results (%) – HV Lines: Contingency on Markotter SS/Golf SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main SS/Golf SS_S2 66kV	0,755	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	13	13	13	13
Main SS/Markotter SS_S2 66kV	0,437	24	24	24	24	24	24	25	26	27	27	27	27	29	30	30	30	31	32	32	32
Main SS/University SS_S2 66kV	0,437	28	28	28	28	28	28	29	30	31	31	31	31	33	33	34	34	34	35	35	35
Markotter SS/Golf SS_S2 66kV	0,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/Jan Marais SS_S2 66kV	0,235	21	21	21	21	21	21	22	22	22	22	22	22	22	21	21	21	21	21	21	21

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter SS/University SS_S2 66kV	0,511	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3
University SS/Jan Marais SS_S2 66kV	0,235	13	13	13	13	13	13	14	14	15	15	15	15	17	17	17	17	18	19	19	19
University SS/Main SS_S2 66kV	0,437	28	28	28	28	28	28	29	30	31	31	31	31	33	33	34	34	34	35	35	35
University SS/Markotter SS 66kV	0,511	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 31: Line Loading Load Flow Results (%) – HV Lines: Contingency on Markotter SS/Jan Marais SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Main SS/Golf SS_S2 66kV	0,755	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10	10	11	11	11
Main SS/Markotter SS_S2 66kV	0,437	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	32	33	33	33	33
Main SS/University SS_S2 66kV	0,437	36	36	36	36	36	36	37	38	39	39	39	39	41	42	42	42	43	43	43	43
Markotter SS/Golf SS_S2 66kV	0,511	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	14	14	14	14
Markotter SS/Jan Marais SS_S2 66kV	0,235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter SS/University SS_S2 66kV	0,511	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9
University SS/Jan Marais SS_S2 66kV	0,235	32	32	32	32	32	33	34	35	36	36	36	36	37	38	38	38	38	39	39	39
University SS/Main SS_S2 66kV	0,437	36	36	36	36	36	36	37	38	39	39	39	39	41	42	42	42	43	43	43	43
University SS/Markotter SS 66kV	0,511	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9

Table 32: Line Loading Load Flow Results (%) – HV Lines: Contingency on Markotter SS/University SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	10	10	10	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13
Main SS/Golf SS_S2 66kV	0,755	9	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	12	12	12
Main SS/Markotter SS_S2 66kV	0,437	28	28	28	28	28	28	29	30	31	31	31	32	34	35	35	35	37	37	37	37
Main SS/University SS_S2 66kV	0,437	30	30	31	31	31	31	32	33	33	33	33	34	35	36	36	36	37	38	38	38
Markotter SS/Golf SS_S2 66kV	0,511	11	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	14	14	14	14

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter SS/Jan Marais SS_S2 66kV	0,235	22	22	22	22	22	22	23	24	24	24	23	23	22	22	22	22	21	21	21	21
Markotter SS/University SS_S2 66kV	0,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University SS/Jan Marais SS_S2 66kV	0,235	13	13	14	14	14	14	15	15	15	16	16	16	18	20	20	20	21	22	22	22
University SS/Main SS_S2 66kV	0,437	30	30	31	31	31	31	32	33	33	33	33	34	35	36	36	36	37	38	38	38
University SS/Markotter SS 66kV	0,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 33: Line Loading Load Flow Results (%) – HV Lines: Contingency on University SS/Jan Marais SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	9	9	10	10	10	10	10	10	10	10	10	11	11	12	12	12	12	12	12	12
Main SS/Golf SS_S2 66kV	0,755	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12
Main SS/Markotter SS_S2 66kV	0,437	29	29	29	29	29	30	31	32	32	32	32	33	35	37	37	37	38	39	39	39
Main SS/University SS_S2 66kV	0,437	29	29	29	29	29	30	30	31	32	32	32	32	34	34	35	35	35	36	36	36
Markotter SS/Golf SS_S2 66kV	0,511	11	11	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13
Markotter SS/Jan Marais SS_S2 66kV	0,235	32	32	32	32	32	33	34	35	35	36	36	36	37	38	38	38	38	39	39	39
Markotter SS/University SS_S2 66kV	0,511	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7	7	8	8	8	8
University SS/Jan Marais SS_S2 66kV	0,235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University SS/Main SS_S2 66kV	0,437	29	29	29	29	29	30	30	31	32	32	32	32	34	34	35	35	35	36	36	36
University SS/Markotter SS 66kV	0,511	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7	7	8	8	8	8

Table 34: Line Loading Load Flow Results (%) – HV Lines: Contingency on University SS/Main SS_S2 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Main SS/Golf SS_S2 66kV	0,755	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	18	19	19	19
Main SS/Markotter SS_S2 66kV	0,437	54	54	55	55	55	55	57	59	60	60	60	61	65	67	67	67	69	70	70	70
Main SS/University SS_S2 66kV	0,437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter SS/Golf SS_S2 66kV	0,511	16	16	16	16	16	16	17	17	17	17	17	18	19	19	19	19	20	20	20	20
Markotter SS/Jan Marais SS_S2 66kV	0,235	59	59	59	59	60	60	62	64	64	64	64	65	66	67	67	67	68	68	68	68
Markotter SS/University SS_S2 66kV	0,511	18	18	18	18	18	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20
University SS/Jan Marais SS_S2 66kV	0,235	35	35	35	35	35	35	36	37	37	37	37	37	38	38	39	39	39	39	39	39
University SS/Main SS_S2 66kV	0,437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University SS/Markotter SS 66kV	0,511	18	18	18	18	18	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20

Table 35: Line Loading Load Flow Results (%) – HV Lines: Contingency on University SS/Markotter SS 66kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf SS/Markotter SS 66kV	0,511	9	9	10	10	10	10	10	10	10	10	10	11	11	12	12	12	12	13	13	13
Main SS/Golf SS_S2 66kV	0,755	9	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	12	12	12
Main SS/Markotter SS_S2 66kV	0,437	28	28	28	28	28	29	29	31	31	31	31	32	34	35	35	35	37	37	37	37
Main SS/University SS_S2 66kV	0,437	30	30	30	30	31	31	32	33	33	33	33	34	35	36	36	36	37	38	38	38
Markotter SS/Golf SS_S2 66kV	0,511	11	11	11	11	11	11	11	11	12	12	12	12	13	13	13	13	13	14	14	14
Markotter SS/Jan Marais SS_S2 66kV	0,235	23	23	23	23	23	23	24	24	24	24	24	24	23	22	22	22	22	21	21	21
Markotter SS/University SS_S2 66kV	0,511	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
University SS/Jan Marais SS_S2 66kV	0,235	14	14	14	14	14	14	15	16	16	16	16	17	19	20	20	20	21	22	22	22
University SS/Main SS_S2 66kV	0,437	30	30	30	30	31	31	32	33	33	33	33	34	35	36	36	36	37	38	38	38
University SS/Markotter SS 66kV	0,511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Main: Devon Valley Ring 1

Table 36: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	68	73	85	92	93	94	101	108	114	118
Geluksoord RMU/SUB_6558 11kV	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Geluksoord RMU/Devon Valley SS 11kV	0.082	8	8	8	8	9	11	14	16	18	18	18	20	23	25	25	25	28	30	31	32
Selfords MS/Geluksoord RMU 11kV	0.082	4	4	4	4	5	6	8	9	10	10	10	11	13	14	14	14	15	16	17	18
RioolHuise MS/Kompos MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	9
Marcel MS/Sandhagen RMU 11kV	0.131	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	8	9	9
Sandhagen RMU/RioolHuise MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	9
Sandhagen MS/Selfords MS 11kV	0.082	3	3	3	3	3	4	5	5	6	6	6	6	8	8	8	8	9	10	10	11
Devon Valley SS/Marcel MS 11kV	0.131	19	19	19	19	22	28	35	41	44	45	45	49	57	62	63	64	69	74	79	81
Sandhagen RMU/Sandhagen MS 11kV	0.131	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3

Table 37: Line Loading Load Flow Results (%) – Main Lines: Geluksoord RMU/Devon Valley SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	68	73	85	92	93	94	101	108	114	118
Geluksoord RMU/SUB_6558 11kV	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Geluksoord RMU/Devon Valley SS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Selfords MS/Geluksoord RMU 11kV	0.082	4	4	4	4	4	5	6	8	8	8	8	9	11	11	12	12	13	14	14	15
RioolHuise MS/Kompos MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	9
Marcel MS/Sandhagen RMU 11kV	0.131	7	7	7	7	8	10	13	15	16	16	17	18	21	23	23	23	25	27	28	29
Sandhagen RMU/RioolHuise MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	9
Sandhagen MS/Selfords MS 11kV	0.082	5	5	5	5	6	8	9	11	12	12	12	13	16	17	17	17	19	20	21	22
Devon Valley SS/Marcel MS 11kV	0.131	23	23	24	24	27	35	44	51	55	56	56	61	72	78	79	79	86	92	98	101
Sandhagen RMU/Sandhagen MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	18	19	20	22	23	24

Table 38: Line Loading Load Flow Results (%) – Main Lines: Devon Valley SS/Marcel MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	69	74	86	92	94	94	102	109	115	102
Geluksoord RMU/SUB_6558 11kV	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Geluksoord RMU/Devon Valley SS 11kV	0.082	38	38	38	39	43	56	70	83	89	90	91	98	116	126	128	129	140	150	160	140
Selfords MS/Geluksoord RMU 11kV	0.082	34	34	35	35	39	51	64	75	80	82	83	89	106	114	116	117	127	137	146	127
RioolHuise MS/Kompos MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	8
Marcel MS/Sandhagen RMU 11kV	0.131	17	17	17	17	19	25	31	37	39	40	40	44	52	56	57	57	62	67	72	62
Sandhagen RMU/RioolHuise MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	8
Sandhagen MS/Selfords MS 11kV	0.082	32	33	33	34	37	48	61	72	77	78	79	85	101	109	111	112	121	131	139	121
Devon Valley SS/Marcel MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandhagen RMU/Sandhagen MS 11kV	0.131	18	18	18	19	21	27	34	40	43	43	44	47	56	61	62	62	67	73	77	67

Table 39: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Devon Valley SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Devon Valley SS 11kV	0.311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geluksoord RMU/SUB_6558 11kV	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Geluksoord RMU/Devon Valley SS 11kV	0.082	8	8	8	8	9	11	14	17	18	18	18	20	24	25	26	26	28	31	32	33
Selfords MS/Geluksoord RMU 11kV	0.082	4	4	4	4	5	6	8	9	10	10	10	11	13	14	14	14	15	17	18	18
RioolHuise MS/Kompos MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	8	8	8	9	9	10
Marcel MS/Sandhagen RMU 11kV	0.131	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	9	9	9
Sandhagen RMU/RioolHuise MS 11kV	0.082	2	2	2	2	3	3	4	5	5	5	5	6	7	7	8	8	8	9	9	10
Sandhagen MS/Selfords MS 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	8	9	9	9	10	11	11
Devon Valley SS/Marcel MS 11kV	0.131	19	19	19	20	22	28	35	42	45	46	46	50	59	64	65	65	71	77	81	84
Sandhagen RMU/Sandhagen MS 11kV	0.131	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3

Devon Valley Ring 2

Table 40: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	18	19	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	72	76	79
Loerie MS 11kV	0.207	1	1	2	2	2	2	3	3	3	3	3	4	4	5	5	5	5	6	6	6
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	6	6	6	7	7	9	12	14	15	15	15	16	19	21	21	21	23	24	26	27
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	9	9	9	9	10	14	17	20	21	22	22	24	28	30	30	31	33	36	38	39
Jan Frederik MS 11kV	0.207	1	1	2	2	2	2	3	3	3	3	3	4	4	5	5	5	5	6	6	6
KleinVallei MS/Flamingo MS 11kV	0.207	3	3	3	3	3	4	6	7	7	7	7	8	9	10	10	10	11	12	12	13
Flamingo MS/Tortelduif SS 11kV	0.207	5	5	5	5	6	7	9	11	11	12	12	13	15	16	16	16	18	19	20	21
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	5	5	5	5	6	7	9	11	12	12	12	13	15	16	17	17	18	19	21	21
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	68	73	85	92	93	94	101	108	114	118

Table 41: Line Loading Load Flow Results (%) – Main Lines: Devon Valley SS/Tortelduif SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Frederik MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KleinVallei MS/Flamingo MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flamingo MS/Tortelduif SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Industrial SS/Devon Valley SS 11kV	0.311	21	22	22	22	24	29	35	40	43	44	44	47	54	58	59	59	64	68	72	74

Table 42: Line Loading Load Flow Results (%) (%) – Main Lines: Tortelduif SS/Hamerkop 2 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	9	9	10	10	11	14	17	20	22	22	22	24	28	31	31	31	34	36	39	40
Loerie MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Frederik MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KleinVallei MS/Flamingo MS 11kV	0.207	3	3	3	3	3	4	6	7	7	7	7	8	9	10	10	10	11	12	12	13
Flamingo MS/Tortelduif SS 11kV	0.207	5	5	5	5	6	7	9	11	11	12	12	13	15	16	16	16	18	19	20	21
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Industrial SS/Devon Valley SS 11kV	0.311	27	27	27	27	30	37	45	52	55	56	56	60	70	75	76	77	83	88	93	96

Table 43: Line Loading Load Flow Results (%) – Main Lines: Flamingo MS/Tortelduif SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	14	14	14	14	16	20	25	30	32	32	32	35	41	45	45	46	49	53	56	58
Loerie MS 11kV	0.207	1	1	2	2	2	2	3	3	3	3	3	4	4	5	5	5	5	6	6	6
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	6	6	6	7	7	9	12	14	15	15	15	16	19	21	21	21	23	24	26	27
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	9	9	9	9	10	14	17	20	21	22	22	24	28	30	30	31	33	35	38	39

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Frederik MS 11kV	0.207	1	1	2	2	2	2	3	3	3	3	3	4	4	5	5	5	5	6	6	6
KleinVallei MS/Flamingo MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flamingo MS/Tortelduif SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	5	5	5	5	6	7	9	11	12	12	12	13	15	16	17	17	18	19	21	21
Main Industrial SS/Devon Valley SS 11kV	0.311	29	29	29	30	33	40	49	57	60	61	62	66	77	83	84	85	91	97	103	106

Devon Valley Ring 3

Table 44: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Devon Valley SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	19	19	19	19	21	28	35	41	44	45	45	49	57	62	63	64	69	74	79	81
Loerie MS 11kV	0.207	1	1	2	2	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	6
KleinVallei MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loerie MS 11kV(1)	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0.207	6	6	6	7	7	9	12	14	15	15	15	16	19	21	21	21	23	25	27	28
Tortelduif SS/Hamerkop 2 MS 11kV	0.207	9	9	9	10	11	14	17	20	22	22	22	24	28	31	31	31	34	37	39	40
Jan Frederik MS 11kV	0.207	1	1	2	2	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	6
KleinVallei MS/Flamingo MS 11kV	0.207	3	3	3	3	3	4	6	7	7	7	7	8	9	10	10	10	11	12	13	13
Flamingo MS/Tortelduif SS 11kV	0.207	5	5	5	5	6	7	9	11	12	12	12	13	15	16	17	17	18	20	21	22
Hamerkop 1 MS/Jan Frederik MS 11kV	0.207	5	5	5	5	6	7	9	11	12	12	12	13	16	17	17	17	19	20	21	22
Main Industrial SS/Devon Valley SS 11kV	0.311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 45: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	18	19	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	72	76	79

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Hoep Hoep MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hoep Hoep MS/Swawel MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
Swawel MS/Tortelduif SS 11kV	0.207	5	5	5	5	5	7	8	10	11	11	11	12	14	15	15	15	16	18	19	19
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	68	73	85	92	93	94	101	108	114	118

Table 46: Line Loading Load Flow Results (%) – Main Lines: Devon Valley SS/Hoep Hoep MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	18	19	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	72	76	79
Devon Valley SS/Hoep Hoep MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hoep Hoep MS/Swawel MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
Swawel MS/Tortelduif SS 11kV	0.207	5	5	5	5	5	7	8	10	11	11	11	12	14	15	15	15	16	18	19	19
Main Industrial SS/Devon Valley SS 11kV	0.311	32	32	32	33	36	44	54	63	67	68	68	73	85	92	93	94	101	108	114	118

Table 47: : Line Loading Load Flow Results (%) – Main Lines: Swawel MS/Tortelduif SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	14	14	14	15	16	21	26	30	33	33	33	36	42	46	47	47	51	54	58	59
Devon Valley SS/Hoep Hoep MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hoep Hoep MS/Swawel MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swawel MS/Tortelduif SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Industrial SS/Devon Valley SS 11kV	0.311	29	29	30	30	33	41	50	57	61	62	62	67	78	84	85	85	92	98	104	107

Table 48: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Devon Valley SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Devon Valley SS/Tortelduif SS 11kV	0.207	19	19	19	19	21	28	35	41	44	45	45	49	57	62	63	64	69	74	79	81
Devon Valley SS/Hoep Hoep MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hoep Hoep MS/Swawel MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
Swawel MS/Tortelduif SS 11kV	0.207	5	5	5	5	5	7	8	10	11	11	11	12	14	15	15	15	17	18	19	20
Main Industrial SS/Devon Valley SS 11kV	0.311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring 1 - Begraf/Distel

Table 49: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	25	25	25	25	25	27	29	31	31	31	32	33	35	36	36	36	38	39	40	41
Main Industrial SS/Begraafplaas SS(12)	0.4	13	13	13	13	14	16	18	20	21	22	22	23	26	28	28	28	30	32	33	34
Begraafplaas SS/Liberte MS 11kV	0.131	31	31	31	31	31	31	32	32	32	32	32	32	32	33	33	33	33	33	33	33
Begraafplaas SS/Distell SS 11kV	0.245	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33
Stellenoord 1 MS/Vineyard MS 11kV	0.207	18	18	18	18	17	17	16	16	16	15	15	15	14	14	14	14	13	13	13	12
Liberte MS/Cabernet MS 11kV	0.131	31	31	31	31	31	31	31	32	32	32	32	32	32	32	32	32	32	32	32	33
Stellenoord 2 MS 11kV	0.131	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
Vineyard MS/Distell SS 11kV	0.131	22	22	22	22	21	19	16	13	12	12	11	10	7	6	5	5	5	5	6	7
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	29	29	29	29	29	28	28	27	27	27	27	27	26	26	26	26	25	25	24	24
Cabernet MS 11kV	0.131	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32

Table 50: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS(12)	0.4	16	16	17	17	17	20	23	25	26	27	27	28	32	33	34	34	36	38	40	41
Begraafplaas SS/Liberte MS 11kV	0.131	51	51	51	52	52	54	55	57	58	58	58	59	61	62	63	63	64	65	67	67
Begraafplaas SS/Distell SS 11kV	0.245	8	8	8	9	9	12	15	18	19	19	20	21	25	27	27	27	30	32	34	35
Stellenoord 1 MS/Vineyard MS 11kV	0.207	30	30	30	30	31	31	31	32	32	32	32	32	33	33	33	33	33	34	34	34
Liberte MS/Cabernet MS 11kV	0.131	51	51	51	51	52	53	55	57	57	58	58	59	61	62	62	62	64	65	66	67
Stellenoord 2 MS 11kV	0.131	51	51	51	51	52	53	55	56	57	57	57	58	60	61	61	61	63	64	65	66
Vineyard MS/Distell SS 11kV	0.131	42	42	42	42	42	40	39	38	37	37	37	36	34	33	33	33	32	31	30	30
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	49	49	49	49	50	50	51	52	53	53	53	53	55	55	56	56	56	57	58	58
Cabernet MS 11kV	0.131	51	51	51	51	52	53	55	56	57	57	57	58	60	61	61	61	63	64	65	66

Table 51: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS(12)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	26	26	26	26	27	29	31	33	34	34	34	35	38	40	40	40	42	43	45	45
Main Industrial SS/Begraafplaas SS(12)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Begraafplaas SS/Liberte MS 11kV	0.131	20	20	20	20	19	17	15	13	12	12	12	11	8	7	7	7	5	4	2	2
Begraafplaas SS/Distell SS 11kV	0.245	35	35	35	35	35	35	36	36	37	37	37	37	38	38	38	38	39	39	39	40
Stellenoord 1 MS/Vineyard MS 11kV	0.207	10	10	10	10	10	8	6	4	3	3	3	2	1	2	3	3	4	6	7	8
Liberte MS/Cabernet MS 11kV	0.131	20	20	19	19	19	17	15	13	12	12	12	10	8	6	6	6	5	3	2	1
Stellenoord 2 MS 11kV	0.131	19	19	19	19	18	16	14	12	11	11	11	10	7	6	5	5	4	2	1	0
Vineyard MS/Distell SS 11kV	0.131	11	11	11	10	9	4	3	7	9	10	10	13	19	23	23	24	27	31	35	37
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	18	18	17	17	16	14	11	8	7	7	7	5	2	1	1	1	3	5	7	8
Cabernet MS 11kV	0.131	19	19	19	19	18	16	14	12	11	11	11	10	7	6	5	5	4	2	1	0

Table 52: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Liberte MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	29	29	29	29	30	31	33	35	36	36	36	37	39	40	41	41	42	44	45	46
Main Industrial SS/Begraafplaas SS(12)	0.4	7	7	7	7	8	10	12	14	15	16	16	17	20	22	22	22	24	26	27	28
Begraafplaas SS/Liberte MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Begraafplaas SS/Distell SS 11kV	0.245	39	39	39	39	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40
Stellenoord 1 MS/Vineyard MS 11kV	0.207	2	2	2	2	2	3	4	5	5	5	5	5	6	7	7	7	7	8	8	9
Liberte MS/Cabernet MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Stellenoord 2 MS 11kV	0.131	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
Vineyard MS/Distell SS 11kV	0.131	9	9	9	9	10	13	17	20	21	21	21	23	27	29	30	30	32	35	37	38
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	8	9	9
Cabernet MS 11kV	0.131	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2

Table 53: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Distell SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	5	5	5	5	6	7	9	11	12	12	12	13	15	16	17	17	18	19	20	21
Main Industrial SS/Begraafplaas SS(12)	0.4	16	16	16	16	17	19	21	23	24	25	25	26	29	31	31	31	33	35	36	37
Begraafplaas SS/Liberte MS 11kV	0.131	47	47	47	47	47	48	48	48	48	48	48	48	49	49	49	49	49	49	50	50
Begraafplaas SS/Distell SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stellenoord 1 MS/Vineyard MS 11kV	0.207	28	28	28	28	28	27	26	26	26	26	26	25	25	24	24	24	24	23	23	23
Liberte MS/Cabernet MS 11kV	0.131	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	49	49	49	49
Stellenoord 2 MS 11kV	0.131	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48
Vineyard MS/Distell SS 11kV	0.131	38	38	38	38	37	34	31	29	27	27	27	25	22	20	19	19	17	15	13	12
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	45	45	45	45	45	44	44	43	43	43	43	43	42	42	42	42	41	41	41	41
Cabernet MS 11kV	0.131	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48

Table 54: Line Loading Load Flow Results (%) – Main Lines: Distell SS/Polkadraai SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	46	46	46	46	47	50	53	55	56	57	57	58	62	64	64	64	66	69	70	71
Main Industrial SS/Begraafplaas SS(12)	0.4	19	19	19	19	20	22	25	28	29	29	29	30	34	36	36	36	38	40	42	43
Begraafplaas SS/Liberte MS 11kV	0.131	65	65	65	65	65	67	69	70	71	71	71	72	74	75	76	76	77	78	79	80
Begraafplaas SS/Distell SS 11kV	0.245	67	67	67	67	68	69	71	72	73	73	73	74	76	77	78	78	79	80	81	82
Stellenoord 1 MS/Vineyard MS 11kV	0.207	39	39	39	39	39	39	40	40	40	40	40	40	41	41	41	41	42	42	42	42
Liberte MS/Cabernet MS 11kV	0.131	64	64	64	65	65	67	68	70	70	71	71	72	74	75	75	75	76	78	79	79
Stellenoord 2 MS 11kV	0.131	64	64	64	64	65	66	68	69	70	70	70	71	73	74	74	74	76	77	78	78
Vineyard MS/Distell SS 11kV	0.131	56	56	56	56	55	54	53	51	51	51	51	50	48	47	47	47	46	45	45	44
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	62	62	62	62	63	64	65	66	66	66	66	67	68	69	69	69	69	70	71	71
Cabernet MS 11kV	0.131	64	64	64	64	65	66	68	69	70	70	70	71	73	74	74	74	76	77	78	78

Table 55: Line Loading Load Flow Results (%) – Main Lines: Vineyard MS/Distell SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	28	28	28	28	28	29	31	32	33	33	33	34	35	36	37	37	38	39	40	40
Main Industrial SS/Begraafplaas SS(12)	0.4	8	8	9	9	10	12	15	18	19	20	20	21	25	27	27	28	30	32	34	35
Begraafplaas SS/Liberte MS 11kV	0.131	9	9	9	9	10	13	17	20	21	21	21	23	27	29	30	30	32	35	37	38
Begraafplaas SS/Distell SS 11kV	0.245	37	37	37	37	37	36	35	35	35	35	34	34	33	33	33	33	32	32	32	31
Stellenoord 1 MS/Vineyard MS 11kV	0.207	4	4	4	4	4	5	7	8	8	9	9	9	11	12	12	12	13	14	15	15
Liberte MS/Cabernet MS 11kV	0.131	9	9	9	9	10	13	16	19	21	21	21	23	27	29	29	29	32	34	36	37
Stellenoord 2 MS 11kV	0.131	9	9	9	9	10	13	16	19	20	20	20	22	26	28	28	29	31	33	35	36
Vineyard MS/Distell SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0.131	7	7	7	7	8	10	13	15	16	16	16	18	21	22	23	23	25	26	28	29
Cabernet MS 11kV	0.131	9	9	9	9	10	13	16	19	20	20	20	22	26	28	28	29	31	33	35	36

Ring 2 - Begraf/Lower Dorp

Table 56: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Industrial SS/Begraafplaas SS(12)	0.4	22	22	22	22	23	26	29	32	33	33	33	35	39	41	41	41	43	46	48	49
Begraafplaas SS/Lower Dorp SS 11kV	0.4	11	11	11	11	12	13	14	15	16	16	16	17	19	19	20	20	21	22	23	23
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	11	11	12	12	12	13	15	16	16	17	17	17	19	20	20	20	21	22	23	24
WPK MS/Lower Dorp SS 11kV	0.207	38	38	38	38	39	42	45	48	50	50	50	52	56	58	58	58	61	63	65	66
KWV Park MS/Sonop Wyne RMU 11kV	0.207	34	34	34	34	34	36	37	39	39	39	40	40	42	43	43	44	45	46	47	47
Sonop Wyne RMU 11kV	0.207	34	34	34	34	34	36	37	39	39	39	39	40	42	43	43	44	45	46	47	47
WPK MS 11kV	0.207	34	34	34	34	34	36	37	39	39	39	39	40	42	43	43	44	45	46	47	47
Bosmans Crossing MS/KWV Park MS 11kV	0.207	27	27	27	27	27	26	25	24	24	24	24	23	22	22	22	21	21	20	20	19
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	25	25	25	25	24	22	21	19	18	18	18	17	15	14	14	14	12	11	10	10

Table 57: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS(12)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	25	25	25	25	26	29	31	33	34	35	35	36	39	41	41	42	44	45	47	48
Main Industrial SS/Begraafplaas SS(12)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Begraafplaas SS/Lower Dorp SS 11kV	0.4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	8
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7	7	7	8	8	8
WPK MS/Lower Dorp SS 11kV	0.207	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	7	7	7
KWV Park MS/Sonop Wyne RMU 11kV	0.207	4	4	4	4	4	2	0	2	2	2	3	4	6	7	7	7	9	10	11	12
Sonop Wyne RMU 11kV	0.207	4	4	4	4	4	2	0	2	2	2	3	4	6	7	7	7	9	10	11	12
WPK MS 11kV	0.207	4	4	4	4	4	2	0	2	2	2	3	4	6	7	7	7	9	10	11	12
Bosmans Crossing MS/KWV Park MS 11kV	0.207	2	2	3	3	4	8	12	16	18	18	18	21	26	29	29	30	33	36	39	40
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	5	5	5	5	7	12	17	21	23	24	24	27	33	37	38	38	42	45	49	50

Table 58: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Lower Dorp SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	21	22	22	22	24	26	28	29	29	29	30	32	34	34	34	36	37	38	39
Main Industrial SS/Begraafplaas SS(12)	0.4	15	15	15	15	16	18	20	23	24	24	24	25	28	30	30	30	32	33	35	36
Begraafplaas SS/Lower Dorp SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	12	12	12	12	12	14	16	17	18	18	18	19	21	22	22	22	23	25	26	26
WPK MS/Lower Dorp SS 11kV	0.207	17	17	17	17	18	19	20	21	21	21	21	22	23	24	24	24	25	26	27	27
KWV Park MS/Sonop Wyne RMU 11kV	0.207	13	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	9	9	9	9
Sonop Wyne RMU 11kV	0.207	13	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	9	9	9	9
WPK MS 11kV	0.207	13	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	9	9	9	9
Bosmans Crossing MS/KWV Park MS 11kV	0.207	6	6	6	6	5	3	2	4	5	6	6	7	11	13	13	13	15	18	19	20
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	4	4	4	4	3	3	6	9	11	11	11	13	18	21	21	21	24	27	29	31

Table 59: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Lower Dorp SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	22	22	22	22	24	26	28	29	29	29	30	33	34	34	34	36	37	38	39
Main Industrial SS/Begraafplaas SS(12)	0.4	15	15	15	15	16	18	20	23	23	24	24	25	28	29	30	30	32	33	35	36
Begraafplaas SS/Lower Dorp SS 11kV	0.4	12	12	12	12	12	14	15	17	18	18	18	19	21	22	22	22	23	25	26	26
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WPK MS/Lower Dorp SS 11kV	0.207	17	17	17	17	17	18	20	21	21	21	21	22	23	24	24	24	25	26	27	27
KWV Park MS/Sonop Wyne RMU 11kV	0.207	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	10	9	9	9	8
Sonop Wyne RMU 11kV	0.207	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	10	9	9	9	8
WPK MS 11kV	0.207	13	13	13	13	12	12	11	11	11	11	11	10	10	10	10	10	9	9	9	8
Bosmans Crossing MS/KWV Park MS 11kV	0.207	6	6	6	6	5	3	2	4	5	6	6	7	11	13	13	13	16	18	20	21
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	4	4	4	4	3	3	6	9	11	11	12	14	18	21	21	22	25	27	30	31

Table 60: Line Loading Load Flow Results (%) – Main Lines: WPK MS/Lower Dorp SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	26	26	26	26	27	29	31	33	34	34	34	35	38	40	40	40	42	44	45	46
Main Industrial SS/Begraafplaas SS(12)	0.4	12	12	12	12	13	14	17	18	19	19	20	21	23	25	25	25	27	28	29	30
Begraafplaas SS/Lower Dorp SS 11kV	0.4	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	6	6	6
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	2	2	2	2	2	2	3	3	4	4	4	4	5	5	5	5	5	6	6	6
WPK MS/Lower Dorp SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Park MS/Sonop Wyne RMU 11kV	0.207	4	4	5	5	5	7	8	10	10	11	11	11	14	15	15	15	16	17	18	19
Sonop Wyne RMU 11kV	0.207	4	4	5	5	5	7	8	10	10	11	11	11	14	15	15	15	16	17	18	19
WPK MS 11kV	0.207	4	4	5	5	5	7	8	10	10	11	11	11	14	15	15	15	16	17	18	19
Bosmans Crossing MS/KWV Park MS 11kV	0.207	11	11	11	11	13	16	20	24	26	26	26	29	34	36	37	37	40	43	46	47
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	14	14	14	14	16	20	25	29	32	32	32	35	41	44	45	45	49	53	56	58

Table 61: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Bosmans Crossing MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	22	22	22	22	23	24	25	26	26	26	26	27	28	29	29	29	30	30	31	31
Main Industrial SS/Begraafplaas SS(12)	0.4	14	14	15	15	16	19	22	25	26	26	26	28	32	34	34	35	37	39	41	42
Begraafplaas SS/Lower Dorp SS 11kV	0.4	5	5	5	5	6	7	9	11	11	12	12	13	15	16	16	16	18	19	20	21
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	5	5	5	5	6	7	9	11	12	12	12	13	15	17	17	17	18	20	21	21
WPK MS/Lower Dorp SS 11kV	0.207	13	14	14	14	15	20	25	29	31	32	32	35	41	44	45	45	49	53	56	58
KWV Park MS/Sonop Wyne RMU 11kV	0.207	9	9	9	9	10	13	17	20	21	22	22	23	28	30	30	30	33	35	37	39
Sonop Wyne RMU 11kV	0.207	9	9	9	9	10	13	17	20	21	22	22	23	28	30	30	30	33	35	37	39
WPK MS 11kV	0.207	9	9	9	9	10	13	17	20	21	22	22	23	28	30	30	30	33	35	37	39
Bosmans Crossing MS/KWV Park MS 11kV	0.207	3	3	3	3	3	4	5	5	6	6	6	6	8	8	8	8	9	10	10	11
Begraafplaas SS/Bosmans Crossing MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring 2 - Begraf/Lower Dorp

Table 62: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	21	21	21	22	23	25	27	28	28	28	29	31	33	33	33	34	36	37	38
Millinia Park SS/Stellentia RMU 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	7	7	7	7	7	8	9	10	10	10	10	11	12	12	12	13	13	14	14	15
Lower Dorp SS/Lower Dorp MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	19	19	20	22	23	24
Ruper Museum MS/Millinia Park SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	16	16	16	16	17	19	21	23	24	25	25	26	29	31	31	31	33	35	36	37
Lower Dorp MS/Blersch MS 11kV	0.131	4	4	4	4	5	6	8	9	10	10	10	11	12	13	14	14	15	16	17	17
Blersch MS/Ruper Museum MS 11kV	0.131	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Stellentia RMU/Lower Dorp SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
Begraafplaas SS/Lower Dorp SS 11kV	0.4	6	6	7	7	7	8	9	9	10	10	10	10	11	12	12	12	13	14	14	14

Table 63: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Millinia Park SS/Stellentia RMU 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	11	11	12	12	12	13	15	16	16	17	17	17	19	20	20	20	21	22	23	24
Lower Dorp SS/Lower Dorp MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	19	19	20	22	23	24

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Ruper Museum MS/Millinia Park SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	22	22	22	22	23	26	29	32	33	33	33	35	39	41	41	41	43	46	48	49
Lower Dorp MS/Blersch MS 11kV	0.131	4	4	4	4	5	6	8	9	10	10	10	11	13	14	14	14	15	16	17	17
Blersch MS/Ruper Museum MS 11kV	0.131	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Stellentia RMU/Lower Dorp SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
Begraafplaas SS/Lower Dorp SS 11kV	0.4	11	11	11	11	12	13	14	15	16	16	16	17	19	19	20	20	21	22	23	23

Table 64: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Lower Dorp SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	21	22	22	22	24	26	28	29	29	29	30	32	34	34	34	36	37	38	39
Millinia Park SS/Stellentia RMU 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	12	12	12	12	12	14	16	17	18	18	18	19	21	22	22	22	23	25	26	26
Lower Dorp SS/Lower Dorp MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	19	19	20	22	23	24
Ruper Museum MS/Millinia Park SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	15	15	15	15	16	18	20	23	24	24	24	25	28	30	30	30	32	33	35	36
Lower Dorp MS/Blersch MS 11kV	0.131	4	4	4	4	5	6	8	9	10	10	10	11	13	13	14	14	15	16	17	17
Blersch MS/Ruper Museum MS 11kV	0.131	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Stellentia RMU/Lower Dorp SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
Begraafplaas SS/Lower Dorp SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 65: Line Loading Load Flow Results (%) – Main Lines: Stellentia RMU/Lower Dorp SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	21	21	21	22	23	25	27	28	28	28	29	31	33	33	33	34	36	37	38
Millinia Park SS/Stellentia RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	7	7	7	7	7	8	9	10	10	10	10	11	12	12	12	13	13	14	14	15
Lower Dorp SS/Lower Dorp MS 11kV	0.131	7	7	7	8	8	11	14	16	17	17	17	19	22	24	24	24	26	28	30	31
Ruper Museum MS/Millinia Park SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	16	16	16	16	17	19	21	23	24	25	25	26	29	31	31	31	33	35	36	37
Lower Dorp MS/Blersch MS 11kV	0.131	6	6	6	6	7	9	11	13	14	14	14	15	18	19	19	20	21	23	24	25
Blersch MS/Ruper Museum MS 11kV	0.131	2	2	2	2	3	3	4	5	5	5	5	6	7	7	7	7	8	8	9	9
Stellentia RMU/Lower Dorp SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Begraafplaas SS/Lower Dorp SS 11kV	0.4	6	6	7	7	7	8	9	9	10	10	10	10	11	12	12	12	13	14	14	14

Tble 66: Line Loading Load Flow Results (%) – Main Lines: Begraafplaas SS/Lower Dorp SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	22	22	22	22	24	26	28	29	29	29	30	33	34	34	34	36	37	38	39
Millinia Park SS/Stellentia RMU 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Lower Dorp MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	19	19	20	22	23	24
Ruper Museum MS/Millinia Park SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	15	15	15	15	16	18	20	23	23	24	24	25	28	29	30	30	32	33	35	36

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Lower Dorp MS/Blersch MS 11kV	0.131	4	4	4	4	5	6	8	9	10	10	10	11	13	13	14	14	15	16	17	17
Blersch MS/Ruper Museum MS 11kV	0.131	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Stellentia RMU/Lower Dorp SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
Begraafplaas SS/Lower Dorp SS 11kV	0.4	12	12	12	12	12	14	15	17	18	18	18	19	21	22	22	22	23	25	26	26

Table 67: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Begraafplaas SS(12)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	25	25	25	25	26	29	31	33	34	35	35	36	39	41	41	42	44	45	47	48
Millinia Park SS/Stellentia RMU 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7	7	7	8	8	8
Lower Dorp SS/Lower Dorp MS 11kV	0.131	6	6	6	6	6	8	10	12	13	13	13	14	17	18	19	19	20	22	23	24
Ruper Museum MS/Millinia Park SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	5	5	6	6	6	6	7	7	7
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp MS/Blersch MS 11kV	0.131	4	4	4	4	5	6	8	9	10	10	10	11	13	14	14	14	15	16	17	18
Blersch MS/Ruper Museum MS 11kV	0.131	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Stellentia RMU/Lower Dorp SS 11kV	0.131	2	2	2	2	2	3	3	4	4	4	4	4	5	6	6	6	6	7	7	7
Begraafplaas SS/Lower Dorp SS 11kV	0.4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	8

Table 68: Line Loading Load Flow Results (%) – Main Lines: Lower Dorp SS/Lower Dorp MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Begraafplaas SS 11kV	0.4	21	21	21	21	22	23	25	27	28	28	28	29	31	33	33	33	34	36	37	38
Millinia Park SS/Stellentia RMU 11kV	0.131	7	7	7	8	8	11	14	16	17	17	17	19	22	24	24	24	26	28	30	31

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
SUB_6549/Stellentia RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Dorp SS/Oude Molen RMU 11kV	0.082	3	3	3	3	3	4	5	6	6	6	6	7	8	9	9	9	10	10	11	11
Begraafplaas SS/Lower Dorp SS 11kV(1)	0.4	7	7	7	7	7	8	9	10	10	10	10	11	12	12	12	13	13	14	14	15
Lower Dorp SS/Lower Dorp MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ruper Museum MS/Millinia Park SS 11kV	0.131	7	7	7	8	8	11	14	16	17	17	17	19	22	24	24	24	26	28	30	31
SUB_6552/Oude Molen RMU 11kV	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Begraafplaas SS(12)	0.4	16	16	16	16	17	19	21	23	24	25	25	26	29	31	31	31	33	35	36	37
Lower Dorp MS/Blersch MS 11kV	0.131	2	2	2	2	2	2	3	3	3	4	4	4	5	5	5	5	5	6	6	6
Blersch MS/Ruper Museum MS 11kV	0.131	5	5	5	5	6	8	10	11	12	12	12	13	16	17	17	17	19	20	21	22
Stellentia RMU/Lower Dorp SS 11kV	0.131	7	7	7	8	8	11	14	16	17	17	17	19	22	24	24	24	26	28	30	31
Begraafplaas SS/Lower Dorp SS 11kV	0.4	6	6	7	7	7	8	9	9	10	10	10	10	11	12	12	12	13	14	14	14

Ring 1 - Polkadraai/Longlands

Table 69: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/Longlands RMU 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai MS/Recycling Plant MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai SS/Polkadraai MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recycling Plant MS/Longlands RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Polkadraai SS 11kV 1	0.4	34	34	34	34	35	38	41	44	45	46	46	48	51	54	54	54	56	59	61	62
Main Industrial SS/Polkadraai SS 11kV 2	0.4	28	28	28	29	32	41	51	60	65	66	66	71	84	91	92	93	101	108	115	119

Table 70: Line Loading Load Flow Results (%) – Main Lines: Polkadraai SS/Longlands RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/Longlands RMU 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polkadraai MS/Recycling Plant MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai SS/Polkadraai MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recycling Plant MS/Longlands RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Polkadraai SS 11kV 1	0.4	34	34	34	34	35	38	41	44	45	46	46	48	51	53	54	54	56	59	61	62
Main Industrial SS/Polkadraai SS 11kV 2	0.4	28	28	28	29	32	41	51	60	65	66	66	71	84	91	93	93	101	108	115	119

Table 71: Line Loading Load Flow Results (%) – Main Lines: Polkadraai SS/Polkadraai MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/Longlands RMU 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai MS/Recycling Plant MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polkadraai SS/Polkadraai MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recycling Plant MS/Longlands RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Polkadraai SS 11kV 1	0.4	34	34	34	34	35	38	41	44	45	46	46	48	51	54	54	54	56	59	61	62
Main Industrial SS/Polkadraai SS 11kV 2	0.4	28	28	28	29	32	41	51	60	65	66	66	71	84	91	92	93	101	108	115	119

Table 72: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Polkadraai SS 11kV 1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/Longlands RMU 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai MS/Recycling Plant MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai SS/Polkadraai MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recycling Plant MS/Longlands RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Polkadraai SS 11kV 1	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Polkadraai SS 11kV 2	0.4	28	28	28	29	32	41	51	60	65	66	66	71	84	91	93	93	101	109	115	119

Table 73: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Polkadraai SS 11kV 2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/Longlands RMU 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai MS/Recycling Plant MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Polkadraai SS/Polkadraai MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Recycling Plant MS/Longlands RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Main Industrial SS/Polkadraai SS 11kV 1	0.4	34	34	34	34	35	38	41	44	45	46	46	47	51	53	54	54	56	59	60	62
Main Industrial SS/Polkadraai SS 11kV 2	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring 2 - Polkadraai

Table 74: Line Loading Load Flow Results (%) – Main Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/MBR 1 MS 11kV	0.245	32	32	32	33	37	47	59	70	74	76	76	82	97	105	106	107	116	125	132	136
Dewatering MS/Polkadraai SS 11kV	0.245	13	13	14	14	15	20	25	29	31	32	32	34	40	44	44	45	48	52	55	57
MBR 2 MS/Dewatering MS 11kV	0.245	5	5	5	5	5	7	9	11	11	11	12	13	15	16	16	17	18	20	21	22
MBR 1 MS/MBR 2 MS 11kV	0.245	18	18	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	72	77	79
Main Industrial SS/Polkadraai SS 11kV 1	0.4	32	32	33	33	35	41	48	54	56	57	57	61	69	74	75	75	80	85	89	92
Main Industrial SS/Polkadraai SS 11kV 2	0.4	30	30	30	30	32	38	44	49	52	53	53	56	64	68	69	69	74	78	82	85

Table 75: Line Loading Load Flow Results (%) – Main Lines: Polkadraai SS/MBR 1 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/MBR 1 MS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering MS/Polkadraai SS 11kV	0.245	45	45	46	47	52	67	84	99	106	108	109	117	138	150	152	153	166	178	189	195
MBR 2 MS/Dewatering MS 11kV	0.245	27	27	28	28	31	40	50	59	64	65	65	70	83	90	91	92	99	107	113	117
MBR 1 MS/MBR 2 MS 11kV	0.245	13	14	14	14	16	20	25	29	32	32	32	35	41	45	45	45	49	53	56	58
Main Industrial SS/Polkadraai SS 11kV 1	0.4	32	32	33	33	35	41	48	54	56	57	58	61	69	74	75	75	80	85	90	92
Main Industrial SS/Polkadraai SS 11kV 2	0.4	30	30	30	30	32	38	44	50	52	53	53	56	64	68	69	69	74	79	83	85

Table 76: Line Loading Load Flow Results (%) – Main Lines: Dewatering MS/Polkadraai SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/MBR 1 MS 11kV	0.245	45	45	46	47	52	67	84	98	105	107	108	117	138	149	151	152	165	177	188	194
Dewatering MS/Polkadraai SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MBR 2 MS/Dewatering MS 11kV	0.245	18	18	18	19	21	27	33	39	42	43	43	47	55	60	61	61	67	72	76	79
MBR 1 MS/MBR 2 MS 11kV	0.245	32	32	32	33	36	47	59	69	74	75	76	82	97	105	106	107	116	125	132	137
Main Industrial SS/Polkadraai SS 11kV 1	0.4	32	32	33	33	35	41	48	54	56	57	57	61	69	74	75	75	80	85	89	92
Main Industrial SS/Polkadraai SS 11kV 2	0.4	30	30	30	30	32	38	44	49	52	53	53	56	64	68	69	69	74	78	82	85

Table 77: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Polkadraai SS 11kV 1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/MBR 1 MS 11kV	0.245	32	32	32	33	37	47	59	70	75	76	76	82	97	105	107	107	116	125	133	137
Dewatering MS/Polkadraai SS 11kV	0.245	13	13	14	14	15	20	25	29	31	32	32	34	41	44	45	45	49	52	56	57
MBR 2 MS/Dewatering MS 11kV	0.245	5	5	5	5	5	7	9	11	11	12	12	13	15	16	17	17	18	20	21	22
MBR 1 MS/MBR 2 MS 11kV	0.245	18	18	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	73	77	80
Main Industrial SS/Polkadraai SS 11kV 1	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Main Industrial SS/Polkadraai SS 11kV 2	0.4	58	58	59	59	63	74	86	97	102	103	104	110	125	133	135	136	145	154	161	166

Table 78: Line Loading Load Flow Results (%) – Main Lines: Main Industrial SS/Polkadraai SS 11kV 2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Polkadraai SS/MBR 1 MS 11kV	0.245	32	32	32	33	37	47	59	70	75	76	76	82	97	105	107	107	116	125	132	137
Dewatering MS/Polkadraai SS 11kV	0.245	13	13	14	14	15	20	25	29	31	32	32	34	41	44	45	45	49	52	56	57
MBR 2 MS/Dewatering MS 11kV	0.245	5	5	5	5	5	7	9	11	11	12	12	13	15	16	17	17	18	20	21	22
MBR 1 MS/MBR 2 MS 11kV	0.245	18	18	19	19	21	27	34	40	43	44	44	48	56	61	62	62	67	73	77	79
Main Industrial SS/Polkadraai SS 11kV 1	0.4	59	59	59	60	63	74	87	98	103	104	105	111	126	134	136	137	146	155	163	167
Main Industrial SS/Polkadraai SS 11kV 2	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Boord - Ring 1

Table 79: Line Loading Load Flow Results (%) – Golf Lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23	23	24	24	24	24	25	25	25	25	26	26	28	29	29	29	30	31	31	31
Blenheim MS/Shopping Centre RMU 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	31	32
De Oewer MS/Medi Kliniek SS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8
Bon Cretien MS/Boord SS 11kV	0.213	17	17	17	17	17	17	17	18	18	18	18	18	20	20	21	21	21	22	22	22
Boord SS/Rokewood MS 11kV	0.213	29	29	29	30	30	30	31	31	32	32	32	33	35	36	36	36	37	38	38	38
Rokewood Pomp MS/DeBosch MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Lovell 3 MS/Elberta MS 11kV	0.213	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Oewerpark MS/De Oewer MS 11kV	0.213	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Medi Kliniek SS/Culemborg MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8	8	8	8	8	8	8	8	9	9	9	10	10	10	10	10	10	10
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Rokewood MS/Blenheim MS 11kV	0.213	26	26	26	26	26	26	27	28	28	28	28	29	31	32	32	32	33	34	34	34
Elberta MS/Bon Cretien MS 11kV	0.213	14	14	14	14	14	14	15	15	15	15	15	15	16	17	17	17	18	18	18	18
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Table 80: Line Loading Load Flow Results (%) – Golf Lines: Golf Club SS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23	23	24	24	24	24	25	25	25	25	26	26	28	29	29	29	30	31	31	31
Blenheim MS/Shopping Centre RMU 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	32	32
De Oewer MS/Medi Kliniek SS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Bon Cretien MS/Boord SS 11kV	0.213	17	17	17	17	17	17	17	18	18	18	18	19	20	20	21	21	21	22	22	22
Boord SS/Rokewood MS 11kV	0.213	29	29	29	30	30	30	31	31	32	32	32	33	35	36	36	36	38	38	38	38
Rokewood Pomp MS/DeBosch MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Lovell 3 MS/Elberta MS 11kV	0.213	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Oewerpark MS/De Oewer MS 11kV	0.213	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Medi Kliniek SS/Culemborg MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8	8	8	8	8	8	8	8	9	9	9	10	10	10	10	10	10	10

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rokewood MS/Blenheim MS 11kV	0.213	26	26	26	26	26	26	27	28	28	28	28	29	31	32	32	32	33	34	34	34
Elberta MS/Bon Cretien MS 11kV	0.213	14	14	14	14	14	14	15	15	15	15	15	15	16	17	17	17	18	18	18	18
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Table 81: Line Loading Load Flow Results (%) – Golf Lines: Golf Club SS/Boord SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23	23	24	24	24	24	25	25	25	25	26	26	28	29	29	29	30	31	31	31
Blenheim MS/Shopping Centre RMU 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	32	32
De Oewer MS/Medi Kliniek SS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Bon Cretien MS/Boord SS 11kV	0.213	17	17	17	17	17	17	17	18	18	18	18	19	20	20	21	21	21	22	22	22
Boord SS/Rokewood MS 11kV	0.213	29	29	29	30	30	30	31	31	32	32	32	33	35	36	36	36	38	38	38	38
Rokewood Pomp MS/DeBosch MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Lovell 3 MS/Elberta MS 11kV	0.213	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Oewerpark MS/De Oewer MS 11kV	0.213	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Medi Kliniek SS/Culemborg MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8	8	8	8	8	8	8	8	9	9	9	10	10	10	10	10	10	10
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rokewood MS/Blenheim MS 11kV	0.213	26	26	26	26	26	26	27	28	28	28	28	29	31	32	32	32	33	34	34	34
Elberta MS/Bon Cretien MS 11kV	0.213	14	14	14	14	14	14	15	15	15	15	15	15	16	17	17	17	18	18	18	18

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Table 82: Line Loading Load Flow Results (%) – Golf Lines: Bon Cretien MS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	40	40	41	41	41	41	42	43	43	44	44	45	48	49	50	50	52	53	53	53
Blenheim MS/Shopping Centre RMU 11kV	0.213	40	40	41	41	41	41	43	44	44	44	44	45	48	50	50	50	52	53	53	53
De Oewer MS/Medi Kliniek SS 11kV	0.213	22	22	23	23	23	23	24	24	24	24	24	25	27	28	28	28	29	29	29	29
Bon Cretien MS/Boord SS 11kV	0.213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Rokewood MS 11kV	0.213	46	46	46	47	47	47	48	49	49	50	50	51	55	56	57	57	59	60	60	60
Rokewood Pomp MS/DeBosch MS 11kV	0.213	11	11	11	11	11	11	12	12	12	12	12	12	13	14	14	14	14	14	15	15
Lovell 3 MS/Elberta MS 11kV	0.213	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Oewerpark MS/De Oewer MS 11kV	0.213	23	23	23	23	23	23	24	25	25	25	25	26	27	28	28	29	30	30	30	30
Medi Kliniek SS/Culemborg MS 11kV	0.213	22	22	23	23	23	23	24	24	24	24	24	25	27	28	28	28	29	29	29	29
Culemborg MS/Marina/Rokewood MS 11kV	0.213	13	13	13	13	13	13	13	14	14	14	14	14	15	16	16	16	16	17	17	17
DeBosch MS/Lovell 3 MS 11kV	0.213	9	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	12	12	12
Golf Club SS/Boord SS 11kV(2)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Rokewood MS/Blenheim MS 11kV	0.213	42	42	43	43	43	43	45	46	46	46	46	47	51	52	53	53	55	56	56	56
Elberta MS/Bon Cretien MS 11kV	0.213	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	11	11	11	11	11	11	12	12	12	12	12	12	13	14	14	14	14	14	15	15

Table 83: Line Loading Load Flow Results (%) – Golf Lines: Boord SS/Rokewood MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Blenheim MS/Shopping Centre RMU 11kV	0.213	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7	7	7	7
De Oewer MS/Medi Kliniek SS 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	29	30	31	31	31	31
Bon Cretien MS/Boord SS 11kV	0.213	46	46	47	47	47	47	49	49	50	50	50	51	55	57	57	57	59	61	61	61
Boord SS/Rokewood MS 11kV	0.213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rokewood Pomp MS/DeBosch MS 11kV	0.213	35	35	35	36	36	36	37	38	38	38	38	39	42	43	44	44	45	46	46	46
Lovell 3 MS/Elberta MS 11kV	0.213	41	41	41	42	42	42	43	44	44	44	45	46	49	50	51	51	53	54	54	54
Oewerpark MS/De Oewer MS 11kV	0.213	23	23	23	23	23	23	24	25	25	25	25	26	28	29	29	29	30	30	31	31
Medi Kliniek SS/Culemborg MS 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	26	28	29	29	30	31	31	31	31
Culemborg MS/Marina/Rokewood MS 11kV	0.213	33	33	34	34	34	34	35	36	36	36	36	37	40	41	42	42	43	44	44	44
DeBosch MS/Lovell 3 MS 11kV	0.213	37	37	38	38	38	38	39	40	40	40	41	42	44	46	46	46	48	49	49	49
Golf Club SS/Boord SS 11kV(2)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Rokewood MS/Blenheim MS 11kV	0.213	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Elberta MS/Bon Cretien MS 11kV	0.213	43	43	44	44	44	44	46	47	47	47	47	48	52	53	54	54	56	57	57	57
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	35	35	35	36	36	36	37	38	38	38	38	39	42	43	44	44	45	46	46	46

Table 84: Line Loading Load Flow Results (%) – Golf Lines: Golf Club SS/Boord SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23	23	24	24	24	24	25	25	25	25	26	26	28	29	29	29	30	31	31	31
Blenheim MS/Shopping Centre RMU 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	32	32
De Oewer MS/Medi Kliniek SS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Bon Cretien MS/Boord SS 11kV	0.213	17	17	17	17	17	17	17	18	18	18	18	19	20	20	21	21	21	22	22	22
Boord SS/Rokewood MS 11kV	0.213	29	29	29	30	30	30	31	31	32	32	32	33	35	36	36	36	38	38	38	38
Rokewood Pomp MS/DeBosch MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Lovell 3 MS/Elberta MS 11kV	0.213	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Oewerpark MS/De Oewer MS 11kV	0.213	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Medi Kliniek SS/Culemborg MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8	8	8	8	8	8	8	8	9	9	9	10	10	10	10	10	10	10
Golf Club SS/Boord SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rokewood MS/Blenheim MS 11kV	0.213	26	26	26	26	26	26	27	28	28	28	28	29	31	32	32	32	33	34	34	34
Elberta MS/Bon Cretien MS 11kV	0.213	14	14	14	14	14	14	15	15	15	15	15	15	16	17	17	17	18	18	18	18
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Table 85: Line Loading Load Flow Results (%) – Golf Lines: Golf Club SS/Boord SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6576/Shopping Centre RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shopping Centre RMU/Oewerpark MS 11kV	0.213	23	23	24	24	24	24	25	25	25	25	26	26	28	29	29	29	30	31	31	31
Blenheim MS/Shopping Centre RMU 11kV	0.213	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	32	32
De Oewer MS/Medi Kliniek SS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Bon Cretien MS/Boord SS 11kV	0.213	17	17	17	17	17	17	17	18	18	18	18	19	20	20	21	21	21	22	22	22

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Boord SS/Rokewood MS 11kV	0.213	29	29	29	30	30	30	31	31	32	32	32	33	35	36	36	36	38	38	38	38
Rokewood Pomp MS/DeBosch MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Lovell 3 MS/Elberta MS 11kV	0.213	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Oewerpark MS/De Oewer MS 11kV	0.213	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Medi Kliniek SS/Culemborg MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Culemborg MS/Marina/Rokewood MS 11kV	0.213	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
DeBosch MS/Lovell 3 MS 11kV	0.213	8	8	8	8	8	8	8	8	8	8	9	9	9	10	10	10	10	10	10	10
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rokewood MS/Blenheim MS 11kV	0.213	26	26	26	26	26	26	27	28	28	28	28	29	31	32	32	32	33	34	34	34
Elberta MS/Bon Cretien MS 11kV	0.213	14	14	14	14	14	14	15	15	15	15	15	15	16	17	17	17	18	18	18	18
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0.213	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Golf: Boord - Ring 2

Table 86: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	19	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Table 87: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 88: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 89: Line Loading Load Flow Results (%) – Golf lines: Rhodes MS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	11	11	11	11	11	11	12	12	12	12	12	13	13	14	14	14	14	15	15	15
Golf Club SS/Boord SS 11kV(1)	0.245	11	11	11	11	11	11	12	12	12	12	12	13	13	14	14	14	15	15	15	15

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rhodes MS/Boord SS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 1 MS/Rhodes MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(2)	0.245	11	11	11	12	12	12	12	12	12	12	12	13	13	14	14	14	15	15	15	15
Golf Club SS/Boord SS 11kV(3)	0.245	11	11	11	12	12	12	12	12	12	12	12	13	13	14	14	14	15	15	15	15

Table 90: Line Loading Load Flow Results (%) – Golf lines: Boord SS/Lovell 2 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	19	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Table 91: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 92: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Rhodes MS/Boord SS 11kV	0.12	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	23	24	24
Lovell 1 MS/Rhodes MS 11kV	0.12	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Boord SS/Lovell 2 MS 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovell 2 MS/Lovell 1 MS 11kV	0.12	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Boord - Ring 3

Table 93: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Die werf RMU/Wingerd MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Table 94: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Die werf RMU/Wingerd MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 95: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Die werf RMU/Wingerd MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 96: Line Loading Load Flow Results (%) – Golf lines: Boord SS/Kleingeluk MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Die werf RMU/Wingerd MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Boord SS/Kleingeluk MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	13	13	13	13	13	13
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Table 97: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Die werf RMU/Wingerd MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24

Table 98: Line Loading Load Flow Results (%) – Golf lines: Wingerd MS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	8	8	8	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
Die werf RMU/Wingerd MS 11kV	0.131	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Boord SS/Kleingeluk MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	13	13	13	13	13	13
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18

Table 99: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
SUB_6573/Die werf RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Kleingeluk MS/Die werf RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Die werf RMU/Wingerd MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Paradyskloof - Ring 1

Table 100: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 101: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 102: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 103: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 104: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 105: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 106: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	26
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 107: Line Loading Load Flow Results (%) – Golf lines: Paradyskloof RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/Christiaan Brothers MS 1	0.131	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8
Christiaan Brothers MS/Paradyskloof RMU	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
La Pastorale 2 MS/Montblanc MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
La Pastorale 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5
LeHermitage MS/Anesta MS 11kV	0.207	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Anesta MS/Three Fountains MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Three Fountains MS/Le Montier MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	11	11	11
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	12	12	12	12	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	15
Le Montier MS/Paradyskloof Villas MS 11k	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Kingsview MS/Paradyskloof SS 11kV	0.207	13	13	13	13	13	13	14	14	14	14	14	14	15	16	16	16	16	17	17	17

Table 108: Line Loading Load Flow Results (%) – Golf lines: Boord SS/Kleingeluk MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	13	13	13	13	13	13
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 109: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 110: Line Loading Load Flow Results (%) – Golf lines: Wingerd MS/Boord SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	13	13	13	13	13	13
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 111: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Boord SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	18	18	18	18	18	18	19	19	19	19	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Boord SS 11kV(1)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Paradyskloof SS/Christiaan Brothers MS 1	0.131	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Christiaan Brothers MS/Paradyskloof RMU	0.131	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	11
La Pastorale 2 MS/Montblanc MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
La Pastorale 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	18	18	18	18	18	18	19	19	19	20	20	20	21	22	22	22	23	24	24	24
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montblanc MS/LaPastorale MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
LaPastorale MS/LeHermitage MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LeHermitage MS/Anesta MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Anesta MS/Three Fountains MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	12	12	12	12	12	12
Le Montier MS/Paradyskloof Villas MS 11k	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Kingsview MS/Paradyskloof SS 11kV	0.207	11	11	11	11	11	11	11	11	11	11	11	12	13	13	13	13	14	14	14	14

Table 112: Line Loading Load Flow Results (%) – Golf lines: Kingsview MS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Boord SS 11kV	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Boord SS 11kV(1)	0.245	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof RMU 11kV	0.207	13	13	13	13	13	13	14	14	14	14	14	14	15	16	16	16	17	17	17	17
Paradyskloof SS/Christiaan Brothers MS 1	0.131	26	26	27	27	27	27	28	28	29	29	29	30	32	33	33	33	34	35	35	35
Christiaan Brothers MS/Paradyskloof RMU	0.131	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	31	32	33	33	33
La Pastorale 2 MS/Montblanc MS 11kV	0.207	13	13	13	13	13	13	13	14	14	14	14	14	15	16	16	16	16	17	17	17
La Pastorale 2 MS 11kV	0.207	13	13	13	13	13	13	14	14	14	14	14	14	15	16	16	16	17	17	17	17
Boord SS/Kleingeluk MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Golf Club SS/Boord SS 11kV(2)	0.245	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Wingerd MS/Boord SS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Golf Club SS/Boord SS 11kV(3)	0.245	14	14	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
Montblanc MS/LaPastorale MS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
LaPastorale MS/LeHermitage MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12
LeHermitage MS/Anesta MS 11kV	0.207	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Anesta MS/Three Fountains MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Three Fountains MS/Le Montier MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Paradyskloof Villas MS/Kingsview MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Le Montier MS/Paradyskloof Villas MS 11k	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Kingsview MS/Paradyskloof SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Paradyskloof - Ring 2

Table 113: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	20	21	21	21	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 114: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	20	21	21	21	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 115: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	20	21	21	21	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 116: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	20	21	21	21	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Mediklieniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 117: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	26
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	20	21	21	21	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 118: Line Loading Load Flow Results (%) – Golf lines: Elsie MS/Brandwagt RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	19	19	20	21	21	21	22	22	22	22
River 2 MS/Elsie MS 11kV	0.207	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 119: Line Loading Load Flow Results (%) – Golf lines: Paradyskloof SS/RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	19	19	19	20	21	21	21	22	22	22	23
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
River 2 MS/Elsie MS 11kV	0.207	17	17	18	18	18	18	18	19	19	19	19	19	21	21	22	22	22	23	23	23
Brandwagt RMU/Tramali RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	19	19	19	20	21	21	21	22	22	23	23
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Eiestad Medi SS/River 1 MS 11kV	0.207	24	24	25	25	25	25	26	26	26	26	27	27	29	30	30	30	31	32	32	32
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	24	24	25	25	25	25	26	26	26	26	27	27	29	30	30	30	31	32	32	32
River 1 MS/River 2 MS 11kV	0.207	20	20	20	20	20	20	21	21	21	21	21	22	23	24	24	24	25	26	26	26
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	13	13	13	13	13	13	13	13	14	14	14	14	15	15	16	16	16	16	17	17
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 120: Line Loading Load Flow Results (%) – Golf lines: Brandwagt RMU/Tramali RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	19	19	20	21	21	21	22	22	22	22
River 2 MS/Elsie MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brandwagt RMU/Tramali RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Eiestad Medi SS/River 1 MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
River 1 MS/River 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 121: Line Loading Load Flow Results (%) – Golf lines: RMU/Tramali RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
River 2 MS/Elsie MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4
Brandwagt RMU/Tramali RMU 11kV	0.207	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eiestad Medi SS/River 1 MS 11kV	0.207	10	10	10	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
River 1 MS/River 2 MS 11kV	0.207	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 122: Line Loading Load Flow Results (%) – Golf lines: Eiestad Medi SS/River 1 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	24	24	25	25	25	25	26	26	26	26	26	27	29	30	30	30	31	32	32	32
River 2 MS/Elsie MS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9
Brandwagt RMU/Tramali RMU 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	10	10	10	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13
Eiestad Medi SS/River 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
River 1 MS/River 2 MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 123: Line Loading Load Flow Results (%) – Golf lines: Paradyskloof SS/Eiestad Medi SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
SUB_6581/RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Elsie MS/Brandwagt RMU 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Tramali RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/RMU 11kV	0.207	24	24	25	25	25	25	26	26	26	26	26	27	29	30	30	30	31	32	32	32
River 2 MS/Elsie MS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9
Brandwagt RMU/Tramali RMU 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	10	10	10
Tramali RMU/Brandwag Park MS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Water Reservoir TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Parmalat MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
RMU/Tramali RMU 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Eiestad Medi SS/River 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof SS/Eiestad Medi SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
River 1 MS/River 2 MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Paradyskloof Waterwerke TRF 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RMU/Medikliniek MS 11kV	0.207	12	12	13	13	13	13	13	13	13	14	14	14	15	15	15	15	16	16	16	16
Tramali RMU/KWV Grondves 1 TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CON_583	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KWV Grondves 2 TRF 11kV	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Paradyskloof - Ring 3

Table 124: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Serruria MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Blaauklippen RMU/Repens MS 11kV	0.131	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Cynariodes MS/Florida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Stellenbosch 101 MS/Serruria MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13
Paradyskloof SS/Schuilplaats MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Padstal MS/Blaauklippen RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Blaauklippen RMU/Canterbury MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
Florida MS/Eden MS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8
Canterbury MS/Paradyskloof MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	19	20	20	20	20	21	21	21
Eden MS/Paradyskloof SS 11kV	0.131	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18

Table 125: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Padstal MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Serruria MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Blaauklippen RMU/Repens MS 11kV	0.131	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof MS/Paradyskloof SS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Cynariodes MS/Florida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Stellenbosch 101 MS/Serruria MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13
Paradyskloof SS/Schuilplaats MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Padstal MS/Blaauklippen RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Blaauklippen RMU/Canterbury MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
Florida MS/Eden MS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8
Canterbury MS/Paradyskloof MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	19	20	20	20	20	21	21	21
Eden MS/Paradyskloof SS 11kV	0.131	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18

Table 126: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Padstal MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Serruria MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Blaauklippen RMU/Repens MS 11kV	0.131	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof MS/Paradyskloof SS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Cynariodes MS/Florida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Stellenbosch 101 MS/Serruria MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13
Paradyskloof SS/Schuilplaats MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Padstal MS/Blaauklippen RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Blaauklippen RMU/Canterbury MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
Florida MS/Eden MS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8
Canterbury MS/Paradyskloof MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	19	20	20	20	20	21	21	21
Eden MS/Paradyskloof SS 11kV	0.131	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18

Table 127: Line Loading Load Flow Results (%) – Golf lines: Padstal MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serruria MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaauklippen RMU/Repens MS 11kV	0.131	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Repens MS/Cynariodes MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Cynariodes MS/Florida MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Stellenbosch 101 MS/Serruria MS 11kV	0.131	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5
Paradyskloof SS/Schuilplaats MS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Padstal MS/Blaauklippen RMU 11kV	0.131	9	9	9	9	9	9	9	9	9	9	9	10	10	11	11	11	11	11	11	11
Blaauklippen RMU/Canterbury MS 11kV	0.131	11	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	14	14	14	14
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Florida MS/Eden MS 11kV	0.131	8	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10
Canterbury MS/Paradyskloof MS 11kV	0.131	21	21	21	21	21	21	22	22	22	22	23	23	25	25	26	26	27	27	27	27
Eden MS/Paradyskloof SS 11kV	0.131	15	15	15	16	16	16	16	16	16	17	17	17	18	19	19	19	20	20	20	20

Table 128: Line Loading Load Flow Results (%) – Golf lines: Blaauklippen RMU/Repens MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7
Serruria MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7
Blaauklippen RMU/Repens MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repens MS/Cynariodes MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	10	10	10	10	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13
Cynariodes MS/Florida MS 11kV	0.131	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8
Stellenbosch 101 MS/Serruria MS 11kV	0.131	9	9	9	9	9	9	9	9	9	9	9	10	10	11	11	11	11	11	11	11
Paradyskloof SS/Schuilplaats MS 11kV	0.131	11	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	14	14	14	14
Padstal MS/Blaauklippen RMU 11kV	0.131	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Blaauklippen RMU/Canterbury MS 11kV	0.131	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12
Florida MS/Eden MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	13	13	13	13	13	13	13
Canterbury MS/Paradyskloof MS 11kV	0.131	13	13	13	13	13	13	14	14	14	14	14	15	16	16	16	16	17	17	17	17
Eden MS/Paradyskloof SS 11kV	0.131	18	18	18	18	18	18	19	19	19	19	19	20	21	22	22	22	23	23	23	23

Table 129: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(3)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Padstal MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Serruria MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Blaauklippen RMU/Repens MS 11kV	0.131	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Paradyskloof MS/Paradyskloof SS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Cynariodes MS/Florida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Stellenbosch 101 MS/Serruria MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13
Paradyskloof SS/Schuilplaats MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Padstal MS/Blaauklippen RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Blaauklippen RMU/Canterbury MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
Florida MS/Eden MS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8
Canterbury MS/Paradyskloof MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	19	20	20	20	20	21	21	21
Eden MS/Paradyskloof SS 11kV	0.131	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18

Table 130: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Paradyskloof SS 11kV(2)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	19	19	19	20	20	20	20	21	21	21	21	21	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	26
Padstal MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9
Serruria MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	9	9	9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Blaauklippen RMU/Repens MS 11kV	0.131	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	19	19	20	20	20	20	20	21	21	21	21	22	23	24	24	24	25	25	25	25
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradyskloof MS/Paradyskloof SS 11kV	0.207	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Cynariodes MS/Florida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Stellenbosch 101 MS/Serruria MS 11kV	0.131	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13
Paradyskloof SS/Schuilplaats MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Padstal MS/Blaauklippen RMU 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Blaauklippen RMU/Canterbury MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
Florida MS/Eden MS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8
Canterbury MS/Paradyskloof MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	19	20	20	20	20	21	21	21
Eden MS/Paradyskloof SS 11kV	0.131	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18

Table 131: Line Loading Load Flow Results (%) – Golf lines: Paradyskloof MS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	17	17	18	18	18	18	18	19	19	19	19	19	21	21	22	22	22	23	23	23
Serruria MS 11kV	0.131	17	17	18	18	18	18	18	19	19	19	19	19	21	21	22	22	22	23	23	23
Blaauklippen RMU/Repens MS 11kV	0.131	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4
Repens MS/Cynariodes MS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cynariodes MS/Florida MS 11kV	0.131	9	9	9	10	10	10	10	10	10	10	10	10	11	12	12	12	12	12	12	12

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Stellenbosch 101 MS/Serruria MS 11kV	0.131	21	21	21	21	21	21	22	22	23	23	23	23	25	26	26	26	27	27	27	27
Paradyskloof SS/Schuilplaats MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	27	28	28	29	30	30	30	30
Padstal MS/Blaauklippen RMU 11kV	0.131	9	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	12	12	12
Blaauklippen RMU/Canterbury MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	16	16	16	16
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	21	21	21	22	22	22	22	23	23	23	23	24	25	26	26	26	27	28	28	28
Florida MS/Eden MS 11kV	0.131	13	13	14	14	14	14	14	14	14	15	15	15	16	17	17	17	17	18	18	18
Canterbury MS/Paradyskloof MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Eden MS/Paradyskloof SS 11kV	0.131	21	21	21	21	21	21	22	22	22	23	23	23	25	26	26	26	27	27	27	27

Table 132: Line Loading Load Flow Results (%) – Golf lines: Paradyskloof SS/Schuilplaats MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Serruria MS 11kV	0.131	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Blaauklippen RMU/Repens MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Repens MS/Cynariodes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	17	17	17	17	17	17	18	18	18	19	19	19	20	21	21	21	22	22	22	22
Cynariodes MS/Florida MS 11kV	0.131	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7	7	7	7
Stellenbosch 101 MS/Serruria MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Paradyskloof SS/Schuilplaats MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Padstal MS/Blaauklippen RMU 11kV	0.131	14	14	14	14	14	14	15	15	15	15	15	16	17	17	18	18	18	19	19	19
Blaauklippen RMU/Canterbury MS 11kV	0.131	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	20	20	20
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Florida MS/Eden MS 11kV	0.131	9	9	10	10	10	10	10	10	10	10	10	11	11	12	12	12	12	12	12	12

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Canterbury MS/Paradyskloof MS 11kV	0.131	25	25	25	25	25	25	26	27	27	27	27	28	29	30	31	31	32	32	33	33
Eden MS/Paradyskloof SS 11kV	0.131	17	17	17	17	17	17	18	18	18	18	18	19	20	21	21	21	22	22	22	22

Table 133: Line Loading Load Flow Results (%) – Golf lines: Eden MS/Paradyskloof SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Paradyskloof SS 11kV	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(1)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Padstal MS 11kV	0.131	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Serruria MS 11kV	0.131	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Blaauklippen RMU/Repens MS 11kV	0.131	18	18	18	18	18	18	19	19	19	19	19	20	21	22	22	22	23	23	23	23
Repens MS/Cynariodes MS 11kV	0.131	15	15	15	15	15	15	16	16	16	16	16	17	18	19	19	19	19	20	20	20
Golf Club SS/Paradyskloof SS 11kV(3)	0.245	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Golf Club SS/Paradyskloof SS 11kV(2)	0.245	15	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Paradyskloof MS/Paradyskloof SS 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	20	21	21	21	22	22	22	22
Cynariodes MS/Florida MS 11kV	0.131	11	11	12	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	15
Stellenbosch 101 MS/Serruria MS 11kV	0.131	15	15	15	15	15	15	16	16	16	16	16	17	18	18	18	18	19	20	20	20
Paradyskloof SS/Schuilplaats MS 11kV	0.131	17	17	17	17	17	17	18	18	18	18	19	19	20	21	21	21	22	22	22	22
Padstal MS/Blaauklippen RMU 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Blaauklippen RMU/Canterbury MS 11kV	0.131	15	15	15	15	15	15	16	16	16	16	16	16	18	18	18	18	19	19	19	19
Schuilplaats MS/Stellenbosch 101 MS 11kV	0.131	15	15	15	16	16	16	16	16	17	17	17	17	18	19	19	19	20	20	20	20
Florida MS/Eden MS 11kV	0.131	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	9	10	10	10	10
Canterbury MS/Paradyskloof MS 11kV	0.131	25	25	25	25	25	25	26	26	27	27	27	27	29	30	30	30	32	32	32	32
Eden MS/Paradyskloof SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Techno – Ring 1

Table 134: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
SUB_6568/Captic RMU 11kV	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6
Octoplace MS/Captic RMU 11kV	0.207	20	20	21	21	21	21	21	22	22	22	22	23	24	25	25	25	26	27	27	27
Techno Park MS/Octoplace MS 11kV	0.207	32	32	32	32	32	32	34	34	34	35	35	36	38	39	40	40	41	42	42	42
Captic RMU/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 135: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Techno Park MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Techno Park MS 11kV(1)	0.4	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	31	32	33	33	33
SUB_6568/Captic RMU 11kV	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6
Octoplace MS/Captic RMU 11kV	0.207	20	20	21	21	21	21	22	22	22	22	22	23	24	25	25	25	26	27	27	27
Techno Park MS/Octoplace MS 11kV	0.207	32	32	32	33	33	33	34	34	35	35	35	36	38	39	40	40	41	42	42	42
Captic RMU/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 136: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Techno Park MS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	31	32	33	33	33
Golf Club SS/Techno Park MS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6568/Captic RMU 11kV	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6
Octoplace MS/Captic RMU 11kV	0.207	20	20	21	21	21	21	22	22	22	22	22	23	24	25	25	25	26	27	27	27

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Techno Park MS/Octoplace MS 11kV	0.207	32	32	32	33	33	33	34	34	35	35	35	36	38	39	40	40	41	42	42	42
Captic RMU/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 137: Line Loading Load Flow Results (%) – Golf lines: Techno Park MS/Octoplace MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12
Golf Club SS/Techno Park MS 11kV(1)	0.4	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	12	12	12	12
SUB_6568/Captic RMU 11kV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Octoplace MS/Captic RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Techno Park MS/Octoplace MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Captic RMU/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 138: Line Loading Load Flow Results (%) – Golf lines: Captic RMU/Techno Park MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
SUB_6568/Captic RMU 11kV	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6
Octoplace MS/Captic RMU 11kV	0.207	20	20	21	21	21	21	21	22	22	22	22	23	24	25	25	25	26	27	27	27
Techno Park MS/Octoplace MS 11kV	0.207	32	32	32	32	32	32	34	34	34	35	35	36	38	39	40	40	41	42	42	42
Captic RMU/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Golf: Techno - Ring 2

Table 139: Line Loading Load Flow Results (%) – Golf lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Proton MS/Termo MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	6
Termo MS/Times Square MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Times Square MS/Elektron 1 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Elektron 1 MS/Electron House RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Tegno Park Pomp MS/Proton MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Quantum 2 MS/DataVoice RMU 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Quantum 1 MS/Quantum 3 MS 11kV	0.207	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Tegno Park 1 MS/ISS International MS 11k	0.207	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
ISS International MS/Reutech MS 11kV	0.207	13	13	13	13	13	13	13	13	14	14	14	14	15	15	15	16	16	16	16	16
Quantum 3 MS/Quantum 2 MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Tegno Park 2 MS/NOK MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	11	11	11
Reutech MS/Techno Park MS 11kV	0.207	23	23	23	24	24	24	24	25	25	25	25	26	28	29	29	29	30	30	31	31
Cotlinplace MS/Platinum Place MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Electron House RMU/Elektron 2 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Techno Park MS/Tegno Park 2 MS 11kV	0.207	9	9	9	9	9	9	9	9	9	9	10	10	10	11	11	11	11	11	11	11
NOK MS/Electron 3 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	10	10	10	10	10	10	10
Electron 3 MS/Cotlinplace MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9

Table 140: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Techno Park MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golf Club SS/Techno Park MS 11kV(1)	0.4	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	31	32	33	33	33
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Proton MS/Termo MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	6	6	6
Termo MS/Times Square MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Times Square MS/Elektron 1 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Elektron 1 MS/Electron House RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Tegno Park Pomp MS/Proton MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Quantum 2 MS/DataVoice RMU 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Quantum 1 MS/Quantum 3 MS 11kV	0.207	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	5
Tegno Park 1 MS/ISS International MS 11k	0.207	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
ISS International MS/Reutech MS 11kV	0.207	13	13	13	13	13	13	13	13	14	14	14	14	15	15	16	16	16	16	17	17
Quantum 3 MS/Quantum 2 MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Tegno Park 2 MS/NOK MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	11	11	11
Reutech MS/Techno Park MS 11kV	0.207	23	23	23	24	24	24	24	25	25	25	25	26	28	29	29	29	30	30	31	31
Cotlinplace MS/Platinum Place MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Electron House RMU/Elektron 2 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Techno Park MS/Tegno Park 2 MS 11kV	0.207	9	9	9	9	9	9	9	9	9	9	10	10	10	11	11	11	11	11	12	12
NOK MS/Electron 3 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	10	10	10	10	10	10	10
Electron 3 MS/Cotlinplace MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9

Table 141: Line Loading Load Flow Results (%) – Golf lines: Golf Club SS/Techno Park MS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	25	25	25	25	25	25	26	27	27	27	27	28	30	31	31	31	32	33	33	33
Golf Club SS/Techno Park MS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Proton MS/Termo MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	6	6	6
Termo MS/Times Square MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Times Square MS/Elektron 1 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Elektron 1 MS/Electron House RMU 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Tegno Park Pomp MS/Proton MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	7
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Quantum 2 MS/DataVoice RMU 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13
Quantum 1 MS/Quantum 3 MS 11kV	0.207	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	5
Tegno Park 1 MS/ISS International MS 11k	0.207	10	10	11	11	11	11	11	11	11	11	11	12	12	13	13	13	13	14	14	14
ISS International MS/Reutech MS 11kV	0.207	13	13	13	13	13	13	13	13	14	14	14	14	15	15	16	16	16	16	17	17
Quantum 3 MS/Quantum 2 MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Tegno Park 2 MS/NOK MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	11	11	11
Reutech MS/Techno Park MS 11kV	0.207	23	23	23	24	24	24	24	25	25	25	25	26	28	29	29	29	30	30	31	31
Cotlinplace MS/Platinum Place MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Electron House RMU/Elektron 2 MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Techno Park MS/Tegno Park 2 MS 11kV	0.207	9	9	9	9	9	9	9	9	9	9	10	10	10	11	11	11	11	11	12	12
NOK MS/Electron 3 MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	9	9	10	10	10	10	10	10	10
Electron 3 MS/Cotlinplace MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9

Table 142: Line Loading Load Flow Results (%) – Golf lines: Times Square MS/Elektron 1 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Proton MS/Termo MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Termo MS/Times Square MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Times Square MS/Elektron 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elektron 1 MS/Electron House RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tegno Park Pomp MS/Proton MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Quantum 2 MS/DataVoice RMU 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	12	12	12	12	12	12	13	13	13	13	13	13	14	15	15	15	15	16	16	16
Quantum 1 MS/Quantum 3 MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7	7	7	7
Tegno Park 1 MS/ISS International MS 11k	0.207	12	12	13	13	13	13	13	13	13	13	14	14	15	15	15	15	16	16	16	16
ISS International MS/Reutech MS 11kV	0.207	14	14	15	15	15	15	15	16	16	16	16	16	17	18	18	18	19	19	19	19
Quantum 3 MS/Quantum 2 MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Tegno Park 2 MS/NOK MS 11kV	0.207	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8
Reutech MS/Techno Park MS 11kV	0.207	25	25	25	26	26	26	27	27	27	27	27	28	30	31	31	31	32	33	33	33
Cotlinplace MS/Platinum Place MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Electron House RMU/Elektron 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Techno Park MS/Tegno Park 2 MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9
NOK MS/Electron 3 MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8
Electron 3 MS/Cotlinplace MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6

Table 143: Line Loading Load Flow Results (%) – Golf lines: Reutech MS/Techno Park MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	16	16	16	16	16	16	16	17	17	17	17	17	19	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	16	16	16	16	16	16	16	17	17	17	17	17	19	19	19	19	20	20	20	20
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	28	28	29	29	29	29	30	30	31	31	31	32	34	35	35	35	36	37	37	37
Proton MS/Termo MS 11kV	0.207	28	28	28	28	28	28	29	30	30	30	30	31	33	34	34	34	36	36	36	36
Termo MS/Times Square MS 11kV	0.207	26	26	26	27	27	27	28	28	28	28	29	29	31	32	32	32	34	34	34	35
Times Square MS/Elektron 1 MS 11kV	0.207	25	25	26	26	26	26	27	27	27	28	28	28	30	31	31	32	33	33	33	33
Elektron 1 MS/Electron House RMU 11kV	0.207	25	25	25	26	26	26	27	27	27	27	27	28	30	31	31	31	32	33	33	33
Tegno Park Pomp MS/Proton MS 11kV	0.207	28	28	29	29	29	29	30	30	31	31	31	32	34	35	35	35	36	37	37	37
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	24	24	24	24	24	24	25	26	26	26	26	27	28	29	30	30	31	31	31	31
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	22	22	22	22	22	22	23	24	24	24	24	25	26	27	27	27	28	29	29	29
Quantum 2 MS/DataVoice RMU 11kV	0.207	19	19	19	19	19	19	20	20	20	20	20	21	22	23	23	23	24	24	25	25
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	13	13	14	14	14	14	14	14	15	15	15	15	16	17	17	17	17	18	18	18
Quantum 1 MS/Quantum 3 MS 11kV	0.207	20	20	20	20	20	20	21	21	22	22	22	22	24	25	25	25	26	26	26	26
Tegno Park 1 MS/ISS International MS 11k	0.207	13	13	13	13	13	13	14	14	14	14	14	14	15	16	16	16	17	17	17	17
ISS International MS/Reutech MS 11kV	0.207	11	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	14	14	14	14
Quantum 3 MS/Quantum 2 MS 11kV	0.207	20	20	20	20	20	20	21	21	21	22	22	22	24	24	25	25	25	26	26	26
Tegno Park 2 MS/NOK MS 11kV	0.207	31	31	32	32	32	32	33	34	34	34	34	35	37	39	39	39	40	41	41	42
Reutech MS/Techno Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cotlinplace MS/Platinum Place MS 11kV	0.207	29	29	29	29	29	29	30	31	31	31	32	32	34	36	36	36	37	38	38	38
Electron House RMU/Elektron 2 MS 11kV	0.207	25	25	25	26	26	26	27	27	27	27	27	28	30	31	31	31	32	33	33	33
Techno Park MS/Tegno Park 2 MS 11kV	0.207	32	32	32	33	33	33	34	34	35	35	35	36	38	40	40	40	41	42	42	42
NOK MS/Electron 3 MS 11kV	0.207	31	31	31	32	32	32	33	33	34	34	34	35	37	38	39	39	40	41	41	41
Electron 3 MS/Cotlinplace MS 11kV	0.207	30	30	30	30	30	30	32	32	32	33	33	33	36	37	37	37	39	39	39	39

Table 144: Line Loading Load Flow Results (%) – Golf lines: Techno Park MS/Tegno Park 2 MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Golf Club SS/Techno Park MS 11kV	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
Golf Club SS/Techno Park MS 11kV(1)	0.4	15	15	16	16	16	16	16	17	17	17	17	17	18	19	19	19	20	20	20	20
SUB_6571/DataVoice RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Platinum Place MS/Tegno Park Pomp MS 11k	0.207	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Proton MS/Termo MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Termo MS/Times Square MS 11kV	0.207	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8
Times Square MS/Elektron 1 MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9
Elektron 1 MS/Electron House RMU 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	9	9
Tegno Park Pomp MS/Proton MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Elektron 2 MS/Carpe Di-Em MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	11	11	11	11
Carpe Di-Em MS/Quantum 1 MS 11kV	0.207	10	10	10	10	10	10	11	11	11	11	11	11	12	12	13	13	13	13	13	13
Quantum 2 MS/DataVoice RMU 11kV	0.207	13	13	14	14	14	14	14	15	15	15	15	15	16	17	17	17	17	18	18	18
DataVoice RMU/Tegno Park 1 MS 11kV	0.207	19	19	19	19	19	19	20	20	20	20	20	21	22	23	23	23	24	24	25	25
Quantum 1 MS/Quantum 3 MS 11kV	0.207	12	12	12	12	12	12	13	13	13	13	13	14	14	15	15	15	16	16	16	16
Tegno Park 1 MS/ISS International MS 11k	0.207	19	19	19	19	19	19	20	21	21	21	21	21	23	24	24	24	25	25	25	25
ISS International MS/Reutech MS 11kV	0.207	21	21	21	22	22	22	22	23	23	23	23	24	25	26	26	26	27	28	28	28
Quantum 3 MS/Quantum 2 MS 11kV	0.207	12	12	12	13	13	13	13	13	13	13	13	14	15	15	15	15	16	16	16	16
Tegno Park 2 MS/NOK MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Reutech MS/Techno Park MS 11kV	0.207	32	32	32	32	32	32	34	34	34	35	35	36	38	39	39	40	41	42	42	42
Cotlinplace MS/Platinum Place MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4
Electron House RMU/Elektron 2 MS 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	9	9
Techno Park MS/Tegno Park 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOK MS/Electron 3 MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Electron 3 MS/Cotlinplace MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3

Markotter: Braak - Ring 1

Table 145: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Meulplein SS/Boland Bank RMU 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Boland Bank RMU/De Wets MS 11kV	0.082	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7
Braak SS/Meulplein SS 11kV	0.082	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
De Wets MS/Braak SS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6

Table 146 Table 147: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	10	10	10	10	10	10	11	11	12	12	12	13	15	16	16	17	18	19	19	19
Meulplein SS/Boland Bank RMU 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Boland Bank RMU/De Wets MS 11kV	0.082	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7
Braak SS/Meulplein SS 11kV	0.082	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
De Wets MS/Braak SS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
Piet Retief MS/Braak SS 11kV	0.245	9	9	9	9	9	10	10	11	11	11	11	12	14	15	15	15	16	16	16	16

Table 148 Table 149: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	7	7	7	7	7	9	9	9	9	10	10	10	10
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meulplein SS/Boland Bank RMU 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Boland Bank RMU/De Wets MS 11kV	0.082	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7
Braak SS/Meulplein SS 11kV	0.082	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
De Wets MS/Braak SS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
Piet Retief MS/Braak SS 11kV	0.245	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8

Table 150: Line Loading Load Flow Results (%) – Markotter lines: Braak SS/Meulplein SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Meulplein SS/Boland Bank RMU 11kV	0.082	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Boland Bank RMU/De Wets MS 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	11	13	14	14	14	15	16	16	16
Braak SS/Meulplein SS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
De Wets MS/Braak SS 11kV	0.131	9	9	9	9	9	9	9	10	10	10	10	11	13	14	14	14	15	16	16	16
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6

Table 151: Line Loading Load Flow Results (%) – Markotter lines: De Wets MS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Meulplein SS/Boland Bank RMU 11kV	0.082	10	10	10	10	10	10	10	11	12	12	12	13	15	16	16	16	18	18	18	18
Boland Bank RMU/De Wets MS 11kV	0.082	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	9	9	10	10	10
Braak SS/Meulplein SS 11kV	0.082	14	14	14	14	14	14	14	16	16	16	16	17	21	22	22	23	24	25	25	25
De Wets MS/Braak SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6

Table 152: Line Loading Load Flow Results (%) – Markotter lines: Piet Retief MS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Meulplein SS/Meulplein LTx 11kV	0.1	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Boland Bank RMU/SUB_6546 11kV	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Braak SS 11kV	0.4	7	7	7	7	7	7	7	7	8	8	8	8	10	10	10	10	11	12	12	12
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	10	10	10	11	11	11	11	12	14	15	16	16	17	17	17	17
Meulplein SS/Boland Bank RMU 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Boland Bank RMU/De Wets MS 11kV	0.082	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7
Braak SS/Meulplein SS 11kV	0.082	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
De Wets MS/Braak SS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
Piet Retief MS/Braak SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Markotter: Braak - Ring 2

Table 153: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Vila Roux MS/Blake Estate SS 11kV	0.131	6	6	6	6	6	7	7	7	8	8	8	8	9	10	10	10	11	11	11	11
Krige SS/La Gratitude MS 11kV	0.131	23	23	23	23	23	23	24	26	27	27	27	29	34	37	38	38	41	42	42	42
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Maesland MS/Vila Roux MS 11kV	0.131	6	6	6	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
Braak SS/Blake Estate SS 11kV	0.4	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Markotter Suidwal SS/Krige SS 11kV	0.4	13	13	13	13	14	14	14	15	16	16	16	17	20	21	22	22	23	24	24	24
Mark MS/Mark 2 MS 11kV	0.131	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Amatoni RMU/Maesland MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	8	8	8
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	15	15	15	15	15	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28
La Gratitude MS/Voorgelegen MS 11kV	0.131	16	16	16	16	16	16	17	18	19	19	19	20	24	26	26	26	29	30	30	30
Mark 2 MS/Joles Park MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6
Dorp str 98 MS/Mark MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
AlexForbes MS/Amatoni RMU 11kV	0.131	4	4	4	4	4	4	5	5	5	5	5	5	6	7	7	7	7	8	8	8

Table 154: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	10	10	10	10	10	10	11	11	12	12	12	13	15	16	16	17	18	19	19	19
Vila Roux MS/Blake Estate SS 11kV	0.131	6	6	6	6	6	6	7	7	7	7	7	8	9	10	10	10	11	11	11	11

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Krige SS/La Gratitude MS 11kV	0.131	23	23	23	23	23	24	24	26	27	27	28	29	35	38	38	38	41	43	43	43
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4
Maesland MS/Vila Roux MS 11kV	0.131	5	5	5	5	5	5	6	6	6	6	6	7	8	8	9	9	9	9	9	9
Braak SS/Blake Estate SS 11kV	0.4	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Markotter Suidwal SS/Krige SS 11kV	0.4	14	14	14	14	14	14	15	16	17	17	17	18	21	22	23	23	24	25	25	25
Mark MS/Mark 2 MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	8	8	8
Amatoni RMU/Maesland MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	15	15	15	15	16	16	16	18	18	18	18	20	23	25	25	25	28	29	29	29
La Gratitude MS/Voorgelegen MS 11kV	0.131	16	16	16	16	16	17	17	19	19	19	19	21	24	27	27	27	29	30	30	30
Mark 2 MS/Joles Park MS 11kV	0.131	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Piet Retief MS/Braak SS 11kV	0.245	9	9	9	9	9	10	10	11	11	11	11	12	14	15	15	15	16	16	16	16
Dorp str 98 MS/Mark MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	9	9	9	9
AlexForbes MS/Amatoni RMU 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	6	7	7	7	7	7	7

Table 155: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	7	7	7	7	7	9	9	9	9	10	10	10	10
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vila Roux MS/Blake Estate SS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	8	8	8	8
Krige SS/La Gratitude MS 11kV	0.131	25	25	25	25	26	26	27	29	30	30	30	32	38	41	42	42	45	47	47	47
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	8	8	8	8	8	8
Krige SS/Braak SS 11kV	0.4	8	8	8	9	9	9	9	10	10	10	10	11	13	14	14	14	16	16	16	16
Maesland MS/Vila Roux MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Braak SS/Blake Estate SS 11kV	0.4	7	7	7	7	7	7	7	7	8	8	8	8	10	11	11	11	12	12	12	12
Markotter Suidwal SS/Krige SS 11kV	0.4	21	21	21	21	21	21	22	24	25	25	25	26	31	34	34	34	37	38	38	38
Mark MS/Mark 2 MS 11kV	0.131	6	6	6	7	7	7	7	7	8	8	8	8	10	11	11	11	12	12	12	12
Amatoni RMU/Maesland MS 11kV	0.131	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	6
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	18	18	18	18	18	18	19	20	21	21	21	22	27	29	29	29	32	33	33	33
La Gratitude MS/Voorgelegen MS 11kV	0.131	18	18	18	19	19	19	19	21	22	22	22	23	28	30	31	31	33	34	34	34
Mark 2 MS/Joles Park MS 11kV	0.131	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Piet Retief MS/Braak SS 11kV	0.245	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8
Dorp str 98 MS/Mark MS 11kV	0.131	7	7	7	8	8	8	8	9	9	9	9	10	11	12	12	12	13	14	14	14
AlexForbes MS/Amatoni RMU 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6

Table 156: Line Loading Load Flow Results (%) – Markotter lines: Vila Roux MS/Blake Estate SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	8	8	8	8	8	8	9	9	10	10	10	10	12	13	14	14	15	15	15	15
Vila Roux MS/Blake Estate SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Krige SS/La Gratitude MS 11kV	0.131	29	29	29	29	29	30	30	33	34	34	34	36	43	47	47	47	51	53	53	53
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	7	7	7	7	7	7	7	8	8	8	8	9	11	11	12	12	13	13	13	13
Krige SS/Braak SS 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Maesland MS/Vila Roux MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Braak SS/Blake Estate SS 11kV	0.4	5	5	5	5	5	5	6	6	6	6	6	7	8	8	9	9	9	10	10	10
Markotter Suidwal SS/Krige SS 11kV	0.4	14	14	14	14	15	15	15	16	17	17	17	18	21	23	23	23	25	26	26	26
Mark MS/Mark 2 MS 11kV	0.131	9	9	9	10	10	10	10	11	11	11	11	12	14	15	16	16	17	17	17	17
Amatoni RMU/Maesland MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	21	21	21	21	22	22	22	24	25	25	25	27	32	34	35	35	38	39	39	39

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
La Gratitude MS/Voorgelegen MS 11kV	0.131	22	22	22	22	22	23	23	25	26	26	26	28	33	36	36	36	39	41	41	41
Mark 2 MS/Joles Park MS 11kV	0.131	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6
Dorp str 98 MS/Mark MS 11kV	0.131	10	11	11	11	11	11	11	12	12	13	13	13	16	17	17	17	19	19	19	19
AlexForbes MS/Amatoni RMU 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4

Table 157: Line Loading Load Flow Results (%) – Markotter lines: Krige SS/La Gratitude MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	12	12	12	12	12	12	13	14	14	14	15	15	18	20	20	20	22	23	23	23
Vila Roux MS/Blake Estate SS 11kV	0.131	29	29	29	29	29	30	31	33	34	35	35	37	43	47	48	48	52	53	53	53
Krige SS/La Gratitude MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	22	22	22	22	22	22	23	25	26	26	26	28	33	36	36	36	39	41	41	41
Krige SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	6	7	7	7	7	9	9	9	9	10	11	11	11
Maesland MS/Vila Roux MS 11kV	0.131	28	28	28	28	28	29	30	32	33	33	34	35	42	46	46	46	50	52	52	52
Braak SS/Blake Estate SS 11kV	0.4	15	15	15	15	15	15	15	17	17	18	18	19	22	24	24	24	26	27	27	27
Markotter Suidwal SS/Krige SS 11kV	0.4	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	17	18	18	18
Mark MS/Mark 2 MS 11kV	0.131	19	19	20	20	20	20	21	22	23	23	23	25	29	32	32	32	35	36	36	36
Amatoni RMU/Maesland MS 11kV	0.131	27	27	27	27	27	27	28	30	32	32	32	34	40	43	44	44	48	49	49	49
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	24	24	24	24	24	25	25	27	28	29	29	30	36	39	39	40	43	44	44	44
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	8	8	8	8	8	8	8	9	9	9	9	10	12	13	13	13	14	14	14	14
La Gratitude MS/Voorgelegen MS 11kV	0.131	7	7	7	7	7	7	7	8	8	8	8	9	10	11	11	11	12	13	13	13
Mark 2 MS/Joles Park MS 11kV	0.131	22	22	22	22	22	22	23	25	26	26	26	27	33	35	36	36	39	40	40	40
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Dorp str 98 MS/Mark MS 11kV	0.131	18	18	18	19	19	19	19	21	22	22	22	23	28	30	30	30	33	34	34	34
AlexForbes MS/Amatoni RMU 11kV	0.131	27	27	27	27	27	27	28	30	32	32	32	34	40	43	44	44	48	49	49	49

Table 158: Line Loading Load Flow Results (%) – Markotter lines: Krige SS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	10	10	10	10	10	11	11	12	12	12	12	13	16	17	17	17	19	19	19	19
Vila Roux MS/Blake Estate SS 11kV	0.131	6	6	6	6	6	6	6	7	7	7	7	7	9	9	9	9	10	10	10	10
Krige SS/La Gratitude MS 11kV	0.131	23	23	23	24	24	24	25	27	28	28	28	30	35	38	39	39	42	43	43	43
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5
Krige SS/Braak SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maesland MS/Vila Roux MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Braak SS/Blake Estate SS 11kV	0.4	7	7	7	7	7	7	7	8	8	8	8	9	11	11	12	12	12	13	13	13
Markotter Suidwal SS/Krige SS 11kV	0.4	12	12	12	12	12	12	13	14	14	14	14	15	18	19	19	19	21	21	21	21
Mark MS/Mark 2 MS 11kV	0.131	4	4	4	5	5	5	5	5	5	5	5	6	7	7	8	8	8	9	9	9
Amatoni RMU/Maesland MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	16	16	16	16	16	16	17	18	19	19	19	20	24	26	26	26	28	29	29	29
La Gratitude MS/Voorgelegen MS 11kV	0.131	17	17	17	17	17	17	18	19	20	20	20	21	25	27	28	28	30	31	31	31
Mark 2 MS/Joles Park MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5	5	5	5
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
Dorp str 98 MS/Mark MS 11kV	0.131	5	5	5	6	6	6	6	6	7	7	7	7	8	9	9	9	10	10	10	10
AlexForbes MS/Amatoni RMU 11kV	0.131	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	7	7	7

Table 159: Line Loading Load Flow Results (%) – Markotter lines: Braak SS/Blake Estate SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	8	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	6	6	6	6	6	6	6	7	7	7	7	8	9	10	10	10	11	11	11	11
Vila Roux MS/Blake Estate SS 11kV	0.131	16	16	16	16	16	16	17	18	19	19	19	20	24	26	26	26	29	30	30	30
Krige SS/La Gratitude MS 11kV	0.131	45	45	45	45	45	46	47	51	53	54	54	57	67	73	74	74	80	83	83	83

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	23	23	23	23	23	24	24	26	27	27	28	29	35	38	38	38	41	43	43	43
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4
Maesland MS/Vila Roux MS 11kV	0.131	17	17	17	17	17	17	18	19	20	20	20	21	25	28	28	28	30	31	31	31
Braak SS/Blake Estate SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Krige SS 11kV	0.4	17	17	17	17	17	17	18	19	20	20	20	21	25	27	27	27	29	30	30	30
Mark MS/Mark 2 MS 11kV	0.131	25	25	25	26	26	26	27	29	30	30	30	32	38	41	42	42	45	47	47	47
Amatoni RMU/Maesland MS 11kV	0.131	18	18	18	18	19	19	19	21	22	22	22	23	27	30	30	30	33	34	34	34
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	21	21	21	21	21	21	22	24	25	25	25	27	31	34	35	35	37	39	39	39
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	37	37	37	37	38	38	39	42	44	44	44	47	56	61	61	61	66	69	69	69
La Gratitude MS/Voorgelegen MS 11kV	0.131	38	38	38	38	39	39	40	43	45	45	45	48	57	62	63	63	68	70	70	70
Mark 2 MS/Joles Park MS 11kV	0.131	23	23	23	23	24	24	24	27	28	28	28	29	35	38	38	38	41	43	43	43
Piet Retief MS/Braak SS 11kV	0.245	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6
Dorp str 98 MS/Mark MS 11kV	0.131	26	26	26	27	27	27	28	30	31	32	32	33	40	43	44	44	47	49	49	49
AlexForbes MS/Amatoni RMU 11kV	0.131	18	18	18	18	19	19	19	21	22	22	22	23	27	30	30	30	33	34	34	34

Table 160: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Krige SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	7	7	7	7	7	8	9	9	9	10	10	10	10
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	21	21	21	21	21	21	22	24	25	25	25	26	31	34	34	34	37	38	38	38
Vila Roux MS/Blake Estate SS 11kV	0.131	10	10	10	10	10	10	11	12	12	12	12	13	15	16	17	17	18	18	18	18
Krige SS/La Gratitude MS 11kV	0.131	19	19	19	19	19	19	20	21	22	22	22	24	28	31	31	31	34	35	35	35
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	6
Krige SS/Braak SS 11kV	0.4	10	10	11	11	11	11	11	12	12	12	12	13	15	16	17	17	18	18	18	18
Maesland MS/Vila Roux MS 11kV	0.131	9	9	9	9	9	10	10	11	11	11	11	12	14	15	15	15	16	17	17	17
Braak SS/Blake Estate SS 11kV	0.4	9	9	9	9	9	9	9	10	10	10	10	11	13	14	14	14	15	16	16	16
Markotter Suidwal SS/Krige SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mark MS/Mark 2 MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Amatoni RMU/Maesland MS 11kV	0.131	8	8	8	8	8	8	8	9	9	9	9	10	12	13	13	13	14	14	14	14
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	8	9	9	9	9
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	11	11	11	11	11	11	12	13	13	13	13	14	17	18	18	18	20	21	21	21
La Gratitude MS/Voorgelegen MS 11kV	0.131	12	12	12	12	12	12	13	14	14	14	14	15	18	20	20	20	21	22	22	22
Mark 2 MS/Joles Park MS 11kV	0.131	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	5
Piet Retief MS/Braak SS 11kV	0.245	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8
Dorp str 98 MS/Mark MS 11kV	0.131	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
AlexForbes MS/Amatoni RMU 11kV	0.131	8	8	8	8	8	8	8	9	9	9	9	10	12	13	13	13	14	14	14	14

Table 161: Line Loading Load Flow Results (%) – Markotter lines: Piet Retief MS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	7	7	7	7	7	7	7	7	8	8	8	8	10	10	10	10	11	12	12	12
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	10	10	10	11	11	11	11	12	14	15	16	16	17	17	17	17
Vila Roux MS/Blake Estate SS 11kV	0.131	6	6	6	6	6	6	7	7	7	7	7	8	9	10	10	10	11	11	11	11
Krige SS/La Gratitude MS 11kV	0.131	23	23	23	23	23	23	24	26	27	27	27	29	34	37	38	38	41	42	42	42
Joles Park MS/Dorp/Papegaai MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4
Maesland MS/Vila Roux MS 11kV	0.131	5	5	5	6	6	6	6	6	6	6	6	7	8	9	9	9	9	10	10	10
Braak SS/Blake Estate SS 11kV	0.4	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Markotter Suidwal SS/Krige SS 11kV	0.4	14	14	14	14	14	14	14	16	16	16	16	17	20	22	22	22	24	25	25	25
Mark MS/Mark 2 MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7
Amatoni RMU/Maesland MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7
Dorp/Papegaai MS/AlexForbes MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4
Voorgelegen MS/Dorp str 98 MS 11kV	0.131	15	15	15	15	15	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28
La Gratitude MS/Voorgelegen MS 11kV	0.131	16	16	16	16	16	16	17	18	19	19	19	20	24	26	27	27	29	30	30	30
Mark 2 MS/Joles Park MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4
Piet Retief MS/Braak SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dorp str 98 MS/Mark MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
AlexForbes MS/Amatoni RMU 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7

Markotter: Braak - Ring 3

Table 162: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	13	13	13	13	14	14	14	15	16	16	16	17	20	21	22	22	23	24	24	24
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6

Table 163: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	10	10	10	10	10	10	11	11	12	12	12	13	15	16	16	17	18	19	19	19
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	14	14	14	14	14	14	15	16	17	17	17	18	21	22	23	23	24	25	25	25
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	9	9	9	9	9	10	10	11	11	11	11	12	14	15	15	15	16	16	16	16

Table 164: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Braak SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	7	7	7	7	7	9	9	9	9	10	10	10	10
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Krige SS/Braak SS 11kV	0.4	8	8	8	9	9	9	9	10	10	10	10	11	13	14	14	14	16	16	16	16
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	21	21	21	21	21	21	22	24	25	25	25	26	31	34	34	34	37	38	38	38
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8

Table 165: Line Loading Load Flow Results (%) – Markotter lines: Krige SS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	10	10	10	10	10	11	11	12	12	12	12	13	16	17	17	17	19	19	19	19
Krige SS/Braak SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	12	12	12	12	12	12	13	14	14	14	14	15	18	19	19	19	21	21	21	21
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7

Table 166: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Krige SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	6	6	6	6	6	6	6	7	7	7	7	7	8	9	9	9	10	10	10	10
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	21	21	21	21	21	21	22	24	25	25	25	26	31	34	34	34	37	38	38	38
Krige SS/Braak SS 11kV	0.4	10	10	11	11	11	11	11	12	12	12	12	13	15	16	17	17	18	18	18	18
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8

Table 167: Line Loading Load Flow Results (%) – Markotter lines: Stellenryk MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Stillewaters MS/Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Sports Institute MS/Stillewaters MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4
Volkskombuis MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volkskombuis MS/Bloemhof MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Bloemhof MS/Krige SS 11kV	0.207	6	6	6	7	7	7	7	7	7	7	7	8	9	9	9	9	10	10	10	10
Markotter Suidwal SS/Krige SS 11kV	0.4	13	13	13	13	14	14	14	15	16	16	16	17	20	21	22	22	23	24	24	24
Krige SS/Sports Institute MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4
Stellenryk MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piet Retief MS/Braak SS 11kV	0.245	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6

Table 168: Line Loading Load Flow Results (%) – Markotter lines: Piet Retief MS/Braak SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Markotter Suidwal SS/Braak SS 11kV	0.4	7	7	7	7	7	7	7	7	8	8	8	8	10	10	10	10	11	12	12	12
Markotter Suidwal SS/Braak SS 11kV(1)	0.4	9	9	9	9	10	10	10	11	11	11	11	12	14	15	16	16	17	17	17	17
Krige SS/Braak SS 11kV	0.4	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4
Stillewaters MS/Stellenryk MS 11kV	0.207	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Sports Institute MS/Stillewaters MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Volkskombuis MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Volkskombuis MS/Bloemhof MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Bloemhof MS/Krige SS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	7	7	7
Markotter Suidwal SS/Krige SS 11kV	0.4	14	14	14	14	14	14	14	16	16	16	16	17	20	22	22	22	24	25	25	25
Krige SS/Sports Institute MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	7
Stellenryk MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Piet Retief MS/Braak SS 11kV	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Markotter: Coetzenburg - Ring 1

Table 169: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Park MS/Welgevalen SS 11kV	0.207	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Koch RMU/Koch MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Valerida MS 11kV	0.131	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	17	18	18	18
Rhenish MS/Koch SS 11kV	0.131	12	12	12	12	12	12	12	13	14	14	14	15	17	19	19	19	21	21	21	21
Koch MS/Rhenish MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
Koch RMU/Valerida MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Gimnasium SS/Coetzenburg SS 11kV	0.207	16	16	16	17	17	17	17	19	19	20	20	21	25	27	27	27	29	30	30	30
Gimnasium SS 11kV	0.131	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	17	18	18	18
Welgelegen SS/Park MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5	5	5
Dalsig Oos SS/Welgelegen SS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5
Dalsig Oos SS/Koch SS 11kV	0.207	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	18	18	18	18
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 170: Line Loading Load Flow Results (%) – Markotter lines: Welgevalen SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Park MS/Welgevalen SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Koch RMU/Koch MS 11kV	0.131	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
Valerida MS 11kV	0.131	15	15	15	15	15	15	15	17	17	17	17	18	22	24	24	24	26	27	27	27
Rhenish MS/Koch SS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	13	13	15	15	15	15
Koch MS/Rhenish MS 11kV	0.131	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Koch RMU/Valerida MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	9	9	9	9
Gimnasium SS/Coetzenburg SS 11kV	0.207	19	19	19	19	20	20	20	22	23	23	23	24	29	31	32	32	34	36	36	36
Gimnasium SS 11kV	0.131	15	15	15	15	15	15	15	17	17	17	17	18	22	24	24	24	26	27	27	27
Welgelegen SS/Park MS 11kV	0.207	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	17	18	18	18
Dalsig Oos SS/Welgelegen SS 11kV	0.207	10	10	10	10	10	10	10	11	11	12	12	12	15	16	16	16	17	18	18	18
Dalsig Oos SS/Koch SS 11kV	0.207	7	7	7	7	7	7	8	8	8	9	9	9	11	12	12	12	13	13	13	13
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	16	16	16	16	16	16	17	18	19	19	19	20	24	26	26	26	28	29	29	29
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	20	20	20	20	21	21	21	23	24	24	24	26	30	33	33	33	36	37	37	37

Table 171: Line Loading Load Flow Results (%) – Markotter lines: Rhenish MS/Koch SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	6	6	6	6	6	6	6	7	7	7	7	7	9	10	10	10	10	11	11	11
Park MS/Welgevalen SS 11kV	0.207	6	6	6	6	6	6	6	7	7	7	7	7	9	10	10	10	10	11	11	11
Koch RMU/Koch MS 11kV	0.131	10	10	10	10	10	10	11	12	12	12	12	13	15	17	17	17	18	19	19	19
Valerida MS 11kV	0.131	14	14	14	14	14	14	15	16	17	17	17	18	21	23	23	23	25	26	26	26
Rhenish MS/Koch SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Koch MS/Rhenish MS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	13	13	15	15	15	15
Koch RMU/Valerida MS 11kV	0.131	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Gimnasium SS/Coetzenburg SS 11kV	0.207	19	19	19	19	19	20	20	22	23	23	23	24	29	31	31	31	34	35	35	35

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Gimnasium SS 11kV	0.131	14	14	14	14	14	14	15	16	17	17	17	18	21	23	23	23	25	26	26	26
Welgelegen SS/Park MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	8	8	8
Dalsig Oos SS/Welgelegen SS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7
Dalsig Oos SS/Koch SS 11kV	0.207	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	19	19	19	19	19	19	20	21	22	22	22	24	28	30	31	31	33	35	35	35
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	17	17	17	17	18	18	18	20	21	21	21	22	26	28	29	29	31	32	32	32

Table 172: Line Loading Load Flow Results (%) – Markotter lines: Gimnasium SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	16	16	16	16	16	16	16	18	18	19	19	20	23	25	26	26	28	29	29	29
Park MS/Welgevalen SS 11kV	0.207	16	16	16	16	16	16	16	18	18	19	19	20	23	25	26	26	28	29	29	29
Koch RMU/Koch MS 11kV	0.131	22	22	22	22	23	23	24	25	27	27	27	28	34	36	37	37	40	41	41	41
Valerida MS 11kV	0.131	16	16	16	16	16	17	17	19	19	19	19	21	24	26	27	27	29	30	30	30
Rhenish MS/Koch SS 11kV	0.131	32	32	33	33	33	33	34	37	39	39	39	41	49	53	54	54	58	60	60	60
Koch MS/Rhenish MS 11kV	0.131	24	24	24	25	25	25	26	28	29	29	29	31	37	40	40	40	44	45	45	45
Koch RMU/Valerida MS 11kV	0.131	26	26	26	27	27	27	28	30	31	32	32	33	40	43	44	44	47	49	49	49
Gimnasium SS/Coetzenburg SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gimnasium SS 11kV	0.131	16	16	16	16	16	17	17	19	19	19	19	21	24	26	27	27	29	30	30	30
Welgelegen SS/Park MS 11kV	0.207	6	6	6	7	7	7	7	7	8	8	8	8	10	11	11	11	12	12	12	12
Dalsig Oos SS/Welgelegen SS 11kV	0.207	6	6	6	6	6	7	7	7	8	8	8	8	10	10	11	11	11	12	12	12
Dalsig Oos SS/Koch SS 11kV	0.207	26	26	26	26	27	27	28	30	31	31	31	33	39	43	43	43	47	49	49	49
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	14	14	14	14	14	14	15	16	16	16	16	17	21	22	23	23	25	25	25	25
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	22	22	22	22	23	23	24	25	27	27	27	28	34	36	37	37	40	41	41	41

Table 173: Line Loading Load Flow Results (%) – Markotter lines: Gimnasium SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	10	10	10	10	11	11	11	12	12	12	12	13	16	17	17	17	18	19	19	19
Park MS/Welgevalen SS 11kV	0.207	10	10	10	10	11	11	11	12	12	12	12	13	16	17	17	17	18	19	19	19
Koch RMU/Koch MS 11kV	0.131	9	9	9	9	9	9	10	11	11	11	11	12	14	15	15	15	17	17	17	17
Valerida MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhenish MS/Koch SS 11kV	0.131	19	19	19	20	20	20	21	22	23	23	23	25	29	32	32	32	35	36	36	36
Koch MS/Rhenish MS 11kV	0.131	11	11	11	11	11	12	12	13	13	14	14	14	17	18	19	19	20	21	21	21
Koch RMU/Valerida MS 11kV	0.131	10	10	10	10	10	10	11	12	12	12	12	13	15	17	17	17	18	19	19	19
Gimnasium SS/Coetzenburg SS 11kV	0.207	10	10	10	10	10	10	11	12	12	12	12	13	15	17	17	17	18	19	19	19
Gimnasium SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Welgelegen SS/Park MS 11kV	0.207	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4
Dalsig Oos SS/Welgelegen SS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4
Dalsig Oos SS/Koch SS 11kV	0.207	16	16	16	16	16	16	17	18	19	19	19	20	24	26	26	26	28	30	30	30
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	16	16	16	17	17	17	17	19	19	20	20	21	25	27	27	27	29	30	30	30
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	20	20	20	20	20	20	21	22	23	23	23	25	29	32	32	32	35	36	36	36

Table 174: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Welgelegen SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	10	10	10	10	10	10	10	11	11	12	12	12	15	16	16	16	17	18	18	18
Park MS/Welgevalen SS 11kV	0.207	10	10	10	10	10	10	10	11	11	12	12	12	15	16	16	16	17	18	18	18
Koch RMU/Koch MS 11kV	0.131	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
Valerida MS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	13	13	14	15	15	15
Rhenish MS/Koch SS 11kV	0.131	13	13	13	13	13	13	14	15	15	16	16	17	20	21	21	22	23	24	24	24
Koch MS/Rhenish MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	8	8	8	8	9	9	9	9
Koch RMU/Valerida MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5	5	5	5
Gimnasium SS/Coetzenburg SS 11kV	0.207	15	15	15	15	16	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Gimnasium SS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	13	13	14	15	15	15
Welgelegen SS/Park MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dalsig Oos SS/Welgelegen SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dalsig Oos SS/Koch SS 11kV	0.207	11	11	11	11	11	11	12	13	13	13	13	14	16	18	18	18	20	20	20	20
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	19	19	19	19	19	19	20	21	22	22	22	24	28	30	31	31	33	35	35	35
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	17	17	17	17	18	18	18	20	21	21	21	22	26	28	29	29	31	32	32	32

Table 175: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Koch SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Park MS/Welgevalen SS 11kV	0.207	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4
Koch RMU/Koch MS 11kV	0.131	11	11	11	11	11	11	12	13	13	13	13	14	17	18	18	18	20	21	21	21
Valerida MS 11kV	0.131	25	25	25	25	26	26	27	29	30	30	30	32	38	41	42	42	45	47	47	47
Rhenish MS/Koch SS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Koch MS/Rhenish MS 11kV	0.131	9	9	9	9	9	9	10	10	11	11	11	12	14	15	15	15	16	17	17	17
Koch RMU/Valerida MS 11kV	0.131	15	15	15	15	15	15	16	17	18	18	18	19	23	25	25	25	27	28	28	28
Gimnasium SS/Coetzenburg SS 11kV	0.207	26	26	26	26	27	27	28	30	31	31	31	33	39	43	43	43	47	48	48	48
Gimnasium SS 11kV	0.131	25	25	25	25	26	26	27	29	30	30	30	32	38	41	42	42	45	47	47	47
Welgelegen SS/Park MS 11kV	0.207	7	7	7	7	8	8	8	8	9	9	9	9	11	12	12	12	13	14	14	14
Dalsig Oos SS/Welgelegen SS 11kV	0.207	7	7	7	7	8	8	8	8	9	9	9	9	11	12	12	12	13	14	14	14
Dalsig Oos SS/Koch SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	20	21	21	21	21	21	22	23	24	25	25	26	31	33	34	34	37	38	38	38
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	15	16	16	16	16	16	16	18	18	19	19	20	23	25	25	26	28	29	29	29

Table 176: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	13	13	13	13	14	14	14	15	16	16	16	17	20	22	22	22	24	25	25	25
Park MS/Welgevalen SS 11kV	0.207	13	13	13	13	14	14	14	15	16	16	16	17	20	22	22	22	24	25	25	25
Koch RMU/Koch MS 11kV	0.131	20	20	20	20	20	20	21	23	24	24	24	25	30	32	33	33	36	37	37	37
Valerida MS 11kV	0.131	13	13	13	13	13	13	14	15	16	16	16	17	20	21	22	22	24	24	24	24
Rhenish MS/Koch SS 11kV	0.131	30	30	30	30	30	31	32	34	36	36	36	38	45	49	50	50	54	56	56	56
Koch MS/Rhenish MS 11kV	0.131	22	22	22	22	22	22	23	25	26	26	26	28	33	36	36	36	39	41	41	41
Koch RMU/Valerida MS 11kV	0.131	23	23	23	23	24	24	25	27	28	28	28	30	35	38	39	39	42	43	43	43
Gimnasium SS/Coetzenburg SS 11kV	0.207	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4
Gimnasium SS 11kV	0.131	13	13	13	13	13	13	14	15	16	16	16	17	20	21	22	22	24	24	24	24
Welgelegen SS/Park MS 11kV	0.207	23	23	23	23	23	24	24	26	27	28	28	29	35	38	38	38	41	43	43	43
Dalsig Oos SS/Welgelegen SS 11kV	0.207	23	23	23	23	23	24	24	26	27	28	28	29	35	38	38	38	41	43	43	43
Dalsig Oos SS/Koch SS 11kV	0.207	24	24	24	24	25	25	26	28	29	29	29	31	37	40	40	40	44	45	45	45
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67

Table 177: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Dalsig Oos SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Welgevalen SS/Coetzenburg SS 11kV	0.207	28	28	28	28	28	28	29	32	33	33	33	35	42	45	46	46	50	52	52	52
Park MS/Welgevalen SS 11kV	0.207	28	28	28	28	28	28	29	32	33	33	33	35	42	45	46	46	50	52	52	52
Koch RMU/Koch MS 11kV	0.131	17	17	17	17	17	18	18	20	20	21	21	22	26	28	28	28	31	32	32	32
Valerida MS 11kV	0.131	33	33	33	33	33	34	35	37	39	39	39	41	49	53	54	54	59	61	61	61
Rhenish MS/Koch SS 11kV	0.131	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Koch MS/Rhenish MS 11kV	0.131	15	15	15	15	15	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28
Koch RMU/Valerida MS 11kV	0.131	23	23	23	23	23	23	24	26	27	27	27	29	34	37	37	37	40	42	42	42
Gimnasium SS/Coetzenburg SS 11kV	0.207	31	31	31	31	31	32	33	35	37	37	37	39	47	50	51	51	55	57	57	57

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Gimnasium SS 11kV	0.131	33	33	33	33	33	34	35	37	39	39	39	41	49	53	54	54	59	61	61	61
Welgelegen SS/Park MS 11kV	0.207	18	18	18	18	18	19	19	21	22	22	22	23	27	30	30	30	32	34	34	34
Dalsig Oos SS/Welgelegen SS 11kV	0.207	18	18	18	18	18	19	19	21	22	22	22	23	27	30	30	30	32	34	34	34
Dalsig Oos SS/Koch SS 11kV	0.207	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Markotter: Dalsig Oos - Ring 1

Table 178: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Koch RMU/Koch MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Koch SS/Barry MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	6	7	7	7	7	7	7
Rhenish MS/Koch SS 11kV	0.131	12	12	12	12	12	12	12	13	14	14	14	15	17	19	19	19	21	21	21	21
Doornbosch MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
Koch MS/Rhenish MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
Dalsig Oos SS/Koch SS 11kV	0.207	10	10	10	10	10	10	10	11	12	12	12	12	15	16	16	16	18	18	18	18
Barry MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 179: Line Loading Load Flow Results (%) – Markotter lines:

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Koch RMU/Koch MS 11kV	0.131	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Koch SS/Barry MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhenish MS/Koch SS 11kV	0.131	15	15	15	15	15	15	16	17	18	18	18	19	23	25	25	25	27	28	28	28
Doornbosch MS 11kV	0.131	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Koch MS/Rhenish MS 11kV	0.131	7	7	7	7	7	7	7	8	8	8	8	9	10	11	11	12	12	13	13	13
Dalsig Oos SS/Koch SS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	12	14	16	16	16	17	18	18	18
Barry MS 11kV	0.131	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	19	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	20	21	21	21	23	27	29	29	30	32	33	33	33

Table 180: Line Loading Load Flow Results (%) – Markotter lines: Koch SS/Barry MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	6	6	6	7	7	7	7	7	8	8	8	8	10	11	11	11	12	12	12	12
Koch RMU/Koch MS 11kV	0.131	10	10	10	10	10	10	11	12	12	12	12	13	15	17	17	17	18	19	19	19
Koch SS/Barry MS 11kV	0.131	11	11	11	11	11	12	12	13	13	14	14	14	17	18	19	19	20	21	21	21
Rhenish MS/Koch SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Doornbosch MS 11kV	0.131	7	7	8	8	8	8	8	9	9	9	9	9	11	12	12	12	13	14	14	14
Koch MS/Rhenish MS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	13	13	15	15	15	15
Dalsig Oos SS/Koch SS 11kV	0.207	7	7	7	7	7	7	8	8	9	9	9	9	11	12	12	12	13	13	13	13
Barry MS 11kV	0.131	7	7	8	8	8	8	8	9	9	9	9	9	11	12	12	12	13	14	14	14
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	19	19	19	19	19	19	20	21	22	22	22	24	28	30	31	31	33	35	35	35
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	17	17	17	17	18	18	18	20	21	21	21	22	26	28	29	29	31	32	32	32

Table 181: Line Loading Load Flow Results (%) – Markotter lines: Rhenish MS/Koch SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	6	7	7	7	7	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Koch RMU/Koch MS 11kV	0.131	11	11	11	11	11	11	12	13	13	13	13	14	17	18	18	18	20	21	21	21
Koch SS/Barry MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Rhenish MS/Koch SS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Doornbosch MS 11kV	0.131	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
Koch MS/Rhenish MS 11kV	0.131	9	9	9	9	9	9	10	10	11	11	11	12	14	15	15	15	16	17	17	17
Dalsig Oos SS/Koch SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barry MS 11kV	0.131	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	20	21	21	21	21	21	22	23	24	25	25	26	31	33	34	34	37	38	38	38
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	15	16	16	16	16	16	16	18	18	19	19	20	23	25	25	26	28	29	29	29

Table 182: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Koch SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
Koch RMU/Koch MS 11kV	0.131	20	20	20	20	20	20	21	23	24	24	24	25	30	32	33	33	36	37	37	37
Koch SS/Barry MS 11kV	0.131	8	8	8	8	9	9	9	10	10	10	10	11	13	14	14	14	15	16	16	16
Rhenish MS/Koch SS 11kV	0.131	30	30	30	30	30	31	32	34	36	36	36	38	45	49	50	50	54	56	56	56
Doornbosch MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	8	8	8	9	9	9
Koch MS/Rhenish MS 11kV	0.131	22	22	22	22	22	22	23	25	26	26	26	28	33	36	36	36	39	41	41	41
Dalsig Oos SS/Koch SS 11kV	0.207	24	24	24	24	25	25	26	28	29	29	29	31	37	40	40	40	44	45	45	45
Barry MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	8	8	8	8	9	9
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67

Table 183: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)		2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Doornbosch MS/Koch RMU 11kV	0.131	5	5	5	6	6	6	6	6	7	7	7		7	8	9	9	9	10	10	10	10
Koch RMU/Koch MS 11kV	0.131	17	17	17	17	17	18	18	20	20	21	21		22	26	28	28	28	31	32	32	32
Koch SS/Barry MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1
Rhenish MS/Koch SS 11kV	0.131	7	7	7	7	7	7	8	8	9	9	9		9	11	12	12	12	13	13	13	13
Doornbosch MS 11kV	0.131	4	4	4	4	5	5	5	5	5	5	5		6	7	7	7	7	8	8	8	8
Koch MS/Rhenish MS 11kV	0.131	15	15	15	15	15	16	16	17	18	18	18		19	23	25	25	25	27	28	28	28
Dalsig Oos SS/Koch SS 11kV	0.207	5	5	5	5	5	5	5	6	6	6	6		6	7	8	8	8	9	9	9	9
Barry MS 11kV	0.131	4	4	4	4	4	5	5	5	5	5	5		6	7	7	7	7	8	8	8	8
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43		46	54	59	60	60	65	67	67	67
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0

Markotter: Dalsig Oos - Ring 2

Table 184: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	14	15	15	16	16	16	16
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	7	7	8	8	8	8
Dalsig Oos SS/Binnekring MS 11kV	0.207	10	10	10	10	10	10	11	11	12	12	12	13	15	16	16	16	18	18	18	18
Binnekring MS/Dalsig Wes RMU 11kV	0.207	6	6	6	6	6	6	7	7	8	8	8	8	10	10	10	10	11	12	12	12
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 185: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Brandwacht SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	18	18	18	18	18	18	19	20	21	21	21	23	27	29	29	30	32	33	33	33
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	19	19	19	19	19	19	20	21	22	22	22	24	28	30	31	31	33	34	34	34
Dalsig Oos SS/Binnekring MS 11kV	0.207	19	19	19	19	19	19	20	22	22	23	23	24	28	31	31	31	34	35	35	35
Binnekring MS/Dalsig Wes RMU 11kV	0.207	15	15	15	15	15	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	15	15	15	15	15	15	15	17	17	18	18	19	22	24	24	24	26	27	27	27
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 186: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Binnekring MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	19	19	19	19	19	19	20	22	22	23	23	24	28	31	31	31	34	35	35	35
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	30	30	30	31	31	31	32	35	36	36	36	39	46	50	50	50	54	56	56	56
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	11	11	11	11	12	12	12	13	13	14	14	14	17	18	19	19	20	21	21	21
Dalsig Oos SS/Binnekring MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Binnekring MS/Dalsig Wes RMU 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6	7	7	7	7
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	15	15	15	15	16	16	16	17	18	18	18	19	23	25	25	25	27	28	28	28
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 187: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	15	15	15	16	17	17	17
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	7	7	8	8	8	8
Dalsig Oos SS/Binnekring MS 11kV	0.207	10	10	10	10	10	10	11	11	12	12	12	13	15	16	17	17	18	19	19	19
Binnekring MS/Dalsig Wes RMU 11kV	0.207	6	6	6	6	6	7	7	7	8	8	8	8	10	10	10	10	11	12	12	12
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67

Table 188: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Dalsig Oos SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Brandwacht 2 MS/Brandwacht SS 11kV	0.081	5	5	5	5	5	5	5	6	6	6	6	6	7	8	8	8	9	9	9	9
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	6	7	7	8	8	8	8	8	8
Dalsig Oos SS/Binnekring MS 11kV	0.207	10	10	10	10	10	10	11	11	12	12	12	13	15	16	17	17	18	19	19	19
Binnekring MS/Dalsig Wes RMU 11kV	0.207	6	6	6	6	6	7	7	7	8	8	8	8	10	10	11	11	11	12	12	12
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0.131	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Markotter: Dalsig Oos - Ring 3

Table 189: Line Loading Load Flow Results (%) – Markotter lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	14	15	15	16	16	16	16
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Faber RMU/LeSeur MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
LeSeur MS/Brandwacht SS 11kV	0.081	8	8	8	8	8	8	8	9	9	9	9	10	11	12	13	13	14	14	14	14
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 190: Line Loading Load Flow Results (%) – Markotter lines: Dalsig Oos SS/Brandwacht SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Faber RMU/LeSeur MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
LeSeur MS/Brandwacht SS 11kV	0.081	8	8	8	8	8	8	8	9	9	9	9	10	11	12	13	13	14	14	14	14
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 191: Line Loading Load Flow Results (%) – Markotter lines: Brandwacht SS/Faber RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	14	15	15	16	16	16	16
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faber RMU/LeSeur MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LeSeur MS/Brandwacht SS 11kV	0.081	13	13	13	13	13	14	14	15	16	16	16	17	20	22	22	22	24	25	25	25
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 192: Line Loading Load Flow Results (%) – Markotter lines: LeSeur MS/Brandwacht SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	14	15	15	16	16	16	16
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	11	11	11	11	11	11	11	12	13	13	13	14	16	18	18	18	19	20	20	20
Faber RMU/LeSeur MS 11kV	0.131	8	8	8	8	8	8	9	9	10	10	10	10	12	13	14	14	15	15	15	15
LeSeur MS/Brandwacht SS 11kV	0.081	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	18	18	18	18	18	18	19	21	21	22	22	23	27	29	30	30	32	33	33	33

Table 193: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Coetzenburg SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	13	15	15	15	16	17	17	17
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Faber RMU/LeSeur MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7
LeSeur MS/Brandwacht SS 11kV	0.081	8	8	8	8	8	8	8	9	9	9	9	10	11	12	13	13	14	14	14	14
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67

Table 194: Line Loading Load Flow Results (%) – Markotter lines: Markotter Suidwal SS/Dalsig Oos SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dalsig Oos SS/Brandwacht SS 11kV	0.207	9	9	9	9	9	9	9	10	11	11	11	11	14	15	15	15	16	17	17	17
Brandwacht SS/Olyf MS 11kV	0.081	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Brandwacht SS/Faber RMU 11kV	0.1	5	5	5	5	5	5	5	5	6	6	6	6	7	8	8	8	8	9	9	9
Faber RMU/LeSeur MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	7	7	7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
LeSeur MS/Brandwacht SS 11kV	0.081	8	8	8	8	8	8	8	9	9	9	9	10	12	13	13	13	14	14	14	14
Markotter Suidwal SS/Coetzenburg SS 11kV	0.4	36	36	36	36	37	37	38	41	43	43	43	46	54	59	60	60	65	67	67	67
Markotter Suidwal SS/Dalsig Oos SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Jan Marais - Karendal

Table 195: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9	9
Twee Pieke MS/Karendal SS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Morkel MS/Jonkershoek MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	24	24	24	24	24	24	25	26	26	26	26	26	27	28	28	28	28	28	28	28
Jan Marais SS/Unielaan MS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	23	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	27	27	27	27
Uniepark SS/Twee Pieke MS 11kV	0.207	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7
Jonkershoek MS/Karendal SS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Karendal SS/Du Plessis MS 11kV	0.207	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	12	12	12	12
Rowan MS/Jannasch 2 MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	24	24	24	24

Table 196: Line Loading Load Flow Results (%) – Jan Marais lines: Twee Pieke MS/Karendal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	10	10	10	10	10	10	11	11	11	11	11	11	11	12	12	12	12	12	12	12
Twee Pieke MS/Karendal SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	19	19	19	19
Morkel MS/Jonkershoek MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	25	25	25	25	25	25	27	28	28	28	28	28	29	29	30	30	30	30	30	30
Jan Marais SS/Unielaan MS 11kV	0.131	19	19	19	19	19	19	21	21	21	21	21	22	22	23	23	23	23	23	23	23
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	24	25	26	26	26	26	26	26	26
Uniepark SS/Twee Pieke MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Jonkershoek MS/Karendal SS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Karendal SS/Du Plessis MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	11	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13
Rowan MS/Jannasch 2 MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	11	11
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	22	22	22	22	22	22	23	24	24	24	24	24	25	25	25	25	26	26	26	26

Table 197: Line Loading Load Flow Results (%) – Jan Marais lines: Unielaan MS/Uniepark SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9
Twee Pieke MS/Karendal SS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
Unielaan MS/Uniepark SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morkel MS/Jonkershoek MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	25	25	25	25	25	26	27	28	28	28	28	28	29	30	30	30	30	30	30	30
Jan Marais SS/Unielaan MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Jan Marais SS/Uniepark SS 11kV	0.4	26	26	26	26	26	26	27	28	28	28	28	29	30	30	30	30	31	31	31	31
Uniepark SS/Twee Pieke MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Jonkershoek MS/Karendal SS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Karendal SS/Du Plessis MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13	13
Rowan MS/Jannasch 2 MS 11kV	0.207	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	22	22	22	22	22	22	23	24	24	24	24	24	25	25	25	25	26	26	26	26

Table 198: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/HuisduPreez SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	13	13	13	13	13	13	14	14	14	14	14	14	15	15	15	15	15	15	15	15
Twee Pieke MS/Karendal SS 11kV	0.207	13	13	13	13	13	13	13	14	14	14	14	14	15	15	15	15	15	15	15	15
Unielaan MS/Uniepark SS 11kV	0.131	21	21	21	21	21	21	22	23	23	23	23	23	24	24	24	24	24	25	25	25
Morkel MS/Jonkershoek MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	13	13	13	13
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Unielaan MS 11kV	0.131	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29
Jan Marais SS/Uniepark SS 11kV	0.4	28	28	28	28	28	28	30	30	31	31	31	31	32	32	33	33	33	33	33	33

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Twee Pieke MS 11kV	0.207	15	15	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
Jonkershoek MS/Karendal SS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Karendal SS/Du Plessis MS 11kV	0.207	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	11	11	11
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Rowan MS/Jannasch 2 MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5

Table 199: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Unielaan MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
Twee Pieke MS/Karendal SS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Unielaan MS/Uniepark SS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Morkel MS/Jonkershoek MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	26	26	26	26	26	26	27	28	28	28	28	29	30	30	30	30	31	31	31	31
Jan Marais SS/Unielaan MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Uniepark SS 11kV	0.4	27	27	27	27	27	27	29	29	30	30	30	30	31	31	31	31	32	32	32	32
Uniepark SS/Twee Pieke MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7
Jonkershoek MS/Karendal SS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Karendal SS/Du Plessis MS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	10
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	11	11	11	11	11	11	12	12	12	13	13	13	13	13	13	13	13	14	14	14

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rowan MS/Jannasch 2 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	12	12	12	12
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	22	22	22	22	22	22	24	24	24	24	24	25	26	26	26	26	26	27	27	27

Table 200: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Uniepark SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Twee Pieke MS/Karendal SS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Unielaan MS/Uniepark SS 11kV	0.131	47	47	47	47	47	47	50	51	51	51	51	52	54	54	55	55	55	56	56	56
Morkel MS/Jonkershoek MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	44	44	44	44	44	44	46	48	48	48	48	49	50	51	51	51	52	52	52	52
Jan Marais SS/Unielaan MS 11kV	0.131	51	51	51	51	51	51	54	56	56	56	56	57	58	59	59	59	60	61	61	61
Jan Marais SS/Uniepark SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uniepark SS/Twee Pieke MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Jonkershoek MS/Karendal SS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Karendal SS/Du Plessis MS 11kV	0.207	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	19	19	19	19
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	19	19	19	19	19	19	20	21	21	21	21	21	22	22	22	22	22	23	23	23
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	26	27	27	27
Rowan MS/Jannasch 2 MS 11kV	0.207	21	21	21	21	21	21	22	23	23	23	23	23	24	24	24	24	24	25	25	25
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	40	40	40	40	40	40	42	44	44	44	44	44	46	46	47	47	47	48	48	48

Table 201: Line Loading Load Flow Results (%) – Jan Marais lines: Uniepark SS/Twee Pieke MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	14	14	14
Twee Pieke MS/Karendal SS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Unielaan MS/Uniepark SS 11kV	0.131	15	15	15	16	16	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Morkel MS/Jonkershoek MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	11	11	11	11
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	26	26	26	26	26	27	28	29	29	29	29	29	30	31	31	31	31	31	31	31
Jan Marais SS/Unielaan MS 11kV	0.131	19	19	19	19	19	19	20	21	21	21	21	21	22	22	22	22	23	23	23	23
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	24	25	25	25	25	26	26	26	26
Uniepark SS/Twee Pieke MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jonkershoek MS/Karendal SS 11kV	0.207	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Karendal SS/Du Plessis MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	14	14	14	14
Rowan MS/Jannasch 2 MS 11kV	0.207	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	12	12	12	12
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	25	26	26	26	26	27	27	27	27

Table 202: Line Loading Load Flow Results (%) – Jan Marais lines: Jonkershoek MS/Karendal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	11	11	11	11
Twee Pieke MS/Karendal SS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Morkel MS/Jonkershoek MS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	27	27	27
Jan Marais SS/Unielaan MS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	23	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	23	23	23	23	23	23	24	25	25	25	25	25	26	26	26	26	27	27	27	27
Uniepark SS/Twee Pieke MS 11kV	0.207	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Jonkershoek MS/Karendal SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Karendal SS/Du Plessis MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11
Rowan MS/Jannasch 2 MS 11kV	0.207	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	19	19	19	19	19	19	20	21	21	21	21	22	22	22	23	23	23	23	23	23

Table 203: Line Loading Load Flow Results (%) – Jan Marais lines: Karendal SS/Du Plessis MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Endler MS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Twee Pieke MS/Karendal SS 11kV	0.207	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6
Unielaan MS/Uniepark SS 11kV	0.131	17	17	17	17	17	17	18	19	19	19	19	19	19	20	20	20	20	20	20	20
Morkel MS/Jonkershoek MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Karendal SS/Zwaanswyk MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Endler MS/Morkel MS 11kV	0.207	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/HuisduPreez SS 11kV	0.131	19	19	19	19	19	19	20	21	21	21	21	21	22	22	22	22	23	23	23	23
Jan Marais SS/Unielaan MS 11kV	0.131	21	21	21	21	21	21	22	22	23	23	23	23	24	24	24	24	24	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	23	23	23	23	23	24	25	26	26	26	26	26	27	27	27	27	28	28	28	28

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Uniepark SS/Twee Pieke MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9
Jonkershoek MS/Karendal SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Karendal SS/Du Plessis MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blakesdrif Pomp RMU/SUB_11726 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Du Plessis MS/Rowan MS 11kV	0.207	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Jannasch 2 MS/Jannasch 1 MS 11kV	0.207	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8
Rowan MS/Jannasch 2 MS 11kV	0.207	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6
Jannasch 1 MS/HuisduPreez SS 11kV	0.131	15	15	15	15	15	15	16	17	17	17	17	17	18	18	18	18	18	18	18	18

Jan Marais - Sonneblom Ring 1

Table 204: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22.1	23.3	24	24.1	24.1	24.1	24.5	25.2	25.5	25.6	25.6	26	26.2	26.2	26.2
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Sonneblom SS/Infruitec SS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Cannerie SS/Sonneblom SS 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
Infruitec SS/Cannerie SS 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8

Table 205: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	15	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Sonneblom SS/Infruitec SS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	10

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Cannerie SS/Sonneblom SS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
Infruitec SS/Cannerie SS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8

Table 206: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Cluver MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29
Jan Marais SS/Cluver MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Sonneblom SS/Infruitec SS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Cannerie SS/Sonneblom SS 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
Infruitec SS/Cannerie SS 11kV	0.207	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8

Table 207: Line Loading Load Flow Results (%) – Jan Marais lines: Sonneblom SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Infruitec SS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	10
Cannerie SS/Sonneblom SS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
Infruitec SS/Cannerie SS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8

Table 208: Line Loading Load Flow Results (%) – Jan Marais lines: Sonneblom SS/Infruitec SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Sonneblom SS/Infruitec SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cannerie SS/Sonneblom SS 11kV	0.207	15	15	15	15	15	15	16	16	16	17	17	17	17	17	18	18	18	18	18	18
Infruitec SS/Cannerie SS 11kV	0.207	15	15	15	15	15	15	16	16	16	17	17	17	17	17	18	18	18	18	18	18

Table 209: Line Loading Load Flow Results (%) – Jan Marais lines: Cannerie SS/Sonneblom SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Sonneblom SS/Infruitec SS 11kV	0.207	15	15	15	15	15	15	16	16	16	17	17	17	17	17	18	18	18	18	18	18
Cannerie SS/Sonneblom SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infruitec SS/Cannerie SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Jan Marais - Sonneblom Ring 2

Table 210: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Cluver MS/Verreweide MS 11kV	0.207	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Verreweide MS/Student Village MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape Dutch MS/Driehoek MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Driehoek MS/Sonneblom SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 211: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	15	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Cluver MS/Verreweide MS 11kV	0.207	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	16
Verreweide MS/Student Village MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape Dutch MS/Driehoek MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Driehoek MS/Sonneblom SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 212: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Cluver MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29
Jan Marais SS/Cluver MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cluver MS/Verreweide MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Verreweide MS/Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape Dutch MS/Driehoek MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Driehoek MS/Sonneblom SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 213: Line Loading Load Flow Results (%) – Jan Marais lines: Sonneblom SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Cluver MS/Verreweide MS 11kV	0.207	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Verreweide MS/Student Village MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape Dutch MS/Driehoek MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Driehoek MS/Sonneblom SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 214: Line Loading Load Flow Results (%) – Jan Marais lines: Driehoek MS/Sonneblom SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	24	25	25	25	25	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Cluver MS/Verreweide MS 11kV	0.207	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Verreweide MS/Student Village MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4
Student Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Village MS/Cape Dutch MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cape Dutch MS/Driehoek MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	15	15	15	15	16	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Driehoek MS/Sonneblom SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Jan Marais - Sonneblom Ring 3

Table 215: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Khaler MS/Bothmashoogte MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	18	18	19	19	19	19	19	19
Lelie MS/Protea MS 11kV	0.131	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10
Protea MS/Khaler MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Lelie MS 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Sonneblom SS/Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Bothmashoogte MS/Tindal SS 11kV	0.131	25	25	25	25	25	25	27	27	28	28	28	28	29	29	29	29	30	30	30	30

Table 216: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	15	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Khaler MS/Bothmashoogte MS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Lelie MS/Protea MS 11kV	0.131	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Protea MS/Khaler MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	11	11	11	11
Lelie MS 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	11	11	11	11
Sonneblom SS/Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	11	11	11
Bothmashoogte MS/Tindal SS 11kV	0.131	25	25	25	25	25	25	27	28	28	28	28	28	29	29	29	29	30	30	30	30

Table 217: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Cluver MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29
Jan Marais SS/Cluver MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Tindal SS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Khaler MS/Bothmashoogte MS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	18	18	18	19	19	19	19	19	19
Lelie MS/Protea MS 11kV	0.131	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10
Protea MS/Khaler MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Lelie MS 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Sonneblom SS/Glenelie RMU 11kV	0.082	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10
Bothmashoogte MS/Tindal SS 11kV	0.131	25	25	25	25	25	25	27	27	28	28	28	28	29	29	29	29	30	30	30	30

Table 218: Line Loading Load Flow Results (%) – Jan Marais lines: Sonneblom SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Khaler MS/Bothmashoogte MS 11kV	0.131	42	42	42	42	42	42	44	45	46	46	46	46	48	48	48	48	49	49	49	49
Lelie MS/Protea MS 11kV	0.131	34	34	34	34	34	34	36	37	37	37	37	37	38	39	39	39	39	40	40	40
Protea MS/Khaler MS 11kV	0.131	38	38	38	38	38	38	40	41	41	41	41	42	43	43	44	44	44	44	44	44
Glenelie RMU 11kV	0.082	49	49	49	49	49	50	52	53	54	54	54	55	56	57	57	57	58	58	58	58
Lelie MS 11kV	0.082	49	49	49	49	49	50	52	53	54	54	54	55	56	57	57	57	58	58	58	58
Sonneblom SS/Glenelie RMU 11kV	0.082	49	49	49	49	49	50	52	53	54	54	54	55	56	57	57	57	58	58	58	58
Bothmashoogte MS/Tindal SS 11kV	0.131	51	51	51	51	51	51	54	55	56	56	56	57	58	59	59	59	60	60	60	60

Table 219: Line Loading Load Flow Results (%) – Jan Marais lines: Sonneblom SS/Glenelie RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	19	19	19	19	19	20	20	21	21	21	21	21	22	22	22	22	23	23	23	23
Khaler MS/Bothmashoogte MS 11kV	0.131	11	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13
Lelie MS/Protea MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Protea MS/Khaler MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8
Glenelie RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lelie MS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonneblom SS/Glenelie RMU 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bothmashoogte MS/Tindal SS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	24	24	24	24

Table 220: Line Loading Load Flow Results (%) – Jan Marais lines: Bothmashoogte MS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Jan Marais SS/Cluver MS 11kV	0.207	15	15	15	15	15	16	16	17	17	17	17	17	18	18	18	18	18	18	18	18
Sonneblom SS/Tindal SS 11kV	0.207	32	32	32	32	32	32	34	35	35	35	35	36	37	37	37	37	38	38	38	38
Khaler MS/Bothmashoogte MS 11kV	0.131	9	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	11	11	11	11
Lelie MS/Protea MS 11kV	0.131	17	17	17	17	17	18	19	19	19	19	19	19	20	20	20	20	21	21	21	21
Protea MS/Khaler MS 11kV	0.131	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	16
Glenelie RMU 11kV	0.082	32	32	32	32	32	33	34	35	36	36	36	36	37	38	38	38	38	39	39	39
Lelie MS 11kV	0.082	32	32	32	32	32	33	34	35	36	36	36	36	37	38	38	38	38	39	39	39
Sonneblom SS/Glenelie RMU 11kV	0.082	32	32	32	32	32	33	34	35	36	36	36	36	37	38	38	38	38	39	39	39
Bothmashoogte MS/Tindal SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Jan Marais - Stone Ring 1

Table 221: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Bloekem/Adendorf MS/Stone SS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Tindal SS/Bloekem MS 11kV	0.207	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	11	11	11	11
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Idasvallei Sport RMU 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Bloekem/Adendorf MS 11kV	0.131	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8

Table 222: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bloekem/Adendorf MS/Stone SS 11kV	0.131	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9	9
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tindal SS/Bloekem MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Idasvallei Sport RMU 11kV	0.131	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Tindal SS/Stone SS 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bloekem/Adendorf MS 11kV	0.131	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4

Table 223: Line Loading Load Flow Results (%) – Jan Marais lines: Bloekem/Adendorf MS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	24	25	26	26	26	26	26	26	26
Bloekem/Adendorf MS/Stone SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5
Tindal SS/Bloekem MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9	9
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Idasvallei Sport RMU 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Tindal SS/Stone SS 11kV	0.4	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10
Bloekem/Adendorf MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 224: Line Loading Load Flow Results (%) – Jan Marais lines: Tindal SS/Bloekem MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	24	25	25	25	25	26	26	26	26
Bloekem/Adendorf MS/Stone SS 11kV	0.131	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	14	14	14	14
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Tindal SS/Bloekem MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Idasvallei Sport RMU 11kV	0.131	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9
Tindal SS/Stone SS 11kV	0.4	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Bloekem/Adendorf MS 11kV	0.131	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9

Table 225: Line Loading Load Flow Results (%) – Jan Marais lines: Tindal SS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	21	21	21	21	21	21	23	23	23	23	23	24	24	25	25	25	25	25	25	25
Bloekem/Adendorf MS/Stone SS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	23	23	24	24	24	24	24	24	24

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Bloekem MS/Idasvallei Sport RMU 11kV	0.207	17	17	17	17	17	17	18	18	18	18	18	19	19	19	19	19	20	20	20	20
Tindal SS/Bloekem MS 11kV	0.207	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	24	24	24	24
Idasvallei Sport RMU/Ival Sport MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Idasvallei Sport RMU 11kV	0.131	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29
Tindal SS/Stone SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bloekem/Adendorf MS 11kV	0.131	24	24	24	24	24	24	26	27	27	27	27	27	28	28	28	28	29	29	29	29

Jan Marais - Stone Ring 2

Table 226: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
SUB_6563/Simonswyk RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Simonsrust 1 MS/Beltana MS 11kV	0.207	20	20	20	20	20	20	22	22	22	22	22	23	23	24	24	24	24	24	24	24
Seven Eleven MS/Tindal SS 11kV	0.131	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	26	27	27	27
Simonswyk RMU/Simonsrust 2 MS 11kV	0.207	33	33	33	33	33	34	35	36	37	37	37	37	38	39	39	39	39	40	40	40
Sonneblom MS/Hellshoogte MS 11kV	0.207	17	17	17	17	17	17	18	19	19	19	19	19	20	20	20	20	20	20	20	20
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0.207	32	32	32	32	32	33	34	35	35	35	35	36	37	38	38	38	38	39	39	39
Beltana MS/Sonneblom MS 11kV	0.207	20	20	20	20	20	20	21	22	22	22	22	23	23	24	24	24	24	24	24	24
Jan Marais SS/Simonswyk RMU 11kV	0.207	36	36	36	36	36	36	38	39	40	40	40	40	41	42	42	42	43	43	43	43
Hellshoogte MS/Seven Eleven MS 11kV	0.131	27	27	27	27	27	27	28	29	29	29	29	30	31	31	31	31	32	32	32	32

Table 227: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
SUB_6563/Simonswyk RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Simonsrust 1 MS/Beltana MS 11kV	0.207	41	41	41	41	41	41	43	44	45	45	45	45	47	47	47	47	48	48	48	48
Seven Eleven MS/Tindal SS 11kV	0.131	54	54	54	54	54	54	57	59	59	59	59	60	62	63	63	63	64	64	64	64
Simonswyk RMU/Simonsrust 2 MS 11kV	0.207	54	54	54	54	54	54	57	59	59	59	59	60	62	63	63	63	64	64	64	64
Sonneblom MS/Hellshoogte MS 11kV	0.207	37	37	37	37	37	37	39	41	41	41	41	41	43	43	43	43	44	44	44	44
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0.207	53	53	53	53	53	53	56	58	58	58	58	59	61	61	61	61	62	63	63	63
Beltana MS/Sonneblom MS 11kV	0.207	41	41	41	41	41	41	43	44	44	44	44	45	46	47	47	47	48	48	48	48
Jan Marais SS/Simonswyk RMU 11kV	0.207	57	57	57	57	57	57	60	62	62	62	62	63	65	66	66	66	67	67	67	67
Hellshoogte MS/Seven Eleven MS 11kV	0.131	59	59	59	59	59	59	62	64	64	64	64	65	67	68	68	68	69	70	70	70

Table 228: Line Loading Load Flow Results (%) – Jan Marais lines: Seven Eleven MS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
SUB_6563/Simonswyk RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jan Marais SS/Tindal SS 11kV	0.4	25	25	25	25	25	25	26	27	27	27	27	28	29	29	29	29	30	30	30	30
Simonsrust 1 MS/Beltana MS 11kV	0.207	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	8	8
Seven Eleven MS/Tindal SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Simonswyk RMU/Simonsrust 2 MS 11kV	0.207	20	20	20	20	20	20	21	21	22	22	22	22	22	23	23	23	23	23	23	23
Sonneblom MS/Hellshoogte MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0.207	19	19	19	19	19	19	20	20	20	20	20	21	21	22	22	22	22	22	22	22
Beltana MS/Sonneblom MS 11kV	0.207	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	8	8
Jan Marais SS/Simonswyk RMU 11kV	0.207	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	26	27	27	27
Hellshoogte MS/Seven Eleven MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6

Table 229: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Simonswyk RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
SUB_6563/Simonswyk RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	30	30	30	30	30	30	31	32	33	33	33	33	34	34	35	35	35	35	35	35
Simonsrust 1 MS/Beltana MS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Seven Eleven MS/Tindal SS 11kV	0.131	36	36	36	36	36	36	38	39	39	39	39	40	41	42	42	42	42	43	43	43
Simonswyk RMU/Simonsrust 2 MS 11kV	0.207	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Sonneblom MS/Hellshoogte MS 11kV	0.207	20	20	20	20	20	20	21	21	22	22	22	22	23	23	23	23	23	23	23	23
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5
Beltana MS/Sonneblom MS 11kV	0.207	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Jan Marais SS/Simonswyk RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hellshoogte MS/Seven Eleven MS 11kV	0.131	31	31	31	31	31	31	33	34	34	34	34	35	36	36	36	36	37	37	37	37

Table 230: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Amoi MS/Helshoogte Village MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Idas 1 MS/Idas 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	27	27	27
Stone SS/Assegaai MS 11kV	0.131	29	29	29	29	29	29	31	31	32	32	32	32	33	34	34	34	34	34	34	34
Pendoring MS/Amoi MS 11kV	0.131	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 231: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Amoi MS/Helshoogte Village MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9
Idas 1 MS/Idas 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	28	28	28
Stone SS/Assegaai MS 11kV	0.131	29	29	29	29	29	29	31	32	32	32	32	32	33	34	34	34	34	35	35	35
Pendoring MS/Amoi MS 11kV	0.131	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 232: Line Loading Load Flow Results (%) – Jan Marais lines: Stone MS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	27	27	27	27	27	27	28	29	29	29	30	30	31	31	31	31	32	32	32	32
Amoi MS/Helshoogte Village MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Idas 1 MS/Idas 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	27	27	27
Stone SS/Assegaai MS 11kV	0.131	29	29	29	29	29	29	31	32	32	32	32	32	33	34	34	34	34	34	34	34
Pendoring MS/Amoi MS 11kV	0.131	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 233: Line Loading Load Flow Results (%) – Jan Marais lines: Stone SS/Assegaai MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	17	17	17	17	17	18	18	19	19	19	19	19	20	20	20	20	21	21	21	21
Amoi MS/Helshoogte Village MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Idas 1 MS/Idas 2 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Helshoogte Village MS/Idas 1 MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Assegaai MS/Pendoring MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stone SS/Assegaai MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pendoring MS/Amoi MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tindal SS/Stone SS 11kV	0.4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 234: Line Loading Load Flow Results (%) – Jan Marais lines: Tindal SS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	21	21	21	21	21	21	23	23	23	23	23	24	24	25	25	25	25	25	25	25
Amoi MS/Helshoogte Village MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Idas 1 MS/Idas 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	27	27	27
Stone SS/Assegaai MS 11kV	0.131	29	29	29	29	29	29	31	32	32	32	32	32	33	34	34	34	34	34	34	34
Pendoring MS/Amoi MS 11kV	0.131	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 235: Line Loading Load Flow Results (%) – Jan Marais lines: Idas 2 MS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Amoi MS/Helshoogte Village MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Idas 1 MS/Idas 2 MS 11kV	0.207	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Helshoogte Village MS/Idas 1 MS 11kV	0.207	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Assegaai MS/Pendoring MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	26	26	27	27	27	27	27	27	27
Stone SS/Assegaai MS 11kV	0.131	29	29	29	29	29	29	31	31	32	32	32	32	33	34	34	34	34	34	34	34
Pendoring MS/Amoi MS 11kV	0.131	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Idas 2 MS/Stone SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 236: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Packham MS/Merton MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bartlett MS/Packham MS 11kV	0.131	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9
Woodman MS/Gorridon MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Stone SS/Hector MS 11kV	0.131	16	16	16	16	16	16	17	17	18	18	18	18	18	19	19	19	19	19	19	19
Gorridon MS/Stone SS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	18	19	19	19
Hector MS/Bartlett MS 11kV	0.131	13	13	13	13	13	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Woodman MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Merton MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 237: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Tindal SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Packham MS/Merton MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bartlett MS/Packham MS 11kV	0.131	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Woodman MS/Gorridon MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	14	14	14	14	14	14	14	14	14
Stone SS/Hector MS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Gorridon MS/Stone SS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	19	19	19	19
Hector MS/Bartlett MS 11kV	0.131	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Woodman MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Merton MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 238: Line Loading Load Flow Results (%) – Jan Marais lines: Stone MS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	27	27	27	27	27	27	28	29	29	29	30	30	31	31	31	31	32	32	32	32
Packham MS/Merton MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bartlett MS/Packham MS 11kV	0.131	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9
Woodman MS/Gorridon MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Stone SS/Hector MS 11kV	0.131	16	16	16	16	16	16	17	17	18	18	18	18	18	19	19	19	19	19	19	19
Gorridon MS/Stone SS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	19	19	19	19
Hector MS/Bartlett MS 11kV	0.131	14	14	14	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	16	16	16	16	16	16	17	18	18	18	18	18	19	19	19	19	19	19	19	19
Woodman MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Merton MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 239: Line Loading Load Flow Results (%) – Jan Marais lines: Stone SS/Hector MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Packham MS/Merton MS 11kV	0.131	14	14	14	14	14	14	15	16	16	16	16	16	16	17	17	17	17	17	17	17

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Bartlett MS/Packham MS 11kV	0.131	9	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	11	11	11
Woodman MS/Gorridon MS 11kV	0.131	28	28	28	28	28	28	30	31	31	31	31	31	32	33	33	33	33	33	33	33
Stone SS/Hector MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gorridon MS/Stone SS 11kV	0.131	32	32	32	32	32	32	33	34	35	35	35	35	36	37	37	37	37	38	38	38
Hector MS/Bartlett MS 11kV	0.131	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Woodman MS 11kV	0.131	21	21	21	21	21	21	22	22	22	22	22	23	24	24	24	24	24	24	24	24
Merton MS 11kV	0.131	21	21	21	21	21	21	22	22	22	22	22	23	24	24	24	24	24	24	24	24

Table 240: Line Loading Load Flow Results (%) – Jan Marais lines: Gorridon MS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	22	22	22	22	22	22	23	24	24	24	24	25	25	26	26	26	26	26	26	26
Packham MS/Merton MS 11kV	0.131	17	17	17	17	17	17	18	19	19	19	19	19	20	20	20	20	21	21	21	21
Bartlett MS/Packham MS 11kV	0.131	23	23	23	23	23	23	24	25	25	25	25	25	26	27	27	27	27	27	27	27
Woodman MS/Gorridon MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Stone SS/Hector MS 11kV	0.131	32	32	32	32	32	32	33	34	35	35	35	35	36	37	37	37	37	38	38	38
Gorridon MS/Stone SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hector MS/Bartlett MS 11kV	0.131	29	29	29	29	29	29	31	32	32	32	32	32	33	34	34	34	34	35	35	35
Tindal SS/Stone SS 11kV	0.4	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10
Woodman MS 11kV	0.131	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13	13
Merton MS 11kV	0.131	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13	13

Table 241: Line Loading Load Flow Results (%) – Jan Marais lines: Tindal SS/Stone SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Jan Marais SS/Tindal SS 11kV	0.4	21	21	21	21	21	21	23	23	23	23	23	24	24	25	25	25	25	25	25	25

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Packham MS/Merton MS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bartlett MS/Packham MS 11kV	0.131	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9
Woodman MS/Gorridon MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Stone SS/Hector MS 11kV	0.131	16	16	16	16	16	16	17	17	18	18	18	18	18	19	19	19	19	19	19	19
Gorridon MS/Stone SS 11kV	0.131	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	18	19	19	19
Hector MS/Bartlett MS 11kV	0.131	13	13	13	13	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	16
Tindal SS/Stone SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Woodman MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Merton MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 242: Line Loading Load Flow Results (%) – Jan Marais lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Waterweg MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
AP Venter MS/Van Coppenhagen MS 11kV	0.082	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9
Uitsig MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Provinsie MS/Uniepark SS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Uniepark SS/AP Venter MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Van Coppenhagen MS/Waterweg MS 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Jan Marais SS/Unielaan MS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	23	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	27	27	27	27

Table 243: Line Loading Load Flow Results (%) – Jan Marais lines: Provinsie MS/Uniepark SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5
Waterweg MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13	13
AP Venter MS/Van Coppenhagen MS 11kV	0.082	19	19	19	19	19	20	21	21	21	21	21	22	22	23	23	23	23	23	23	23
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	8	8
Uitsig MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13	13	13	13
Provinsie MS/Uniepark SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uniepark SS/AP Venter MS 11kV	0.082	25	25	25	25	25	25	27	28	28	28	28	28	29	29	29	29	30	30	30	30
Van Coppenhagen MS/Waterweg MS 11kV	0.082	15	15	15	15	15	15	16	16	16	16	16	17	17	17	17	17	18	18	18	18
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Jan Marais SS/Unielaan MS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	23	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	27	27	27	27

Table 244: Line Loading Load Flow Results (%) – Jan Marais lines: Uniepark SS/AP Venter MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	12	12	12	12	12	12	13	13	13	13	13	13	14	14	14	14	14	14	14	14
Waterweg MS 11kV	0.082	14	14	14	14	14	14	15	16	16	16	16	16	16	17	17	17	17	17	17	17
AP Venter MS/Van Coppenhagen MS 11kV	0.082	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	19	19	19	19	19	19	20	21	21	21	21	21	22	22	22	22	22	23	23	23
Uitsig MS 11kV	0.082	14	14	14	14	14	14	15	16	16	16	16	16	16	17	17	17	17	17	17	17
Provinsie MS/Uniepark SS 11kV	0.207	10	10	10	10	10	10	11	11	11	11	11	11	11	12	12	12	12	12	12	12
Uniepark SS/AP Venter MS 11kV	0.082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Van Coppenhagen MS/Waterweg MS 11kV	0.082	10	10	10	10	10	10	11	11	11	11	11	12	12	12	12	12	12	12	12	12
Unielaan MS/Uniepark SS 11kV	0.131	16	16	16	16	16	16	17	18	18	18	18	18	18	19	19	19	19	19	19	19
Jan Marais SS/Unielaan MS 11kV	0.131	20	20	20	20	20	20	21	22	22	22	22	22	23	23	23	23	23	24	24	24
Jan Marais SS/Uniepark SS 11kV	0.4	22	22	22	22	22	23	24	24	25	25	25	25	26	26	26	26	27	27	27	27

Table 245: Line Loading Load Flow Results (%) – Jan Marais lines: Unielaan MS/Uniepark SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Waterweg MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
AP Venter MS/Van Coppenhagen MS 11kV	0.082	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9
Uitsig MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Provinsie MS/Uniepark SS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Uniepark SS/AP Venter MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Van Coppenhagen MS/Waterweg MS 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unielaan MS/Uniepark SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Unielaan MS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Jan Marais SS/Uniepark SS 11kV	0.4	26	26	26	26	26	26	27	28	28	28	28	29	30	30	30	30	31	31	31	31

Table 246: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Unielaan MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Waterweg MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
AP Venter MS/Van Coppenhagen MS 11kV	0.082	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9
Uitsig MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Provinsie MS/Uniepark SS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Uniepark SS/AP Venter MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Van Coppenhagen MS/Waterweg MS 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Unielaan MS/Uniepark SS 11kV	0.131	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
Jan Marais SS/Unielaan MS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jan Marais SS/Uniepark SS 11kV	0.4	27	27	27	27	27	27	29	29	30	30	30	30	31	31	31	31	32	32	32	32

Table 247: Line Loading Load Flow Results (%) – Jan Marais lines: Jan Marais SS/Uniepark SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Rozendal Pomp RMU/Provinsie MS 11kV	0.131	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
Waterweg MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
AP Venter MS/Van Coppenhagen MS 11kV	0.082	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7
Uitsig MS/Rozendal Pomp RMU 11kV	0.082	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9
Uitsig MS 11kV	0.082	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Provinsie MS/Uniepark SS 11kV	0.207	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
Uniepark SS/AP Venter MS 11kV	0.082	11	11	11	11	11	11	12	12	12	12	12	13	13	13	13	13	13	13	13	13
Van Coppenhagen MS/Waterweg MS 11kV	0.082	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unielaan MS/Uniepark SS 11kV	0.131	47	47	47	47	47	47	50	51	51	51	51	52	54	54	55	55	55	56	56	56
Jan Marais SS/Unielaan MS 11kV	0.131	51	51	51	51	51	51	54	56	56	56	56	57	58	59	59	59	60	61	61	61
Jan Marais SS/Uniepark SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

University

Table 248: Line Loading Load Flow Results (%) – University lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	17	17	17	17	18	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19
Universiteit SS/Merriman SS 11kV(1)	0.245	33	33	33	33	33	33	34	34	35	35	35	35	36	36	36	36	36	36	36	36
Schuman SS/Merriman SS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Amadeus MS/NH Kerk MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
NH Kerk MS/Schuman SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bosman SS/Amadeus MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 249: Line Loading Load Flow Results (%) – University lines: Universiteit SS/Bosman SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Universiteit SS/Merriman SS 11kV(1)	0.245	36	36	36	36	36	36	37	38	38	39	39	39	39	40	40	40	40	40	40	40
Schuman SS/Merriman SS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Amadeus MS/NH Kerk MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NH Kerk MS/Schuman SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bosman SS/Amadeus MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 250: Line Loading Load Flow Results (%) – University lines: Universiteit SS/Merriman SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	18	18	18	18	18	19	19	19	20	20	20	20	20	20	20	20	20	20	20	20
Universiteit SS/Merriman SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Schuman SS/Merriman SS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Amadeus MS/NH Kerk MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NH Kerk MS/Schuman SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bosman SS/Amadeus MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 251: Line Loading Load Flow Results (%) – University lines: Schuman SS/Merriman SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	17	17	17	17	17	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19
Universiteit SS/Merriman SS 11kV(1)	0.245	32	32	32	32	32	33	33	34	35	35	35	35	35	36	36	36	36	36	36	36
Schuman SS/Merriman SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amadeus MS/NH Kerk MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NH Kerk MS/Schuman SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bosman SS/Amadeus MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 252: Line Loading Load Flow Results (%) – University lines: Bosman SS/Amadeus MS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	17	17	17	17	18	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19
Universiteit SS/Merriman SS 11kV(1)	0.245	33	33	33	33	33	33	34	34	35	35	35	35	36	36	36	36	36	36	36	36
Schuman SS/Merriman SS 11kV	0.131	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Amadeus MS/NH Kerk MS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NH Kerk MS/Schuman SS 11kV	0.207	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bosman SS/Amadeus MS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 253: Line Loading Load Flow Results (%) – University lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	17	17	17	17	18	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19
Bosman SS/Conservatorium SS 11kV	0.207	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10
Bosman SS/Kerk SS 11kV	0.207	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13
Conservatorium SS/Azalia RMU 11kV	0.207	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10
De Camoran MS/Kerk SS 11kV	0.207	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Azalia RMU/Nyasa RMU 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Nyasa RMU/De Camoran MS 11kV	0.207	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6
SUB_6511/Azalia RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 254: Line Loading Load Flow Results (%) – University lines: Universiteit SS/Bosman SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bosman SS/Conservatorium SS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Bosman SS/Kerk SS 11kV	0.207	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Conservatorium SS/Azalia RMU 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
De Camoran MS/Kerk SS 11kV	0.207	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12
Azalia RMU/Nyasa RMU 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Nyasa RMU/De Camoran MS 11kV	0.207	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8
SUB_6511/Azalia RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 255: Line Loading Load Flow Results (%) – University lines: Bosman SS/Conservatorium SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	18	18	18	18
Bosman SS/Conservatorium SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bosman SS/Kerk SS 11kV	0.207	18	18	18	18	18	18	19	19	19	19	19	19	20	20	20	20	20	20	20	20
Conservatorium SS/Azalia RMU 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
De Camoran MS/Kerk SS 11kV	0.207	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
Azalia RMU/Nyasa RMU 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Nyasa RMU/De Camoran MS 11kV	0.207	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
SUB_6511/Azalia RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 256: Line Loading Load Flow Results (%) – University lines: Bosman SS/Kerk SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Bosman SS 11kV	0.4	15	15	15	15	15	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16
Bosman SS/Conservatorium SS 11kV	0.207	16	16	16	16	16	16	16	16	17	17	17	17	17	17	17	17	17	17	17	17
Bosman SS/Kerk SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conservatorium SS/Azalia RMU 11kV	0.207	16	16	16	16	16	16	16	16	17	17	17	17	17	17	17	17	17	17	17	17
De Camoran MS/Kerk SS 11kV	0.207	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Azalia RMU/Nyasa RMU 11kV	0.207	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13
Nyasa RMU/De Camoran MS 11kV	0.207	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13
SUB_6511/Azalia RMU 11kV	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 257: Line Loading Load Flow Results (%) – University lines: Normal Network

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	38.2	38.2	38.2	38.2	38.3	38.6	39.2	40.2	40.7	40.8	40.8	41	41.7	42	42.1	42.1	42.1	42.3	42.3	42.3
Universiteit SS/Merriman SS 11kV(1)	0.245	32.7	32.7	32.7	32.7	32.7	33	33.5	34.4	34.8	34.9	34.9	35	35.6	35.9	36	36	36	36.1	36.2	36.2
Universiteit SS/University RMU 11kV	0.4	19.8	19.8	19.8	19.8	19.8	20	20.3	20.8	21.1	21.1	21.1	21.2	21.6	21.8	21.8	21.8	21.8	21.9	21.9	21.9
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.7	8.8	8.9	9.2	9.3	9.3	9.3	9.4	9.5	9.6	9.6	9.6	9.6	9.7	9.7	9.7
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15	15.2	15.4	15.8	16	16.1	16.1	16.2	16.4	16.6	16.6	16.6	16.6	16.7	16.7	16.7
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.6	8.7	8.9	9.1	9.2	9.2	9.2	9.3	9.4	9.5	9.5	9.5	9.5	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.5	10.6	10.8	11.1	11.2	11.2	11.2	11.3	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.6
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.1	10.2	10.2	10.2	10.2	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.7	5.7	5.7	5.8	5.9	5.9	5.9	5.9	5.9	6	6	6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1

Table 258: Line Loading Load Flow Results (%) – University lines: University RMU/Kromrivier SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Universiteit SS/Merriman SS 11kV(1)	0.245	45.9	45.9	45.9	45.9	46	46.4	47.1	48.3	48.9	49	49	49.3	50.1	50.5	50.6	50.6	50.6	50.8	50.8	50.9
Universiteit SS/University RMU 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.8	8.8	9	9.2	9.3	9.4	9.4	9.4	9.6	9.6	9.6	9.7	9.7	9.7	9.7	9.7
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.9	7.9	8	8.3	8.4	8.4	8.4	8.4	8.6	8.6	8.7	8.7	8.7	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15.1	15.1	15.1	15.1	15.1	15.2	15.5	15.9	16.1	16.1	16.1	16.2	16.5	16.6	16.7	16.7	16.7	16.7	16.8	16.8
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.7	8.7	8.7	8.7	8.7	8.7	8.9	9.1	9.2	9.3	9.3	9.3	9.5	9.5	9.6	9.6	9.6	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.6	10.6	10.8	11.1	11.2	11.3	11.3	11.3	11.5	11.6	11.6	11.6	11.6	11.7	11.7	11.7
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.6	9.8	9.9	10	10	10	10.2	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.8	5.8	5.8	5.8	5.9	5.9	5.9	6	6	6	6	6
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Table 259: Line Loading Load Flow Results (%) – University lines: Universiteit SS/Merriman SS 11kV(1)

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	47.4	47.4	47.4	47.4	47.5	47.9	48.6	49.9	50.5	50.6	50.6	50.9	51.7	52.1	52.2	52.2	52.3	52.4	52.5	52.5

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Universiteit SS/Merriman SS 11kV(1)	0.245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Universiteit SS/University RMU 11kV	0.4	24.5	24.5	24.5	24.5	24.6	24.8	25.2	25.8	26.2	26.2	26.2	26.3	26.8	27	27	27	27	27.1	27.2	27.2
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.7	8.8	8.9	9.2	9.3	9.3	9.3	9.4	9.5	9.6	9.6	9.6	9.6	9.7	9.7	9.7
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15	15.2	15.4	15.8	16	16.1	16.1	16.2	16.4	16.6	16.6	16.6	16.6	16.7	16.7	16.7
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.6	8.7	8.9	9.1	9.2	9.2	9.2	9.3	9.4	9.5	9.5	9.5	9.5	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.5	10.6	10.8	11.1	11.2	11.2	11.2	11.3	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.6
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.7	5.7	5.7	5.8	5.9	5.9	5.9	5.9	5.9	6	6	6
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1

Table 260: Line Loading Load Flow Results (%) – University lines: Universiteit SS/University RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Universiteit SS/Merriman SS 11kV(1)	0.245	45.9	45.9	45.9	45.9	46	46.4	47.1	48.3	48.9	49	49	49.3	50.1	50.5	50.6	50.6	50.6	50.8	50.8	50.9
Universiteit SS/University RMU 11kV	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.8	8.8	9	9.2	9.3	9.4	9.4	9.4	9.6	9.6	9.6	9.6	9.7	9.7	9.7	9.7
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.9	7.9	8	8.3	8.4	8.4	8.4	8.4	8.6	8.6	8.7	8.7	8.7	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15.1	15.1	15.1	15.1	15.1	15.2	15.5	15.9	16.1	16.1	16.1	16.2	16.5	16.6	16.7	16.7	16.7	16.7	16.8	16.8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.7	8.7	8.7	8.7	8.7	8.7	8.9	9.1	9.2	9.3	9.3	9.3	9.5	9.5	9.6	9.6	9.6	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.6	10.6	10.8	11.1	11.2	11.3	11.3	11.3	11.5	11.6	11.6	11.6	11.6	11.7	11.7	11.7
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.6	9.8	9.9	10	10	10	10.2	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.8	5.8	5.8	5.8	5.9	5.9	5.9	5.9	6	6	6	6
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Table 261: Line Loading Load Flow Results (%) – Banhoek MS/Kromrivier SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	33	33	33	33	33.1	33.3	33.9	34.8	35.2	35.3	35.3	35.4	36	36.3	36.4	36.4	36.4	36.5	36.6	36.6
Universiteit SS/Merriman SS 11kV(1)	0.245	34.5	34.5	34.5	34.5	34.6	34.8	35.4	36.3	36.7	36.8	36.8	37	37.6	37.9	37.9	37.9	38	38.1	38.2	38.2
Universiteit SS/University RMU 11kV	0.4	17.1	17.1	17.1	17.1	17.1	17.3	17.5	18	18.2	18.2	18.2	18.3	18.6	18.8	18.8	18.8	18.8	18.9	18.9	18.9
Kromrivier SS/LaCollien SS 11kV	0.131	8.7	8.7	8.7	8.7	8.7	8.8	8.9	9.2	9.3	9.3	9.3	9.4	9.5	9.6	9.6	9.6	9.6	9.7	9.7	9.7
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15	15.2	15.4	15.8	16	16.1	16.1	16.2	16.4	16.6	16.6	16.6	16.6	16.7	16.7	16.7
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.6	8.7	8.9	9.1	9.2	9.2	9.2	9.3	9.4	9.5	9.5	9.5	9.5	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	10.5	10.5	10.5	10.5	10.5	10.6	10.8	11.1	11.2	11.2	11.2	11.3	11.5	11.5	11.6	11.6	11.6	11.6	11.6	11.6
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.1	10.2	10.2	10.2	10.2	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.7	5.7	5.7	5.7	5.8	5.9	5.9	5.9	5.9	5.9	6	6	6
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1

Table 262: Line Loading Load Flow Results (%) – University lines: Kromrivier SS/LaCollien SS 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	38.2	38.2	38.2	38.2	38.3	38.6	39.2	40.2	40.7	40.8	40.8	41	41.7	42	42.1	42.1	42.1	42.3	42.3	42.3
Universiteit SS/Merriman SS 11kV(1)	0.245	32.7	32.7	32.7	32.7	32.7	33	33.5	34.4	34.8	34.9	34.9	35	35.6	35.9	36	36	36	36.1	36.2	36.2
Universiteit SS/University RMU 11kV	0.4	19.8	19.8	19.8	19.8	19.8	20	20.3	20.8	21.1	21.1	21.1	21.2	21.6	21.8	21.8	21.8	21.8	21.9	21.9	21.9
Kromrivier SS/LaCollien SS 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15	15.2	15.4	15.8	16.1	16.1	16.1	16.2	16.4	16.6	16.6	16.6	16.6	16.7	16.7	16.7
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.7	8.7	8.9	9.1	9.2	9.2	9.2	9.3	9.4	9.5	9.5	9.5	9.5	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	19.2	19.2	19.2	19.2	19.3	19.4	19.7	20.2	20.5	20.5	20.5	20.6	21	21.2	21.2	21.2	21.2	21.3	21.3	21.3
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	14.1	14.1	14.1	14.1	14.1	14.2	14.5	14.8	15	15.1	15.1	15.1	15.4	15.5	15.5	15.5	15.6	15.6	15.6	15.6
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1

Table 263: Line Loading Load Flow Results (%) – University lines: Kromrivier SS/Die Rand RMU 11kV

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
University RMU/Kromrivier SS 11kV	0.207	38.2	38.2	38.2	38.2	38.3	38.6	39.2	40.2	40.7	40.8	40.8	41	41.7	42	42.1	42.1	42.1	42.3	42.3	42.3
Universiteit SS/Merriman SS 11kV(1)	0.245	32.7	32.7	32.7	32.7	32.7	33	33.5	34.4	34.8	34.9	34.9	35	35.6	35.9	36	36	36	36.1	36.2	36.2
Universiteit SS/University RMU 11kV	0.4	19.8	19.8	19.8	19.8	19.8	20	20.3	20.8	21.1	21.1	21.1	21.2	21.6	21.8	21.8	21.8	21.8	21.9	21.9	21.9
Kromrivier SS/LaCollien SS 11kV	0.131	19.2	19.2	19.2	19.2	19.3	19.4	19.7	20.2	20.5	20.5	20.5	20.6	21	21.2	21.2	21.2	21.2	21.3	21.3	21.3
Helderfontein SS/Unknown 11kV	0.131	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Berg en Dal MS/LaCollien SS 11kV	0.082	7.8	7.8	7.8	7.8	7.8	7.9	8	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)	2029 (%)	2030 (%)	2031 (%)	2032 (%)	2033 (%)	2034 (%)	2035 (%)	2036 (%)	2037 (%)	2038 (%)	2039 (%)	2040 (%)	2041 (%)	2042 (%)
Dr Malan RMU/Berg en Dal MS 11kV	0.082	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
TV Toring RMU/Helderfontein SS 11kV	0.082	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.9	3.9	3.9	3.9	4	4	4	4	4	4	4
Dr Malan RMU/TV Toring RMU 11kV	0.082	15	15	15	15	15	15.2	15.4	15.8	16.1	16.1	16.1	16.2	16.4	16.6	16.6	16.6	16.6	16.7	16.7	16.7
Unknown/Huise TRF 11kV	0.584	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Prins Park MS/Dr Malan RMU 11kV	0.131	8.6	8.6	8.6	8.6	8.7	8.7	8.9	9.1	9.2	9.2	9.2	9.3	9.4	9.5	9.5	9.5	9.5	9.6	9.6	9.6
Kromrivier SS/Die Rand RMU 11kV	0.131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LaCollien SS/Prins Park MS 11kV	0.131	9.3	9.3	9.3	9.3	9.3	9.4	9.5	9.8	9.9	9.9	9.9	10	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3
Die Rand RMU/LaCollien SS 11kV	0.131	5.2	5.2	5.2	5.2	5.2	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Unknown/Polisie TRF 11kV	0.584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TV Toring RMU/TV Toring GM 11kV	1	0.9	0.9	0.9	0.9	0.9	1	1	1	1	1	1	1	1	1	1	1	1.1	1.1	1.1	1.1

Appendix G: Results of RE impact on line loading

This appendix section will document the set of load flow line loading results with the inclusion of Renewable Energy into the network for the years 2023 to 2025.

Table 264: RE Impact on line Loading – Begrafplaas

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Main Industrial SS/Begraafplaas SS FD1	0,4	4,9	4,9	4,7	4,6	3,5	0,6
Main Industrial SS/Begraafplaas SS FD2	0,4	2,1	2,1	2,2	2,2	2,8	4,8
SUB_6549/Stellentia RMU 11kV	1	0,4	0,4	0,4	0,4	0,3	0,2
SUB_6552/Oude Molen RMU 11kV	1	0,2	0,2	0,2	0,2	0,2	0,3
Begraafplaas SS/Cemetary RMU 11kV	0,082	33,6	33,6	33,6	33,6	33,4	33
Begraafplaas SS/Bosmans Crossing MS 11kV	0,207	11,9	11,9	11,7	11,4	9,9	5,2
Stellentia RMU/Lower Dorp SS 11kV	0,131	5,7	5,7	6,1	6,4	8,4	14,6
Begraafplaas SS/Liberte MS 11kV	0,131	3	3	3	3	2,9	2,9
Stellenoord 1 MS/Vineyard MS 11kV	0,207	20,5	20,5	20,5	20,4	20,2	19,5
Begraafplaas SS/Lower Dorp SS 11kV(1)	0,4	1	1	1,1	1,2	1,8	3,6
Lower Dorp SS/Lower Dorp MS 11kV	0,131	23,8	23,8	23,5	23,2	21,5	16,5
Stellenoord 2 MS 11kV	0,131	11,5	11,5	11,5	11,5	11,4	11,2
Lower Dorp SS/Oude Molen RMU 11kV	0,082	2,4	2,4	2,5	2,5	2,8	3,6
Blersch MS/Ruper Museum MS 11kV	0,131	6,3	6,3	6,5	6,7	7,9	11,4
Liberte MS/Cabernet MS 11kV	0,131	5,7	5,7	5,7	5,7	5,7	5,5
Stellenoord 2 MS/Stellenoord 1 MS 11kV	0,131	17,4	17,4	17,4	17,3	17,1	16,3
Vineyard MS/Distell SS 11kV	0,131	56,5	56,4	56,3	56,1	55,2	52,4
WPK MS 11kV	0,207	20,2	20,2	20,1	20	19,4	17,5
WPK MS/Lower Dorp SS 11kV	0,207	14,2	14,2	14,2	14,2	14	13,5
Sonop Wyne RMU 11kV	0,207	20,2	20,2	20,1	20	19,4	17,5
Ruper Museum MS/Millinia Park SS 11kV	0,131	15,8	15,8	16	16,1	17,1	19,9
KWV Park MS/Sonop Wyne RMU 11kV	0,207	20,2	20,2	20,1	20	19,4	17,5
Millinia Park SS/Stellentia RMU 11kV	0,131	8,7	8,7	9	9,3	11	16,3
Cemetary RMU/Papegaai Pomp MS 11kV	0,082	24	24	24	24	24	23,9
Cabernet MS 11kV	0,131	11,5	11,5	11,5	11,5	11,4	11,2
Begraafplaas SS/Distell SS 11kV	0,245	23,1	23,1	23,1	23,1	23,1	23
Begraafplaas SS/Lower Dorp SS 11kV	0,4	1	1	1,1	1,2	1,8	3,5
Lower Dorp MS/Blersch MS 11kV	0,131	8,8	8,7	8,5	8,2	6,7	2,1
Bosmans Crossing MS/KWV Park MS 11kV	0,207	14,2	14,2	14	13,8	12,5	8,6
Cemetary RMU/Oude Libertas MS 11kV	0,082	9,6	9,6	9,6	9,6	9,5	9,1

Table 265: RE Impact on line Loading – Devon Valley

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Main Industrial SS/Devon Valley SS 11kV	0,311	46,1	46,1	45,6	45,1	42,1	33
Hamerkop 1 MS/Jan Frederik MS 11kV	0,207	11,9	11,9	11,8	11,8	11,3	9,7
Devon Valley SS/Marcel MS 11kV	0,131	45,9	45,9	45,6	45,3	43,4	37,7
Selfords MS/Geluksoord RMU 11kV	0,082	20	20	20	19,9	19,5	18,2
Hamerkop 2 MS/Hamerkop 1 MS 11kV	0,207	21,4	21,4	21,3	21,2	20,6	18,7
Sandhagen MS/Selfords MS 11kV	0,082	5,4	5,4	5,4	5,3	5,1	4,3
Marcel MS/Sandhagen RMU 11kV	0,131	30,9	30,9	30,9	30,8	30,6	29,9
KleinVallei MS/Flamingo MS 11kV	0,207	5,7	5,7	5,6	5,6	5,3	4,4
Geluksoord RMU/Devon Valley SS 11kV	0,082	16,9	16,9	16,8	16,7	15,9	13,6
Tortelduif SS/Hamerkop 2 MS 11kV	0,207	27,4	27,4	27,2	27,1	26,1	23,4
Sandhagen RMU/Sandhagen MS 11kV	0,131	12,1	12,1	12,1	12,1	12	11,7
Devon Valley SS/Hoep Hoep MS 11kV	0,207	0	0	0	0	0	0
Flamingo MS/Tortelduif SS 11kV	0,207	11,7	11,7	11,6	11,5	11	9,5
Sandhagen RMU/RioolHuise MS 11kV	0,082	30,2	30,1	30,1	30,1	29,9	29,2
Swawel MS/Tortelduif SS 11kV	0,207	15,5	15,5	15,4	15,3	14,9	13,5
Loerie MS 11kV	0,207	6	6	5,9	5,9	5,8	5,3
Hoep Hoep MS/Swawel MS 11kV	0,207	6	6	6	6	5,9	5,7
RioolHuise MS/Kompos MS 11kV	0,082	15,1	15,1	15	15	14,8	14,1
Devon Valley SS/Mondi Timbers TRF 11kV	0,245	17,8	17,8	18	18,1	19,1	22,1
Jan Frederik MS 11kV	0,207	6	6	5,9	5,9	5,8	5,3
Loerie MS 11kV(1)	0,207	0,1	0,1	0,1	0,1	0,1	0,1
KleinVallei MS 11kV	0,207	0	0	0	0	0	0
Devon Valley SS/Tortelduif SS 11kV	0,207	54,5	54,5	54,2	53,9	52	46,4
Main Industrial SS/Devon Valley SS 11kV	0,311	46,1	46,1	45,6	45,1	42,1	33

Table 266: RE Impact on line Loading – Polkadraai

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Main Industrial SS/Polkadraai SS 11kV 2	0,4	20	20	19,7	19,4	17,6	12,3
Recycling Plant MS/Longlands RMU 11kV	0,207	2,7	2,7	2,7	2,7	2,7	2,7
Polkadraai MS/Recycling Plant MS 11kV	0,207	10,1	10,1	10,1	10,1	10,1	10,1
MBR 2 MS/Dewatering MS 11kV	0,245	0,5	0,6	0,6	0,7	1,2	2,6
Polkadraai SS/Polkadraai MS 11kV	0,207	16,1	16,1	16,1	16,1	16,1	16,1
Longlands RMU/Vlottenburg MS 11kV	0,207	4,7	4,7	4,7	4,7	4,7	4,7
Polkadraai SS/Kwarentyn MS 11kV	0,207	6	6	5,8	5,7	4,8	2,1
Dewatering MS/Polkadraai SS 11kV	0,245	16,6	16,6	16,4	16,2	14,8	10,8
Vlottenburg MS/Longlands RMU 11kV	0,207	4,8	4,8	4,8	4,8	4,8	4,8
MBR 1 MS/MBR 2 MS 11kV	0,245	25,2	25,2	24,8	24,5	22,7	17,1
Polkadraai SS/Longlands RMU 11kV	0,4	3,8	3,8	3,8	3,8	3,8	3,8
Polkadraai SS/MBR 1 MS 11kV	0,245	50,9	50,9	50,3	49,8	46,6	36,8
Main Industrial SS/Polkadraai SS 11kV 1	0,4	21,7	21,7	21,3	21	19,1	13,3
Main Industrial SS/Polkadraai SS 11kV 2	0,4	20	20	19,7	19,4	17,6	12,3

Golf

Table 267: RE Impact on line Loading – Boord

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Golf Club SS/Boord SS 11kV FD1	0,245	28	28	27,9	27,8	27,8	27,8
Golf Club SS/Boord SS 11kV FD2	0,245	28,1	28,1	27,9	27,9	27,9	27,9
Golf Club SS/Boord SS 11kV FD3	0,245	28,1	28,1	28	27,9	27,9	27,9
Golf Club SS/Boord SS 11kV FD4	0,245	28,1	28,1	28	27,9	27,9	27,9
Rokewood MS/Blenheim MS 11kV	0,213	52,2	52,2	51,9	51,8	51,8	51,8
Die werf RMU/Wingerd MS 11kV	0,131	5,4	5,4	5,4	5,4	5,4	5,4
Rhodes MS/Boord SS 11kV	0,12	30,7	30,7	30,5	30,5	30,5	30,5
Rokewood Pomp MS/DeBosch MS 11kV	0,213	11	11	10,9	10,9	10,9	10,9
Blenheim MS/Shopping Centre RMU 11kV	0,213	46,7	46,7	46,5	46,3	46,3	46,3
Wingerd MS/Boord SS 11kV	0,131	14,8	14,8	14,8	14,7	14,7	14,7
Lovell 1 MS/Rhodes MS 11kV	0,12	20,5	20,5	20,4	20,3	20,3	20,3
De Oewer MS/Medi Kliniek SS 11kV	0,213	8	8	7,9	7,9	7,9	7,9
Shopping Centre RMU/Oewerpark MS 11kV	0,213	28,4	28,4	28,1	28	28	28
Marina/Rokewood MS/Rokewood Pomp MS 11kV	0,213	4,8	4,8	4,8	4,8	4,8	4,8
DeBosch MS/Lovell 3 MS 11kV	0,213	16,8	16,8	16,7	16,6	16,6	16,6
SUB_6576/Shopping Centre RMU 11kV	1	3,9	3,9	3,9	3,9	3,9	3,9
Lovell 2 MS/Lovell 1 MS 11kV	0,12	10,2	10,2	10,2	10,1	10,1	10,1
Oewerpark MS/De Oewer MS 11kV	0,213	13,7	13,7	13,7	13,6	13,6	13,6
Bon Cretien MS/Boord SS 11kV	0,213	35,4	35,4	35,2	35,1	35,1	35,1
Culemborg MS/Marina/Rokewood MS 11kV	0,213	0,7	0,7	0,7	0,7	0,7	0,7
Boord SS/Rokewood MS 11kV	0,213	57,7	57,7	57,4	57,3	57,3	57,3
Boord SS/Lovell 2 MS 11kV	0,12	0,2	0,2	0,2	0,2	0,2	0,2
SUB_6573/Die werf RMU 11kV	1	1,2	1,2	1,2	1,2	1,2	1,2
Boord SS/Kleingeluk MS 11kV	0,131	15,9	15,9	15,8	15,8	15,8	15,8
Elberta MS/Bon Cretien MS 11kV	0,213	29,6	29,6	29,4	29,4	29,4	29,4
Medi Kliniek SS/Culemborg MS 11kV	0,213	8	8	7,9	7,9	7,9	7,9
Kleingeluk MS/Die werf RMU 11kV	0,131	4	4	3,9	3,9	3,9	3,9
Lovell 3 MS/Elberta MS 11kV	0,213	24,1	24,1	24	23,9	23,9	23,9

Table 268: RE Impact on line Loading – Paradyskloof

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Golf Club SS/Paradyskloof SS 11kV FD1	0,245	45,8	45,8	45,7	45,6	45,6	45,6
Golf Club SS/Paradyskloof SS 11kV FD2	0,245	46	46	45,8	45,7	45,7	45,7
Golf Club SS/Paradyskloof SS 11kV FD3	0,245	46,1	46,1	46	45,9	45,9	45,9
Golf Club SS/Paradyskloof SS 11kV FD4	0,245	46	46	45,9	45,8	45,8	45,8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Paradyskloof SS/Christiaan Brothers MS 1	0,131	51,3	51,3	51,2	51,1	51,1	51,1
CON_533	0,12	14,9	14,9	14,9	14,9	14,9	14,9
CON_557	0,12	6,5	6,5	6,5	6,5	6,5	6,5
Paradyskloof SS/Schuilplaats MS 11kV	0,131	31,7	31,7	31,6	31,5	31,5	31,5
Brandwagt RMU/Tramali RMU 11kV	0,207	2,5	2,5	2,5	2,5	2,5	2,5
Florida MS/Eden MS 11kV	0,131	16,8	16,8	16,7	16,7	16,7	16,7
RMU/Tramali RMU 11kV	0,207	27,7	27,7	27,7	27,6	27,6	27,6
CON_539	0,12	10,9	10,9	10,9	10,9	10,9	10,9
Padstal MS/Blaauklippen RMU 11kV	0,131	2,2	2,2	2,2	2,2	2,2	2,2
CON_529	0,12	31,9	31,9	31,9	31,9	31,9	31,9
CON_543	0,12	10,1	10,1	10,1	10,1	10,1	10,1
CON_583	0,584	4	4	4	4	4	4
Kaapzicht TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
Montblanc MS/LaPastorale MS 11kV	0,207	6,4	6,4	6,4	6,4	6,4	6,4
Vriesenhof TRF 11kV	0,584	0,7	0,7	0,7	0,7	0,7	0,7
CON_555	0,12	9,7	9,7	9,7	9,7	9,7	9,7
Tonnel TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
Mulberry Farm TRF 11kV	0,12	0,4	0,4	0,4	0,4	0,4	0,4
LaPastorale MS/LeHermitage MS 11kV	0,207	12	12	11,9	11,9	11,9	11,9
Paradyskloof MS/Paradyskloof SS 11kV	0,207	26,1	26,1	26	25,9	25,9	25,9
Skietbaan TRF 11kV	0,584	0,2	0,2	0,2	0,2	0,2	0,2
RMU/Parmalat MS 11kV	0,131	11,9	11,9	11,9	11,9	11,9	11,9
River 2 MS/Elsie MS 11kV	0,207	8,4	8,4	8,4	8,4	8,4	8,4
Serruria MS 11kV	0,131	8,1	8,1	8	8	8	8
CON_537	0,12	11,7	11,7	11,7	11,7	11,7	11,7
Tramali RMU 11kV	0,131	20,8	20,8	20,8	20,8	20,8	20,8
Le Montier MS/Paradyskloof Villas MS 11k	0,207	33,3	33,3	33,2	33,2	33,2	33,2
Anesta MS/Three Fountains MS 11kV	0,207	23,6	23,6	23,6	23,6	23,6	23,6
Site 11 Paradyskloof Erf373/8/9 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
KWV Grondves 2 TRF 11kV	0,12	3,3	3,3	3,3	3,3	3,3	3,3
CON_553	0,12	6,5	6,5	6,5	6,5	6,5	6,5
La Pastorale 2 MS/Montblanc MS 11kV	0,207	3	3	3	3	3	3
Canterbury MS/Paradyskloof MS 11kV	0,131	29,2	29,2	29,1	29	29	29
Three Fountains MS/Le Montier MS 11kV	0,207	29,5	29,5	29,5	29,4	29,4	29,4
Oakdale TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
Elsie MS/Brandwagt RMU 11kV	0,207	2,5	2,5	2,5	2,5	2,5	2,5
Paradyskloof Villas MS/Kingsview MS 11kV	0,207	39,2	39,2	39,1	39,1	39,1	39,1
Paradyskloof Waterwerke TRF 11kV	0,207	9,4	9,4	9,4	9,4	9,4	9,4
Blaauklippen RMU/Repens MS 11kV	0,131	16,5	16,5	16,4	16,4	16,4	16,4
Cynariodes MS/Florida MS 11kV	0,131	4,8	4,8	4,8	4,8	4,8	4,8
Padstal MS 11kV	0,131	8,1	8,1	8,1	8	8	8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Kaapzicht Pomp TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
Christiaan Brothers MS/Paradyskloof RMU	0,131	45,3	45,3	45,3	45,2	45,2	45,2
LeHermitage MS/Anesta MS 11kV	0,207	17,8	17,8	17,7	17,7	17,7	17,7
CON_551	0,12	16,2	16,2	16,2	16,2	16,2	16,2
Water Reservoir TRF 11kV	0,584	0,7	0,7	0,7	0,7	0,7	0,7
Kingsview MS/Paradyskloof SS 11kV	0,207	48,7	48,7	48,5	48,5	48,5	48,5
Schuilplaats MS/Stellenbosch 101 MS 11kV	0,131	26,9	26,9	26,8	26,8	26,8	26,8
Tramali RMU/Brandwag Park MS 11kV	0,207	15,1	15,1	15,1	15,1	15,1	15,1
Paradyskloof RMU 11kV	0,207	6,9	6,9	6,9	6,9	6,9	6,9
Tramali RMU/KWV Grondves 1 TRF 11kV	0,584	0,7	0,7	0,7	0,7	0,7	0,7
Kaboeterbos TRF 11kV	0,12	0,8	0,8	0,8	0,8	0,8	0,8
Repens MS/Cynariodes MS 11kV	0,131	7,1	7,1	7,1	7,1	7,1	7,1
River 1 MS/River 2 MS 11kV	0,207	14,4	14,4	14,3	14,3	14,3	14,3
Paradyskloof RMU 11kV(1)	0,131	35,2	35,2	35,2	35,1	35,1	35,1
La Pastorale 2 MS 11kV	0,207	6,9	6,9	6,9	6,9	6,9	6,9
Orchardvale TRF 11kV	0,584	1,3	1,3	1,3	1,3	1,3	1,3
Paradyskloof SS/Eiestad Medi SS 11kV	0,207	20,3	20,3	20,2	20,2	20,2	20,2
RMU/Medikliniek MS 11kV	0,207	9,4	9,4	9,3	9,3	9,3	9,3
Stellenbosch 101 MS/Serruria MS 11kV	0,131	17,5	17,5	17,4	17,4	17,4	17,4
CON_531	0,12	15,8	15,8	15,7	15,7	15,7	15,7
MTN/Tennis TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
SUB_6581/RMU 11kV	1	1,6	1,6	1,6	1,6	1,6	1,6
Groenwyde TRF 11kV	0,584	0,7	0,7	0,7	0,7	0,7	0,7
Blaauklippen RMU/Canterbury MS 11kV	0,131	14,3	14,3	14,3	14,2	14,2	14,2
CON_527	0,12	35,2	35,2	35,1	35,1	35,1	35,1
Eiestad Medi SS/River 1 MS 11kV	0,207	20,3	20,3	20,2	20,2	20,2	20,2
L'Abrie TRF 11kV	0,12	3,2	3,2	3,2	3,2	3,2	3,2
Paradyskloof SS/RMU 11kV	0,207	52,2	52,2	52,1	52	52	52
CON_545	0,12	6,9	6,9	6,9	6,9	6,9	6,9
Vriesenhof Pomp TRF 11kV	0,12	0,8	0,8	0,8	0,8	0,8	0,8
Eden MS/Paradyskloof SS 11kV	0,131	28,7	28,7	28,6	28,5	28,5	28,5

Table 269: RE Impact on line Loading – Techno Park

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Golf Club SS/Techno Park MS 11kV FD1	0,4	53,2	53,2	53	52,9	52,9	52,9
Golf Club SS/Techno Park MS 11kV FD2	0,4	53,2	53,2	53	52,9	52,9	52,9
Prindtel Park MS/Neutron MS 11kV	0,207	9,4	9,4	9,4	9,4	9,4	9,4
Times Square MS/Elektron 1 MS 11kV	0,207	0,2	0,2	0,2	0,3	0,3	0,3
ISS International MS/Reutech MS 11kV	0,207	84,8	84,8	84,7	84,6	84,6	84,6

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Reutech MS/Techno Park MS 11kV	0,207	96,6	96,6	96,4	96,3	96,3	96,3
Quantum 3 MS/Quantum 2 MS 11kV	0,207	40,3	40,3	40,2	40,2	40,2	40,2
Platinum Place MS/Tegno Park Pomp MS 11k	0,207	35,5	35,5	35,5	35,5	35,5	35,5
Techno Park MS/Polytwine MS 11kV	0,207	28,2	28,2	28,1	28,1	28,1	28,1
Tegno Park 2 MS/NOK MS 11kV	0,207	69,5	69,5	69,5	69,4	69,4	69,4
Tegno Park 1 MS/ISS International MS 11k	0,207	78,9	78,9	78,8	78,7	78,7	78,7
Elektron 2 MS/Carpe Di-Em MS 11kV	0,207	12	12	12	12	12	12
Stellenbosch LM 11kV	0,207	5,9	5,9	5,8	5,8	5,8	5,8
Captic RMU/Techno Park MS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
NOK MS/Electron 3 MS 11kV	0,207	63,6	63,6	63,6	63,5	63,5	63,5
Techno Park MS/Stellenpark Hotel MS 11kV	0,207	11,8	11,8	11,6	11,6	11,5	11,5
Tegno Park Pomp MS/Proton MS 11kV	0,207	29,6	29,6	29,6	29,6	29,6	29,6
Techno Park MS/Octoplace MS 11kV	0,207	56,3	56,3	56	55,8	55,8	55,8
Electron House RMU/Elektron 2 MS 11kV	0,207	6,1	6,1	6,1	6,1	6,1	6,1
Stellenpark Hotel MS 11kV	0,207	5,9	5,9	5,8	5,8	5,8	5,8
Proton MS/Termo MS 11kV	0,207	22,2	22,2	22,1	22,1	22,1	22,1
Electron 3 MS/Cotlinplace MS 11kV	0,207	54,3	54,3	54,2	54,2	54,2	54,2
Techno Park MS/Tegno Park 2 MS 11kV	0,207	75,5	75,5	75,4	75,3	75,3	75,3
DataVoice RMU/Tegno Park 1 MS 11kV	0,207	73	73	72,9	72,8	72,8	72,8
Quantum 1 MS/Quantum 3 MS 11kV	0,207	34,4	34,4	34,3	34,3	34,3	34,3
Elektron 1 MS/Electron House RMU 11kV	0,207	6,1	6,1	6,1	6,1	6,1	6,1
Cotlinplace MS/Platinum Place MS 11kV	0,207	44,9	44,9	44,8	44,8	44,8	44,8
Carpe Di-Em MS/Quantum 1 MS 11kV	0,207	26,9	26,9	26,9	26,9	26,9	26,9
Polytwine MS/Prindtel Park MS 11kV	0,207	18,8	18,8	18,8	18,7	18,7	18,7
Termo MS/Times Square MS 11kV	0,207	14,7	14,7	14,7	14,7	14,7	14,7
Quantum 2 MS/DataVoice RMU 11kV	0,207	49,6	49,6	49,6	49,5	49,5	49,5
SUB_6571/DataVoice RMU 11kV	1	4,8	4,8	4,8	4,8	4,8	4,8
SUB_6568/Captic RMU 11kV	1	7,8	7,8	7,7	7,7	7,7	7,7

SS Markotter

Table 270: RE Impact on line Loading – Braak

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Markotter Suidwal SS/Braak SS 11kV	0,4	25,3	25,3	25,2	25,2	25,1	25,1
Markotter Suidwal SS/Braak SS 11kV(1)	0,4	17,8	17,8	17,8	17,7	17,6	17,6
Markotter Suidwal SS/Krige SS 11kV	0,4	39	39	39	38,9	38,8	38,7
Markotter Suidwal SS/Suidwal MS 11kV	0,245	35,6	35,6	35,5	35,5	35,4	35,3
Piet Retief MS/Braak SS 11kV	0,245	16,4	16,4	16,4	16,3	16,3	16,2
Stellenryk MS 11kV	0,207	2,1	2,1	2	2	2	2
Amatoni RMU/Maesland MS 11kV	0,131	22,9	22,9	22,9	22,9	22,9	22,9
Landros MS/Polisie SS 11kV	0,131	0	0	0	0	0	0
Bloemhof MS/Krige SS 11kV	0,207	13,3	13,3	13,3	13,3	13,2	13,2
Saambou RMU 11kV	0,131	9,4	9,4	9,4	9,4	9,4	9,3
Poskantoor SS/Landros MS 11kV	0,131	9,4	9,4	9,4	9,4	9,4	9,4
Boland Bank RMU/SUB_6546 11kV	1	0,8	0,8	0,8	0,8	0,8	0,8
Suidwal MS/Isa Carstens MS 11kV	0,245	27,7	27,6	27,6	27,6	27,5	27,4
Goodhope MS 11kV	0,131	9,4	9,4	9,4	9,4	9,4	9,3
Krige SS/Sports Institute MS 11kV	0,207	26,9	26,9	26,8	26,8	26,8	26,7
Maesland MS/Vila Roux MS 11kV	0,131	27,7	27,7	27,7	27,6	27,6	27,6
Meulplein SS/Boland Bank RMU 11kV	0,082	4,2	4,2	4,2	4,2	4,2	4,2
AlexForbes MS/Amatoni RMU 11kV	0,131	22,9	22,9	22,9	22,9	22,9	22,9
OK Bazaar MS/Saambou RMU 11kV	0,131	18,8	18,8	18,8	18,7	18,6	18,5
Alexander MS/Poskantoor SS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Dorp str 98 MS/Mark MS 11kV	0,131	28,8	28,8	28,8	28,8	28,8	28,7
Isa Carstens MS/Piet Retief MS 11kV	0,245	22,7	22,7	22,6	22,6	22,5	22,5
Boland Bank RMU/De Wets MS 11kV	0,082	13,6	13,6	13,6	13,6	13,5	13,5
Mark 2 MS/Joles Park MS 11kV	0,131	7,9	7,9	7,9	7,9	7,9	7,9
Krige SS/La Gratitude MS 11kV	0,131	62,4	62,4	62,3	62,2	62,1	61,9
Braak MS/OK Bazaar MS 11kV	0,131	33,7	33,7	33,6	33,4	33,2	32,9
Blake Estate SS/Van Der Stel Sport MS 11	0,131	6	6	6	5,9	5,9	5,9
Distillers SS 11kV	0,131	0	0	0	0	0	0
Volkskombuis MS 11kV	0,207	2,1	2,1	2	2	2	2
Weidenhof MS/Blake Estate SS 11kV	0,4	3,1	3,1	3,1	3	3	3
Krige SS/Braak SS 11kV	0,4	2,4	2,4	2,4	2,4	2,4	2,4
Mark MS/Mark 2 MS 11kV	0,131	19,5	19,5	19,5	19,5	19,5	19,5
Vila Roux MS/Blake Estate SS 11kV	0,131	37	37	37	37	36,9	36,9
De Wets MS/Braak SS 11kV	0,131	17,9	17,9	17,9	17,8	17,8	17,8
Blake Estate SS/Distillers SS 11kV	0,131	0,1	0,1	0,1	0,1	0,1	0,1
Braak SS/Braak MS 11kV	0,131	48,6	48,6	48,5	48,4	48,1	47,8
Distillers SS/Blake Estate SS 11kV	0,131	0,1	0,1	0,1	0,1	0,1	0,1
Stillewaters MS/Stellenryk MS 11kV	0,207	11,5	11,5	11,5	11,5	11,4	11,4

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Braak SS/Bast Molen MS 11kV	0,207	14,9	14,9	14,9	14,8	14,8	14,7
La Gratitude MS/Voorgelegen MS 11kV	0,131	47,5	47,5	47,5	47,4	47,3	47,2
Sports Institute MS/Stillewaters MS 11kV	0,207	17,4	17,4	17,4	17,4	17,4	17,4
Dorp/Papegaai MS/AlexForbes MS 11kV	0,131	17	17	17	17	17	17
Braak SS/Meulplein SS 11kV	0,082	19,9	19,9	19,9	19,8	19,8	19,8
Bast Molen MS/Alexander MS 11kV	0,207	11,9	11,9	11,9	11,8	11,8	11,7
Braak SS/Blake Estate SS 11kV	0,4	17,1	17,1	17,1	17,1	17	17
Volkskombuis MS/Bloemhof MS 11kV	0,207	7,4	7,4	7,4	7,4	7,4	7,3
Goodhope MS/SA Perm SS 11kV	0,131	0	0	0	0	0	0
Joles Park MS/Dorp/Papegaai MS 11kV	0,131	3,4	3,4	3,4	3,4	3,4	3,4
Voorgelegen MS/Dorp str 98 MS 11kV	0,131	38,2	38,2	38,1	38,1	37,9	37,8
Meulplein SS/Meulplein LTx 11kV	0,1	19,5	19,5	19,5	19,5	19,5	19,5

Table 271: RE Impact on line Loading – Coetzenburg

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Markotter Suidwal SS/Coetzenburg SS 11kV	0,4	30,4	30,3	30,3	30,2	30,1	30
Gimnasium SS/De Waterkant RMU 11kV	0,131	42,9	42,9	42,9	42,8	42,7	42,6
Welgevalen SS/Coetzenburg SS 11kV	0,207	12	12	12	11,9	11,9	11,8
Die Laan MS/Rattray MS 11kV	0,131	0,1	0,1	0,1	0,1	0,1	0,1
Gimnasium SS/Coetzenburg SS 11kV	0,207	40,8	40,8	40,7	40,7	40,6	40,4
De Waterkant RMU/Middebosch MS 11kV	0,131	28,1	28	28	28	27,9	27,9
Park MS/Welgevalen SS 11kV	0,207	12	12	12	12	11,9	11,9
Middebosch MS/Kweekskool MS 11kV	0,131	18,7	18,7	18,7	18,7	18,6	18,6
Welgelegen SS/Park MS 11kV	0,207	6,2	6,2	6,2	6,2	6,2	6,2
Kweekskool MS/Die Laan MS 11kV	0,131	9,3	9,3	9,3	9,3	9,3	9,3
Gimnasium SS 11kV	0,131	21,7	21,6	21,6	21,6	21,5	21,4
Coetzenburg SS/Coetzenburg Sport MS 11kV	0,207	5,9	5,9	5,9	5,9	5,8	5,7

Table 272: RE Impact on line Loading – Dalsig Oos

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Markotter Suidwal SS/Dalsig Oos SS 11kV	0,4	34,8	34,8	34,7	34,7	34,5	34,4
Koch SS/Barry MS 11kV	0,131	10,8	10,8	10,7	10,7	10,7	10,7
Dalsig Oos SS/Brandwacht SS 11kV	0,207	17,8	17,8	17,7	17,7	17,6	17,6
Dalsig Wes RMU/Brandwacht 1 MS 11kV	0,131	7,6	7,6	7,6	7,6	7,6	7,5
Barry MS 11kV	0,131	1,5	1,5	1,5	1,5	1,5	1,5
Dalsig Oos SS/Binnekring MS 11kV	0,207	24,9	24,9	24,8	24,8	24,7	24,6
Koch RMU/Valerida MS 11kV	0,131	10	10	10	10	10	10
Koch MS/Rhenish MS 11kV	0,131	8	8	8	8	8	8

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Binnekring MS/Dalsig Wes RMU 11kV	0,207	18,9	18,9	18,9	18,9	18,8	18,8
Doornbosch MS/Koch RMU 11kV	0,131	8	8	8	8	8	8
Brandwacht SS/Faber RMU 11kV	0,1	5	5	5	5	5	4,9
Rhenish MS/Koch SS 11kV	0,131	22,7	22,7	22,7	22,6	22,5	22,4
Brandwacht 2 MS/Brandwacht SS 11kV	0,081	16,6	16,6	16,6	16,6	16,5	16,5
Boord SS/Dalsig Oos SS 11kV	0,4	0,3	0,3	0,3	0,3	0,3	0,3
Koch RMU/Koch MS 11kV	0,131	2,7	2,7	2,7	2,8	2,8	2,8
Faber RMU/LeSeur MS 11kV	0,131	3,8	3,8	3,8	3,8	3,8	3,7
Valerida MS 11kV	0,131	21,7	21,6	21,6	21,6	21,5	21,4
Brandwacht 1 MS/Brandwacht 2 MS 11kV	0,131	1,5	1,5	1,5	1,5	1,5	1,5
Dalsig Oos SS/Welgelegen Pomp TRF 11kV	0,082	23,8	23,8	23,7	23,7	23,6	23,6
Dalsig Oos SS/Koch SS 11kV	0,207	21,2	21,2	21,1	21,1	21	21
LeSeur MS/Brandwacht SS 11kV	0,081	8,3	8,3	8,2	8,2	8,2	8,1
Brandwacht SS/Olyf MS 11kV	0,081	14,4	14,4	14,4	14,4	14,4	14,3
Doornbosch MS 11kV	0,131	1,5	1,5	1,5	1,5	1,5	1,5
Dalsig Oos SS/Welgelegen SS 11kV	0,207	6,2	6,2	6,2	6,2	6,2	6,3

SS University

Table 273: RE Impact on line Loading – Bosman

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
De Camoran MS/Kerk SS 11kV	0,207	15,7	15,7	15,7	15,7	15,7	15,7
Bosman SS/Amadeus MS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
Oudewaal MS/De Waal MS(1) 11kV	0,207	9,7	9,7	9,7	9,7	9,7	9,7
Sonvida MS/East Neetling 11kV	0,131	23,4	23,4	23,4	23,4	23,4	23,4
Conservatorium SS/Azalia RMU 11kV	0,207	2,3	2,3	2,3	2,3	2,3	2,3
Kollege RMU/Kollege MS 11kV	0,131	43	43	43	43	42,9	42,9
NH Kerk MS/Schuman SS 11kV	0,207	1,1	1,1	1,1	1,1	1,1	1,1
Huis Piron MS/Sonvida MS 11kV	0,131	14,1	14,1	14,1	14,1	14,1	14
Kollege MS/Denneoord SS 11kV	0,131	52,3	52,3	52,3	52,3	52,3	52,2
Van Der Stel/Van Riebeeck MS/Denneoord S	0,082	15	15	15	15	15	14,9
East Neetling/Kollege RMU 11kV	0,131	38,2	38,2	38,2	38,2	38,2	38,2
Amadeus MS/NH Kerk MS 11kV	0,207	0,6	0,6	0,6	0,6	0,6	0,6
De Waal MS(1)/Denneoord SS 11kV	0,207	19,1	19,1	19,1	19,1	19,1	18,9
Universiteit SS/Bosman SS 11kV	0,4	32,1	32,1	32,1	32,1	32,1	31,9
Azalia RMU/Nyasa RMU 11kV	0,207	6,5	6,5	6,5	6,5	6,5	6,5
Rattray MS/Huis Piron MS 11kV	0,131	4,7	4,7	4,7	4,7	4,7	4,7
Nyasa RMU/De Camoran MS 11kV	0,207	6,5	6,5	6,5	6,5	6,5	6,5
Bosman SS/Conservatorium SS 11kV	0,207	6,2	6,2	6,2	6,2	6,2	6,1
Bosman SS/Kerk SS 11kV	0,207	4,5	4,5	4,5	4,5	4,5	4,6
East Neetling/SUB_6480 11kV	1	1,9	1,9	1,9	1,9	1,9	1,9
Kollege RMU/Koloniesland TRF 11kV	0,131	4,8	4,8	4,8	4,8	4,7	4,7
Bosman SS/Denneoord SS 11kV	0,245	49,1	49,1	49,1	49,1	49,1	48,9
Mcdonalds MS/Oudewaal MS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9

Table 274: RE Impact on line Loading – Kromrivier/LaColien

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Hagerhof RMU/Lavanda MS 11kV	0,131	21,8	21,8	21,8	21,8	21,8	21,7
Dr Malan RMU/Berg en Dal MS 11kV	0,082	4,4	4,4	4,4	4,4	4,4	4,4
Kromrivier SS/Die Rand RMU 11kV	0,131	28,7	28,7	28,7	28,7	28,7	28,6
Prins Park MS/Dr Malan RMU 11kV	0,131	6,8	6,8	6,8	6,8	6,7	6,7
Unknown/Huise TRF 11kV	0,584	0,7	0,7	0,7	0,7	0,7	0,7
Binne Plein MS/Kromrivier SS 11kV	0,131	24,3	24,3	24,3	24,3	24,3	24,2
Kromrivier SS/LaCollien SS 11kV	0,131	23,2	23,2	23,2	23,2	23,2	23,1
Unknown/Polisie TRF 11kV	0,584	1	1	1	1	1	1
Vergezicht MS/Binne Plein MS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Banhoek MS/Kromrivier SS 11kV	0,207	5	5	5	5	5	5,1
University RMU/CSIR SS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Lavanda MS/Kromrivier SS 11kV	0,131	36,6	36,6	36,6	36,6	36,5	36,4
Dr Malan RMU/TV Toring RMU 11kV	0,082	14,2	14,2	14,2	14,2	14,2	14,1
TV Toring RMU/TV Toring GM 11kV	1	0,2	0,2	0,2	0,2	0,2	0,2
Universiteit SS/University RMU 11kV	0,4	34,4	34,4	34,4	34,4	34,3	34,2
LaCollien SS/Prins Park MS 11kV	0,131	25,3	25,3	25,3	25,3	25,3	25,3
University RMU/Kromrivier SS 11kV	0,207	66,4	66,4	66,4	66,4	66,3	66,1
Helderfontein SS/Unknown 11kV	0,131	7,4	7,4	7,4	7,4	7,4	7,4
Die Rand RMU/LaCollien SS 11kV	0,131	13,8	13,8	13,8	13,8	13,8	13,8
TV Toring RMU/Helderfontein SS 11kV	0,082	11,9	11,9	11,9	11,9	11,8	11,8
Berg en Dal MS/LaCollien SS 11kV	0,082	18,9	18,9	18,9	18,9	18,9	18,8

Table 275: RE Impact on line Loading – Merriman

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Drama SS/Monika SS 11kV	0,082	27,6	27,6	27,6	27,6	27,7	27,9
Universiteit SS/Merriman SS 11kV	0,245	31,5	31,5	31,5	31,5	31,5	31,2
Caltex Bergzight MS/Pick and Pay RMU 11k	0,207	27,2	27,2	27,2	27,2	27,2	27,2
Libertas Slaghuis MS/Andringa MS 11kV	0,131	5,1	5,1	5,1	5,1	5,1	5
Coetzenburg Galary MS/Drostdy RMU 11kV	0,207	14,1	14,1	14,1	14,1	14,2	14,2
Elckerlyc MS/De Watergracht MS 11kV	0,207	6,4	6,4	6,4	6,4	6,4	6,3
Merriman SS/Langenhoven SS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
Drostdy RMU/Helderzight MS 11kV	0,207	7,3	7,3	7,3	7,3	7,3	7,2
Bergzicht Plaza MS/Merriman SS 11kV	0,207	27	27	27	27	26,9	26,8
Beyerhof MS/Coetzenburg Galary MS 11kV	0,207	19,9	19,9	19,9	19,9	19,9	19,9
Merriman/Bird SS/Merriman/Bird MS 11kV	0,131	23,4	23,4	23,4	23,4	23,4	23,5
BJ Vorster SS/Macdonalds MS 11kV	0,207	53,5	53,5	53,5	53,5	53,4	53,3
De Watergracht MS/Cyrus MS 11kV	0,207	14	14	14	14	13,9	13,8
Macdonalds MS/Merriman/Bird SS 11kV	0,207	47,5	47,5	47,5	47,5	47,5	47,4
Helderzight MS/Bergzicht Plaza MS 11kV	0,207	12,4	12,4	12,4	12,4	12,4	12,3
Merriman/Bird MS/De Canha MS 11kV	0,131	14,6	14,6	14,6	14,6	14,7	14,7
Pick and Pay RMU/Merriman/Bird SS 11kV	0,131	51,9	51,9	51,9	51,9	51,8	51,6
Cyrus MS/Merriman SS 11kV	0,207	19,6	19,6	19,6	19,6	19,5	19,4
Merriman SS/Smuts SS 11kV	0,207	10,6	10,6	10,6	10,6	10,6	10,7
Merriman SS/Hetbeginhof MS 11kV	0,207	3	3	3	3	3	3
De Waal MS/Bergville MS 11kV	0,131	10,9	10,9	10,9	10,9	10,8	10,8
Langenhoven SS/Merriman SS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
De Villiers MS/Banhoek MS 11kV	0,207	4,2	4,2	4,2	4,2	4,2	4,3
Universiteit SS/Merriman SS 11kV(1)	0,245	31,6	31,6	31,6	31,6	31,5	31,3
Merriman SS/BJ Vorster SS 11kV	0,207	37,9	37,9	37,9	37,9	37,8	37,6

Table 276: RE Impact on line Loading – Stadsaal

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
JanKats MS/Oudehoek MS 11kV	0,207	17,8	17,8	17,8	17,8	17,8	17,8
Stadsaal SS/Eikestad Mall SS 11kV	0,4	15,6	15,6	15,6	15,6	15,6	15,7
SDR Du Toit str RMU/Batkrosier SS 11kV	0,131	14,9	14,9	14,9	14,9	14,9	14,8
Helderberg RMU/Louw MS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
Louw MS/Stellenbosch Hotel MS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Universiteit SS/Stadsaal SS 11kV	0,4	20	20	20	20	19,9	19,8
Ou Kollege MS/Andmar MS 11kV	0,131	11,4	11,4	11,4	11,4	11,4	11,4
Batkrosier SS/Stadsaal SS 11kV	0,082	23,8	23,8	23,8	23,8	23,7	23,6
University SS/Stadsaal SS 11kV	0,131	72,8	72,8	72,8	72,8	72,8	72,7
Stadsaal SS/De Waal MS 11kV	0,131	11	11	11	11	11	11
D'Ouwe Werf MS/Ou Kollege MS 11kV	0,131	22,9	22,9	22,9	22,9	22,9	22,8
Ecclesia RMU/Kerk SS 11kV	0,131	25,4	25,4	25,4	25,4	25,4	25,4
Stadsaal SS/Beyerhof MS 11kV	0,207	31,5	31,5	31,5	31,5	31,5	31,6
Stadsaal SS/Neethlinghuis MS 11kV	0,131	40,6	40,6	40,6	40,6	40,6	40,5
Andmar MS/Kerk SS 11kV	0,131	5,3	5,3	5,3	5,3	5,3	5,3
1st National MS/University SS 11kV	0,207	46,1	46,1	46,1	46,1	46,1	46
Universiteit SS/Stadsaal SS 11kV(1)	0,4	19,5	19,5	19,5	19,5	19,5	19,3
SA Perm SS/Stadsaal SS 11kV	0,131	0,1	0,1	0,1	0,1	0,1	0,1
Stellenbosch Hotel MS/JanKats MS 11kV	0,207	11,9	11,9	11,9	11,9	11,9	11,8
ABSA MS/Ecclesia RMU 11kV	0,131	31,3	31,3	31,3	31,3	31,2	31,2
Stadsaal SS/D'Ouwe Werf MS 11kV	0,131	32,1	32,1	32,1	32,1	32,1	32
Polisie SS/SDR Du Toit str RMU 11kV	0,131	0,1	0,1	0,1	0,1	0,1	0,1
Oudehoek MS/1st National MS 11kV	0,207	36,6	36,6	36,6	36,6	36,6	36,6
Neethlinghuis MS/ABSA MS 11kV	0,131	26	26	26	26	25,9	25,8
Stadsaal SS/Eikestad Mall SS 11kV(1)	0,4	15,9	15,9	15,9	15,9	15,9	16

SS Jan Marais

Table 277: RE Impact on line Loading – Simonsberg

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Soeteweide RMU/Groeneweide MS 11kV	0,207	18,4	18,4	18,4	18,4	18,4	18,2
Cluver Circle MS/Soeteweide RMU 11kV	0,207	18,4	18,4	18,4	18,4	18,4	18,2
Simonsberg SS/Hospitaal RMU 11kV	0,207	24,5	24,5	24,5	24,5	24,5	24,4
Groeneweide MS/The Merriman MS 11kV	0,207	3,5	3,5	3,5	3,5	3,5	3,3
Jonkerzicht MS/Cluver Circle MS 11kV	0,207	27,9	27,9	27,9	27,9	27,8	27,6
Jan Marais SS/Jonkerzicht MS 11kV	0,207	37,3	37,3	37,3	37,3	37,2	37,1
Morris MS/Smuts SS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
SUB_6561/Hospitaal RMU 11kV	1	2	2	2	2	2	1,9
The Merriman MS/Simonsberg SS 11kV	0,207	2,9	2,9	2,9	2,9	2,9	3,1
Hospitaal RMU/Morris MS 11kV	0,207	15,1	15,1	15,1	15,1	15,1	15

Table 278: RE Impact on line Loading – Sonnebloem

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Cape Dutch MS/Driehoek MS 11kV	0,207	10	10	10	10	10	10
Khaler MS/Bothmashoogte MS 11kV	0,131	33,2	33,2	33,2	33,2	33,2	33,1
Student Village MS 11kV	0,207	0	0	0	0	0	0
Lelie MS/Protea MS 11kV	0,131	14,7	14,7	14,7	14,7	14,7	14,6
Cannerie SS/Sonneblom SS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Protea MS/Khaler MS 11kV	0,131	23,9	23,9	23,9	23,9	23,9	23,8
Sonneblom SS/Tindal SS 11kV	0,207	24,4	24,4	24,4	24,4	24,4	24,3
Cluver MS/Verreweide MS 11kV	0,207	24,5	24,5	24,5	24,5	24,5	24,5
Infruitec SS/Cannerie SS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
HIV Centre MS/Botmazicht MS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Eikenbos MS/HIV Centre MS 11kV	0,207	15,2	15,2	15,2	15,2	15,2	15,2
Verreweide MS/Student Village MS 11kV	0,207	9,4	9,4	9,4	9,4	9,4	9,4
Lelie MS 11kV	0,082	9,2	9,2	9,2	9,2	9,2	9,1
Sonneblom SS/Infruitec SS 11kV	0,207	7,1	7,1	7,1	7,1	7,1	7,1
Sonneblom SS/Eikenbos MS 11kV	0,207	21,1	21,1	21,1	21,1	21,1	21,1
Botmazicht MS/Merriman SS 11kV	0,207	0	0	0	0	0	0
Glenelie RMU 11kV	0,082	9,2	9,2	9,2	9,2	9,2	9,2
Sonneblom SS/Glenelie RMU 11kV	0,082	9,3	9,3	9,3	9,3	9,3	9,3
Bothmashoogte MS/Tindal SS 11kV	0,131	42,5	42,5	42,5	42,5	42,5	42,4
Jan Marais SS/Cluver MS 11kV	0,207	30,5	30,5	30,5	30,5	30,5	30,4
Student Village MS/Cape Dutch MS 11kV	0,207	0,2	0,2	0,2	0,2	0,2	0,2
Driehoek MS/Sonneblom SS 11kV	0,207	19,4	19,4	19,4	19,4	19,4	19,4

Table 279: RE Impact on line Loading – Tindal

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
Simonswyk RMU/Simonsrust 2 MS 11kV	0,207	67,6	67,6	67,6	67,6	67,6	67,5
Merton MS 11kV	0,131	10,4	10,4	10,4	10,4	10,4	10,4
Sonneblom MS/Hellshoogte MS 11kV	0,207	25,7	25,7	25,7	25,7	25,7	25,7
Idas 1 MS/Idas 2 MS 11kV	0,207	9,3	9,3	9,3	9,3	9,3	9,3
Gorridon MS/Stone SS 11kV	0,131	29,1	29,1	29,1	29,1	29,1	29
Idasvallei Sport RMU/Ival Sport MS 11kV	0,207	5,9	5,9	5,9	5,9	5,9	5,9
Jan Marais SS/Simonswyk RMU 11kV	0,207	72,4	72,4	72,4	72,4	72,3	72,2
SUB_6563/Simonswyk RMU 11kV	1	1	1	1	1	1	1
Packham MS/Merton MS 11kV	0,131	1,4	1,4	1,4	1,4	1,4	1,4
Bloekem MS/Idasvallei Sport RMU 11kV	0,207	20,6	20,6	20,6	20,6	20,6	20,6
Stone MS/Stone SS 11kV	0,207	30	30	30	30	29,9	29,9
Sonneblom SS/Tindal SS 11kV	0,207	24,4	24,4	24,4	24,4	24,4	24,3
Stone SS/Assegaai MS 11kV	0,131	73,8	73,8	73,8	73,8	73,8	73,7
Jan Marais SS/Tindal SS 11kV	0,4	62,1	62,1	62,1	62,1	62,1	62
Idasvallei Sport RMU 11kV	0,131	23,6	23,6	23,6	23,6	23,6	23,5
Simonsrust 1 MS/Beltana MS 11kV	0,207	37,5	37,5	37,5	37,5	37,5	37,4
Seven Eleven MS/Tindal SS 11kV	0,131	13,1	13,1	13,1	13,1	13,1	13
Amoi MS/Helshoogte Village MS 11kV	0,207	27,8	27,8	27,8	27,8	27,8	27,8
Tindal SS/Stone SS 11kV	0,4	26,4	26,4	26,4	26,4	26,4	26,3
Stone SS/Universiteit SS 11kV	0,4	0,7	0,7	0,7	0,7	0,7	0,7
Hector MS/Bartlett MS 11kV	0,131	22,6	22,6	22,6	22,6	22,5	22,5
Waterwerke MS/Stone MS 11kV	0,207	39,3	39,3	39,3	39,3	39,3	39,2
Woodman MS/Gorridon MS 11kV	0,131	19,7	19,7	19,7	19,7	19,7	19,7
Bloekem/Adendorf MS 11kV	0,131	23,6	23,6	23,6	23,6	23,6	23,5
Simonsrust 2 MS/Simonsrust 1 MS 11kV	0,207	52,6	52,6	52,6	52,6	52,5	52,4
Beltana MS/Sonneblom MS 11kV	0,207	31,6	31,6	31,6	31,6	31,6	31,5
Idas 2 MS/Stone SS 11kV	0,207	0,1	0,1	0,1	0,1	0,1	0,1
Stone SS/Hector MS 11kV	0,131	31,9	31,9	31,9	31,9	31,9	31,8
Bloekem/Adendorf MS/Stone SS 11kV	0,131	10,2	10,2	10,2	10,2	10,2	10,2
Bartlett MS/Packham MS 11kV	0,131	13,2	13,2	13,2	13,2	13,2	13,2
Assegaai MS/Pendoring MS 11kV	0,131	67,9	67,9	67,9	67,9	67,9	67,8
Tindal SS/Bloekem MS 11kV	0,207	26,4	26,4	26,4	26,4	26,4	26,4
Helshoogte Village MS/Idas 1 MS 11kV	0,207	18,6	18,6	18,6	18,6	18,5	18,5
Hellshoogte MS/Seven Eleven MS 11kV	0,131	22,1	22,1	22,1	22,1	22,1	22
Bothmashoogte MS/Tindal SS 11kV	0,131	42,5	42,5	42,5	42,5	42,5	42,4
Woodman MS 11kV	0,131	10,4	10,4	10,4	10,4	10,4	10,4
Pendoring MS/Amoi MS 11kV	0,131	58,7	58,7	58,7	58,7	58,6	58,6

Table 280: RE Impact on line Loading – Uniepark

Line Name	Inom (kA)	2023 (%)	2024 (%)	2025 (%)	2026 (%)	2027 (%)	2028 (%)
SUB_6566/Stellenbosch Hoërskool RMU 11kV	1	1,2	1,2	1,2	1,2	1,2	1,2
Morkel MS/Jonkershoek MS 11kV	0,207	5,7	5,7	5,7	5,7	5,7	5,7
Uitsig MS/Rozendal Pomp RMU 11kV	0,082	16,1	16,1	16,1	16,1	16,1	16
Uniepark SS/AP Venter MS 11kV	0,082	25,2	25,2	25,2	25,2	25,2	25,1
Provinsie MS/Uniepark SS 11kV	0,207	12	12	12	12	12	12
Unielaan MS/Uniepark SS 11kV	0,131	32,1	32,1	32,1	32,1	32,1	32
Waterweg MS 11kV	0,082	6,6	6,6	6,6	6,6	6,6	6,6
Jan Marais SS/HuisduPreez SS 11kV	0,131	55,6	55,6	55,6	55,6	55,6	55,5
Rozendal Pomp RMU/Provinsie MS 11kV	0,131	10,1	10,1	10,1	10,1	10,1	10
Du Plessis MS/Rowan MS 11kV	0,207	9,8	9,8	9,8	9,8	9,8	9,7
Zwaanswyk MS/Blakesdrif Pomp RMU 11kV	0,082	4,8	4,8	4,8	4,8	4,8	4,8
Uitsig MS 11kV	0,082	6,6	6,6	6,6	6,6	6,6	6,6
Uniepark SS/Twee Pieke MS 11kV	0,207	16,9	16,9	16,9	16,9	16,9	16,9
Rowan MS/Jannasch 2 MS 11kV	0,207	18	18	18	18	18	17,9
Karendal SS/Zwaanswyk MS 11kV	0,082	19,7	19,7	19,7	19,7	19,7	19,7
Jannasch 2 MS/Jannasch 1 MS 11kV	0,207	23,6	23,6	23,6	23,6	23,6	23,6
AP Venter MS/Van Coppenhagen MS 11kV	0,082	10,2	10,2	10,2	10,2	10,2	10,2
Uniepark SS/Waterwerke MS 11kV	0,207	48,7	48,7	48,7	48,7	48,7	48,6
HuisduPreez SS/Stellenbosch Hoërskool RM	0,082	15	15	15	15	15	15
Jannasch 1 MS/HuisduPreez SS 11kV	0,131	46,4	46,4	46,4	46,4	46,4	46,3
Karendal SS/Du Plessis MS 11kV	0,207	6,7	6,7	6,7	6,7	6,7	6,7
Jan Marais SS/Uniepark SS 11kV	0,4	45,9	45,9	45,9	45,9	45,9	45,8
Van Coppenhagen MS/Waterweg MS 11kV	0,082	1,4	1,4	1,4	1,4	1,4	1,4
Uniepark SS/Endler MS 11kV	0,207	18,5	18,5	18,5	18,5	18,5	18,4
Jonkershoek MS/Karendal SS 11kV	0,207	5	5	5	5	5	5
Endler MS/Morkel MS 11kV	0,207	14,7	14,7	14,7	14,7	14,7	14,7
Jan Marais SS/Unielaan MS 11kV	0,131	40,6	40,6	40,6	40,6	40,6	40,6

7.6.4	THE INTEGRATED WASTE MANAGEMENT PLAN FOR STELLENBOSCH MUNICIPALITY

Collaborator No: **762681**
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **06 February 2024**

1. SUBJECT: THE INTEGRATED WASTE MANAGEMENT PLAN FOR STELLENBOSCH MUNICIPALITY

2. PURPOSE

To obtain Council's approval to circulate the draft Integrated Waste Management plan (IWMP) for public comment (**APPENDIX 1**).

3. DELEGATED AUTHORITY

Municipal Council, however, the mayor may request the Portfolio Committee to render assistance in terms of Section 80 of the Local Government Municipal Structures Act, Act 117 of 1998, as amended.

4. EXECUTIVE SUMMARY

In terms of Section 25 of the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000) each council must, within a prescribed period after the start of its elected term, adopt a single, inclusive, and strategic plan (IDP) for the development of the municipality. In relation to waste management, the IDP is required to include sectoral environmental plans which would be an IWMP for waste management.

Stellenbosch Municipality has appointed JG Afrika (Pty) Ltd to draft a fourth generation IWMP. This IWMP has been internally reviewed and requires public comment to be finalised.

5. RECOMMENDATIONS

(a) that Council accept the draft IWMP and approve that the draft IWMP be circulated for public comment;

(b) that the draft IWMP By-Law be submitted to D: EA&DP (Department of Environmental Affairs & Development Planning) for comment. In this process internal stakeholders will also be given an opportunity to comment; and

(c) that relevant comments be incorporated for final approval and adoption by Council.

6. DISCUSSION / CONTENTS

6.1 Background

JG Afrika was appointed by the Stellenbosch Municipality (SM) to develop its 4th Generation Integrated Waste Management Plan (IWMP) to replace the 3rd Generation IWMP (2020 – 2023).

The development of an IWMP is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) that was promulgated and came into effect on the 1st of July 2009. Its goal is transforming the waste management methodology from being focused only on collection and disposal, to a sustainable practice that focusses on waste avoidance and environmental sustainability.

An IWMP is an integral tool to identify a municipality's current needs and acts as a guide towards sustainable waste management. The IWMP must be incorporated as part of each municipality's Integrated Development Plan (IDP), although it is submitted as a separate document. The IWMP also indicates the alignment of its goals with the Western Cape IWMP, the District Municipality IWMP and the National Waste Management Strategy, 2020 (NWMS).

The NWMS is a statutory requirement of the NEM:WA and is entrenched in Section 24 of the Constitution of the Republic of South Africa. The purpose of the NWMS is to provide strategic policy intervention and a framework for the implementation of the NEM:WA. The NWMS therefore "outlines government's policy and strategic approach to waste management within the South African government's context and agenda of socio-economic development that is 'equitable, inclusive, sustainable and environmentally sound'". It is therefore aligned to South Africa's National Development Plan (NDP): Vision 2030, which aims to integrate the Sustainability Development Goals (SDG) of Agenda 2030 into the socio-economic development plans of the country.

The premise of the NWMS is to systematically improve waste management in South Africa by adopting the principles of the "circular economy" and the "waste hierarchy". As such, in implementing the NWMS, 2020 "local government needs to shift the focus of waste collection services to enable and promote diversion of waste from landfills through reuse, recycling and recovery".

The IWMP is therefore the fundamental strategic and planning document for implementing waste policy and ensuring waste services are supplied in accordance with the SM's constitutional mandate. The goals of the IWMP, as well as the monitoring thereof, should also feed into the SM's IDP which ensures that identified projects and activities are funded. The IWMP is a critical element of the SM's performance management system, the framework for which is provided in the Municipal Systems Act, 2000 (Act 32 of 2000).

SM's 4th Generation IWMP examines the current (2023) state (Status Quo Analysis) of the solid waste management system of the SM and provides the overview thereof. This includes the various aspects of, and the factors impacting the solid waste management system. These range from relevant legislation; the socio-economic context of the SM; waste types and quantities generated; waste management systems and infrastructure; education and awareness initiatives; and financing.

The analysis of the status quo assessment is utilised to identify the gaps and needs of SM's waste management system. The scope also includes the formulation of goals and objectives required to address the gaps and needs. The goals and objectives are limited to implementation at the local authority level. The implementation plan to improve the waste management system and to achieve the identified goals is coupled with a monitoring and review programme to ensure successful implementation of the IWMP. The IWMP will be implemented over the period 2024 - 2029 and will be reviewed yearly.

6.2 <u>Financial Implications</u>

None

6.3 Legal Implications

In terms of Municipal Systems Act (Act no. 32 of 2000) Section 25:

25 Adoption of integrated development plans

(1) Each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan for the development of the municipality which-

(a) links, integrates and co-ordinates plans and takes into account proposals for the development of the municipality;

(b) aligns the resources and capacity of the municipality with the implementation of the plan;

(c) forms the policy framework and general basis on which annual budgets must be based;

(d) complies with the provisions of this Chapter; and

(e) is compatible with national and provincial development plans and planning requirements binding on the municipality in terms of legislation.

6.4 Staff Implications

All vacancies as per the organogram needs to be filled to ensure successful implementation of the IWMP.

6.5 Previous / Relevant Council Resolutions:

None

6.6 Risk implications

None

RECOMMENDATIONS FROM INFRASTRUCTURE COMMITTEE MEETING:2024-02

06: ITEM 5.1.1

(a) that Council accept the draft IWMP and approve that the draft IWMP be circulated for public comment;

(b) that the draft IWMP be submitted to D: EA&DP (Department of Environmental Affairs & Development Planning) for comment. In this process internal stakeholders will also be given an opportunity to comment; and

(c) that relevant comments be incorporated for final approval and adoption by Council.

ANNEXURES

Appendix 1: Draft Integrated Waste Management Plan

FOR FURTHER DETAILS CONTACT:

NAME	Clayton Hendricks
POSITION	***Senior Manager: Waste Management***
DIRECTORATE	***INFRASTRUCTURE SERVICES***
CONTACT NUMBERS	***021 -808 8228***
E-MAIL ADDRESS	***Clayton.hendricks@stellenbosch.gov.za***
REPORT DATE	***22 January 2024***

ANNEXURE A

STELLENBOSCH MUNICIPALITY

DRAFT

4TH GENERATION INTEGRATED WASTE MANAGEMENT PLAN

2024 - 2029

STELLENBOSCH

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

Prepared by:
JG AFRIKA (PTY) LTD
Cape Town
14 Central Square, Pinelands
7405
Telephone: +27 21 530 1800
Email: jonasr@jgafrika.com
Project Manager: Ryan Jonas

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DRAFT 4th Generation Integrated Waste Management Plan

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CARRIED OUT BY:	**COMMISSIONED BY:**
JG AFRIKA (PTY) LTD **CAPE TOWN** 14 Central Square Pinelands 7405 Tel.: +27 21 530 1800 Email: EdwardsB@jgafrika.com	**STELLENBOSCH MUNICIPALITY** 1 Plein Street Stellenbosch 7600 Tel: +27 21 808 8241 Email: Clayton.Hendricks@stellenbosch.gov.za
AUTHOR	**CLIENT CONTACT PERSON**
Bonte Edwards	Mr Clayton Hendricks

SYNOPSIS

4th Generation Integrated Waste Management Plan – Stellenbosch Municipality

KEY WORDS:

4th Generation Integrated Waste Management Plan, Stellenbosch Municipality

QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2015 which has been independently certified by DEKRA Certification.

Verification	Capacity	Name	Signature	Date
By Author	Senior Environmental Scientist	Bonte Edwards	BEdwards	06/11/2023
Checked by:	Senior Environmental Scientist	Deshni Naicker		06/11/2023
Project Manager	Senior Environmental Scientist	Ryan Jonas		06/11/2023
Authorised by:	Director	Duane Petersen		06/11/2023

Filename:	Job5955 – Stellenbosch Municipality IWMP/101-WIP-Internal Env/110 -Reports/IWMP

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List of abbreviations

AD	Anaerobic Digestion
CAPEX	Capital Expenditure
CBD	Central Business District
CDM	Clean Development Mechanism
CCT	City of Cape Town
CPA	Component Project Activity
CWD	Cape Winelands District
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	Department of Forestry, Fisheries and the Environment
DSI	Department of Science and Innovation
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECA	Environment Conservation Act
ECSA	Engineering Council of South Africa
EPR	Extended Producer Responsibility
GDP	Gross Domestic Product
GN	Government Notice
HHW	Hazardous Household Waste
H&HCRW	Hazardous and Health Care Risk Waste
I&AP	Interested and Affected Parties
IDP	Integrated Development Plan
IPWIS	Integrated Pollutants and Waste Information System
IWMF	Integrated Waste Management Facility
IWMP	Integrated Waste Management Plan
KTS	Klapmuts Transfer Station
kW	Kilowatts
kWe	Kilowatt-electric
LC	Leachable Concentration
LFG	Landfill Gas
M&E	Mechanical and Electrical Contract
MFMA	Municipal Finance Management Act
MRF	Materials Recovery Facility
MSA	Municipal Systems Act
MSW	Municipal Solid Waste
MTREF	Medium Term and Expenditure Framework
NDP	National Development Plan
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEM:WA	The National Environmental Management: Waste Act (Act No. 59 of 2008)
NGO	Non-Governmental Organisation
NWMS	National Waste Management Strategy (2020)
OPEX	Operational Expenditure
OWDP	Organic Waste Diversion Plan
PoA	Programme of Activities
PRO	Producer Responsibility Organisation
RIA	Resource Innovations Africa (Pty) Ltd
RO-RO	Roll-on Roll-off
SDF	Spatial Development Framework
SDGs	Sustainable Development Goals
SM	Stellenbosch Municipality
SLF	Stellenbosch Landfill Facility

TC	Total Concentration
TMG	Table Mountain Group
WML	Waste Management Licence
WP	Waste Picker
WPIP	Waste Picker Integration Plan
WWTW	Wastewater Treatment Works

Executive summary

JG Afrika was appointed by the Stellenbosch Municipality (SM) to develop its 4th Generation Integrated Waste Management Plan (IWMP) to replace the 3rd Generation IWMP (2020 – 2023).

The development of an IWMP is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) that was promulgated and came into effect on the 1st of July 2009. Its goal is transforming the waste management methodology from being focused only on collection and disposal, to a sustainable practice that focusses on waste avoidance and environmental sustainability.

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The NWMS is a statutory requirement of the NEM:WA and is entrenched in Section 24 of the Constitution of the Republic of South Africa. The purpose of the NWMS is to provide strategic policy intervention and a framework for the implementation of the NEM:WA. The NWMS therefore *"outlines government's policy and strategic approach to waste management within the South African government's context and agenda of socio-economic development that is 'equitable, inclusive, sustainable and environmentally sound'".* It is therefore aligned to South Africa's National Development Plan (NDP): Vision 2030, which aims to integrate the Sustainability Development Goals (SDG) of Agenda 2030 into the socio-economic development plans of the country.

The premise of the NWMS is to systematically improve waste management in South Africa by adopting the principles of the "circular economy" and the "waste hierarchy". As such, in implementing the NWMS, 2020 *"local government needs to shift the focus of waste collection services to enable and promote diversion of waste from landfills through reuse, recycling and recovery".*

The IWMP is therefore the fundamental strategic and planning document for implementing waste policy and ensuring waste services are supplied in accordance with the SM's constitutional mandate. The goals of the IWMP, as well as the monitoring thereof, should also feed into the SM's IDP which ensures that identified projects and activities are funded. The IWMP is a critical element of the SM's performance management system, the framework for which is provided in the Municipal Systems Act, 2000 (Act 32 of 2000).

SM's 4th Generation IWMP examines the current (2023) state (Status Quo Analysis) of the solid waste management system of the SM and provides the overview thereof. This includes the various aspects of, and the factors impacting the solid waste management system. These range from relevant legislation; the socio-economic context of the SM; waste types and quantities generated; waste management systems and infrastructure; education and awareness initiatives; and financing.

The analysis of the status quo assessment is utilised to identify the gaps and needs of SM's waste management system. The scope also includes the formulation of goals and objectives required to address the gaps and needs. The goals and objectives are limited to implementation at the local authority level. The implementation plan to improve the waste management system and to achieve the identified goals is coupled with a monitoring and review programme to ensure successful implementation of the IWMP. The IWMP will be implemented over the period 2024 - 2029 and will be reviewed yearly.

Legislation

The IWMP provides an overview of the national and local legislation, policies, and guidelines applicable to waste management systems within the SM. This includes the National Environmental Management: Waste Management Act, 59 of 2008 and its associated Regulations, and Norms and Standards; the SM Integrated Waste Management By-Law; and the Western Cape Integrated Waste Management Plan (2022 – 2027). A comprehensive list can be found in section *2.1 Legislation*.

Waste management systems and infrastructure

The SM municipal waste management responsibilities lie with the Directorate: Infrastructure Services (together with Electricity, Water, Sewerage, Stormwater, Transport, Roads, and Infrastructure Planning, Development, and Implementation). The waste management division of the directorate provides the following services: collections; recycling; disposal to landfill site; wheelie Bins (240L); hiring of wheelie bins (for special events); emptying of skips and drop-offs.

The designated Waste Management Officer for SM is the Senior Manager: Waste Management Infrastructure Services.

There are several vacancies within the Waste Management Department that need to be filled. The Municipality is working on appointing competent staff to fill the vacant positions. In the waste disposal section 2 Technician posts have been advertised in 2023. The Municipality plans to fill them before the end of 2023.

Stellenbosch Municipality serves approximately 38,500 households with solid waste management services. The 28,751 collection points are spread across the 22 wards of the Municipality. The refuse collection breakdown is approximately 20,000 wheelie bins and 4,000 standard refuse bags as of 2019. The refuse bins are used to collect from formal areas, while the refuse bags are used to collect from informal and farm/rural areas. The Municipality utilises 11 refuse collection trucks, that are operated by more than 60 crew members in a 30-hour working week.

The Municipality renders an area cleaning service 5 days a week from Monday to Friday. The area cleaning staffing structure consists of 2 teams. The first team covers area cleaning for Stellenbosch and the second team covers area cleaning for Franschhoek, Dwarsrivier, and Klapmuts. Area cleaning staff are appointed on temporary 6-month EPWP contracts and there are more than 400 EPWP workers appointed in this way every 6 months. Area cleaning staff make use of blue bags for the disposal of waste.

The Municipality provides a two-bag collection system in middle to high income areas where black bags and clear bags are collected once a week. Households are required to separate and sort waste at source into 2 streams, namely general landfill waste (black bags) and recyclable waste (clear bags). Clear bags are provided by the Contractor who is responsible for collecting the clear bags and taking them to the SM Materials Recovery Facility (MRF) for sorting.

The Municipality currently diverts organic waste from landfill by means of chipping and composting garden waste that is received at the Stellenbosch Landfill Facility (SLF). Garden waste is dropped off by residents and businesses at the landfill. Franschhoek residents have the option to drop their garden waste off at the Franschhoek drop-off facility.

Stellenbosch Municipality has an Organic Waste Diversion Plan (OWDP), dated 2022, which set annual targets and includes intervention to be implemented by SM to meet the DEA&DP's organic waste diversion targets.[1] The OWDP is yet to be implemented by the SM. **Table 2-7** provides comment on the implementation of the OWDP.

SM operates the following waste facilities:

- **Stellenbosch Landfill Facility:** The landfill comprises 3 waste disposal cells (Cells 1-3). The construction of Cells 1 and 2 commenced in 1966 and disposal ceased in April 2013, when they were shaped and temporarily capped with a soil substrate.

  Cell 3 currently receives waste from municipal area clean ups, but not general household waste. General household waste from the Municipality is transported to the Klapmuts Transfer Station (KTS), prior to disposal at the privately owned Vissershok Landfill Site in Cape Town, until Cell 4 has been constructed and can start receiving waste which is planned for 2024.

- **Klapmuts Transfer Station:** The KTS is a general waste transfer station that was constructed in 2000. All the general waste that is collected within SM is off-loaded from the compactor vehicles, onto an apron and transferred to 30m^3 containers and temporarily stored at the KTS. Once the containers are full, they are transported to the privately owned Vissershok Landfill Site in Cape Town for disposal.

- **SM Integrated Waste Management Facility (IWMF):** The IWMF has the following facilities:
  a. A Materials Recovery Facility (MRF) where recyclable materials (cardboard, paper, glass, plastic, cartons, and scrap metal) are sorted for recycling.
  b. A Recyclables drop-off for use by the public.
  c. A Hazardous Household Waste (HHW) drop-off for use by the public. The HHW is then disposed of at Vissershok Landfill.

- **Drop-off facilities:** The SM makes provision for the public to purchase coupons at their municipal cashiers, for the public to dispose of waste at the SLF, KTS, IWMF Drop-off, and Franschhoek Drop-off.

An independent external auditor and reviewer is appointed by the SM to undertake interim external audits of the SM's waste facilities. The independent external auditor audits compliance with the Waste Management Licences (WMLs) / permits issued in terms of Section 20 of the Environment Conservation Act 73 of 1989 (ECA), the NEM:WA, and relevant Norms and Standards published under the NEM:WA.

SM has several plans for future infrastructure development including the development of a new landfill cell at the SLF, installation of landfill gas extraction infrastructure, as well as a potential installation of landfill gas flaring and power generation plant.

Waste classification and quantities

JG Afrika conducted a waste characterisation study in May 2023 (15 to 19 May). The waste characterisation study was undertaken at KTS, as all general waste collected is transported to the KTS prior to being transferred

[1] The DEA&DP took a policy decision to implement a 50% restriction on organic waste being disposed to landfill by 2022 and a full prohibition of organic waste disposed to landfill by 2027. Municipalities are therefore obliged to divert organic waste streams away from landfills.

to the Vissershok Private Landfill Site for disposal. The waste sampled included household and business/commercial waste. Waste from the two-bag system was not characterised.

The results show that the major waste fraction is organic waste (garden and food waste), which when combined makes up 38% of the waste sampled (by weight) for all areas. It should be noted that the characterisation was undertaken in autumn when higher than normal garden waste is expected.

The potentially recyclable fraction i.e., plastics (13%), metals (1%), glass (7%), paper & board (11%), and e-waste make up 33% of the sampled waste. The remaining waste consists of the residual waste fraction (19%), wood (1%), construction waste (1%), textiles (3%) and nappies (6%) which when combined are approximately 30%.

The organic and recyclable fractions make up more than half of the total waste stream (62%). These results indicate that the biggest diversion potential lies with the organic waste (i.e., mainly garden waste) fraction and recyclable materials from the general waste stream. The garden waste fraction may however vary due to seasonal changes. This must be considered when developing diversion plans.

Recyclables/packaging type waste and garden waste make up 80% of the waste stream in high income and business areas, and if targeted for diversion would result in high organic waste and recyclables diversion rates.

A different approach may be required for low-income areas, where focus is mainly placed on diverting the recyclable fraction. The organic waste fraction for low-income areas, when compared to high-income and business areas, was low at 20%. Despite this, the food waste fraction was noted to be unusually high. The largest waste fraction from the low-income area samples was residual waste at 30%. This was made up of wet sediment and broken fractions of glass, wood and small pieces of paper and plastic.

Overall, the waste characterisation results indicate that diverting recyclables along with garden waste, can increase overall diversion rates to approximately 55% and potentially up to 80% in certain income areas. However, this would depend on the level of contamination and quality of recyclables and therefore a three-bag system (recyclable, non-recyclable, and organic waste) for separation at household level would be recommended. Certain areas could also be provided with a targeted garden waste collection system.

Gaps and needs

The main gaps and needs identified for integrated waste management are as follows:

- **Legislation:** review of SM Integrated Waste Management By-Law and Policies as and when required.
- **Waste collection fleet:** investigate the potential for on-site repairs and maintenance of waste collection plant and vehicles. Outsourced services result in time and cost implications.
- **Transfer Stations:** up-grade facilities to keep-up with planned growth, and support decentralisation initiatives.
- **Waste diversion:** expand the two-bag collection system. Implement the OWDP.
- **Human resources:** fill vacant waste management posts.
- **Education and awareness:** continuously implement education and awareness initiatives.

Goals and objectives

A total of five goals were identified for the SM. The development of these goals has been informed by the previous IWMP, situational analysis, and gap and needs assessment, as follows:

Goal 1: Strengthened education, capacity, and advocacy towards Integrated Waste Management.
Goal 2: Improved integrated waste management planning and implementation for efficient and financially viable waste management services and infrastructure.

Goal 3: Effective and efficient utilisation of resources.
Goal 4: Improved compliance monitoring and enforcement.
Goal 5: Increased waste diversion and recycling.

Monitoring and review

Monitoring of the IWMP is essential for strategic planning, technical and financial performance assessment, compliance monitoring, and public accountability. To ensure corrective action is taken where necessary, and that long-term strategic goals are met, it is imperative that monitoring focuses on the short-term objectives of the IWMP. Monitoring also makes provision for the adjustment of the IWMP.

The IWMP will be implemented once the IWMP has been approved by the DEA&DP. The following time schedule applies for the monitoring and review of the 4th Generation IWMP:

An annual monitoring report in terms of section 13 (1) of the NEM:WA and section 46 of the Municipal Systems Act (MSA) which contains information on the implementation of municipal integrated waste management plans must be compiled and submitted to the DEA&DP.

The annual monitoring report must be compiled in accordance with section 13 (2) of the NEM:WA which stipulates the following requirements for the annual monitoring report:

The effectiveness of the SM 4th Generation IWMP will be reviewed 5 years post its implementation date. Within 3-months of the end of the 5-year IWMP implementation period, a review report of the IWMP must be documented for formal submission to SM's Council and to the DEA&DP. The report should be made available to interested and affected parties (I&APs) (including the public). The review should include issues such as performance levels related to the implementation of the IWMP, improvements from baseline conditions / indicators, and the public's perceptions and opinions regarding waste management in general and its associated services.

1 Introduction

JG Afrika was appointed by the Stellenbosch Municipality (SM) to develop its 4th Generation Integrated Waste Management Plan (IWMP) to replace the 3rd Generation IWMP (2020 – 2023).

The terms of reference for the 4th Generation IWMP includes the components in **Table 1-1**.

Table 1-1: Scope of work for the 4th Generation IWMP

Studies	Conduct a waste characterisation study
Review and update of existing documents / information	• Review the 3rd Generation IWMP in the context of the National Waste Management Strategy, 2020 (NWMS), Provincial IWMP, relevant policies and legislation; • Review and update the hazardous and health care risk waste survey; • Review and update the existing Organic Waste Diversion Plan (OWDP); • Update information based on waste management activities and the waste situation that prevails currently in greater SM (WC024) area.
IWMP development	• Compile a draft IWMP and incorporate comments from internal review; • Determine the status quo; • Identify gaps and needs; • Prioritise the Municipality's needs; • Compile an implementation plan; • Compile a monitoring and review plan; • Identify any requirements that the Department of Environmental Affairs and Development Planning (DEA&DP) may need to be included in the IWMP.
Stakeholder engagement	• Prepare a presentation and present the draft IWMP to SM Management; • Conduct public participation, incorporate comments; • Submit to DEA&DP and incorporate comments.
Final IWMP	Prepare Final IWMP incorporating all comments and submit Final IWMP to Council.

1.1 Background

The development of an IWMP is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) that was promulgated and came into effect on the 1st of July 2009. Its goal is to transform the waste management methodology from being focused only on collection and disposal, to a sustainable practice that focusses on waste avoidance and environmental sustainability.

An IWMP is an integral tool to identify a municipality's current needs and acts as a guide towards sustainable waste management. The IWMP must be incorporated as part of each municipality's Integrated Development Plan (IDP), although it is submitted as a separate document. The IWMP also indicates the alignment of its goals with the Western Cape IWMP, the District Municipality IWMP and the National Waste Management Strategy, 2020 (NWMS).

The NWMS is a statutory requirement of the NEM:WA and is entrenched in Section 24 of the Constitution of the Republic of South Africa. The purpose of the NWMS is to provide strategic policy intervention and a framework for the implementation of the NEM:WA. The NWMS therefore *"outlines government's policy and strategic approach to waste management within the South African government's context and agenda of socio-economic development that is 'equitable, inclusive, sustainable and environmentally sound '".* It is therefore aligned to South Africa's National Development Plan (NDP): Vision 2030, which aims to integrate the

Sustainability Development Goals (SDG) of Agenda 2030 into the socio-economic development plans of the country.

The premise of the NWMS is to systematically improve waste management in South Africa by adopting the principles of the "circular economy" and the "waste hierarchy". As such, in implementing the NWMS, 2020 *"local government needs to shift the focus of waste collection services to enable and promote diversion of waste from landfills through reuse, recycling and recovery".*

The IWMP is therefore the fundamental strategic and planning document for implementing waste policy and ensuring waste services are supplied in accordance with the SM's constitutional mandate. The goals of the IWMP, as well as the monitoring thereof, should also feed into the SM's IDP which ensures that identified projects and activities are funded. The IWMP is also a critical element of the SM's performance management system, the framework for which is provided in the Municipal Systems Act, 2000 (Act 32 of 2000).

Table 1-2: Key interventions and actions of the three strategic pillars of the NWMS

Key Intervention/s	Actions/Outcomes
PILLAR 1: WASTE MINIMISATION	
Divert organic waste from landfill through composting and energy recovery	The long term expected outcome is "Zero Waste going to Landfill". • 40% of waste diverted from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years leading to Zero Waste going to landfill. • Include and implement organic waste technologies in local government IWMPs.
PILLAR 2: EFFECTIVE AND SUSTAINABLE WASTE SERVICES	
Separate waste at source	Integration of waste pickers into the waste management system.
	Public online and annually updated guidelines, case studies and planning tools on separation at source for municipal managers.
	National awareness campaign on recycling and waste management.
Effective integrated waste management planning	Development and implementation of 5-year provincial and municipal IWMPs.
	Improve collection, reporting, and dissemination of information on SAWIS.
	Building capacity in integrated waste management planning and provide revised IWMP guidelines.
	Municipalities include provisions for recycling drop-off/by back/storage centres in their IWMPs, supported by fiscal mechanisms/ Extended Producer Responsibility (EPR)[2] schemes.
PILLAR 3: COMPLIANCE ENFORCEMENT AND AWARENESS	
Ensure municipal landfill sites and waste management facilities comply with licensing requirements	Develop financial mechanisms to enforce compliance to license conditions.

1.2 Scope of the IWMP

SM's 4^{th} Generation IWMP examines the current (2023) state (status quo or situational analysis) of the solid waste management system of the SM and provides the overview thereof. This includes the various aspects of, and the factors impacting the solid waste management system. These range from relevant legislation; the socio-economic context of the SM; waste types and quantities generated; waste management systems and infrastructure; education and awareness initiatives; and financing.

The analysis of the status quo as a baseline assessment is utilised to identify the gaps and needs of SM's waste management system. The scope also includes the formulation of goals and objectives required to address the gaps and needs. The goals and objectives are limited to implementation at the local authority level. The

[2] The EPR Regulations define EPR as follows: "*extended producer responsibility"* means that a producer's responsibility for an identified product is extended to the post-consumer stage of an identified product's life cycle.

implementation plan to improve the waste management system and to achieve the identified goals is coupled with a monitoring and review programme to ensure the successful implementation of the IWMP.

The IWMP will be implemented over a 5-year period from 2024 - 2029 and will be reviewed yearly.

The IWMP addresses the waste types and sources presented in **Table 1-3**.

Table 1-3: Waste types and waste sources addressed in the IWMP

Waste types addressed in the IWMP	Waste sources addressed in the IWMP
• Domestic waste • Garden waste • Construction and demolition waste • Household hazardous waste • Hazardous waste (including health care risk waste)	• Residential • Business • Industry • Farms/Rural areas • Illegal dumping • Street cleansing

1.2.1 Alignment and relationship of the IWMP with municipal plans

The IWMP aligns with SM's plans and frameworks included in **Table 1-4**.

Table 1-4: SM Plans and Frameworks adopted by the IWMP

Stellenbosch Municipality Environmental Management Framework (2014)	The framework addresses the legal and moral obligations of SM as it relates to the environment, and provides a dynamic vision, goals and objectives, and spatial and strategic directives towards giving effect to such obligations.
Stellenbosch Municipality Air Quality Management Plan (2013)	A strategic plan with a vision and mission, supported by short and long-term goals and objectives for the implementation of defined air quality management measures.
Stellenbosch Municipality Organic Waste Diversion Plan (OWDP) (2022)	The OWDP meets the DEA&DP's requirement for Municipalities to develop OWDPs. The OWDP sets annual targets and includes interventions to be implemented by SM to meet the DEA&DP's organic waste diversion targets.

1.3 Methodology

The following approach was undertaken to develop the 4th Generation IWMP.

Table 1-5: Methodology for the 4th Generation IWMP

1. Project inception meeting	The project was initiated through a project inception meeting with the SM and JG Afrika held on the 10 March 2023.
2. Waste characterisation study	The collection and analysis of accurate and reliable waste data was a key requirement to inform the development of the IWMP. To obtain up-to-date information on the character of waste generated, and to estimate possible waste diversion opportunities a waste characterisation study was undertaken in May 2023.
3. Site visits	Site visits were undertaken on the 14th of June 2023, by the JG Afrika team, to existing waste management infrastructure to gain full comprehension of the capacity and operations of the facilities.

4. Status quo analysis	Relevant data such as the 3rd Generation IWMP, OWDP, IDP, climate change documentation, waste quantities, budget plans, waste strategies, etc., was reviewed to determine the level at which waste management has been implemented within the Municipality to date. The status quo was used to determine the gaps and needs for the 4th Generation IWMP.
5. Engagement with SM	The JG Afrika team engaged with the SM Waste Management Officials who provided input, guidance, and information required to compile the IWMP.
6. Stakeholder engagement	Upon acceptance of the draft IWMP by the SM Council, JG Afrika will facilitate the public review period, during which various stakeholders will be provided an opportunity to comment on the draft document. Once this public review period has ended, JG Afrika will update the IWMP into a final document for SM Council final approval and implementation.

1.4 Description of the geographical area

This section describes SM's locality and associated climate, geology, geohydrology, and hydrology.

1.4.1 Locality

The Stellenbosch municipal area covers approximately 900 km² and falls within the Western Cape Province, in the Cape Winelands District Municipality (CWD). The SM's area of jurisdiction includes the main towns of Stellenbosch and Franschhoek, as well as several rural hamlets such as Wemmershoek, La Motte, De Novo, Kylemore, Pniël, Johannesdal, Languedoc, Groot Drakenstein, Muldersvlei, Klapmuts, Elsenburg, Raithby, Jamestown, Koelenhof and Vlottenburg (most with a population of less than 5 000). New nodes are emerging around agricultural service centres, for example, Koelenhof and Vlottenburg. Stellenbosch is a sought-after space, offering opportunity and quality of living, yet in close proximity to city life. This has placed the municipal area under constant development pressure. Apart from formal settlement areas, the municipal area also includes several informal settlements.

The Western Cape Province makes up 10.6% of the country's land surface and encompasses an area of 129 462 km². The province spatial area includes 1 metropolitan area (City of Cape Town), 5 district municipal areas (Central Karoo, Eden renamed Garden Route, Overberg, Cape Winelands, and West Coast) and 24 local municipalities. **Figure 1-1** is a map of the CWD in relation to the provincial district boundaries.

Figure 1-1: Locality of Cape Winelands in relation to Provincial Boundaries (SM 5th Generation, IDP 2022 -2027, May 2022)

The CWD is located within close proximity of the City of Cape Town (CCT), which offers access to trade opportunities, routes, and infrastructure such as expanding broadband networks, an international airport, the second largest container port in the country and a comprehensive road and rail network. This makes the CWD ideally located as an investment destination. The CWD municipal area incorporates the local municipalities of Drakenstein, Stellenbosch, Breede Valley, Langeberg and Witzenberg. Stellenbosch Municipality adjoins the CCT to the west and south and the Breede Valley, Drakenstein and Theewaterskloof Municipalities to the east and north. Functionally, SM forms part of the Greater Cape Town metropolitan area. **Figure 1-2**, shows the locality of SM in relation to CWD boundaries, and its locality in relation to the CCT.

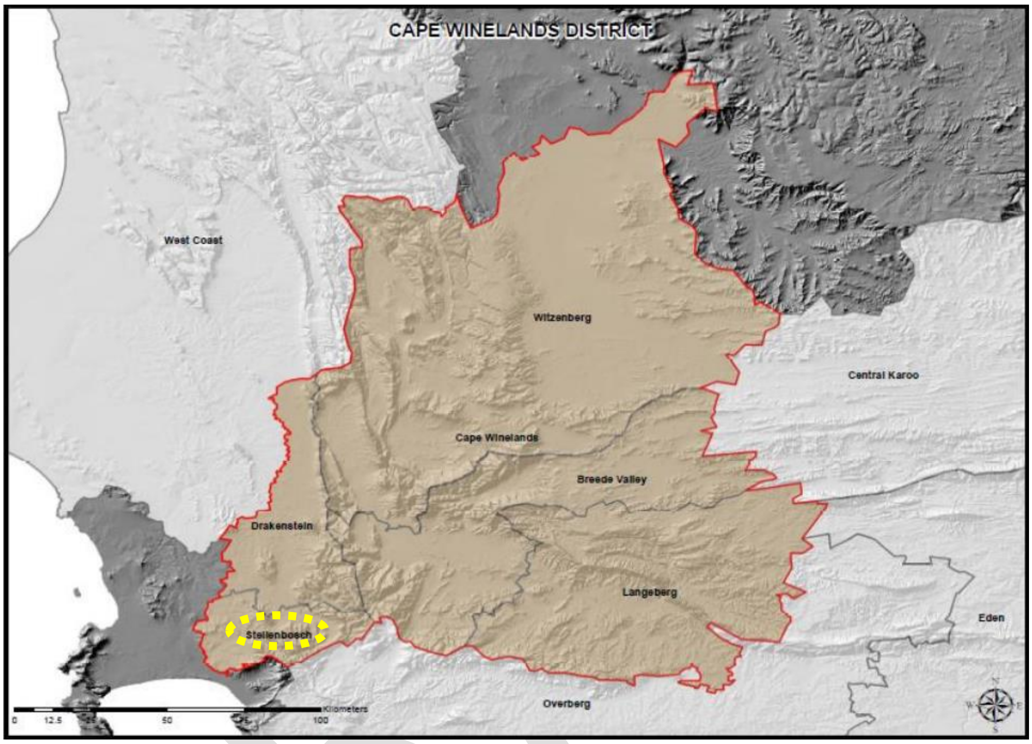


Figure 1-2: Locality map of Stellenbosch Municipality (highlighted in yellow) in relation to Cape Winelands District Boundaries (5th Generation, IDP 2022 -2027, May 2022)

1.4.2 Climate

Stellenbosch has a Mediterranean climate and typically receives about 673 mm of rain per year, mostly during winter. The lowest rainfall (10 mm) falls in February and the highest (37 mm) in June as indicated in the average rainfall graph **Figure 1-3.** The average midday temperatures for Stellenbosch range from 20°C in July to 34°C in February. The region is the coldest during July when the mercury drops to below 6°C on average during the night as indicated in the graph in **Figure 1-4**.

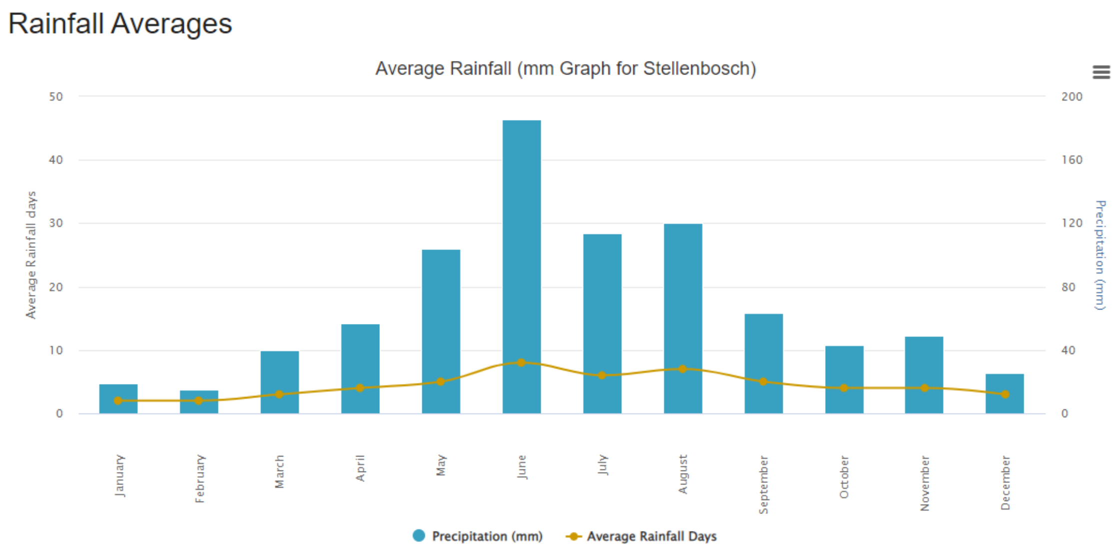


Figure 1-3: Average rainfall (mm) graph for Stellenbosch (worldweatheronline.com, July 2023)

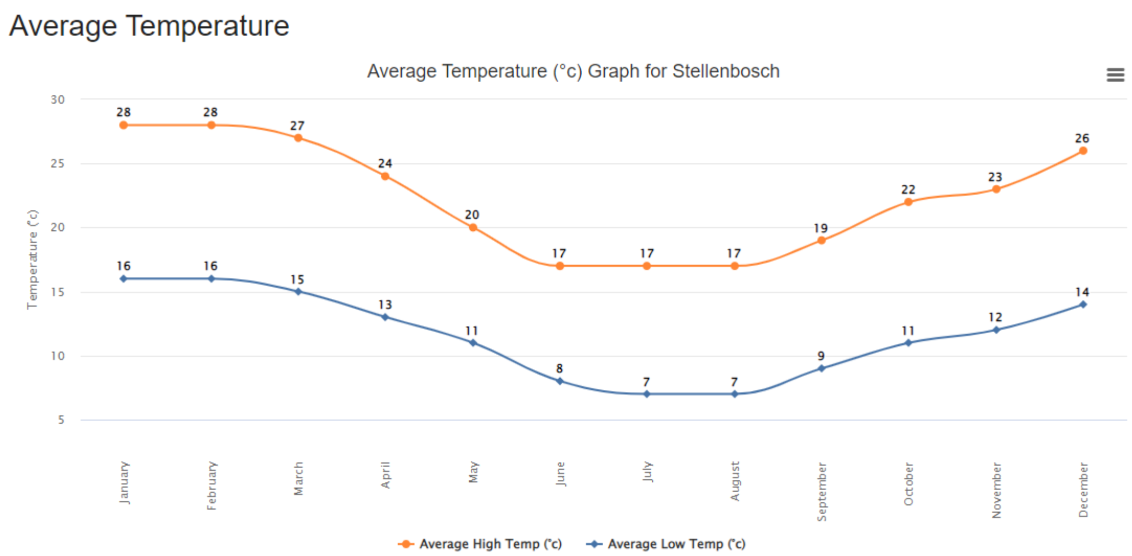


Figure 1-4: Average temperature graph for Stellenbosch (worldweatherpnline.com, July 2023)

1.4.3 Geology

The Stellenbosch Municipal area is underlain by 3 geological rock formations, these formations are the Malmesbury Group, Cape Granite Suite, and Table Mountain Group (TMG) (refer to **Figure 1-5**). Recent deposits of river alluvium and scree cover these bedrock units in places to varying thicknesses. The low-lying areas are underlain by rocks of the Malmesbury Group and dates back over 600 million years ago. The Malmesbury Group has been compacted over this period to form impermeable rocks such as phyllites and slates with clay soils. Present within the Malmesbury Group are granite intrusions which are dated approximately 600 million years.

The TMG comprises resistant quartzitic sandstones which form the mountain to the East of Stellenbosch and Franschhoek. These form the spine of the western limb of the Cape Fold Belt. The two main components of the TMG are the Peninsula Formation and the Nardouw Subgroup, which are separated by the Pakhuis and Cedarberg Formation that are mainly shaley in nature. Resistant sandstones form the rugged grey mountain crags typical of the Western Cape scenery. Sandy and boulder are evident on the floodplain of the Berg River as well as the central parts of the area, which cover the underlying geology in places at varying thickness.

1.4.4 Geohydrology

The study area is classified into 3 types of aquifers, intergranular, fractured, and intergranular and fractured (refer to **Figure 1-6**). Intergranular aquifers comprise quaternary unconsolidated sediments which are intergranular in nature, whereas fractured aquifers develop from Malmesbury or TMG formations. The aquifers formed by granites are classified as intergranular and fractured.

In terms of groundwater, the main aquifer formation in the areas is the TMG Aquifer. The groundwater potential and quality of the Malmesbury group in general is highly variable. The fault zones and sandstones horizons that are in close contact to the TMG aquifer or granites, display relatively high yields with moderate to good water quality. However, moving further away from these zones, towards the west the water quality is poorer.

The granite formations obtain a moderate to poor yield but with good water quality, whereas the alluvium deposits display a shallow groundwater table that is limited in extent and thickness. Currently, there are no significant wellfields developed within the area as all existing groundwater used is mainly for domestic farming and stock watering.

1.4.5 Hydrology

The Berg and Eerste River are the only significant rivers that flows through the Stellenbosch area and are listed as ecologically sensitive rivers by the Department of Water and Sanitation (DWS) (refer to **Figure 1-7**).

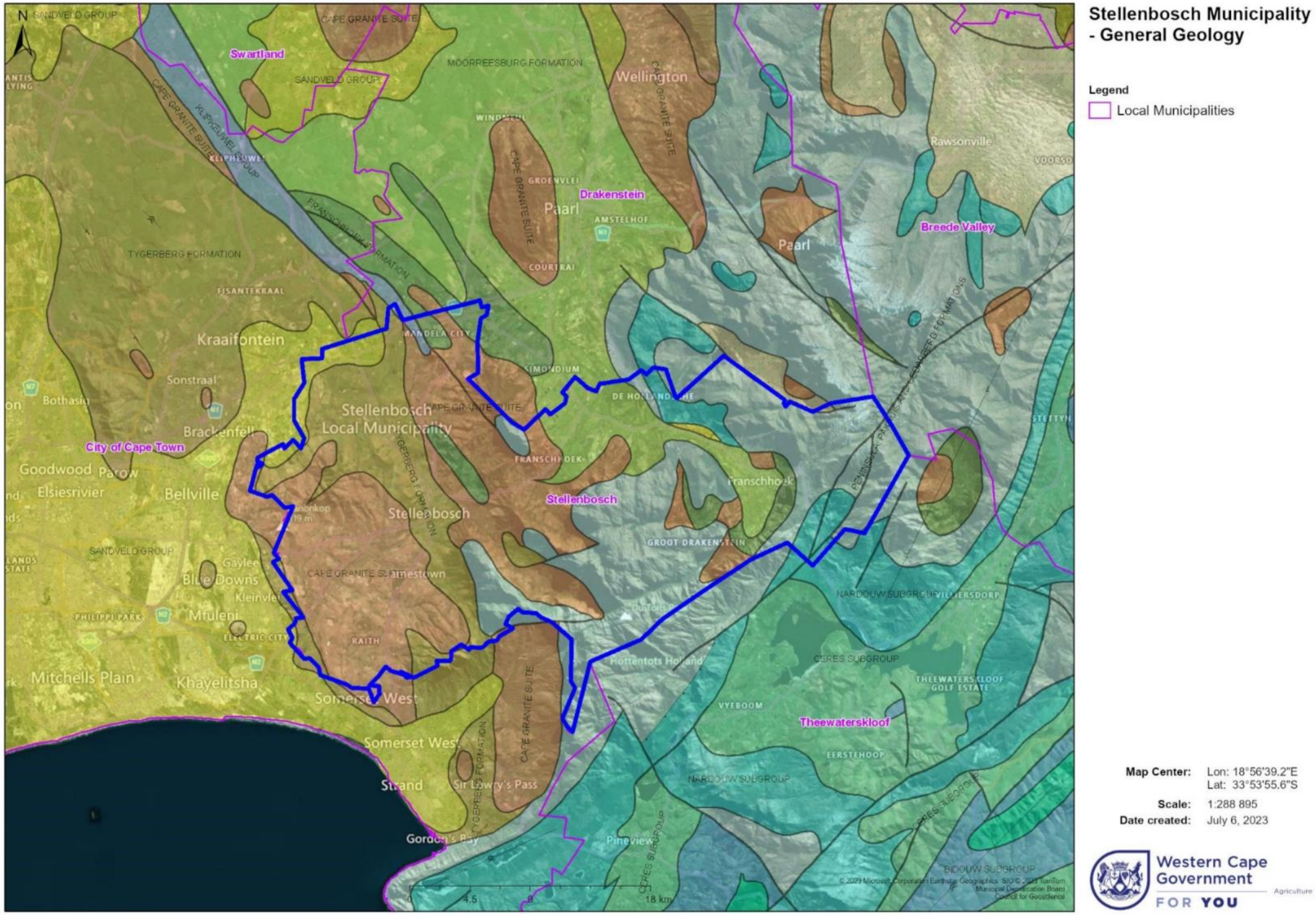


Figure 1-5: General Geology (Cape Farm Mapper, July 2023).

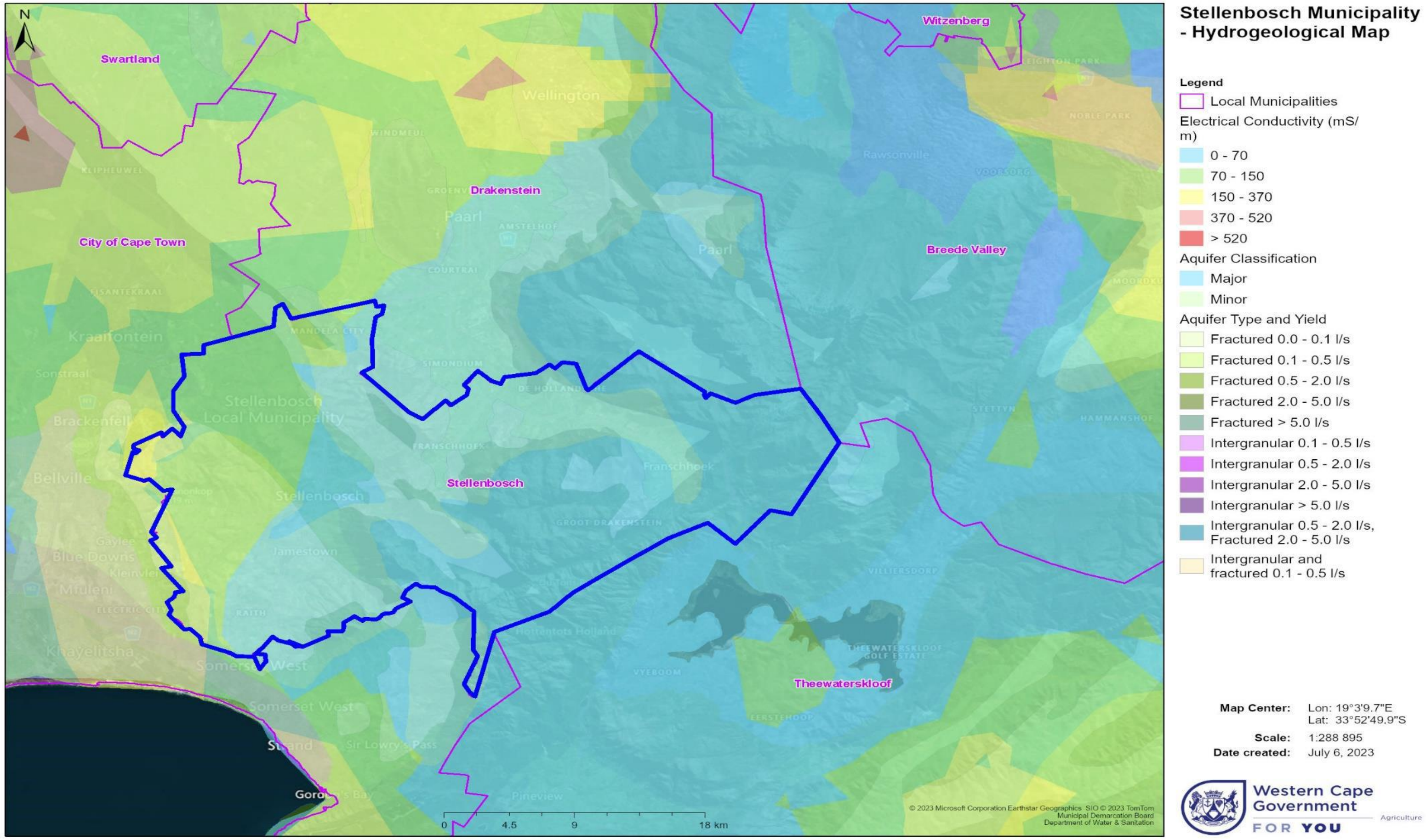


Figure 1-6: Hydrogeological Map (Cape Farm Mapper, July 2023).

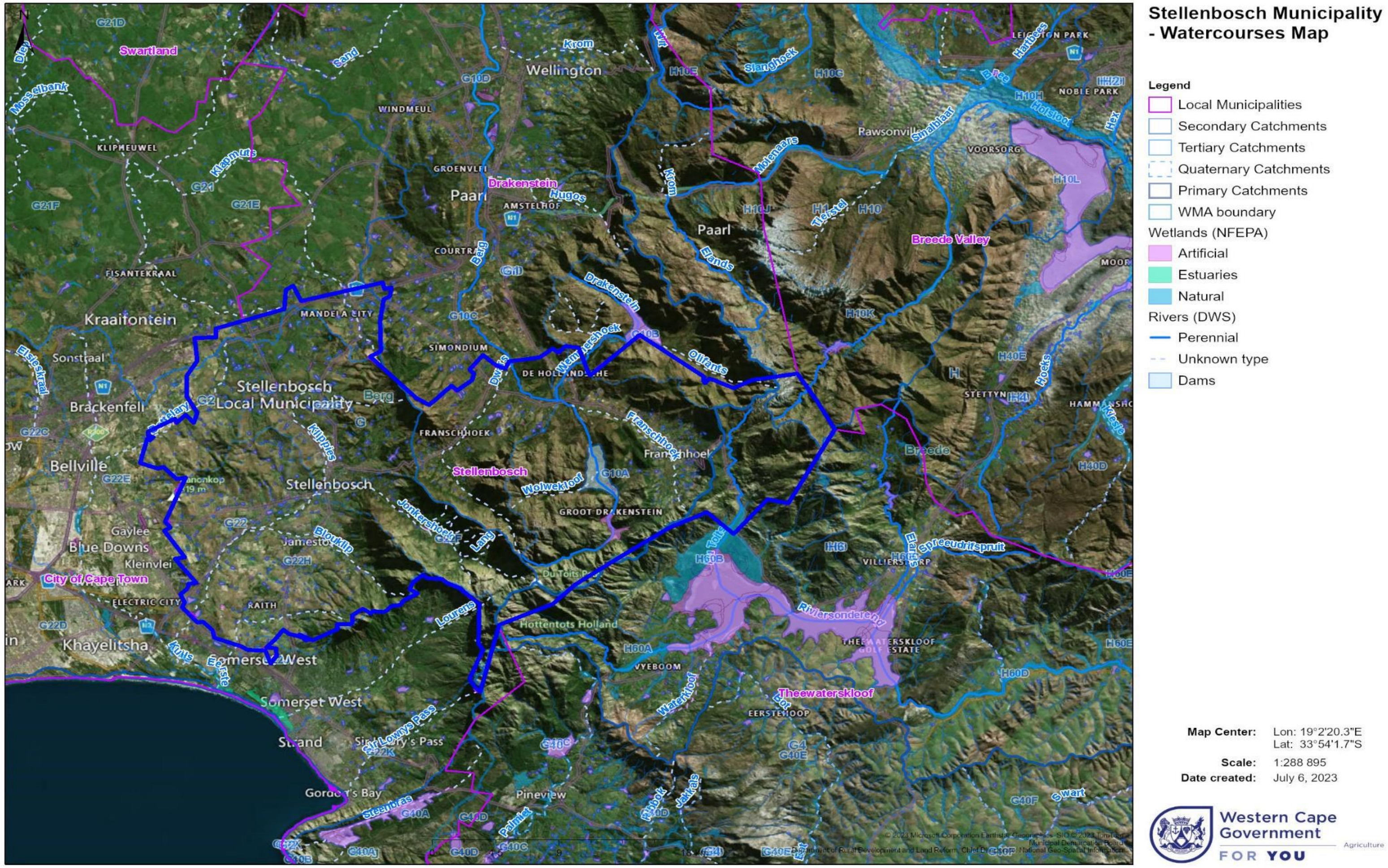


Figure 1-7: Watercourses Map (Cape Farm Mapper, July 2023).

2 Status Quo/ Situational Analysis

This section of the IWMP provides an assessment of the current (2023) state of the solid waste management system of the SM and provides an overview thereof. This includes the various aspects of, and the factors impacting the solid waste management system. These range from relevant legislation; the socio-economic context of the SM; waste types and quantities generated; waste management systems and infrastructure; education and awareness initiatives; and financing.

2.1 Legislation.

Table 2-1, and **Table 2-2** respectively present the national and local legislation, policies, and guidelines applicable to waste management within the SM.

2.1.1 National legislation and strategies

A summary of relevant national waste legislation, strategy, and guidelines is provided in **Table 2-1.**

Table 2-1: Relevant national legislation and strategies

Document	Description / Intent	Relevance to waste management
The South African Constitution (No 108 of 1996)	The Constitution is the supreme law of the Republic. The Bill of Rights, encompassed in Chapter 2 of the Constitution enshrines the rights of all people in South Africa, and affirms the democratic values of human dignity, equality, and freedom.	Section 24 of the Bill of Rights provides all citizens the right to an environment that is not harmful to their health and well-being and to have the environment protected through reasonable legislative and other measures. It is within this provision that IWMPs must strive or come up with measures to uphold the rights of all citizens within the jurisdiction of the municipality and should enhance and promote environmental protection from any form of degradation as enshrined by the South African Constitution.
National Environmental Management Act (No 107 of 1998)	To uphold the provisions of Section 24 of the Bill of Rights. To provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state (Republic of South Africa, 2023).	NEMA, as amended, is used as a regulatory tool to ensure the management and conservation of natural resources and the environment. NEMA sets out the Environmental Management Principles that must be applied to guide the interpretation, administration, and implementation of the NEMA and any other law concerned with the protection and management of the environment. NEMA also promotes the application of appropriate environmental management tools to ensure the integrated environmental management of activities that have an impact on the environment.
National Environmental Management Waste Act (No 59 of 2008) (NEM:WA)	NEM:WA promotes integrated waste management based on the waste management hierarchy as a means to reduce the amount of waste going to landfill, through waste avoidance, reduction, re-use, recycling, recovery, treatment, and safe disposal as a last resort (IWMSA, 2023).	Overarching framework legislation under the National Environmental Management Act (No 107 of 1998) dealing specifically with the management of waste in South Africa. Includes list of waste management activities that have, or are likely to have, a detrimental effect on the environment.
National Environmental Management: Waste Act, 59 of 2008: Waste Tyre	The aim of this regulation is to provide guidelines for the safe management of tyre waste.	The Act outlines the prohibitions, registration of waste generators, duties of tyre dealers, the

Document	Description / Intent	Relevance to waste management
Regulations (29 September 2019)		waste tyre stockpile abatement plan and the storage of waste tyres.
National Environmental Management: Waste Act, 59 of 2008: National Norms and Standards for Organic Waste Composting (25 June 2021)	• Provide a national uniform approach relating to controlling of composting or organic waste at a facility that falls within the threshold to prevent or minimise potential negative impacts on the bio-physical and socio-economic environment; and • Ensures the implementation of the best practical environmental option in composting of organic waste.	These Norms and Standards apply to organic waste composting facilities that have the capacity to process compostable organic waste, in excess of 10 tonnes per day. The norms and standards prescribe requirements for the management of waste composting facilities.
Government Gazette 10008. GNR 634 – 636 Waste Classification and Management Regulations (2013)	• Waste Classification and Management Regulations and Supporting Norms & Standards. • Facilitates the implementation of the waste hierarchy to move away from landfill to reuse, recovery and treatment. • Separate waste classification from the management of waste. • Divert waste from landfill and into utilisation where possible. • Provide measures to monitor the progress.	**Waste Classification and Management Regulations (GNR 634):** Regulate classification and management of waste to give effect to provisions of the Act. Prescribes general duties of waste generators, transporter and manager. Establish a mechanism for the listing of waste management activities that do not require a waste management licence. Prescribes requirements for disposal of waste to landfill. Prescribe requirements and timeframes for the management of certain wastes. **National Norms and Standards for the Assessment of Waste for Landfill Disposal (GNR 635):** Prescribe the requirements for the assessment of waste prior to disposal to landfill. *Approach*: Identify the chemical substances/elements present in the waste. Sample and analyse to determine the total concentration (TC) and leachable concentration (LC). Compare the TC and LC to the risk levels identified in the relevant tables. Determine the type of waste for disposal to landfill. **National Norms and Standards for the Disposal of Waste to Landfill (GNR 636):** Determine the class of landfill. Provide standard containment barrier requirements (engineering design requirements). List waste acceptance criteria for disposal of waste to landfill. List waste disposal restrictions.
Government Gazette 37088. GNR 926 – National norms and standards for the storage of waste (2013)	The purpose of the norms and standards is to: • Provide a uniform national approach relating to the management of storage waste facilities. • Ensure best practice in the management of waste storage facilities; and	Prescribes requirements for the management of waste storage facilities.

Document	Description / Intent	Relevance to waste management
	• Provide minimum standards for the design and operation of new and existing waste storage facilities.	
Government Gazette 41175. GNR 1093 – National norms and standards for the sorting, shredding, grinding, crushing screening or baling of general waste (2017)	Provides a uniform national approach relating to the management of waste facilities that sort, shred, grind, crush, screen, chip, or bale general waste.	Prescribes the requirements for the management of facilities, with an operational area in excess of 1 000m^2, that sort, shred, grind, crush, screen, chip, or bale general waste.
Government Gazette 35583. GNR 625 National Waste Information Regulations (2012)	Regulate the collection of data and information to fulfil the objectives of the national waste information system (Republic of South Africa, 2012).	Establishes a mechanism for collection, verification, reporting and record keeping of waste information. Prescribes list of waste activities that must be registered on the South African Waste Information System (SAWIS). Prescribes requirements for reporting waste information to the SAWIS. Prescribes the general and hazardous waste types for reporting to the SAWIS.
National Pricing Strategy for Waste Management (GN 904 of 2016)	The key aims of the strategy is to increase the diversion of waste from landfill, reduce the generation of waste and encourage reduction, reuse and recycling of waste. The strategy provides a methodology for setting waste management charges.	The strategy identifies three economic instruments for waste management: Downstream instruments Upstream instruments Subsidy-based instruments
The Waste Management Series, Department of Water Affairs and Forestry, **Second Edition 1998** Document 1: Minimum Requirements for the Handling, Classification and Disposal of hazardous Waste. Document 2: Minimum Requirements for Waste Disposal by Landfill ("Minimum Requirements") Document 3: Minimum Requirements for the Monitoring at Waste Management Facilities	This series establishes a reference framework of standards for waste management in South Africa. Document 1 sets out the waste classification system. In this, wastes are placed in two classes, General or Hazardous, according to their inherent toxicological properties. Document 2 addresses landfill classification, and the siting, investigation, design, operation and monitoring of landfill sites. Document 3 addresses the monitoring of water quality at and around waste disposal facilities	Document 1 **no longer has relevance** as it has been superseded by the Waste Classification and Management Regulations (2013). Document 2 was the primary guide (though not legislated) for landfills in South Africa. It **has largely been superseded** by the Waste Classification and Management Regulations (2013) and best practice guidelines, particularly the aspects entailing site design and development, quality assurance and landfill closure. **Site selection and post-closure monitoring are still guided by the Minimum Requirements**. Document 3 aims to: Standardize monitoring procedures. Provide specifications for monitoring design. Provide mechanisms for communication between waste management companies and authorities. **This document is still in use as a guideline**, though there are aspects legally enforced through conditions contained in waste management licences.
Government Gazette 43879. Extended Producer Responsibility (GN 1184 of 2020); and Government Gazette 44078. Amendment of the regulations and notices regarding	Provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers in terms of section 18 of the Waste Act and facilitates the effective and efficient management of identified end of life products and to encourage and enable the	Details and the roles and responsibilities of producers and Producer Responsibility Organisations (PROs) as well as the minimum requirements and criteria for Extended Producer Responsibility (EPR) schemes. The Regulations require producers and PROs administering EPR schemes to co-operate with

Document	Description / Intent	Relevance to waste management
extended producer responsibility (GN 20 of 2021)*	implementation of circular economy initiatives. *Provides updates to the Extended Producer Responsibility (GN 1184 of 2020) regulations.	municipalities to increase the recovery of recyclables from municipal waste streams.
National Waste Management Strategy (2020)	The NWMS is structured around a framework of three pillars each with their respective goals. The goals along with their respective targets are to be achieved by dates (year) indicated in the NWMS. The 2020 NWMS has three strategic pillars to improve waste management in South Africa: Pillar 1: Waste Minimisation Pillar 2: Effective and Sustainable Waste Services Pillar 3: Compliance Enforcement and Awareness	The NWMS 2020 sets out a monitoring and evaluation framework, which includes measures such as annual reporting systems to review progress; annual progress reports to be submitted by the Provinces and regarding implementation of provincial Integrated Waste Management Plans; and databases that record compliance and enforcement activities. In the field of governance, the Strategy defines the roles and responsibilities of the institutions and the civil society. It recognizes that waste is generated by all social and economic sectors and therefore the implementation of the NWMS requires a high degree of cooperation and understanding between government departments, spheres of government, the private sector, academia, research institutions and civil society.
Waste Picker Integration Guideline for South Africa: Building the recycling Economy and Improving Livelihoods through Integration of the Informal Sector (August 2023)	To improve the working conditions and livelihoods of the informal waste sector and to better integrate pickers into the country's waste economy, the Department of Forestry, Fisheries, and the Environment (DFFE), and the Department of Science and Innovation (DSI) developed this guideline document, with the support of the University of Witwatersrand.	It fulfils the commitment made by the Department of Forestry, Fisheries, and the Environment (DFFE) in the 2011 National Waste Management Strategy (NWMS) to "provide guidance to municipalities and industry on measures to improve the working conditions of waste-pickers."
The SA Plastics Pact	The South African Plastics Pact (SA Plastics Pact) is a collaborative pre-competitive initiative that brings together key stakeholders from the local plastics value chain, including businesses, the South African government, Producer Responsibility Organisations (PROs), NGOs and other key players to tackle plastics waste and pollution at its source.	The SA Plastics Pact, aims to stimulate industry-led innovation, dialogue and collaboration to create new business models, generate job opportunities, and unlock barriers to move towards a circular economy for plastic, with improved economic, environmental and societal outcomes overall.

2.1.2 Provincial and local Policy and by-laws

A summary of the applicable provincial and local policies, plans, and by-laws are presented in **Table 2-2**.

Table 2-2: Summary of provincial and local policies, plans, and by-laws

Document	Description / Intent
Western Cape Provincial Spatial Development Framework (March 2014)	The SDF states that 'the increasing waste generation in the Western Cape, if not recycled, will give rise to the need for more waste disposal sites–especially in proximity to urban concentrations. The location of regional waste site has the potential to either unlock opportunities or unnecessarily burden municipalities operations. New waste disposal sites are not needed if recovery/recycling facilities and related awareness programmes are rolled out. Further challenges arise from illegal dumping, shortfalls in hazardous waste facilities, growing informal settlements, and a lack of recyclable collection from homes. A mindset of 'reduce, rethink, recycle' still needs to be mainstreamed.
The OneCape 2040	The OneCape 2040 aims to transition from an unsustainable carbon-intensive resource-use society to sustainable, low carbon resource use to ensure that the Western Cape Province is recognised as the leader and innovator in the Green Economy. The province supports local government and the private sector to improve the recovery of waste material and beneficial use thereof.

Document	Description / Intent
	The purpose is to encourage and provide a vision for a more inclusive and resilient economic future for the Western Cape. It does not replace any existing statutory plans required of province or municipalities but is intended as a guideline for stakeholders.
Western Cape Green Economy Strategy Framework, 2013	The 2013 Western Cape Green Economy Strategy Framework aims to achieve the double dividend of optimising green economic opportunities and enhancing environmental performance. The strategy identifies three high-level priorities for green growth: • Natural gas and renewables. • Financial infrastructure. • Green jobs–including the waste sector
Western Cape Integrated Waste Management Plan, 2022 - 2027 **(May 2023)** **Incl. Organic Waste Diversion Directive**	The plan provides: • A strategic direction regarding integrated waste management in the Western Cape provincial government, local government, industry, commerce and civil society. • An overview of Waste Management in the Western Cape i.e., provides broader context in which the CCT Solid Waste Management is operating. • Strategic direction, goals, objectives to be achieved in the short, medium, and long term. Municipalities with an implementation plan that includes relevant output indicators, activities, and responsible parties required to achieve the waste management goals within the stipulated timeframes. The plan includes Western Cape Government Department of Environmental Affairs and Development Planning's (DEA&DP) policy decision to institute a 50% restriction on organic waste being disposed to landfill by 2022 and a full (100%) prohibition of organic waste disposed to landfill by 2027. Waste Management Licences (WML) for municipal facilities are being updated to include this condition
Western Cape Government DEA&DP Strategic Plan 2020 – 2025	The Strategic Plan highlights the Western Cape Province's strategic agenda for environmental and development planning mandates for the 2020 – 2025 period. This is to ensure that the natural and built environment is governed, both at provincial and municipal level, to achieve the intentions set out in the national environmental, spatial planning, and land use management legislation, and the NDP. The Strategic Plan focuses on six priority areas with specific outcomes to be achieved within the 5-year period. The outcomes to be achieved for the Waste Management priority are: • 50% diversion of waste from landfill based on a 2018 baseline of 29% • Increase the number of district municipalities receiving SMME support to create jobs and to promote the waste economy. • 95% of households to have access to basic refuse removal services based on a 2018 baseline of 92%. • To have 85% of waste facility owners submitting compliance audits. • To have 80% of municipalities with by-laws aligned to NEM:WA. • 90% of municipalities to have 3rd generation IWMPs.
Western Cape Government DEA&DP Guideline for the management of Green Waste in the Western Cape, 2018	The document provides guidance on: • The legislative requirements and implications for the management of green waste. • Specific legislative requirements for different treatment options. • Advantages and disadvantages of various green waste treatment options. • Key aspects for municipalities to consider is to ensure that effective green waste management is achieved.
Western Cape Government DEA&DP Guideline to Separation of Waste at Source, 2019	The Separation of Waste at Source provides: • Assistance for municipalities to meet national and provincial waste diversion priorities and targets. • Practical solutions to assist municipalities to implement separation-at-source. • Details of how existing separation-at-source programmes and systems work. • Guidance on implementing separation-at-source including costing needs, challenges, learnings, and successes from other municipalities.
Stellenbosch Municipality Integrated Waste Management By-Law	The Integrated Waste Management By-Law is a very comprehensive document which deals with all the components of waste management within the Municipality. The document deals with the principles of waste and the categories of waste within the Municipality and explains the obligations that waste generators have towards sustainable waste management. The document explains the by-laws that pertain to each waste type under its own category and includes priority waste and hazardous wastes. The by-law also provides information on who is required to develop an integrated waste management plan and guidelines on the storage, separation and recycling of waste. It also explains what measures will be taken against those who do not adhere to the by-laws and which officials are designated with powers to uphold the by-laws.

2.2 Socio-economic context

This section provides a description of SM's socio-economic context. The social indicators considered include population density, current and estimated population, and household size. The economic indicators considered include a sectoral overview; employment statistics; and service delivery. The information presented in this section was sourced from the *Stellenbosch Municipality Socio-Economic Profile, 2022*[3].

2.2.1 Social indicators

2.2.1.1 Population density

Amidst rapid urbanisation, population density figures aid public sector decision-makers mitigate environmental, health and service delivery risks. In 2022, the population density of the CWD was at 45 persons/km², and that of SM was at 240 persons/km².

2.2.1.2 Current and estimated population

SM's population totalled 199 325 persons in 2022, the second most populated municipal area in the CWD. This total is expected to grow to 215 456 by 2026, equating to an average annual growth rate of 2% for the period.

Figure 2-1 depicts the population composition of the municipal area per age cohort. These groupings are expressed as a dependency ratio which indicates those who are part of the workforce (Age 15 – 64) and those who are dependent on them (children or senior citizens). A higher dependency ratio implies greater pressure on social systems and the delivery of basic services. Between 2022 and 2026, the largest population growth was recorded in the 65+ age category of 2.7%. This reflects possible improvements in life expectancy (an ageing population) or that more people are choosing the Stellenbosch Municipal area as a retirement destination. Notable growth is also expected in the working age cohort, which results in an overall decrease in the dependency ratio towards 2026.

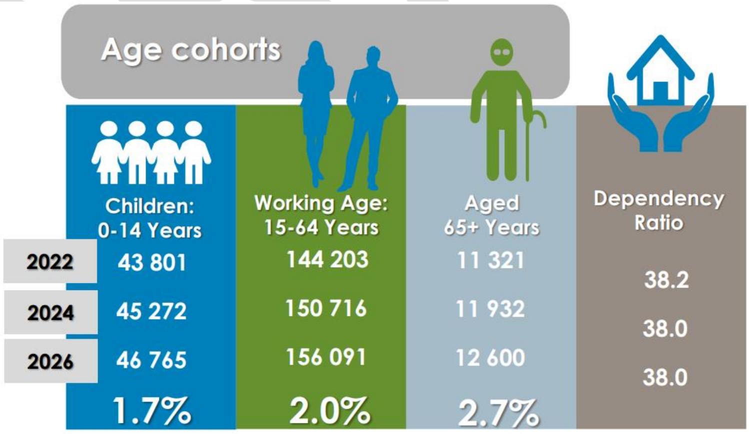


Figure 2-1: SM current population and estimated population. Source: Stellenbosch Socio-Economic Profile, 2022

2.2.1.3 Household size

Household size refers to the number of people per household. The household size is projected to remain constant at 3.6 people per household between 2022 and 2026. Contributing factors to the trend of a constant average household size include, but are not limited to, lower fertility rates, ageing population, divorce,

[3] The data sourced for compiling this document is primarily sourced from Statistics South Africa, administrative data from sector departments, the Municipal Review and Outlook (MERO), Global Insight Regional Explorer and Quantec. The data sourced from sector departments are the most recent that is available. The Statistics South Africa 2011 Census and 2016 Community Survey contains the latest survey data available at municipal level.

cultural patterns surrounding intergenerational co-residence, as well as socio-economic factors that shape trends in employment, education, and housing markets.

2.2.2 Economic indicators

2.2.2.1 Sectoral overview

The three largest sectors in the SM, in terms of contribution to Gross Domestic Product (GDP) in 2020, are:

- Finance, insurance, real estate, and business services at 26.5%
- Wholesale & retail trade, catering, and accommodation at 17.5%
- Manufacturing at 16.3%

In 2020, the economy of Stellenbosch was valued at R18 625.6 billion and employed 71 911 people. Historical trends between 2016 and 2020 indicate that the municipal area realised an average annual growth rate of -0.7%. The 2020 recession made a substantial dent in the average growth rate over the period, but load shedding and the drought within the province also played a major role in prior years.

Estimates for 2021 however indicated a marked recovery in growth (4.6%) from the effects of the COVID-19 related restrictions to economic activity in 2020. It was largely driven by growth in the wholesale & retail trade, catering & accommodation (7.8%) as tourism activity resumed; as well as the finance, insurance, real estate & business services (3.5%); and manufacturing (5.0%) sectors. The mining and quarrying (-14.2%), construction (-1.0%) and general government (-0.9%) sectors were the only sectors that experienced further economic decline after the easing of restrictions.

Despite the economic recovery experienced in 2021, the economy continued to shed jobs, with an estimated 2 435 net jobs lost. This was largely driven by job losses in the wholesale & retail trade, catering & accommodation (-945 jobs); manufacturing (-338 jobs); and agriculture, forestry & fishing (-328 jobs) sectors, reflecting that employment creation is lagging the improved GDP. Only the general government sector was able to create jobs during the year.

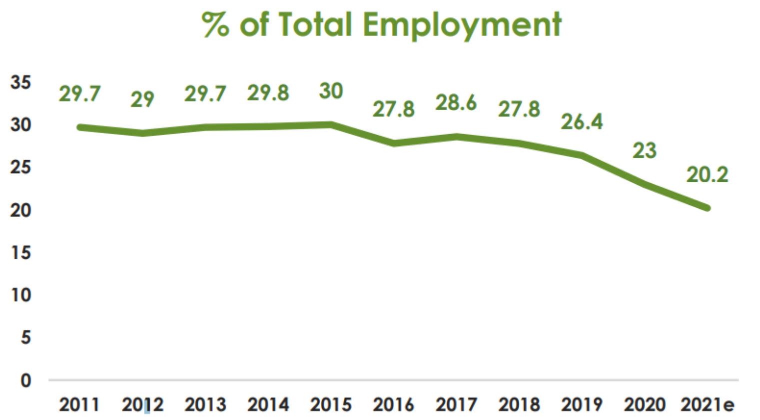
2.2.2.2 Employment

It was estimated that Stellenbosch's total employed will, in 2021 amount to 69 476 workers, of which 55 435 are employed in the formal sector and 14 041 are informally employed. Employment in the formal sector had an annual average increase of only 0.2% from 2016 to 2020 while the informal sector suffered an annual average decline of 5.9% over this period. The informal economy was responsible for most of the job losses in 2021. This is a concern as the informal economy should be able to act as a buffer during times of economic recession.

Most of the formally employed consisted of semi-skilled and low-skilled workers. The skilled category only contributed 25.8% to total formal employment. The skilled and semi-skilled categories grew at a pace of 0.7% per annum from 2016 to 2020 and notably outpaced low-skilled employment which shed 0.9% of jobs per annum. The growth in the skilled categories reflects the increasing market demand for skilled labour and the need for skills development initiatives, especially with the growing tertiary sector in the SM area.

Table 2-3: Skills levels for formal employment. Source: Stellenbosch Municipality Socio-Economic Profile, 2022

Skill levels formal employment	Skill level contribution 2020 (%)	Average growth (%) 2016 - 2020	Number of jobs (2020)	Number of jobs (2021)
Skilled	25.8	0.7	14 305	14 433
Semi-skilled	42.2	0.7	23 353	23 327
Low-skilled	32.0	-0.9	17 688	17 675
Total	**100**	**0.2**	**57.340**	**54.314**



	2019	2020	2021e
Number of jobs	20 693	16 565	14 041

Figure 2-2: Informal employment statistics. Source: Stellenbosch Municipality Socio-Economic Profile, 2022

SM (estimated at 16.1% in 2021) had the second highest unemployment rate in CWD and is above the district (15.4%) rate, but significantly below the Western Cape (25.1%) unemployment rate. Unemployment has been on an upward trend from 2015 to 2021 largely driven by the job losses because of the drought, loadshedding and economic recession over this period. The non-economically active population has also increased from 2020 to 2021 as job losses and an insufficient supply of jobs have led to an increasing number of discouraged work-seekers. Unfortunately, most job losses affected low skilled and informal workers who are more vulnerable to living in poverty during times of economic decline.

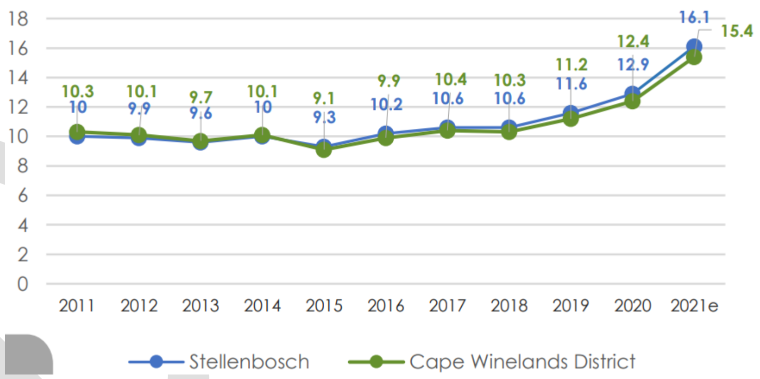


Figure 2-3: Unemployment rate 2011 - 2021. Source: Stellenbosch Municipality Socio-Economic Profile, 2022

2.2.2.3 Service delivery

The Constitution stipulates that every citizen has the right to access to adequate housing and that the State must take reasonable legislative and other measures within its available resources to achieve the progressive realisation of this right. Access to housing also includes access to services such as potable water, basic sanitation, safe energy sources and refuse removal services, to ensure that households enjoy a decent standard of living.

With a total of 50 792 households in the SM area, 74.5% have access to formal housing. The lowest when compared with other municipalities in the CWD area; the CWD average is 82.4%. The SM area also has the highest percentage of people living in informal settlements at 24.7%. In comparison, 16.9% of people across the CWD reside in informal settlements. Access levels to basic services in the municipal area (expressed as percentage of households) were as follows in 2019:

- Piped water inside / within 200 m of the dwelling: 99.3%.
- Flush or chemical toilet: 96.4%.
- Electricity (for lighting): 96.8%; and
- Refuse at least weekly by local authority: 82.1%.

2.2.3 Socio-economic growth projections

According to the population and economic growth projections in SM's 5th Generation IDP (2022 – 2027):

- The population in the municipality will continue to grow above the average provincial rate, and urbanisation rates will increase with settlements absorbing the bulk of growth.
- The ability of the economy to absorb growth, particularly regarding job creation, is concerning.
- The informal sector will continue to provide livelihoods to a significant proportion of residents.
- The growing youthful population, large student population, and the seasonal influx of labour are likely to increase the municipality's dependency ratio, in addition to a smaller base from which the municipality can collect revenue to provide services and opportunities that will improve the lives of the poor.
- Inequality in the municipal area, and particularly in the historic towns such as Stellenbosch and Franschhoek, remains significant and current development patterns are not addressing the issue.
- Crime rates remain high and the market response i.e., private security provision for those who can afford it, is likely to exacerbate inequality.
- Upgrading and provision of basic services and housing will remain the focus of the municipality, including other government agencies for the foreseeable future. The focus on these priority areas can lead to foregoing investment in other areas that would likely have more socio-economic spin-offs and result in improved place-making.
- The municipality's inability to provide basic services to 100% of households (e.g., refuse removal) leads to dumping, environmental degradation and resulting health-related problems.

2.3 Waste management systems and infrastructure

This section discusses the current solid waste management system in the SM. This includes the organisational structure of the Municipality; solid waste collection methods and vehicles; collection schedules; and waste diversion, treatment, and disposal.

2.3.1 Waste management organisational structure

The municipal waste management responsibilities lie with the Directorate: Infrastructure Services (together with Electricity, Water, Wastewater, Stormwater, Transport, Roads, and Infrastructure Planning, Development, and Implementation). The waste management division of the directorate provides the following services according to the municipal website: collections; recycling; disposal to landfill site; wheelie Bins (240L); hiring of wheelie bins (for special events); emptying of skips and drop-offs.

2.3.1.1 Designated Waste Management Officer

Chapter 3 of the NEM:WA states the following:

- **Section 10. (3):** Each municipality authorised to carry out waste management services by the Municipal Structures Act, 1998 (Act No. 117 of 1998), must designate in writing a waste management officer from its administration to be responsible for co-ordinating matters pertaining to waste management in that municipality.
- **Section 10. (4):** A power delegated, or a duty assigned to a waste management officer by virtue of subsection (3) may be sub-delegated or further assigned by that officer to another official in the

service of the same administration, subject to such limitations or conditions as may be determined by the municipality.

- **Section 10. (5):** Waste management officers must co-ordinate their activities with other waste management activities in the manner set out in the National Waste Management Strategy established in terms of section 6 or determined by the Minister by notice in the Gazette.

The designated Waste Management Officer for SM is Mr Clayton Hendricks who is the Senior Manager: Waste Management Infrastructure Services.

2.3.1.2 Organogram: SM Waste Management Infrastructure Services

The Senior Manager: Waste Management (Municipal Waste Manager) is supported by 2 Section Managers. One for the Area Cleansing and Collections Section, and one for Waste Minimization and Disposal Section.

There are several vacancies that need to be filled. The Municipality is working on appointing competent staff to fill the vacant positions. In the waste disposal section 2 Technician posts have been advertised in 2023. The Municipality is planning to fill them before the end of 2023.

Area Cleansing employs 12 permanent staff and also appoint approximately 400 EPWP Workers on temporary 6-month EPWP contracts every 6 months. There are 2 Operator/Supervisor positions and the position of Superintendent that are in the process of being filled.

Refer to **Figure 2-4** to **Figure 2-8** for the SM Waste Management Division Organograms[4].

[4] ***Note:*** due to the organograms provided to JG Afrika, by the SM, not being legible, JG Afrika has redone the organograms. The redone organograms were submitted to the Municipality to utilise as a working document to be updated as and when required.

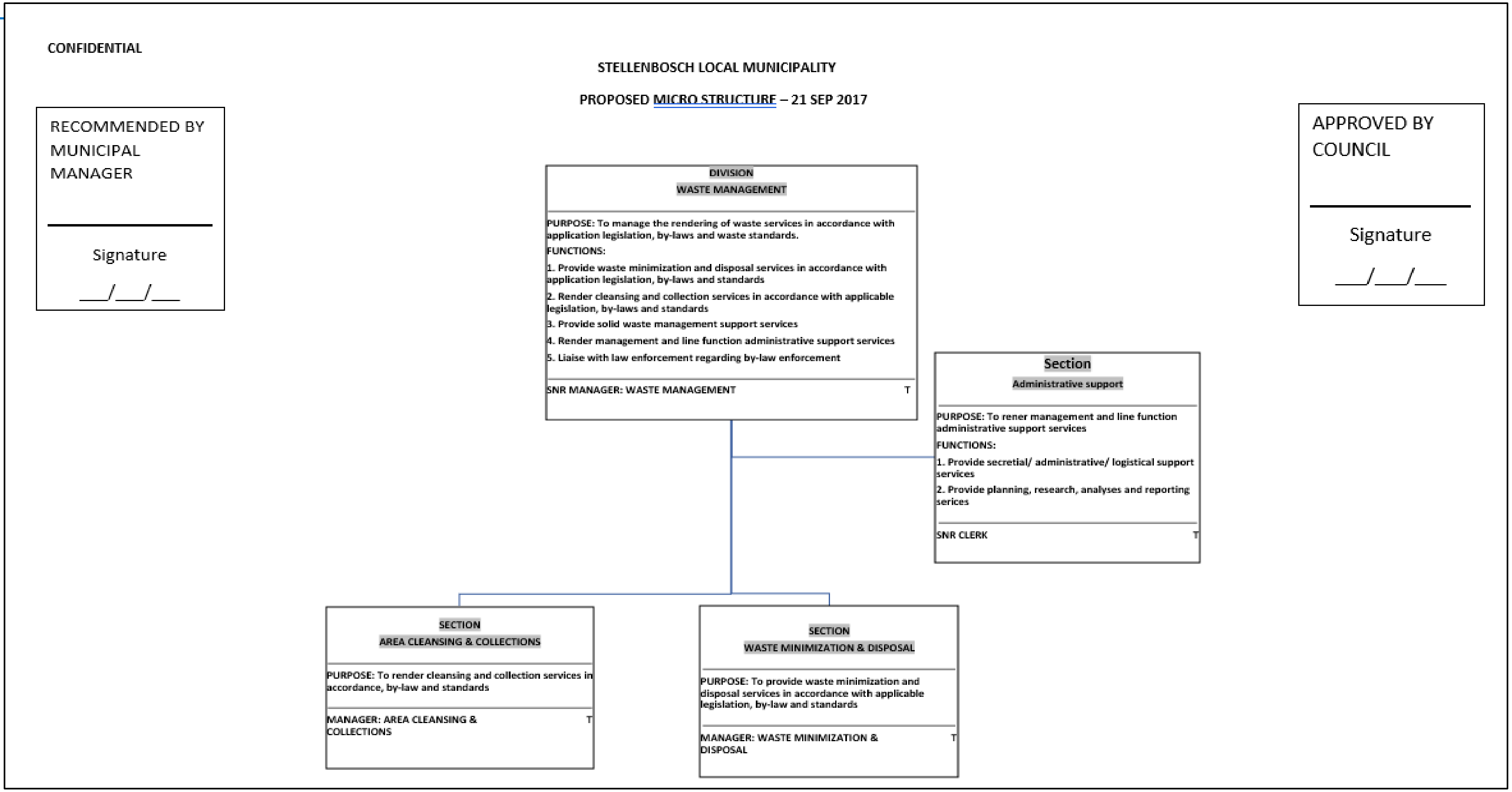


Figure 2-4: Structure of Stellenbosch Waste Management Division

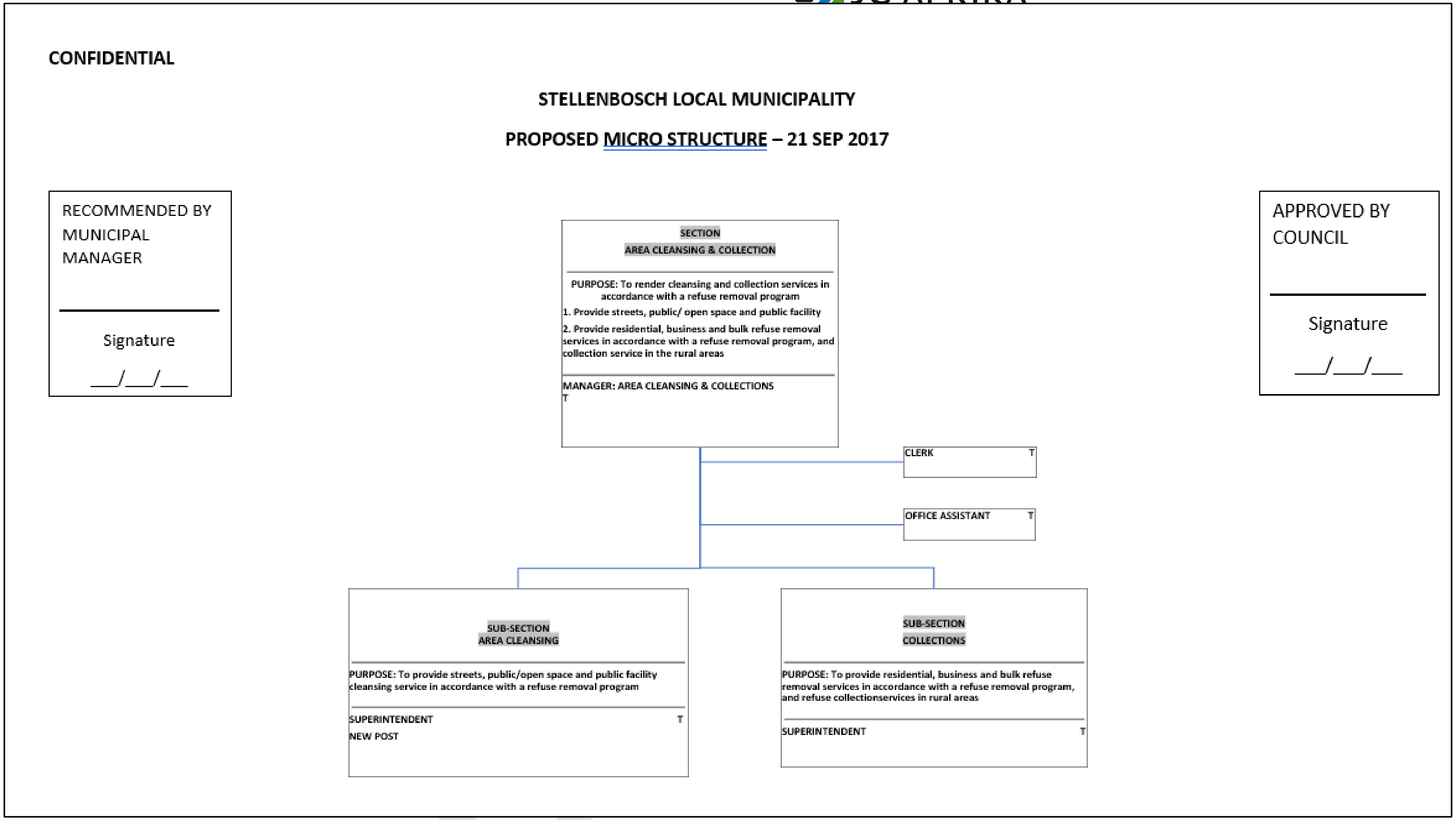


Figure 2-5: Structure of Area Cleansing & Collections Section

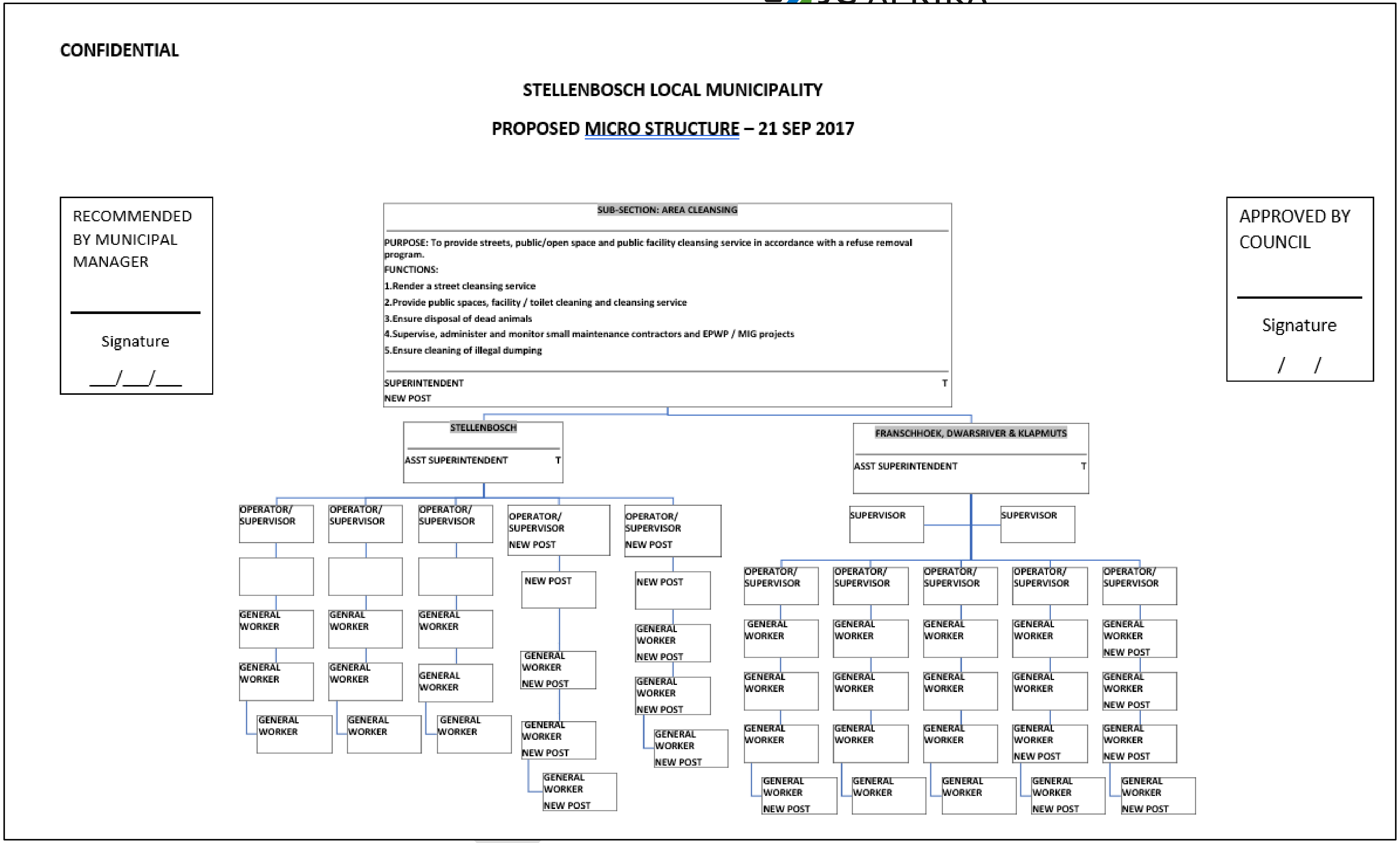


Figure 2-6: Area Cleansing Section Staff Structure

CONFIDENTIAL

STELLENBOSCH LOCAL MUNICIPALITY

PROPOSED MICRO STRUCTURE – 21 SEP 2017

RECOMMENDED BY MUNICIPAL MANAGER

Signature

___/___/___

APPROVED BY COUNCIL

Signature

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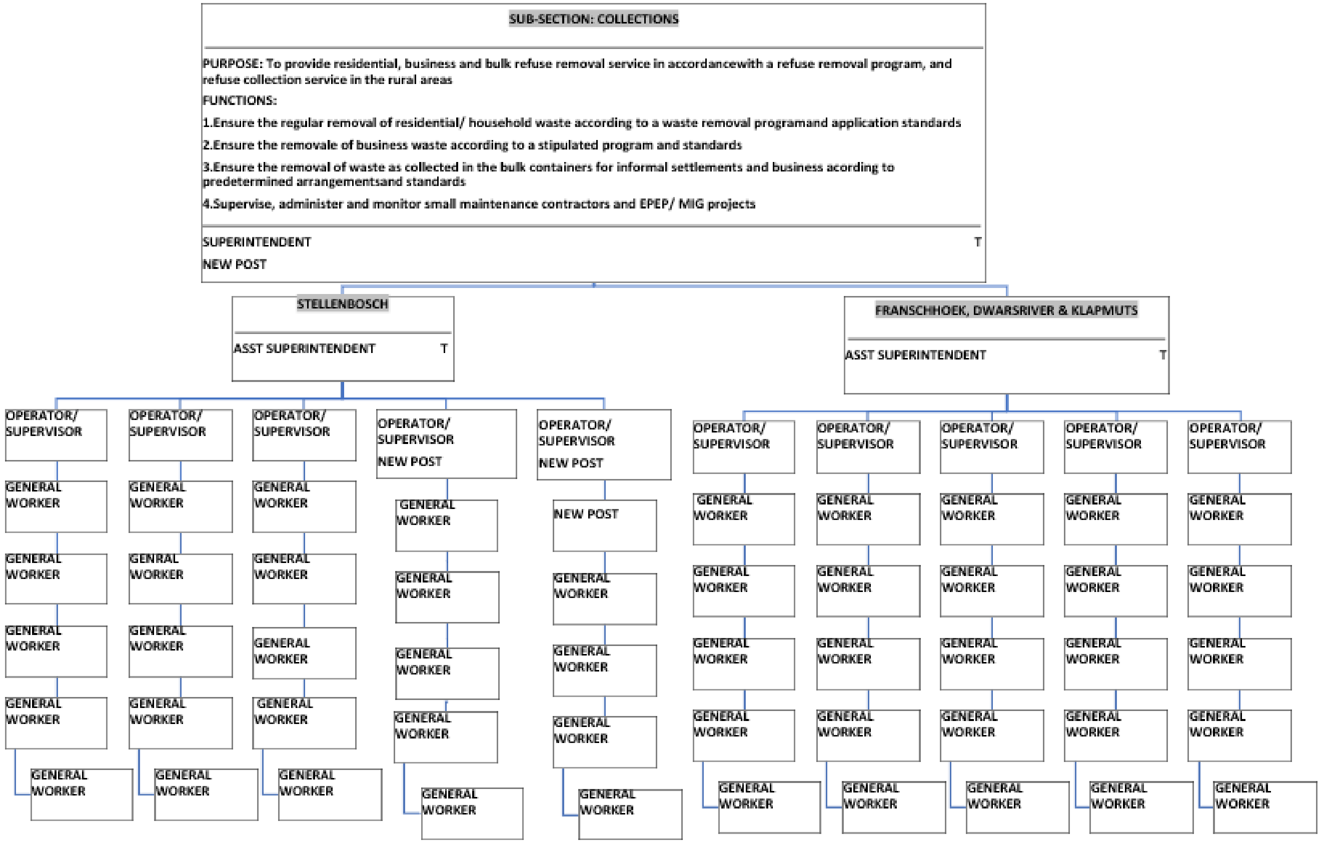


Figure 2-7: Collections Section Staff Structure

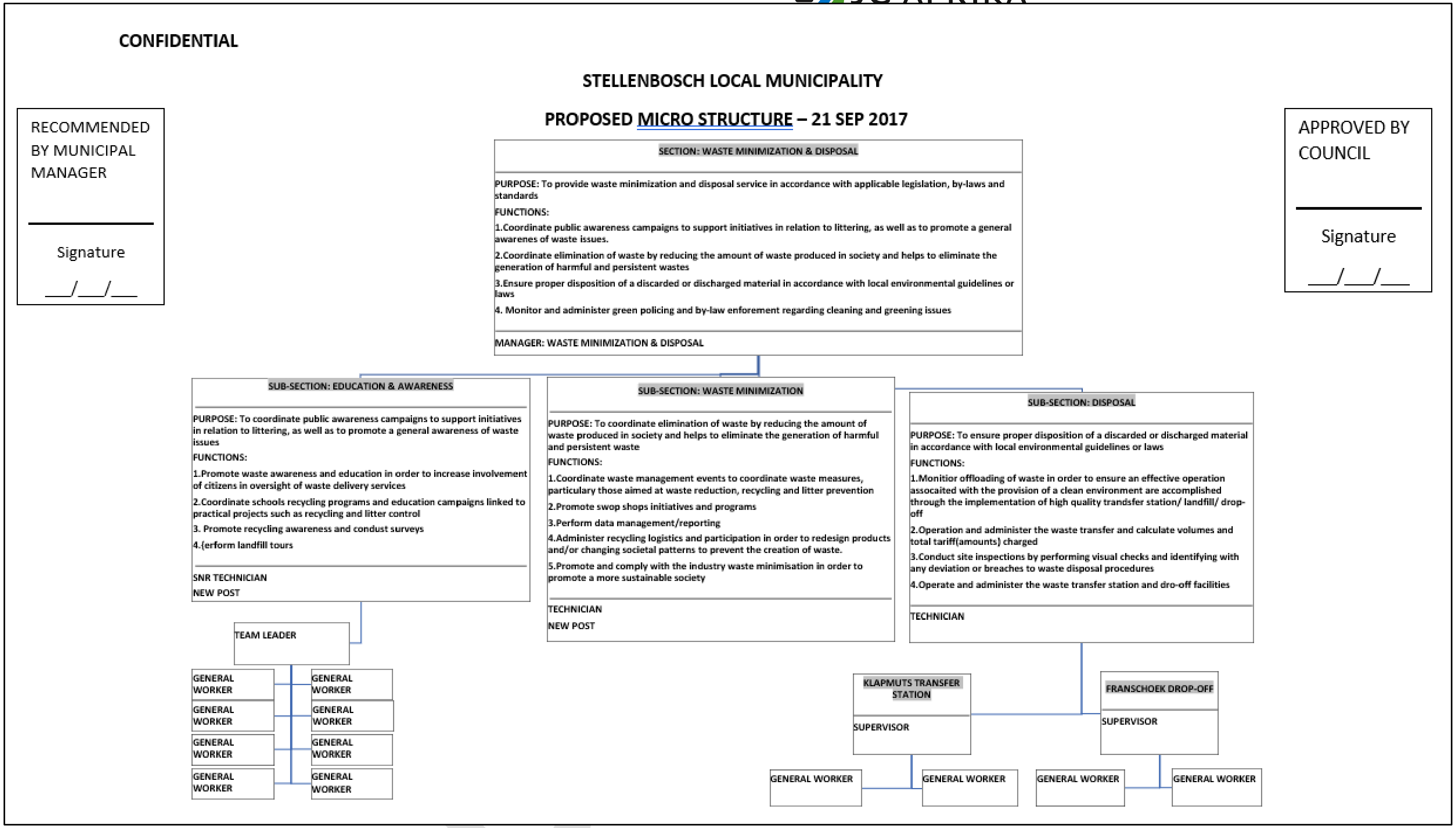


Figure 2-8: Waste Minimisation and Disposal Section Staff Structure

2.3.2 Waste collection services

Stellenbosch Municipality provides approximately 82.1% *(Stellenbosch Municipality Socio-Economic Profile, 2022)* of households with solid waste management collection services. The 17.9% not receiving solid waste collection services are located in farm/rural areas.

The collection services are as follows:

- 28 751 collections points are spread across the 22 wards of the Municipality.
- The refuse collection breakdown is approximately 20 000 wheelie bins and 4 000 standard refuse bags.
    - The refuse bins are used to collect from formal areas, while the refuse bags are used to collect from informal and farm/rural areas.
- All formal households in urban areas receive kerbside collection once per week.
- All informal households receive a weekly collection service.
- Some refuse removal services exist in rural areas and farming communities. These communities also have access to drop-off facilities.

The Municipality utilises 11 refuse collection trucks, that are operated by more than 60 crew members in a 30-hour working week. The current waste collection schedule is shown in **Table 2-4**.

Table 2-4: Waste collection schedule and areas covered.

Truck No	Truck Reg	Monday	Tuesday	Wednesday	Thursday	Friday
SW 8	CL 27923	Lanquedoc Meerlust SAPD Drakenstein	Onderpappegaai Vliegveld Vlottenburg Farms	Lyndoch Vlaeburg R44		
SW 9	CL 54065	Uniepark,Rozendal Simonswyk Universiteits oord	La Colline till Dorp Str Krigeville	Bottom Idas Valley	Bottom Cloetesville White City	Jamestown
SW 10	CL 27347	Stellenbosch University and Devon Valley Industrial Area	Die Boord	Stellenbosch University and Devon Valley Industrial Area	Cloetesville (Smarties/ Weltevrede)	Stellenbosch University and Devon Valley Industrial Area
SW 11	CL 31479	Mostertdrift	Noordwal oos Zimbabwe Flats Digteby Vlottenberg	Bo Idas Valley The Ridge	Bo Cloetesville Long str. South	Welgevonden
SW 12	CL 23506	Klap Residential and Business & Koelenhof Business	Klapmuts New Houses	Klapmuts RDP Houses	Koelenhof farms Nuutgevonden/Nooigedacht Klein Welgevonden	Klapmuts & Koelenhof Business
SW 13	CL 64272	Stellenbosch CBD	Brandwacht Dalsig	Stellenbosch CBD	Pniel and Farms along Helshoogte Rd	Stellenbosch CBD
SW 14	CL 64779	All business located outside of the CBD	Paradyskloof	All business located outside of the CBD	Tenantville (Kwarentyn & Welgelegen)	All business located outside of the CBD
SW 15	CL 71677	Kayamandi & Plankenbrug	Kayamandi Snake Valley	Thubelitsha & Plankenbrug	Kayamandi New Houses	Tenantville Plankenbrug Business
Franschhoek	Hired Truck	Bergrivier Dam, Amanzi spring water plant, Trades including B&B, 2 main farm roads and main roads	Wemmershoek, station road, voortrekkers park Maasdorp, Dennegeur, La Motte, Bellingham farm (Rupert) and happy valley road	Groendal, trades, 2 main farm roads and main roads	Mooiwater	Town, trades, B&B, all farm roads and main road

2.3.2.1 Area Cleansing services

The Municipality renders an area cleansing service 5 days a week from Monday to Friday. The area cleansing staffing structure consists of 2 teams. The first team covers area cleaning for Stellenbosch and the second team covers area cleaning for Franschhoek, Dwarsrivier, and Klapmuts. Area Cleansing employs EPWP Workers on temporary 6-month contracts. Area Cleansing staff make use of blue bags for the collection and disposal of waste.

2.3.2.2 Two-bag collection system

The Municipality provides a two-bag collection system in middle to high income areas where black bags and clear bags are collected once a week. Approximately 12 500 of 26 000 formal households are serviced per week. Households are required to separate and sort waste at source into 2 streams, namely general landfill waste (black bags) and recyclable waste (clear bags). Clear bags are provided by the Contractor who is responsible for collecting the clear bags and taking them to the SM Materials Recovery Facility (MRF) for sorting.

Table 2-5 provides a list of the areas that are currently included in the two-bag collection programme.

Table 2-5: Areas that are currently included in the two-bag collection programme.

Areas included in the two-bag collection programme	
Uniepark, Karindal, Aanhou Wen, Rozendal	Dorp/Stasie street
Mostertsdrift	Franschhoek
Simonswyk	Idas Valley, Lindida, Arbeidslus
Universiteits Oord	Raithby
Technopark	Agape Retirement Village
Die Boord, Fairways, Die Wingerd, Harringtons Place	Blaauwklippen Road
Paradyskloof, Schuilplaats, Lieberheim, Anesta, Eden, La Pastorale	Jamestown
Brandwacht	Cloetesville
Dalsig, Bo-Dalsig	Brandwacht-aan-rivier
Krigeville	Parmalat
Onder Papegaaiberg, Devon Vallei, Devon Park, Kleinvallei	Jonkershoek
La Colline/Die Rand	Welgevonden
Die Laan	

The recyclables were previously transported to a mini MRF situated adjacent to the Stellenbosch Landfill Facility (SLF), however from August 2019 to 31 March 2021, these were taken directly to the Kraaifontein MRF in the CCT for sorting.

The SM Integrated Waste Management Facility (IWMF) adjacent to the landfill started operations on 1 April 2021 and includes a MRF, which has the capacity to process 450 tons of incoming recyclable material per month and can employ up to 40 people. The MRF is currently not being used to its full capacity (currently operating at approximately 30%) as the Two Bag System is not fully in place across the municipality.

There are currently 19 staff employed at the MRF for sorting and 8 staff collecting the clear bags of recyclables. Recyclable material that is accepted includes paper, newspapers, magazines, cardboard, glass, plastic bottles and containers, metal packaging, and liquid board packaging. The contract includes areas into which the programme will be expanded each year as follows:

- Year 1 – Groendal, Mooiwater, and La Motte.
- Year 2: Kayamandi North and Kayamandi South.
- Year 3: Klapmuts and Lanquedoc.

The Municipality also opened a public drop-off, located at the IWMF in April 2021. Residents may bring clean recyclable materials to the facility during operating hours and are also allowed to bring garage waste for free disposal into the skips provided in vehicles with a maximum carry capacity of 1.5 tons. This is to allow residents which are not included in the two bag areas to participate in recycling.

2.3.2.3 Organic waste collection

The Municipality currently diverts organic waste from landfill by means of chipping and composting garden waste that is received at the Stellenbosch Landfill. Garden waste is dropped off by residents and businesses at the landfill. Franschhoek residents may drop their garden waste off at the Franschhoek drop off facility. This is transported to Stellenbosch Landfill Site for chipping and shredding.

2.3.2.4 Fleet for waste management

A list of municipal vehicles dedicated to waste management operations is presented in **Table 2-6**.

Table 2-6: Municipal vehicles that are operational and dedicated to waste management operations.

REG No.	Year Model	Model	Date Purchased	Section in use
CL 46779	2009	ISUZU NPR 400 AMT CRE	2009	Area Cleaning
CL 64272 (SW13)	2011	Nissan Diesel UD 330 Compactor	Jan-11	Collections
CL 63523	2011	DULEVO Sweeper 5000	2011	Area Cleaning
CL 64779 (SW14)	2011	Nissan Diesel UD 330 Compactor	Feb-11	Collections
CL 27923 (SW8)	2012	Nissan Diesel Compactor	Apr-12	Collections
CL 71576	2013	Toyota Hilux 2.0	May-13	Collections
CL 71677 (SW15)	2013	Nissan Diesel G300 Compactor	Jun-13	Collections
CL 76140	2015	Chev 1.4 bakkie	May-15	Area Cleaning
CL 31479 (SW11)	2015	UD 370 Diesel Compactor	May-15	Collections
CL 59281	2016	VW Polo Vivo	Jun-16	Disposal
CL81470	2017	MST Digger Loader	Jun-17	Disposal
CL 27347 (SW10)	2017	Isuzu FXZ 28-360 Compactor	Mar-17	Collections
CL 23506 (SW12)	2017	Isuzu FXZ 28-360 Compactor	Mar-17	Collections
CL 81138	2017	Isuzu FXZ 28-360 Compactor	May-17	Collections
CL 26704	2017	Mahindra DC Turbo Bakkie	Jun-17	Disposal
CL 51075	2017	Hino 300 815 Crew Cab 6A 11	Nov-17	Area Cleaning
CL 39782	2017	Priclo Caravan	Jun-17	Disposal
CL 26704	2017	BELERO NEF 4X4 P/U S/C	2017	Collections
CL 83193	2018	Hino 300 815 Crew Cab 6A 11	May-18	Area Cleaning
CL 83195	2018	Hino 300 815 Crew Cab 6A 11	May-18	Area Cleaning
CL 83198	2018	Nissan NP200 1.6i	May-18	Area Cleaning
CL 83197	2018	Nissan NP200 1.6i	May-18	Collections
CL 52034	2018	Hino 300 815 Crew Cab 6A 11	Apr-18	Area Cleaning
CL 83465	2018	MST Digger Loader	Jun-18	Area Cleaning
CL 83483	2018	UD 10-ton Tipper Truck	Jun-18	Area Cleaning
CL 84071	2018	UD 10-ton Tipper Truck	Sep-18	Area Cleaning
CL 54065 (SW9)	2018	UD 10-ton Refuse Compactor	Dec-18	Collections
CL 45166	2019	UD 10-ton Refuse Compactor	Jun-19	Collections
CL 22049	2019	MST Digger Loader	Jul-19	Area Cleaning
CL 10783	2019	UD 16 Ton Hooklift	Aug-19	Disposal
CL 34145	2020	HANOMAG Compactor	2020	Collections

2.3.3 Waste diversion plans

2.3.3.1 Organic Waste Diversion Plan

The DEA&DP took a policy decision to implement a 50% restriction on organic waste being disposed to landfill by 2022 and a full prohibition of organic waste disposed to landfill by 2027. The Western Cape IWMP (2017-2022) puts an obligation on municipalities to divert 50% of organic waste streams away from landfill sites by 2022 and a complete ban on organic waste disposed at landfill sites by 2027.

JG Afrika were appointed to compile an Organic Waste Diversion Plan (OWDP) for the SM in 2021 and it has been updated as part of the development of this IWMP. It was recommended that the SM pursue a multi-pronged approach to organic waste diversion which favours and encourages separation at source, identifies a treatment option and creates an enabling environment. Certain activities will need to run in parallel as more information and other studies are completed to inform phasing and planning as the Organic Waste Diversion System is rolled out.

To date, the OWDP has not been implemented. Comments on the status of the implementation of the OWDP are indicated in **Table 2-7**.

Table 2-7: Implementation progress of the OWDP

Summary of Outcomes of Organic Waste Diversion Plan (November 2021).	Comment on Implementation of Proposed Outcomes (to date).
Organic Waste Drop-off sites.	• Currently the garden waste is accepted at SLF and Franschhoek Drop-off. • An organic waste transfer station is still in the planning process (EIA and plans were completed, however the site has not been rezoned) but was placed on hold due to the landfills site extension taking priority. The option of using Klapmuts may be considered in future, should the WWTW be upgraded to produce primary sludge.
Three bag separation at source in all residential areas within the SM area.	• The municipality provides a two-bag system, wheelie bin and clear bag in certain residential areas for recyclables only and not organic waste. • Garden waste can be dropped off by residents at the drop-offs but is not collected separately. • Klapmuts does not have a garden waste drop-off. • A Consultant has been appointed for Franschhoek to find a suitable site to construct a mini-MRF. The mini-MRF will include a garden waste and builder's rubble area. The location of the garden waste site will allow for garden waste to be chipped before transportation.
Organic Waste separation and collection for all business and commercial areas.	This has not yet been implemented.
Partnership with Stellenbosch University to ensure the waste management systems are aligned.	This has not yet been implemented.
Transport system to collect organic waste and transport to the Organics Refuse Transfer Station.	The Municipality are considering organic waste drop-off sites rather a than a collection system.
A long term off-take solution for organic waste.	This is still in the planning stage and will be undertaken by the Municipality and likely to be combined with the upgrade of Klapmuts WWTW and the production of primary sludge to be treated with the organic waste.
Improved waste data capturing and reporting.	• No changes in the integrity of the Municipality's data or an overarching view of waste tonnages for the Municipality as a whole. • Municipality is engaging and having meetings with DEA&DP. Data is captured onto the Integrated Pollutants and Waste Information System (IPWIS).

Communication and awareness strategy focussed on Separation at Source and organic waste.	• Implementing the roll-out of composting bins in Franschhoek using the EPWP Education and Awareness Team. • Franschhoek residents were offered an opportunity to collect a compost bin, free of charge, at the Public Waste Drop Off in Fabriek Street, Franschhoek. • The public was informed by making use of the various platforms available in the Communications Department. • A team of designated EPWP workers from the Municipality, (informally known as Green Minds), were available to issue bins to residents. • A total of 43 bins were issued on the day.

The OWDP has been updated and integrated into the IWMP Implementation Plan, which includes the actions required, see **Table 4-1.**

2.3.4 Waste facilities and infrastructure

2.3.4.1 Stellenbosch Landfill Facility

The SLF is located on Portion 2 of Farm Morgenster 203, Remainder of Farm 183, Remainder of Farm Veldwagtersriver Outspan 280, Stellenbosch. The landfill is accessed from Devon Valley Road (Refer to **Figure 2-9**). The landfill comprises 3 waste disposal cells (Cells 1-3). The construction of Cells 1 and 2 commenced in 1966 and disposal ceased in April 2013, when they were shaped and temporarily capped. Cells 1 and 2 have not yet been closed in terms of the closure requirements specified in the Minimum Requirements for Waste Disposal by Landfill, Department of Water Affairs and Forestry (DWAF) (1998). Cell 3 currently receives waste from municipal area clean ups, but not general household waste as it has reached its' maximum height. General household waste from the Municipality is therefore transported to the Klapmuts Transfer Station (KTS), prior to disposal at the privately owned Vissershok Landfill Site in Cape Town. The construction of a new cell, Cell 4, is planned and it is expected it will start receiving waste in 2024. Cell 4 will be developed between Cells 2 and 3, and will be filled ("piggy-backed") above the slopes of Cells 2 and 3.

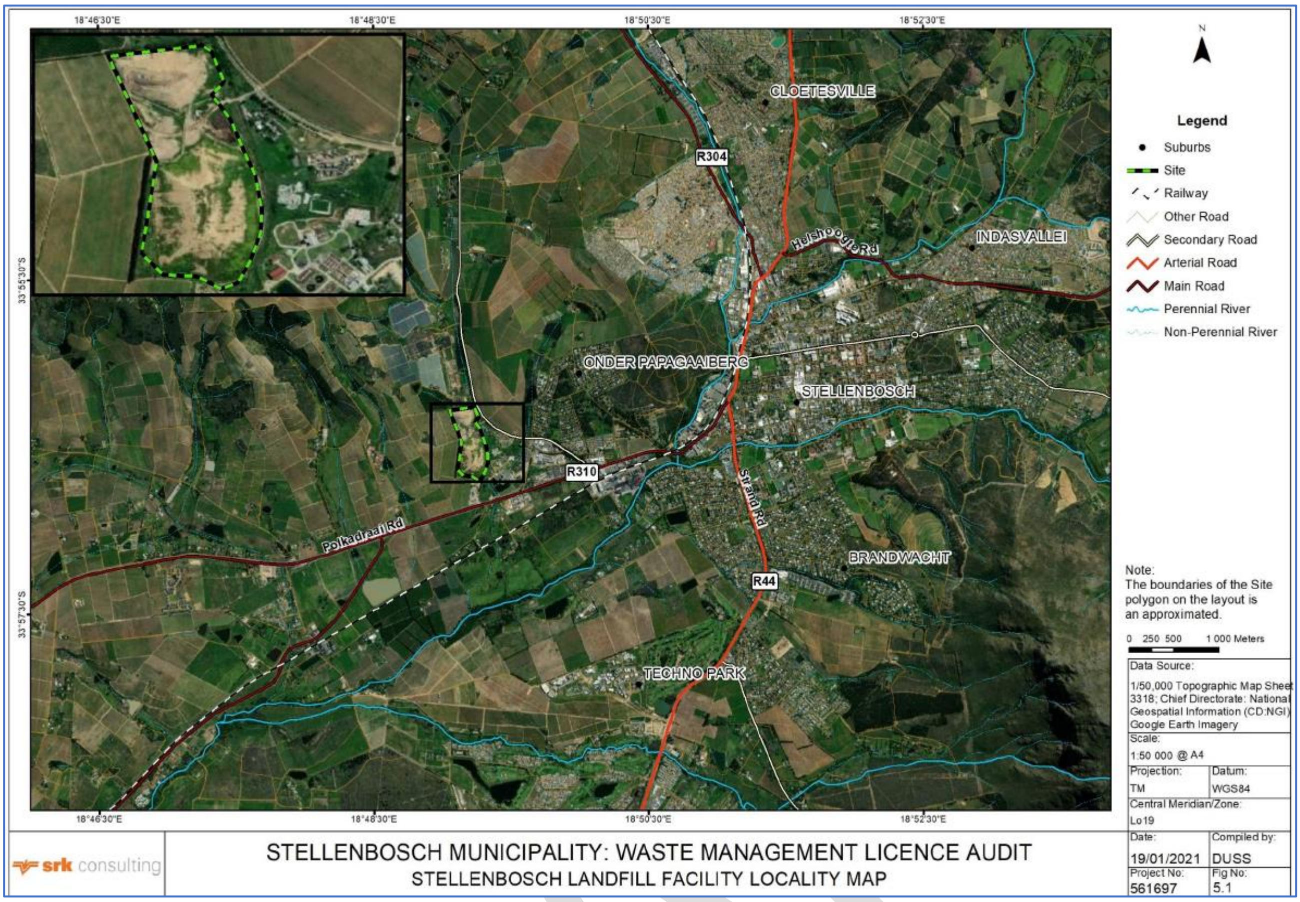


Figure 2-9: Stellenbosch Landfill Facility – Locality Map (SRK Consulting, External Audit Report, March 2023).

A Site Supervisor who is responsible for the daily operation of the site manages the landfill, on behalf of the SM.

The Municipality has appointed a service provider to undertake the chipping of organic/green waste on site. Builder's rubble is crushed, stockpiled, and transported off site once sold (collected by contractors).

Three general waste storage containers on site are used by the local community for temporary waste drop off. When the containers are full, they are taken to Vissershok Landfill by a private waste contractor. Two lockable 30m³ hazardous waste containers are available for the storage of household hazardous waste dropped-off by the public. These are located near the entrance to the facility.

2.3.4.2 Klapmuts Transfer Station (KTS)

The KTS is located on Farm 739, Paarl, along the R101 (Old Paarl Road), approximately 1.3 km from the Klapmuts Central Business District (Refer to **Figure 2-10**) and 15.49 km from the SLF. The KTS is a general waste transfer station that was constructed in 2000. All the general waste that is collected in the SM is off-loaded from the compactor vehicles, onto the apron and transferred to 30m^3 containers and temporarily stored at the KTS. Once the containers are full, they are transported to the privately owned Vissershok Landfill Site in Cape Town for disposal.

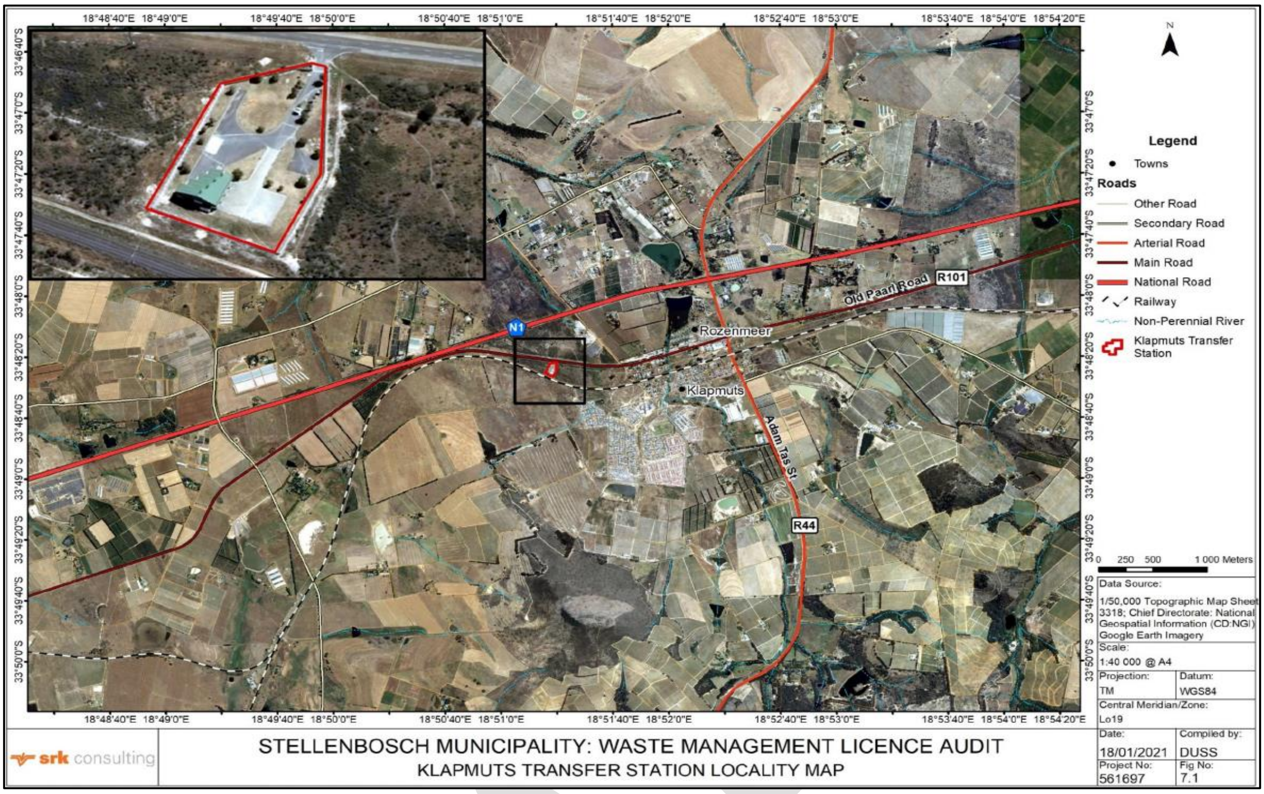


Figure 2-10: Klapmuts Transfer Station – Locality Map (SRK Consulting, External Audit Report, March 2023).

The KTS was operating in accordance with an ECA permit, dated 27 March 2000. The ECA permit is no longer valid due to changes in legislation, and the KTS is now operated in accordance with the Norms and Standards in terms of the NEM:WA (The facility was registered in terms of the Norms and Standards for the Storage of Waste on 7 November 2021).

The KTS is managed by SM and is fenced with a controlled access point. A weighbridge at the entrance to the facility weighs vehicles upon entry and exit and waste tonnages are recorded. The facility comprises an open sided roofed structure in which waste is dropped off, transferred, and temporarily stored prior to disposal. Skips are located on site for the public to drop waste off.

Waste delivered to the facility by the SM and private disposal vehicles by the surrounding farms in the Municipality is loaded into 30m³ Roll-on Roll-off (RO-RO) containers prior to transporting to the private Vissershok Landfill Site by a private waste management service provider.

As indicated by the SM the transport of waste disposal services to Vissershok is still being undertaken by the previous service provider and on a month-to-month basis while the new tender is adjudicated and awarded. The KTS is currently operating at maximum capacity, with approximately 120 x 30m^3 containers transported to Vissershok per week. This is approximately 3 130 tons per month.

2.3.4.3 Integrated Waste Management Facility

The Stellenbosch IWMF is located on Remainder of Farm 280, Veldwagtersriver and the Remainder of Farm 279, Stellenbosch District, adjacent to the SLF. The IWMF boundaries are depicted in **Figure 2-11**. The facility is accessible from Polkadraai Road (R310) and thus easily accessible by the public.

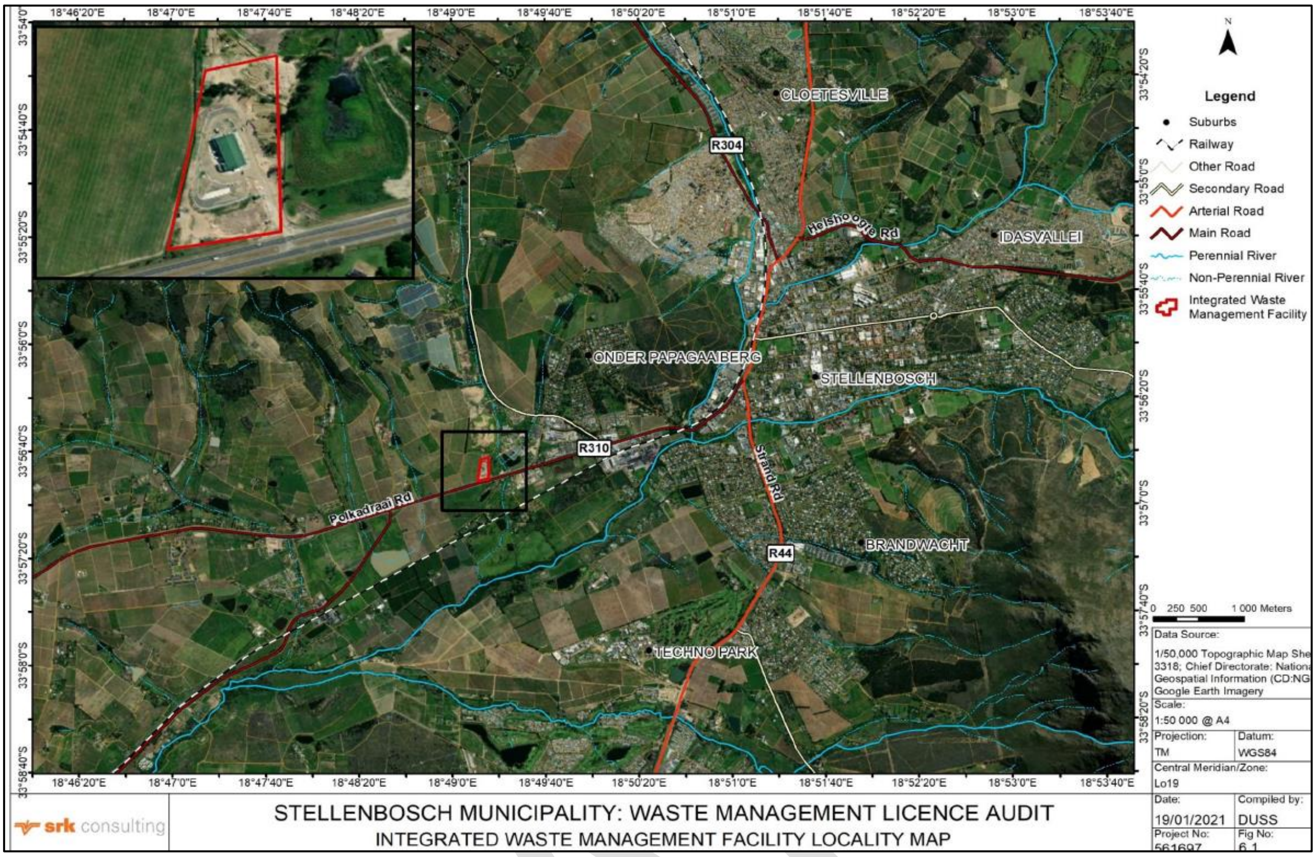


Figure 2-11: Integrated Waste Management Facility – Locality Map (SRK Consulting, External Audit Report, March 2023).

The facility is operated by a service provider appointed on behalf of the SM. The IWMF has a MRF where recyclable materials (cardboard, paper, glass, plastic, cartons, scrap metal, and liquid board packaging) are sorted for recycling. Recyclables can be dropped off by the public. The service provider that is appointed by the SM to collect recyclables from specific areas participating in the household recycling programme also manages the IWMF.

Hazardous Household Waste (HHW) (fluorescent bulbs and lamps only) can also be dropped off at the IWMF by the public and when there is sufficient volume, it is taken to the Vissershok Landfill for disposal.

Construction of the IWMF commenced in August 2019 and was completed in November 2020. The IWMF commenced operation on 1 April 2021. The IWMF is operated in accordance with the Norms and Standards for the Storage of Waste (referred to as GN 926), dated 29 November 2013, and GN 1093 National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, or Bailing of General Waste (referred to as GN 1093) published under the NEM:WA, Act 59 of 2008.

The Norms and Standards prescribe conditions applicable to the facility in terms of registration, location and design requirements, as well as operational management requirements pertaining to access control, emergency preparedness, monitoring, auditing and reporting.

The IWMF is fenced with controlled access. A weighbridge at the entrance weighs vehicles upon entry and exit and waste tonnages are recorded. The facility has impermeable concrete floors and a tarred ring road for safe one-way traffic movement. A drop-off and storage area for recyclable general waste and bulky non-recyclable general waste is provided at the facility.

A HHW area is located outside the waste reclamation building, on an impermeable surface, for the public to drop off fluorescent bulbs and lamps, paints, chemicals, and batteries. The facility receives e-waste, which is stored in a container on site and once full is removed by the service provider. An independent contractor is appointed by the SM to collect the non-recyclable general waste and hazardous waste for disposal at Vissershok. Scrap metal is removed from site by the appointed service provider. The Municipality does not accept asbestos at any of its' facilities.

Inside the MRF, mixed recyclable waste is received from residential collections, recycling drop-off, commercial/industrial collections and is fed onto a conveyor from which workers sort waste into different waste streams (plastic, tins, paper etc.). The tailings and non-recyclable general waste (tailings) that have not be picked by workers will drop off the end of the conveyor into a skip and are disposed to landfill by the appointed service provider. Sorted recyclable waste is compacted / baled at the MRF and collected by recyclers.

2.3.4.4 Drop-off facilities

The SM allows for the public to purchase coupons at their municipal cashiers for the public to access, in order to dispose of waste at the SLF, KTS, IWMF Drop-off, and Franschhoek Drop-off. The Stellenbosch waste disposal facilities coupon prices are valid from 01 July 2023 till the 30 June 2024 and are indicated in **Figure 2-12**.

STELLENBOSCH WASTE DISPOSAL FACILITIES

STELLENBOSCH
STELLENBOSCH • PNIEL • FRANSCHHOEK
MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

Name:	Stellenbosch Landfill Site	Stellenbosch Drop Off & MRF	Klapmuts Transfer Station	Franschhoek Drop Off	Coupon prices from 01 July 2023 - 30 June 2024 VAT included		
Location:	Devon Valley Rd	Adam Tas Rd	R101 Old Paarl Rd	Fabriek Street			
Operating Hours:							
Mondays to Fridays	08:00 - 16:30	08:00 - 16:30	08:00 - 16:30	08:00 - 16:30			
Saturdays	08:00 - 13:00	08:00 - 13:00	08:00 - 13:00	08:00 - 13:00			
Public Holidays	08:00 - 13:00	08:00 - 13:00	08:00 - 13:00	08:00 - 13:00			
Good Friday	**Closed**	08:00 - 13:00	**Closed**	**Closed**			
Closed	**Sundays, Christmas, New Year's Day**						
Waste types accepted:	Kindly refer to definitions of waste types below.						
Garden waste	✓	✗	✓	✓	Vehicle capacity of more than 1,5T: R29,00/Ton ONLY AT LANDFILL SITE		
Builders' rubble	✓	✗	✓	✓	Vehicle capacity of more than 1,5T: R29,00/Ton ONLY AT LANDFILL SITE		
General / Mixed waste	✓	✗	✓	✗	**¼T:** R206,25	**½ T:** R412,50	**1T:** R825,00
Recyclables	✗	✓	✗	✗	FREE		
E-waste	✗	✓	✗	✗	FREE		
Garage/ Bulky waste	✗	✓	✗	✓	FREE		
Household hazardous waste	✓	✓	✗	✓	FREE		
Soil	✓	✗	✗	✗	Vehicle capacity of more than 1,5T: R29,00 /Ton		

Definitions:	
Garden waste	Grass cuttings, branches and leaves ONLY. If it contains other waste = Mixed / General waste
Builders' rubble	Clean builder's rubble ONLY. If it contains e.g. iron, wood, plastic = Mixed / General waste
General / Mixed waste	General waste / Contaminated garden waste or builders' rubble / Household waste
Recyclables	Waste that is recyclable and seperated at source, e.g. Plastic, tin, aluminium, cardboard, paper, glass- mixed in one bag is acceptable
Garage/ Bulky waste	Waste items that cannot fit into the household's 240L wheelie bin
Household hazardous waste	Any unwanted household product labelled as flammable, toxic, corrosive, or reactive. The most common products include aerosols, anti-freeze, fertilizer used oil, paint supplies, poisons and solvents, fluorescent tubes, chemical cleaning supplies, household batteries.
E-waste	Discarded electronic appliances such as mobile phones, computers, and televisions and it may include monitors, printers, scanners, keyboards, mice, cabl circuit boards, lamps, clocks, flashlight, calculators, answering machines, digital/video cameras, radios, VCRs, DVD players, MP3 and CD players, kitchen equipment (toasters, coffee makers, microwave ovens, etc.)

Please Note:

Tariffs are set for certain waste types, depending on the actual mass. Charged per Ton or part thereof.
A coupon system is in place. Coupons are sold at the municipal cashiers.
Limitations is set for volumes accepted on a specific site, and may be subjected to site supervisor's approval.

Figure 2-12: Stellenbosch Waste Disposal Facilities – Coupon Prices from 01 July 2023 – 30 June 2024 (inclusive of VAT).

2.3.5 Compliance audits

An independent external auditor and reviewer is appointed by the SM to undertake interim external audits in a 3-year cycle.

The independent external auditor audits compliance with the Waste Management Licences (WMLs) / permits issued in terms of Section 20 of the Environment Conservation Act 73 of 1989 (ECA), the NEM:WA, and relevant Norms and Standards applicable published under the NEM:WA.

External audits were undertaken in March 2023 of the three waste management facilities, namely the Stellenbosch Landfill Facility (SLF), the Integrated Waste Management Facility (IWMF) and the Klapmuts Transfer Station (KTS).

Table 2-8 details the environmental approvals and waste activities authorised at each of these facilities. In summary:

- The SLF was constructed and is operated in accordance with an ECA Permit and WML.
- The IWMF was constructed and is operated in accordance with the National Norms and Standards for the Storage of Waste (referred to as GN 926), and the National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, or Bailing of General Waste (referred to as GN 1093) published under the National Environmental Management: Waste Act 59 of 2008 (NEM:WA).
- KTS was issued with a Permit dated 27 March 2000 in terms of the Environmental Conservation Act 73 of 1989 (ECA), due to changes in legislation, the ECA Permit is no longer valid and the KTS is required to operate according to the Norms and Standards for the Storage of Waste (GN 926 of November 2013).

Table 2-8: Summary of environmental approval and waste activities for SLF, IWMF and KTS

Approval and Status	Date of Issue of WML / Registration	Activities Authorised
Stellenbosch Landfill Facility		
Permit in terms of section 20(1) of the ECA (Ref: 16/2/7/G203/D16/Z1/P331) Status: *Replaced by WML issued on 31 January 2023.*	20 January 1999	Develop and operate a waste disposal site classified a G:M: B+ facility, on Portion 2 of Farm Morgenster 203, the Remainder of Farm Grootvlei 183 and on Farm Veldwagtersriver No. 280 in the Stellenbosch district.
Authorisation Letter (Ref E13/2/10/3-B4/37-WL0063/11) Status: *Replaced by WML issued on 31 January 2023.*	10 January 2013	Permission granted to use newly constructed Cell 3 for waste disposal in accordance with the ECA Permit conditions.
WML Variation in terms of NEM: WA (Ref E13/2/10/7-B4/37-WL0077/11) Status: *Replaced by WML issued on 31 January 2023.*	7 February 2013	Variation of ECA Permit condition 3.13, allowing for a height increase of Cell 1 and Cell 2 from 16 m to 23 m.
WML in terms of NEM: WA (Ref 19/2/5/1/B4/46/WL0118/14) Status: *Active*.	13 September 2018	**Category A and Category C of GN 718 of 03 July 2008, as amended:** **Category A:**

		14. The decommissioning of a facility for a waste management activity listed in terms of Category A or B of this schedule. **Category C:** 1. The storage of general waste at a facility that has the capacity to store in excess of 100 m^3 of general waste at any one time, excluding the storage of waste in lagoons or the temporary storage of such waste. 2. The storage of hazardous waste at a facility that has the capacity to store in excess of 80 m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste. 3. The storage of waste tyres in a storage area exceeding 500 m^2.
WML in terms of NEM: WA (Ref: 19/2/5/1/B4/45/WL0182/22) Status: *Active*.	31 January 2023	Permission granted for the continued operation of Cell 3 and the construction and operation of Cell 4 at the SLF, Stellenbosch. This Licence replaces the existing Permits (Permit No's. 16/2/7/G203/D16/Z1/P331 and E13/2/10/7-B4-37-WL0077/11).
Integrated Waste Management Facility		
Registered in terms of GN 926 and GN 1093 [Reference No: 19/2/1/2/3/2 (0032/21)]	7 November 2021	**Category C of GN 242 of 17 March 2017:** 1. The storage of general waste at a facility that has the capacity to store in excess of 100m^3 of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste. 2. The storage of hazardous waste at a facility that has the capacity to store in excess of 80m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste. 3. The storage of waste tyres in a storage area exceeding 500m^2; and 4. The sorting, shredding, grinding, crushing, screening or bailing of general waste.
Klapmuts Transfer Station		
Registered in terms of GN 926. [Reference No: 19/2/1/2/3/2(0033/21)]	7 November 2021	**Category C of GN 242 of 17 March 2017:** 1. The storage of general waste at a facility that has the capacity to store in excess of 100m^3 of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste. 2. The storage of hazardous waste at a facility that has the capacity to store in excess of 80m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste; and 3. The storage of waste tyres in a storage area exceeding 500m^2.

The DEA&DP granted a WML (Ref: 19/2/5/1/B4/45/WL0182/22) for the continued operation of Cell 3 (height increase to 130masl) and the construction and operation of a new Cell 4 at the SLF, on 31 January 2023. This WML replaces the WMLs (ECA Permit No's. 16/2/7/G203/D16/Z1/P331 and E13/2/10/7-B4-37-WL0077/11).

2.3.6 Future planned developments and infrastructure

2.3.6.1 Development of a new landfill cell at the Stellenbosch Landfill

In August 2019, Cell 3 reached its capacity at a final height of 23 m above natural ground level, and municipal solid waste (MSW) has since been transported to the private Vissershok landfill in the CCT for disposal. Only relatively small quantities of builder's rubble and garden waste has been received at the site since that date and has also been diverted to Vissershok for disposal from July 2022.

Due to the significant cost of transporting MSW to the Vissershok landfill, the SM has entered into an agreement with ESKOM to relocate the powerlines around the landfill footprint, so that the areas between Cells 1,2 and Cell 3 currently "sterilised" by the powerline's servitude can be used for MSW landfilling. This area is to be developed as Cell 4 of the SLF and will be operational by June 2024.

The development of Cell 4 of the SLF includes the following infrastructure:

- Development of Cell 4 divided into three sub cells.
- A leachate management system.
- A contaminated water management system including a contaminated water dam.
- Upstream storm water management system.
- Associated access infrastructure to the south of the older Cells 1 and 2.
    - A new access route to the facility with storm water management infrastructure for the access roads.
    - The relocation of a weighbridge from the adjacent IWMF onto the landfill access road.
    - Installation of a new weighbridge with associated weighbridge office.
    - A container staging area; and
    - Construction of a new office building.

The design of Cell 4 and the associated infrastructure was done based on legislative requirements and best practices to enable the incorporation of the required facilities required for the operation and maintenance of the SLF.

In formulating the design for Cell 4 and the associated infrastructure, every effort has been made to meet the objectives of landfill design, i.e., to provide a cost effective, environmentally, and socially acceptable facility whilst complying to the required standards and legislation.

2.3.6.2 Landfill gas extraction and air quality monitoring

In terms of the WML and Section 20 Permit, SM must develop an air quality monitoring program and undertake regular monitoring as set out in the WML and Section 20 permit conditions.

It is a requirement of the WML to ventilate gas within the waste body to prevent the build-up of dangerous concentrations of gas. No gas ventilation wells have been installed on any of the cells. Gas does, however, ventilate through the soil since no impermeable capping is in place.

A Contractor has been appointed for gas flaring and design of a gas extraction facility. The Municipality confirmed that infrastructure required for the gas flaring will be installed in July 2024 and flaring will commence in May 2025.

Establishment of a landfill gas extraction well field, flaring compound, and electricity generation at the Stellenbosch Landfill

A service provider was appointed in June 2022 for the Provision of professional services for *"project registration, design, and tender documentation for the establishment of a landfill gas extraction well field, flaring compound and electricity generation at the Stellenbosch Landfill"* based on the successful submission of an invited bid from the SM.

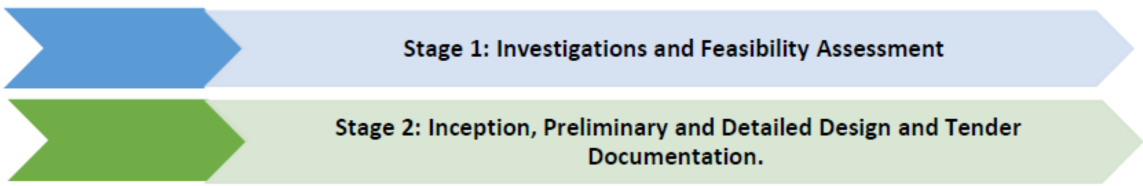
The main objective of this assignment is to design and establish a landfill gas extraction system over various stages as follows:

1. Design and install gas well fields and flaring unit; and
2. Electricity generation unit

Stellenbosch has embarked on an Electricity Generation Augmentation Project to generate sufficient energy to prevent the need to load shed and the electricity generated using landfill gas from the site will therefore be incorporated into the Stellenbosch grid in order to reduce the reliance on the ESKOM supply.

There is a current Programme of Activities (PoA) registered for South Africa for landfill gas extraction, flaring and electricity generation through the City of Cape Town. The PoA is a framework approval which has several individual component projects included under the framework. The Stellenbosch project will be able to link into the PoA as a Component Project Activity (CPA) as it fits into the requirements of this specific PoA.

There are there are currently two components to the project, namely:



Stage 1: The Feasibility Assessment will include the determination of existing and future quantities of waste in or going to landfill, the estimation of the quantity of landfill gas that can be generated and the viability of firstly, registering for Clean Development Mechanism (CDM) and secondly, for the production of electricity. The output will be a Feasibility Report advising the Municipality on the way forward (**currently underway**).

Stage 2: Based on the outcome of the Feasibility Assessment, the Consultant will undertake the design and preparation of Tender Documents for the construction of a landfill gas extraction system including flaring.

The inclusion of power generation in Stage 2 will be dependent on the recommendations of the Feasibility Report. The following should be noted:

- Cells 1, 2 and 3 are producing gas and a gas monitoring project was implemented.
- Cells 1 and 2 are old and unlined while Cell 3 is lined but not yet capped. Cell 4 is in design stage.
- SM has been allowed to utilise the existing PoA of the CCT with the provision that the Cities CDM Specialists are involved.
- The project procurement strategy was discussed, and it was agreed that a single Civils contract with a nominated Mechanical and Electrical Contract (M&E) contract would be the favoured strategy.

Landfill gas modelling

To estimate the current and future production and collection of landfill gas (LFG) at the SLF using a numerical model, based on estimations of historic and future waste deposition, as well and waste characteristics and consideration of landfill management, it was necessary to:

- Design the LFG extraction and flaring systems.
- Analyse viability of using the LFG in generators to produce electrical power.
- Estimate future LFG emissions with and without the project (baseline comparison).
- Estimate the potential for production of electrical power, if a generator were to be installed.

Landfill background and history

Before 2000, waste from SM was placed in Cell 1 of the landfill. Most waste was burnt, so waste from this period is not considered in gas calculations. Cell 2 was used for disposal of waste from 2000 to 2012.

Operation of Cell 3 commenced in 2013. Since 2019 disposal of domestic waste was drastically reduced. It is now only receiving small quantities, as well as construction and demolition waste. Domestic waste from the municipality is being sent to other landfills.

The landfill awaits the construction of Cell 4.

All of the “piggy-back” areas of Cells 1 and 2, and part of that of Cell 3 will be covered by an impermeable liner above a rubble gas collection layer attached to horizontal gas drains. **Figure 2-13** illustrates the overall layout of Cells 1, 2, 3 and 4 and the areas of initial construction, “piggy-back” filling and final capping.

Figure 2-13: Cells 1, 2, 3 & 4 – Construction areas and Final capping and piggy-back areas (Ingerop, March 2023).

<u>Landfill gas production and collection</u>

Landfill gas production was estimated using the IPCC model (2019 refinement). **Figure 2-14** shows the estimated CH_4 production by cell.

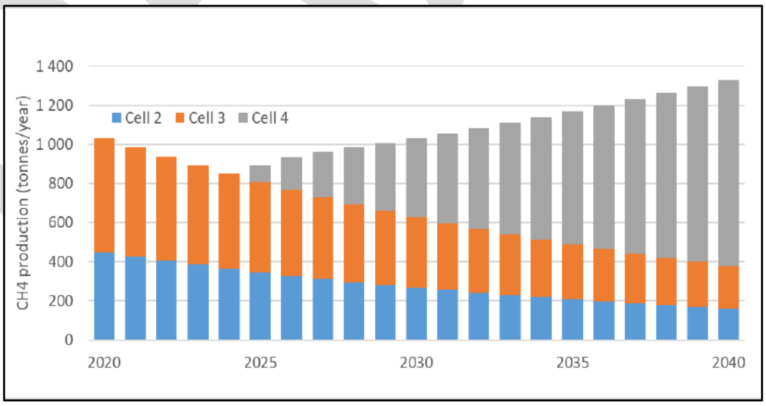


Figure 2-14: CH4 production by cell 2020 to 2040 (Ingerop, March 2023).

Figure 2-15 - Figure 2-17 present the prediction CH_4 and LFG extraction, by cell, and compare these with gas production.

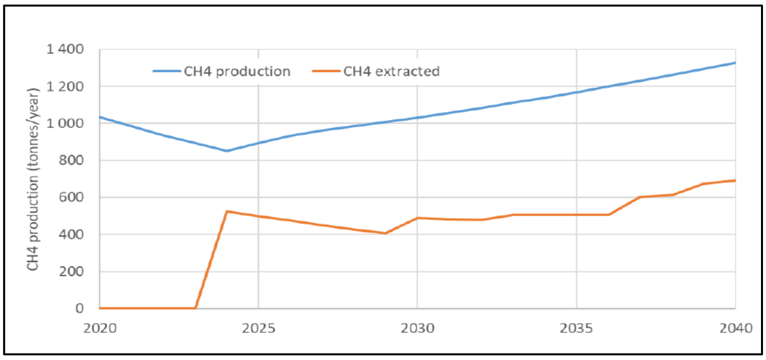


Figure 2-15: CH_4 production vs. extraction, 2020 to 2040 (Ingerop, March 2023).

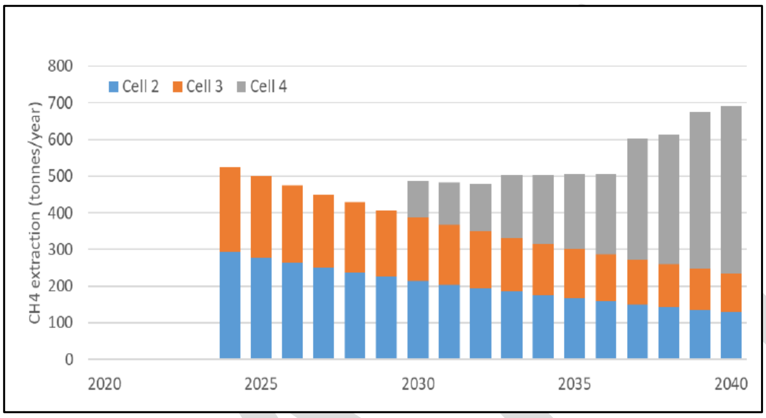


Figure 2-16: Estimated CH extraction by cell, 2020 to 2040 (Ingerop, March 2023).

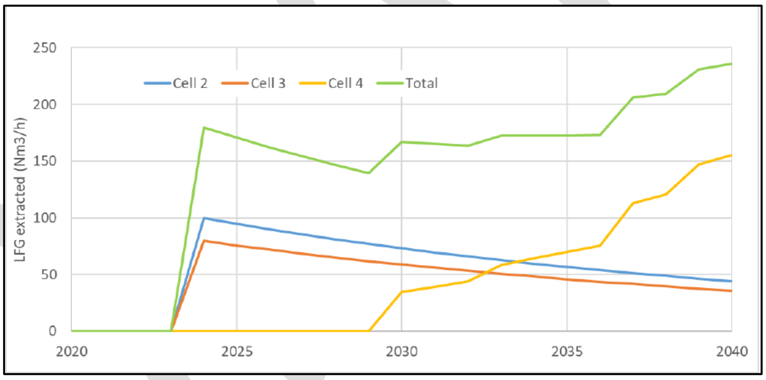


Figure 2-17: Estimated LFG extraction by cell, 2020 to 2040 (Ingerop, March 2023).

Landfill gas collection

Figure 2-18 - Figure 2-20 present the predicted CH_4 and LFG extraction, by cell, and compares these with gas production.

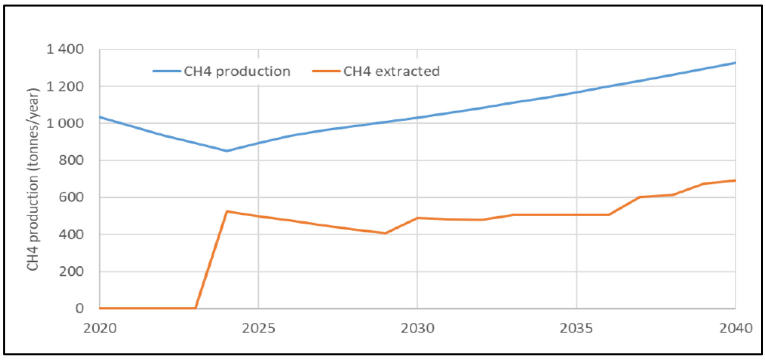


Figure 2-18: CH_4 production vs. extraction, 2020 to 2040 (Ingerop, March 2023).

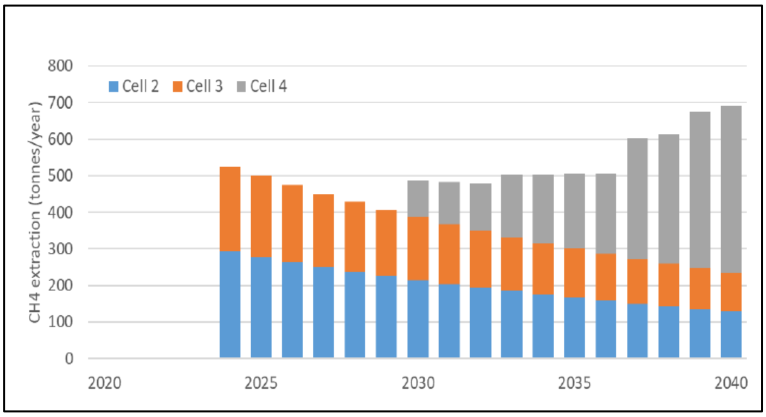


Figure 2-19: Estimated CH_4 extraction by cell, 2020 to 2040 (Ingerop, March 2023).

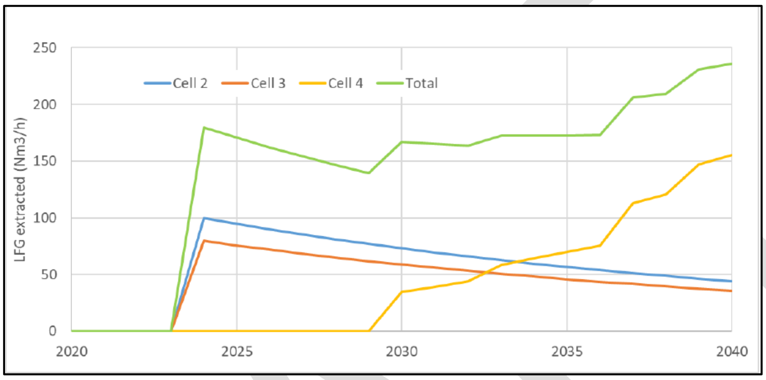


Figure 2-20: Estimated LFG extraction by cell, 2020 to 2040 (Ingerop, March 2023).

Baseline comparison

Figure 2-21 compares emissions of unburnt CH_4, with and without the project.

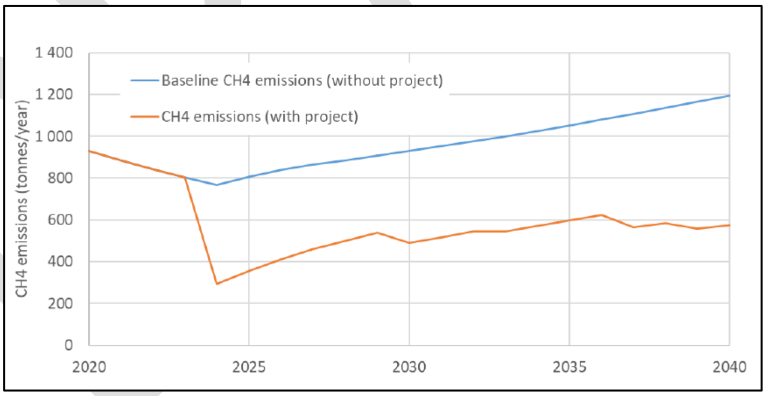


Figure 2-21: Emissions of unburnt CH_4, project vs. baseline 2020 to 2040 (Ingerop, March 2023).

Power generation

The potential for production of electrical power was estimated considering the CH_4 extraction estimates. The resulting electrical power estimates are shown in **Figure 2-22**. These suggest generator capacities of about 250 to 300 kWe, which is a low figure for LFG use in power generation. Some of the principal biogas generator manufacturers do not produce generators smaller than 400 kWe. This highlights the need to maximise LFG extraction through improved landfill management.

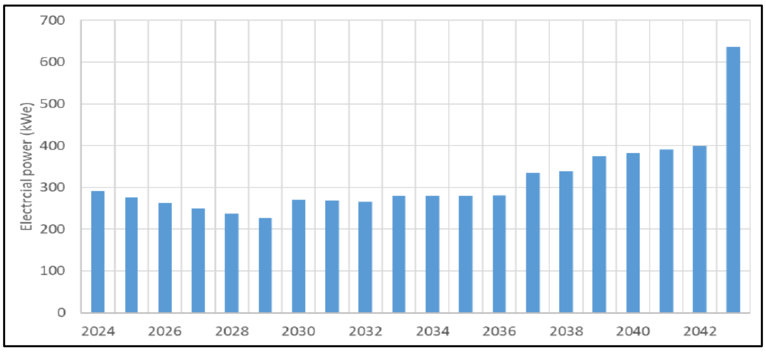


Figure 2-22: Estimates of potential electrical power production, 2024 to 2043 (Ingerop, March 2023).

Landfill gas flaring and power generation viability study

Following the estimation of future production and collection of LFG from the SLF, the economic viability of three projects was analysed:

- Option 0 - Baseline - LFG extraction and flaring only.
- Option 1 - LFG extraction and flaring + income from CDM credits.
- Option 2 - LFG extraction and flaring + income from CDM credits + power generation with export of energy produced to the grid.

Infrastructure required

The following equipment and infrastructure will be required to implement power generation:

- Electrical generators, in a prefabricated shipping container.
- Equipment for pumping, measuring and control of extracted LFG.
- Equipment for removal of condensates and contaminants from the LFG.
- Electrical installations, including transformer substation, instrumentation, control, and automation.
- Connection to the grid, including power line and all the electrical equipment and protection necessary to guarantee the connection in the conditions imposed by the grid operator.
- The extraction and flaring design already considers a flare compound which can accommodate the generation equipment.

As the estimates suggest generator capacities of only about 250 to 300 kWe Option 2 consider the installation of a generator with a capacity of 330 kW.

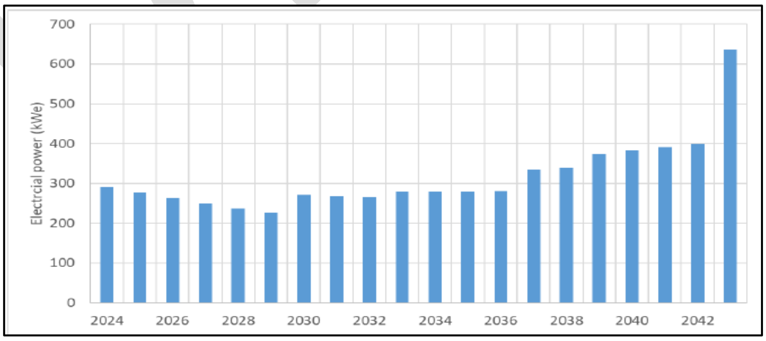


Figure 2-23: Estimates of potential electrical power production, 2024 to 2043 (Ingerop, March 2023).

The following conclusions can be drawn:

- All options have negative net present value.
- CDM for flaring provides significant benefit, reducing the net loss by 22 million Rand.
- For Option 1, running costs would be similar to income from CDM, without considering initial investments.

Power generation has a lower Net Present Value (i.e., a greater loss) than flaring only. There would be no additional CDM income, and income from energy sales would not offset the increased operating costs, even without considering the capital investment.

2.3.7 Projects to be undertaken in the 2023/2024 Financial Year

Major capital expenditure is planned in the following areas during the 2023/2024 financial year as stated in the Medium-Term Revenue and Expenditure Framework (MTREF) for the Financial Period 2023/ to 2025/2026:

- Expansion of the landfill site (New cells).
- Landfill Gas to Energy.
- Alternative Energy.
- Bien Donne 66/11kV substation new.
- Electricity Network: Pniel.
- Electrification – Integrated National Electrification Programme (INEP).
- General Systems Improvements Stellenbosch.
- Kayamandi (Costa grounds) new substation 11 kV switching station.
- Laterra Substation.
- Bulk Water Supply Pipe and Reservoir: Stellenbosch.
- Bulk Water Supply Pipeline & Reservoir – Jamestown.
- New Reservoir & Pipeline: Vlottenburg.
- Upgrade of Wastewater Treatment Works (WWTW) Wemmershoek.
- Upgrade of WWTW: Klapmuts.
- Lanquedoc Access road and Bridge.
- Kayamandi Pedestrian Bridge (R304, River and Railway Line).
- Bird Street Dualling - Adam Tas to Kayamandi.
- Main Road Intersection Improvements: Franschhoek.
- Adam Tas - Technopark Link Road.

2.4 Waste classification and quantities

This section presents the waste types and quantities generated in the SM.

2.4.1 Waste types

With reference to the Waste Act (Act 59 of 2008), the Waste Amendment Act (Act 14 of 2013) and their associated regulations, the only types of waste allowed for disposal at the Stellenbosch disposal facilities are general waste types 2, 3, and 4, as per the Waste Classification and Management Regulations (GN R.634) August 2013. No municipal landfills that are located within the Municipality are allowed to accept hazardous, or types 0 and 1 waste, as per the classification regulations for disposal.

The above legislation divides waste in South Africa into two main categories: hazardous and general. The current (2023) legislated definitions being:

Type of waste	Description of waste
Hazardous Waste	Is any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical, or toxicological characteristics of that wase, have a detrimental impact on the health and the environment and includes hazardous substances, material or object within business waste, residue deposits and residue stockpiles.

Type of waste	Description of waste
	Residue deposits and residue stockpiles refer to mining waste that does not form part of the municipal waste function. **Business waste** means 'waste that emanates from premises that are used mainly for commercial, retail, wholesale, entertainment or government administration purposes.
General Waste	Waste that does not pose an immediate hazard or threat to health or to the environment and includes: a) Domestic Waste b) Building and demolition waste c) Business waste d) Inert Waste e) Any waste classified as non-hazardous waste in terms of the regulations made under section 96 and includes non-hazardous substances, materials or objects within business, domestic, inert building and demolition wastes'
Domestic Waste	Waste that excludes hazardous waste that emanates from premises that are mainly for residential, educational, health care, sport or recreation purposes and includes: a) Garden and park wastes b) Municipal waste c) Food Waste
Building and Demolition Waste	Waste that excludes hazardous waste that is produced during construction, alteration, repair, or demolition of any structure.

2.4.2 Waste studies and surveys

2.4.2.1 Updates Hazardous and Health Care Risk Waste Survey

A Hazardous and Health Care Risk Waste (H&HCRW) Survey was conducted by Aquila Environmental in August 2020 and was updated by JG Afrika in 2023 using 2022 data.

The updated survey found that H&HCRW generated in the study area could be categorised under six of the potential seventeen Industrial Groups listed in Schedule 3 of the National Environmental Management: Waste Amendment Act (NEM: WAA) Act No. 26 of 2014).

The study found that the total volume of HCRW for 2020 was 88 253 kg/annum and 108 905 kg/annum for 2022. This reflects an increase of 23% in the total volume of HCRW generated in the Stellenbosch Municipality, despite fewer respondents to the survey in all categories.

The study concluded the following:

- Generation of household hazardous waste is not included in the scope of the study but the disposal thereof via the municipal system can still cause harm. A system aimed at collecting household hazardous waste is advised.
- Many of the car manufacturing industries could not provide accurate volumes of tyre, battery, and oil waste as many of these businesses struggle to find a service provider willing to accept the hazardous waste. In addition, battery theft has been highlighted as a problem within the area. It has been noted that once batteries are stolen, they are dismantled in order to retrieve the valuable lead content for reselling purposes. This results in concentrated acid leaching out of the battery and potentially leading to pollution.
- Some tyre manufacturing companies indicated that their tyre waste is disposed of privately, hence there is no record of this. The risk of this activity is that the waste might not be taken to a registered landfill which accepts hazardous waste, which may lead to pollution.

2.4.2.2 Waste characterisation study (JG Afrika, May 2023)

As a key aspect of compiling this IWMP, JG Afrika conducted a waste characterisation study in May 2023 (15 to 19 May). This section presents the applied methodology, and the results of the study.

Methodology[5]

Location: The waste characterisation study was undertaken at KTS, as all general waste collected is transported to the KTS prior to being transferred to the Vissershok Private Landfill Site for disposal.

Areas sampled within SM:

Table 2-9 indicates the area, within the SM, that the waste selected from incoming waste collection vehicles was sampled from, as well as the waste type and income level of the areas, where applicable.

Table 2-9: Municipal areas sampled.

Date	Sample No.	Truck registration	Suburb, town / area	Waste type
15 May 2023	1	CL 27923	Stellenbosch CBD	**Business**
	2	CL 81138	Lynedoch	**Residential**
16 May 2023	3	CL 45166	Kayamandi	**Residential (Informal settlement – skip sample)**
	4	CL 27347	Die Boord	**Residential**
17 May 2023	5	KT96WKGP	La Colline	**Residential**
	6	CY255492 (Waste Mart)	Stellenbosch CBD	**Business**
18 May 2023	7	CAA 467 949	Franschhoek (Groendal)	**Residential**
	8	CA 924 153 (Waste Mart)	Cloetesville	**Residential**
19 May 2023	9	CL 27347	Pniel	**Residential**
	10	CL 31479	Welgevonden	**Residential**

Waste categories:

The waste was sampled into the following waste categories:

Table 2-10: Waste categories for waste characterisation study

• Paper and cardboard	• Nappies
• Glass	• Mixed Food Waste (Organic waste)
• Plastics	• Green/Garden Waste (Organic waste)
• Metals (i.e. ferrous and non-ferrous, steel, tins, cans, aluminium)	• Construction Waste (i.e. bricks, cement bags)
• E-Waste	• Wood (i.e., pieces of furniture, firewood)
• Textiles (i.e. fabric, clothing, linen, shoes)	• Liquid Board Packaging (i.e., Tetrapak™)
• Residual Waste (comprising of sediment wet sediment and broken fractions of glass, wood and small pieces of paper and plastic)	• Other (i.e., miscellaneous types of waste, containers containing unidentifiable liquids)

[5] The study was conducted in accordance with the Western Cape Department of Environmental Affairs and Development Planning Waste Characterisation Guideline for Municipalities (March 2017)

Results

Table 2-11: Waste characterisation results

WASTE CHARACTERISATION	Klapmuts Transfer Facility							
Date	15.05.2023	15.05.2023	16.05.2023	17.05.2023	17.05.2023	18.05.2023	19.05.2023	
Type	Business	Residential	Residential	Residential	Business	Residential	Residential	**TOTAL**
No of Samples	**1**	**1**	**2**	**1**	**1**	**2**	**2**	**UNIT (KG)**
Waste Type								
Paper & Board	72.6	17.72	85.14	57.68	55.88	93.42	80.16	**462.6**
Glass	82.22	23.68	59.32	41.32	28.62	58.49	26.22	**319.87**
Plastics	31.88	25.26	135.72	44.08	44.02	138.48	140.46	**559.9**
Metals	5.94	3.12	7.18	3.54	3.6	10.68	10.72	**44.78**
E-Waste	0.64	0	1.68	1.16	1.6	0.5	1.98	**7.56**
Nappies	2.38	13.6	82	18.02	13.06	65.66	41.38	**236.1**
Residual Waste	57.32	56.6	271.92	44.4	0	300.52	109.5	**840.26**
Mixed Food Waste	44.86	22.76	88.08	99.46	41.06	105.4	185.7	**587.32**
Green Garden Waste	37.94	2.1	423.82	20.02	339.98	36.3	188.72	**1048.88**
Construction Waste	1.04	1.85	5.12	8.64	10.62	7.4	8.22	**42.89**
Wood	0	0	50	0	0	0.72	10.68	**61.4**
Textiles	2.68	4.62	35.72	4.72	3.2	49.28	19.1	**119.32**
Tetrapak	1.08	0.76	0	2.2	0	0.7	4.6	**9.34**
Other	0.84	3	5.4	3.8	0.68	2.84	1.56	**18.12**
TOTAL	**341.42**	**175.07**	**1251.1**	**349.04**	**542.32**	**870.39**	**829**	**4358.34**

Based on the combined results shown in **Figure 2-24** and **Figure 2-25**, it appears that the major waste fraction is organic waste (garden and food waste), which when combined makes up 38% of the waste sampled (by weight) for all areas. It should be noted that the characterisation was undertaken in autumn when higher than normal garden waste (leaves) is expected.

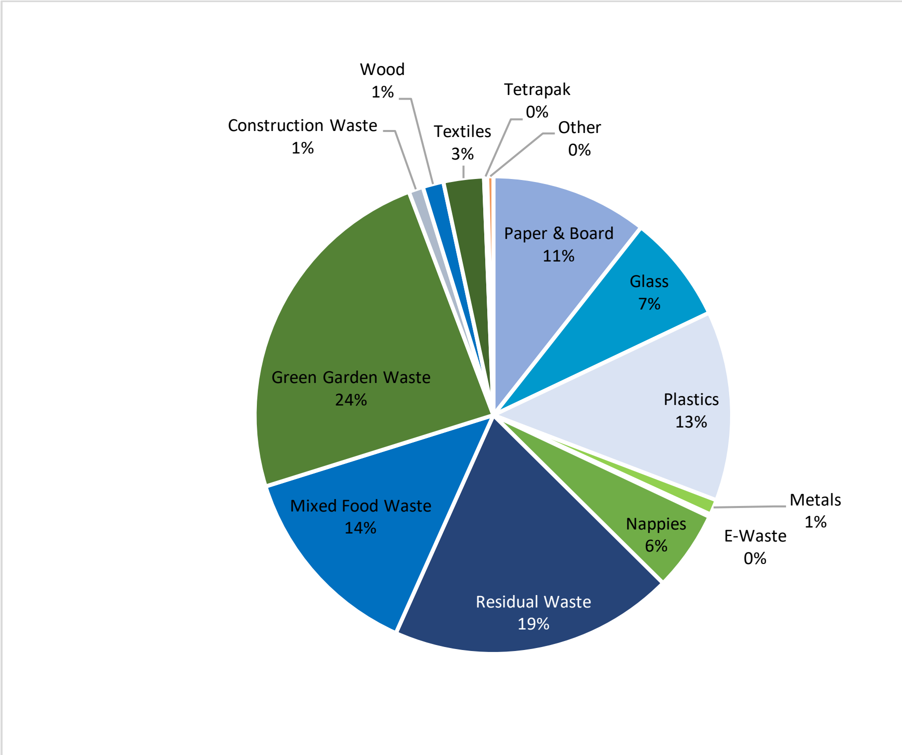


Figure 2-24: SM waste characterisation results of all areas combined (by weight)

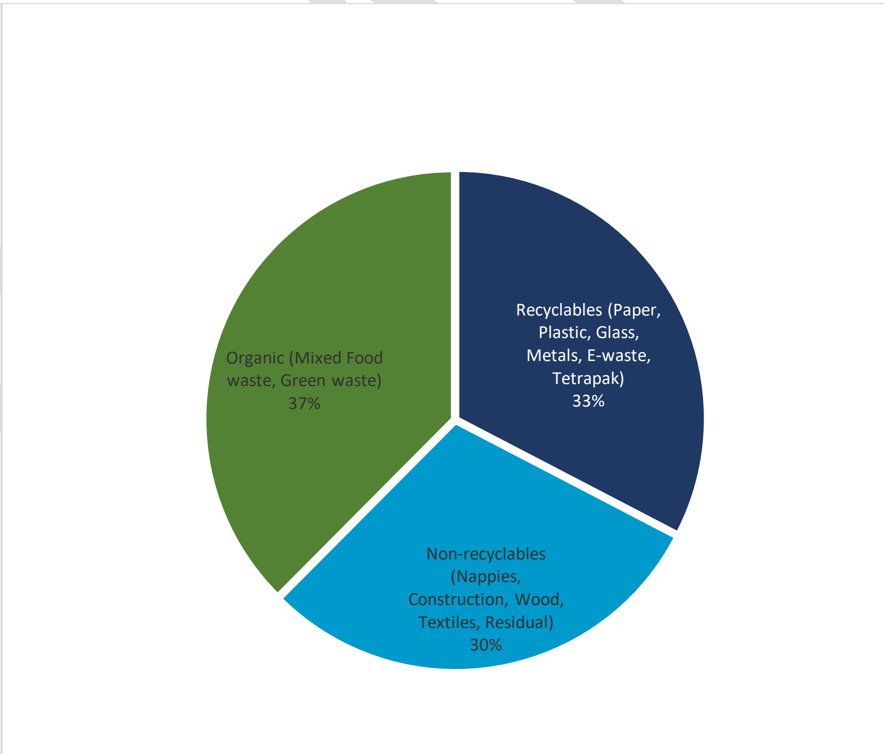


Figure 2-25: SM waste characterisation results in broad categories (recyclables, non-recyclables, and organics)

The potentially recyclable fraction i.e., plastics (13%), metals (1%), glass (7%), paper & board (11%), and e-waste make up 33% of the sampled waste. The remaining waste consists of the residual waste fraction (19%), wood (1%), construction waste (1%), textiles (3%) and nappies (6%) which when combined are approximately 30%.

The organic and recyclable fractions make up more than half of the total waste stream (62%). These results indicate that the biggest diversion potential lies with the organic waste (i.e., mainly garden waste) fraction and recyclable materials from the general waste stream. The garden waste fraction may however vary due to seasonal changes. This must be considered when developing diversion plans.

When considering the results presented in **Figure 2-26** recyclables/packaging type waste and garden waste make up 80% of the waste stream in high income and business areas, and if targeted for diversion would result in high organic waste and recyclables diversion rates. The high-income areas are included in the two-bag collection programme which is why the recyclables represent a relatively small fraction of the waste stream.

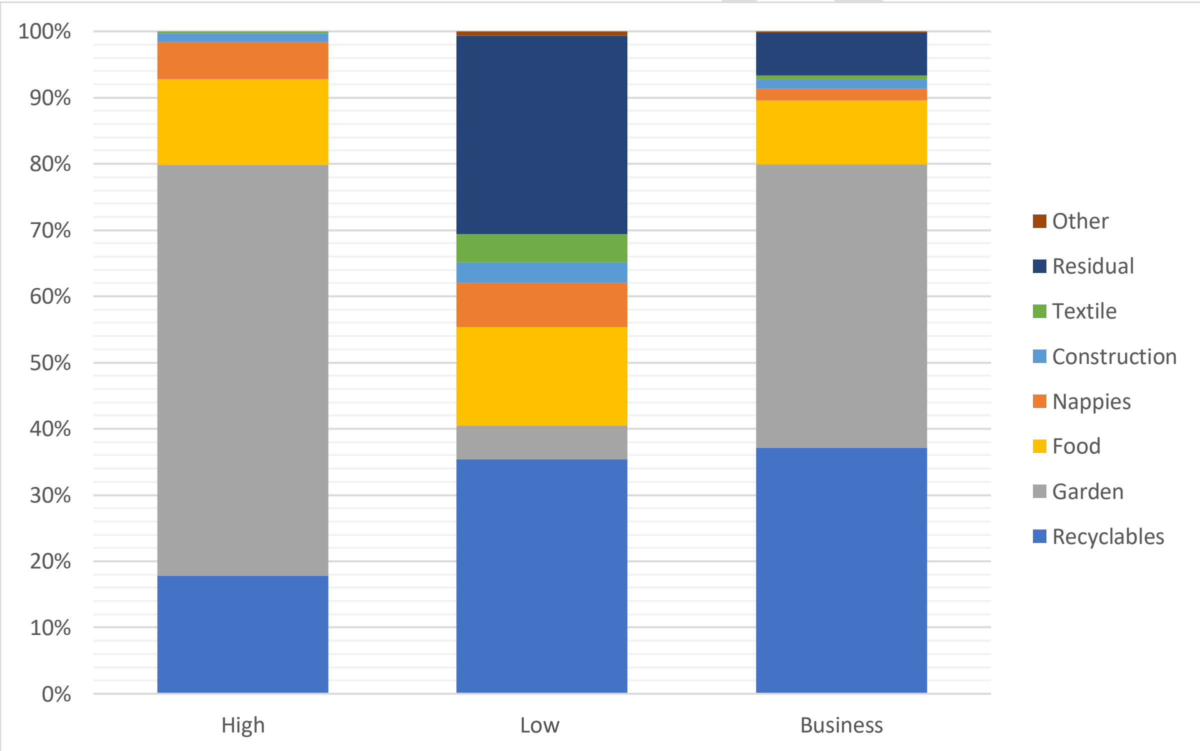


Figure 2-26: Comparison of waste characterisation for high income, low income, and business samples

A different approach may be required for low-income areas, where focus is mainly placed on diverting the recyclable fraction. The organic waste fraction for low-income areas, when compared to high-income and business areas, was low at 20%. Despite this, the food waste fraction was noted to be unusually high.

The largest waste fraction from the low-income area samples was residual waste at 30%. This was made up of wet sediment and broken fractions of glass, wood and small pieces of paper and plastic.

Comparison to previous waste characterisation study

Prior to the 2023 study, a waste characterisation study was conducted by Aquila Environmental for SM in 2017, the results of which were analysed by JG Afrika and compiled in the form of a waste characterisation report in 2019. This formed a key focus of SM's 3rd Generation IWMP. The characterisation focused on residential/household waste and excluded commercial and business waste.

Table 2-12 and **Figure 2-27** show a comparison of the results of the 2017 and 2023 studies. The following differences must be noted when comparing the two studies:

- The 2017 study followed a different methodology and included a much larger sample size covering most of the wards in the municipality.
- The 2017 study also took place in a different season i.e. from August to October as opposed to May which can influence the percentage of garden/green waste.
- The 2017 study focused on residential/household waste and not commercial or business waste.

Table 2-12: Comparison of the 2017 and 2023 waste characterisation results

Waste categories	2017		2023	
	kg	%	kg	%
Plastic	3388.77	22.96	559.9	12.8
Metal	371.01	2.51	44.78	1.0
Glass	1562.33	10.58	319.87	7.3
Paper & Cardboard	3002.08	20.34	471.94	10.8
Organics & Leachate	3667.44	24.85	587.32	13.5
Garden Waste	909.70	6.16	1048.88	24.1
HHW & E-Waste	48.85	0.33	7.56	0.2
Other/residual	1110.91	7.53	1094.48	25.1
Ash, furniture & clothing	698.84	4.73	223.61	5.1
TOTAL	**14759.93**		**4358.34**	

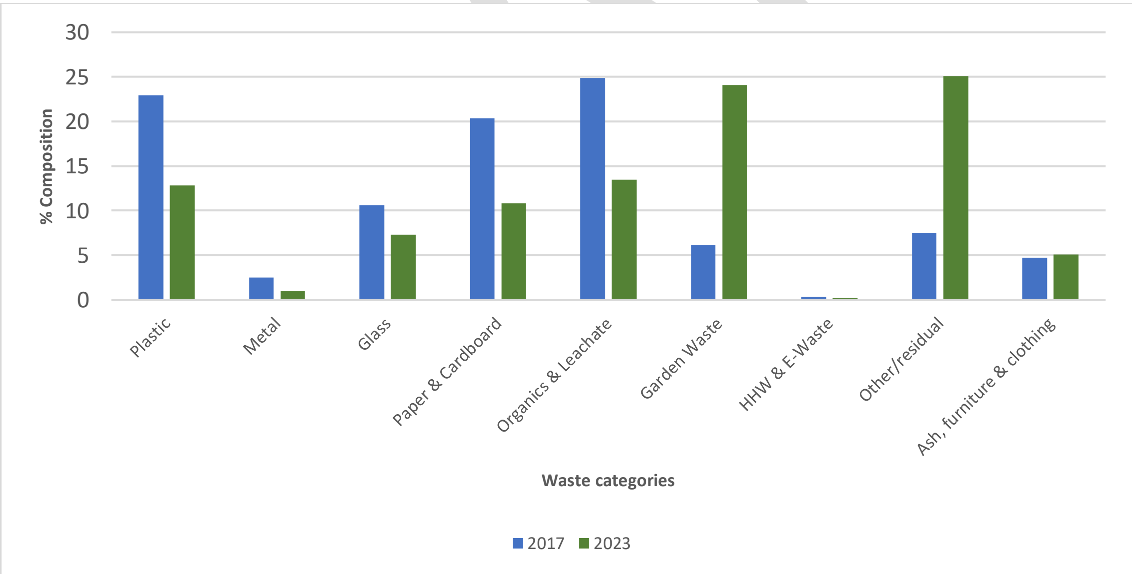


Figure 2-27: Comparison of the 2017 and 2023 waste characterisation results

Recommendations

The 2023 waste characterisation results indicate that diverting recyclables along with garden waste, can increase overall diversion rates to approximately 55% and potentially up to 80% in certain income areas.

However, this would depend on the level of contamination and quality of recyclables and therefore a three-bag system (recyclable, non-recyclable, and organic waste) for separation at household level would be recommended. Certain areas could also be provided with a targeted garden waste collection system.

The waste characterisation results provide the SM with an opportunity to consider separation and diversion of the organic and recyclable materials. At a high level the graphical representation of the waste characterisation data indicates the following as a minimum:

- There is a variation in the waste character per area. Therefore, waste diversion interventions must be context specific. A "one size fits all" approach would not be effective, as different interventions may be required in different areas.
- A system for diversion of garden waste should be considered, either separate household bin and collection, targeted drop-off areas, or provision of composting bins, where appropriate.

2.4.3 General waste quantities

2.4.3.1 Stellenbosch Landfill Facility

The waste tonnages received at the SLF from July 2020 till June 2021 as shown in **Table 2-13** and **Figure 2-28**, indicate that the highest amounts of waste that was received at the landfill was building rubble (27 900 tons). Industrial refuse (2 377 tons) was the lowest amount of waste received. The total amount of waste received for the period is 74 536 tons.

It should be noted that only the area cleaning tonnages are disposed at the landfill currently. The other waste streams are either processed for beneficiation or diverted for disposal i.e. VHK Landfill until 2024 when Cell 4 is operational.

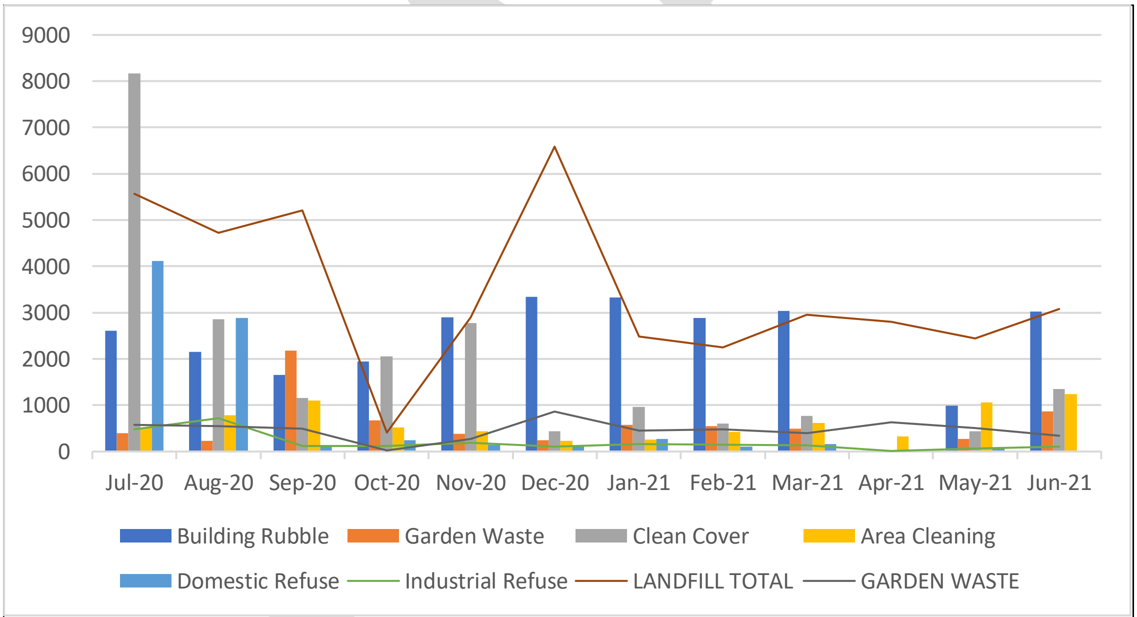


Figure 2-28: Waste received at SLF from July 2020 - June 2021

Table 2-13: Waste Tonnages – SLF (July 2020 till June 2021)

Waste Type	Received (tons)	Destination
Building Rubble	27 900	Crushed & sold
Garden Waste	6 888	Chipped for composting
Clean Cover	21 585	Cover material on site
Area Cleaning	7 496	Disposed at the SLF
Domestic Refuse	8 290	Diverted for disposal at VHK
Industrial Refuse	2 377	Diverted for disposal at VHK

2.4.3.2 Vissershok Landfill

The general waste tonnages transported for disposal to the Vissershok Landfill from August 2019 till June 2023 are shown in **Table 2-14** and **Figure 2-29**. The highest amount of waste received was in November 2019 (3 946 tons), the lowest amount of waste received was in September 2022 (2 696 tons). The low tonnage received in August 2019 (420 tons) was during the start-up phase of waste disposal via KTS.

An average of 3 130 tonnes of waste generated in SM is disposed of at VHK landfill site per month. This is what can be expected per month for disposal at SLF Cell 4 from June 2024.

Table 2-14: General Waste Disposed at Vissershok Landfill (Tonnages) from August 2019 to June 2023

Year	Month	Tonnage
2019	August	420
	September	1643
	October	2944
	November	3946
	December	3389
2020	January	3650
	February	3310
	March	3086
	April	2614
	May	3170
	June	3089
	July	3179
	August	3114
	September	3101
	October	3187
	November	3198
	December	3417

Year	Month	Tonnage
2021	January	3012
	February	2925
	March	3522
	April	3162
	May	3188
	June	3275
	July	3222
	August	3187
	September	3258
	October	3229
	November	3313
	December	3601
2022	January	3145
	February	2986
	March	3461
	April	3045
	May	3171

Year	Month	Tonnage
2022	June	3259
	July	3087
	August	3276
	September	2696
	October	3324
	November	3283
	December	3556
2023	January	3235
	February	3230
	March	3620
	April	3125
	May	2875
	June	3414

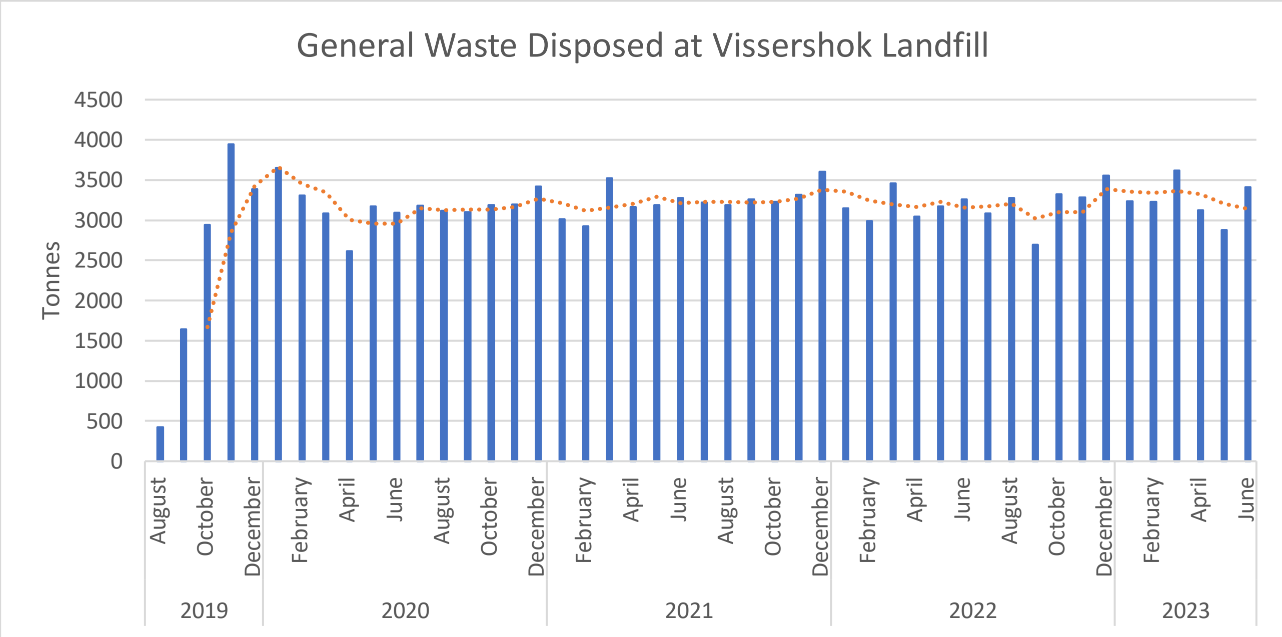


Figure 2-29: General Waste Disposed at Vissershok Landfill (Tonnages) – (August 2019 – June 2023).

2.4.3.3 Stellenbosch Integrated Waste Management Facility

The total amount of waste received at the SM IWMF as indicated in the Waste Monitoring Report 2022/2023 are shown in **Figure 2-30**. The highest amount of waste received was in November 2021 and December 2022 with the lowest amounts of waste received in August 2021 and April 2021 indicating some seasonality. The recyclables received in 2023 indicate an increased tonnage which can mainly be attributed to residential collections. The graph shows a seasonal but relatively consistent participation rate from the residential kerbside collection programme but the drop-off and Franschhoek tonnages show more variance on a month-to-month basis, and not much growth.

The contract includes areas into which the programme will be expanded each year from July 2023 (Year 1 – Groendal, Mooiwater and La Motte; Year 2: Kayamandi North and Kayamandi South and Year 3: Klapmuts and Lanquedoc) which should result in increased tonnages.

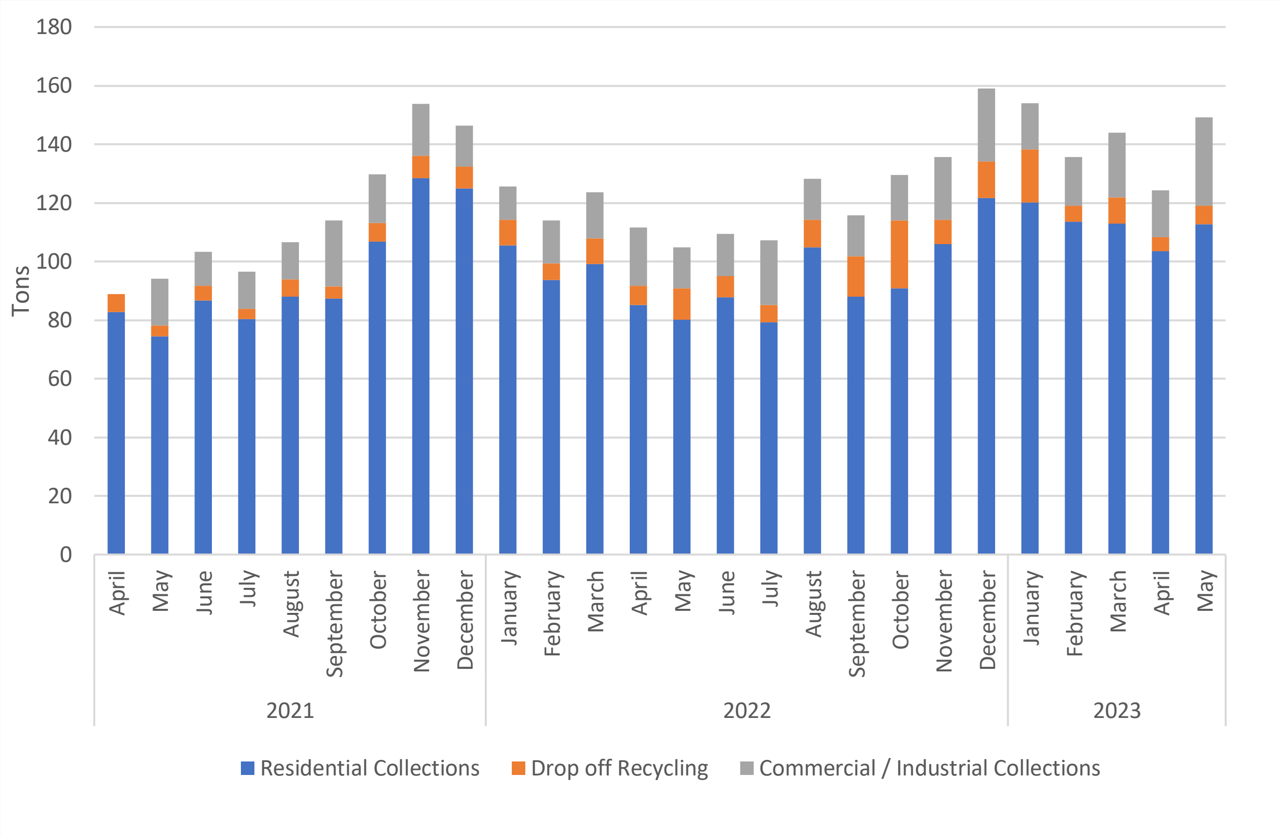


Figure 2-30: Split of waste received at the IWMF from April 2021 - May 2023

2.4.3.4 Organic Waste Tonnages

The incoming green waste tonnages from 2016 to 2023 are presented in **Figure 2-31**. There does appear to be seasonality across the year and the tonnages have declined slowly over the years. The 2017 waste characterisation indicated a split of 6% garden waste and 24 % food waste in the waste stream while the 2023 characterisation indicated a shift to a much higher garden waste percentage, at 24 % and a lower food waste percentage at 13.5% (see Section 2.4.2.2).

This does indicate a need to focus on garden waste as a priority before addressing the food waste at household level. Food/organic waste should however be addressed at a business (specifically hospitality etc.) and industry level.

The estimated waste tonnages that will be produced in the Municipality have been calculated from 2022 (the first year with a target of 50% diversion) using an annual 2.2% increase in tonnages based on a 2.2% population growth rate (see Section 2.2) and is presented in **Table 2-15**. The tonnages to be diverted have been calculated using the updated 2023 waste characterisation percentages for food/organic and green waste.

Based on the actual organic waste diversion tonnages, it is clear that the SM needs to put measures in place to increase diversion. It is also important to consider that private diversion/composting programmes may be in place which SM is not able to report on and may impact on tonnages and data.

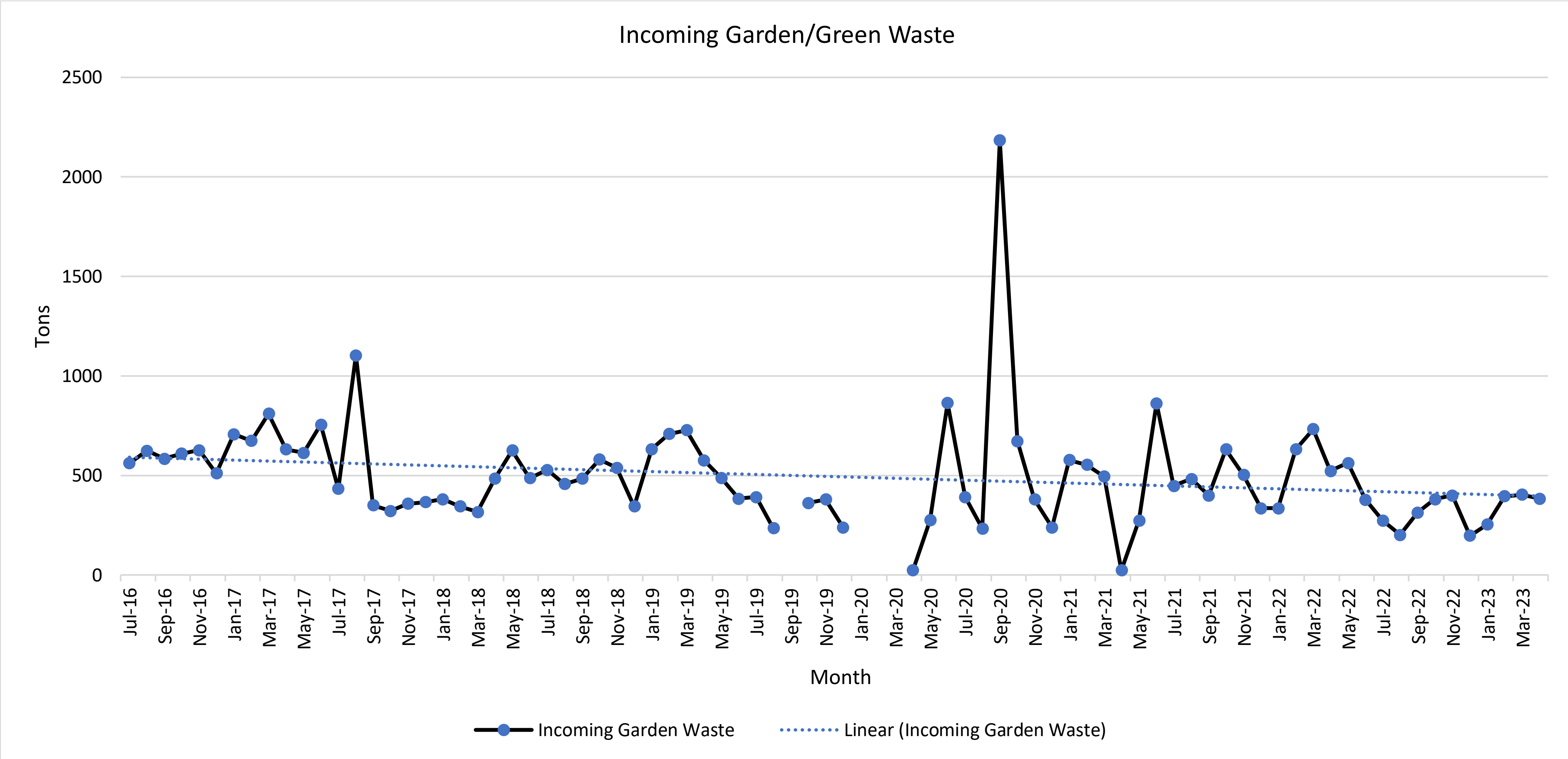


Figure 2-31: Incoming Green Waste Tonnages from July 2016 to March 2023

Table 2-15: Estimated waste tonnages for the period 2023 to 2027 with estimated diversion tonnage targets

	2018	2019	2020	2021	2022 (50%)	2023	2024	2025	2026	2027 (100%)
Waste disposed to Landfill (excl builder's rubble) (tonnes)	78 964	56 426	47 767	38 894	38 289	39 750	39 131	40 624	39 992	41 518
Green Waste diverted (tonnes)	5 571	5 272	6 937	5 585	4 929	4 310				
Green Waste diverted (%)	**7.10%**	**9.30%**	**14.50%**	**14.36%**	**12.87%**	**10.84%**				
Estimated Organic Waste tonnage	18 951	13 542	11 464	9 335	5 169	5 366	5 283	5 484	5 399	5 605
Estimated Green Waste tonnage	4 738	3 386	2 866	2 334	9 189	9 540	9 392	9 750	9 598	9 964
Total Organic waste (30%)	**23 689**	**16 928**	**14 330**	**11 668**	**14 358**	**14 906**	**14 674**	**15 234**	**14 997**	**15 569**
Actual Organic Waste Diversion %	24%	31%	48%	48%	34%	29%				
Diversion Target (tons)					7 179.19					15 569

Notes:

- Organic and Green waste tonnages have been estimated based on the Waste Characterisation data.
- Green waste tonnages diverted is actual data from the SM's records.
- 2023 data has been extrapolated based on the Jan to Apr information provided.
- An increase of 2.2% has been applied to the waste data from 2024 using 2022 as the baseline.

2.4.3.5 Summary of waste tonnages handled by Stellenbosch Municipality

The tonnage of waste being recycled from January 2021 to April 2023 is an average of 2% of the total waste being handled by SM and 3% of household waste being disposed of at VHK. In terms of the Waste Data the tonnages provided for July and August 2020 disposed of at SLF should be queried.

Based on the Waste Characterisation, the diversion of waste by targeting recyclables can be increased. If combined with diversion of organic waste, even more so, and thereby extending the lifespan of Cell 4.

If 32% of households (12 500 households out of the 38 500 in total that are provided with a waste management service) are being provided with a separation at source/clear bag service for recyclables, the low diversion rate needs to be better understood and participation at household level increased.

The tonnages of waste handled by SM (excluding recyclables diverted at the IWMF) are illustrated in **Figure 2-32.**

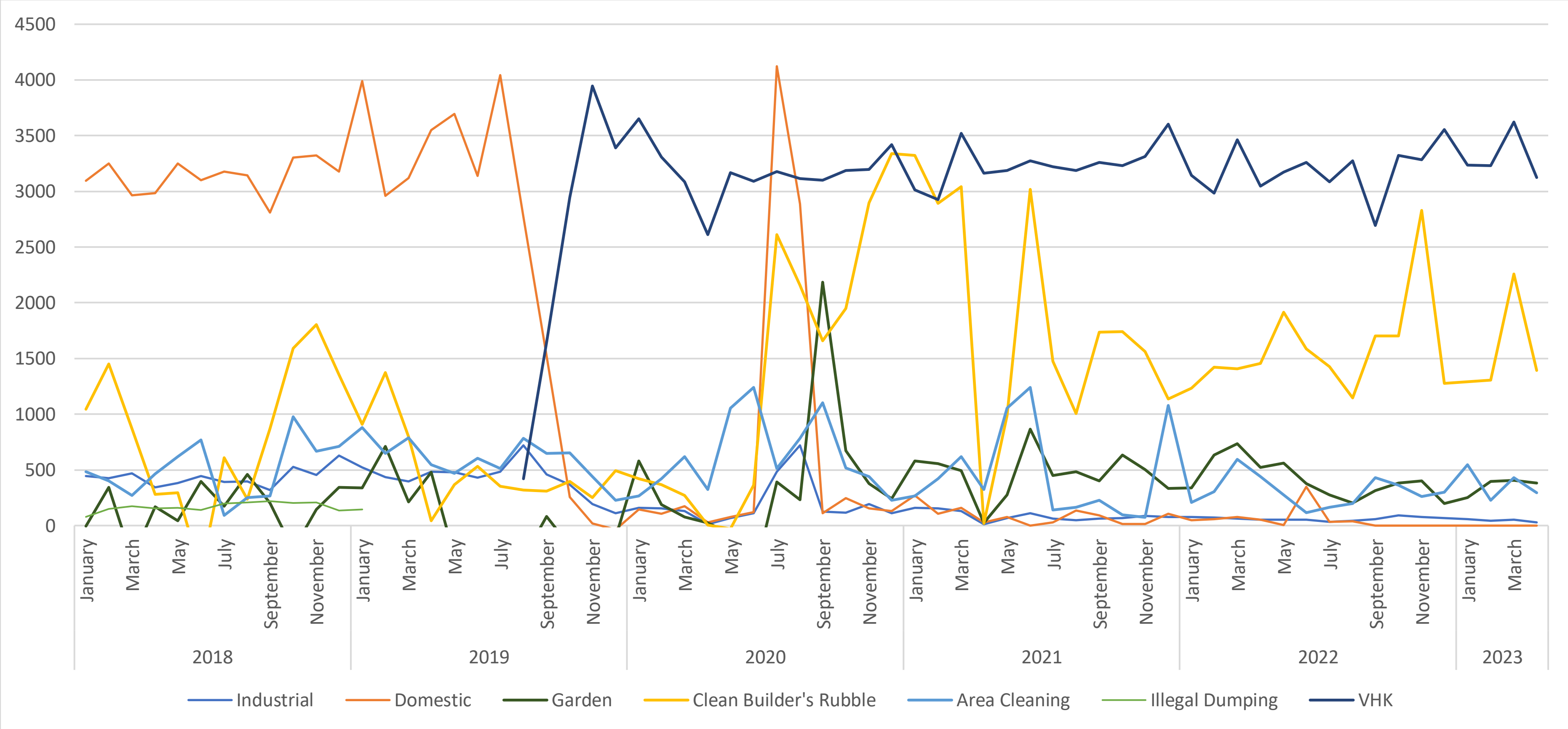
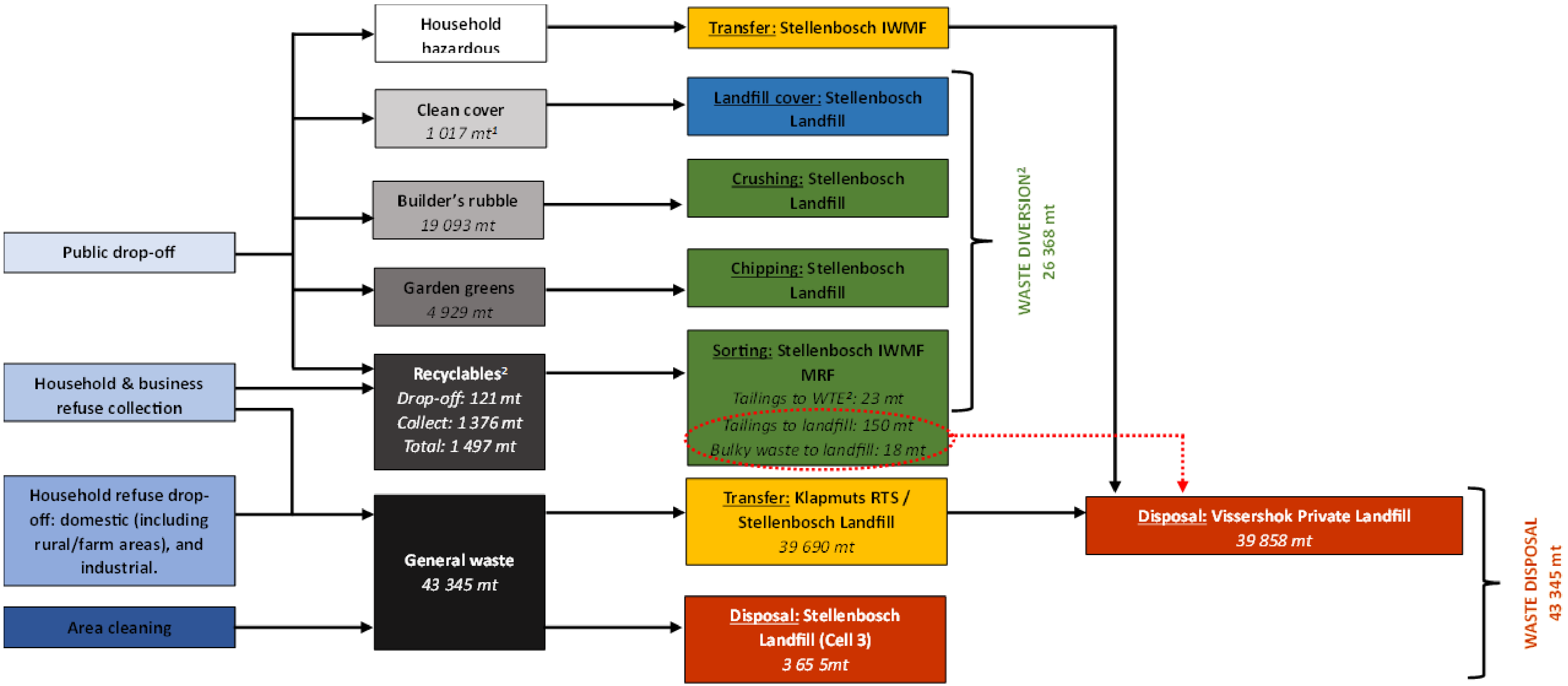


Figure 2-32: Waste tonnages handled by Stellenbosch Municipality from January 2018 to April 2023

2.4.3.6 Summary of waste flows and tonnages within the Stellenbosch Municipality



Notes:

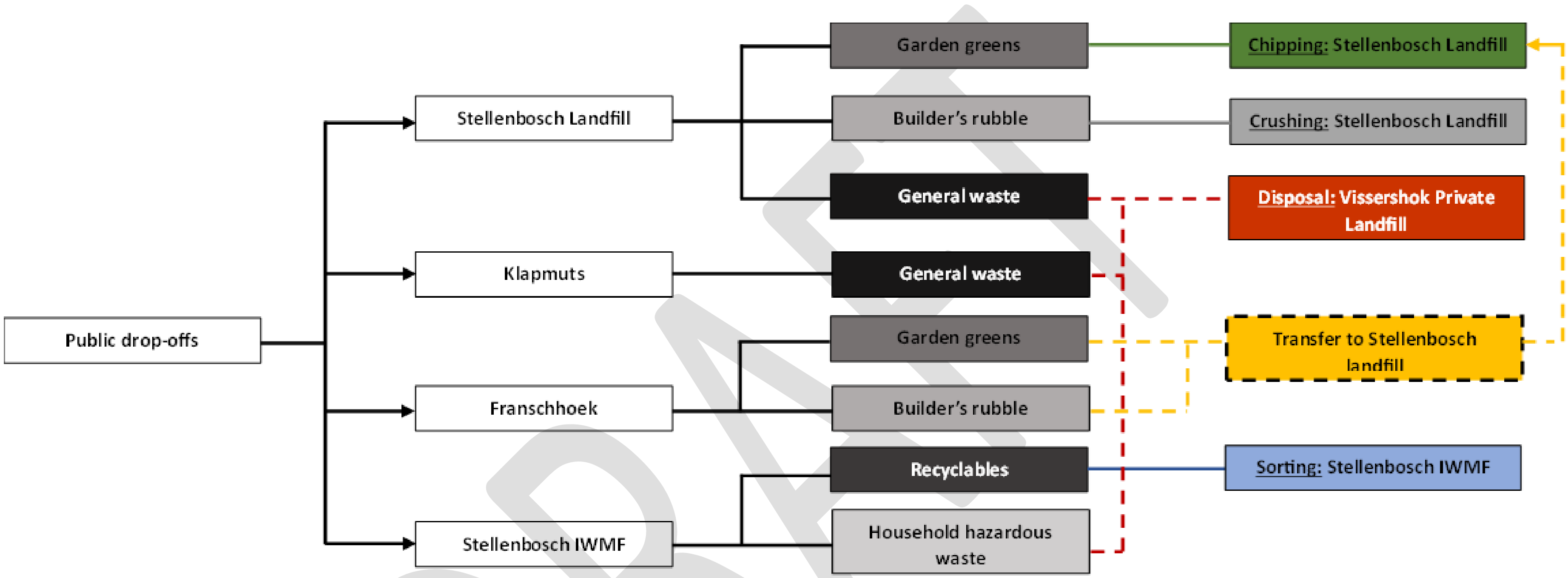
¹ Metric tonnes (mt)

² Figures represent recyclables received and does not account for wastage.

² Waste to Energy (WTE)

³ Tonnages for HHW have not been provided separately and therefore could not be included.

Figure 2-33: Summary of waste management tonnages with the SM



KEY	
———	**On-site disposal / management.** *Preferred as it is efficient.*
– – – –	**Transferred to another site for disposal / management.** *Requires intervention as waste is double handled and there are additional transport and disposal (where applicable) costs.*

Figure 2-34: Summary of current waste flows within the SM

2.5 Education and awareness initiatives

2.5.1 Material Recovery Facility open day events

To commemorate National Recycling Week in September, SM Waste Department invites schools, communities, and government officials to visit the MRF (located at the IWMF) and participate in 2 open day events.

On open day events, the public are exposed to the MRF processes of recyclable materials from receiving, weigh bridge, sorting, packaging, and transportation of the recyclables.

The activities of the day include two demonstrations, DIY water bottle using a recyclable plastic bottle, and making eco-bricks using plastic bottle packed tightly with clean and dry, non-biodegradable waste. These bottles can then be used as building materials to create insulative structures and colourful furniture. There is also a 'Yes' and 'No' table where the public is given a challenge of separating recyclable material from non-recyclable waste.

The aim of the activities is to allow the public to be hands on in making something valuable using recyclable materials. Learners can implement the information learned and received in their personal lives, at home, school, and in their communities.

2.5.2 Waste Awareness Event: Swop Shop

A Swop Shop initiative is held at the Klapmuts Multipurpose Centre to promote waste awareness and categorising of recyclable waste and reduce waste by sorting at source, promoting a cleaner area in the community.

The aim is to:

- Educate the community on the need for recycling, and the value of recyclables.
- Inform them on how to deal with their waste in a proper manner.
- Promote recycling service.
- Minimise the waste that ends up in open spaces / rivers.
- Empower the community and have them realize that it is within their ability to make a positive change in their living environment.

The items for the Swop Shop were purchased by SM and included chips, lollipops, washing powder, soap and two-minute noodles.

2.5.3 Flyers and Brochures

The SM provides recycling brochures and flyers to residents and communities during recycling education and awareness events that undertaken by the Green Minds staff.

2.5.4 School recycling initiative programme

The Municipality provides 3 schools, namely Rhenish Girls High, Rhenish Primary, and Eikestad Primary with collection services of recyclable materials which is collected by the service provider at their schools and transported to the MRF in addition to the normal kerbside collection.

2.5.5 Continuous education, awareness, and training by the Municipality

It must be noted that more work is always required in the waste minimisation and recycling area and that residents should be encouraged to separate all waste items accordingly. The SM must therefore consider increasing the separation at source project to more wards and areas.

Public awareness and education on recycling must be a continuous requirement and the current work done by the SM must continue and expand wherever possible.

In addition, provision must be made for the continuous training and education of the SM waste management employees. Waste management information sharing/capacity – building events such as the Departmental Waste Forum, Waste Khoro, and the Institute of Waste Management of Southern Africa's (IWMSA) WasteCon should be attended by waste management employees determined by the SM.

2.6 Status of economics and finances of solid waste management practices

As part of JG Afrika's *Pre-Feasibility Study into Anaerobic Digestion (AD) of the organic fraction in Municipal Solid Waste (2022) for Stellenbosch Municipality*, a thorough status quo assessment was undertaken to consider the financial position of the SM and determine the baseline or "businesses as usual" case. The below is an overview of the findings of this study and allows the Municipality to understand its ability to incur additional financial commitments or sets the baseline for comparison for introduction of diversion, and alternative disposal methodologies in the future.

Additionally, it assessed whether the Municipality's current revenue budget sufficiently covers its expenditure.

2.6.1.1 Snapshot of the Municipality's Financial Position

Table 2-16 provides a snapshot of the financial health of SM, which provides insight into the Municipality's creditworthiness and ability to access to finance.

Table 2-16: Financial position of the Stellenbosch Municipality[6]

Audit Outcome	Cash Balance[7]	Cash coverage – Operating Expenditure	Fruitless and Wasteful Expenditure	Liquidity Ratio	Current Debtors Collection Rate	Reliance on equitable share and grants
Unqualified with no findings (FY 2020/21	R2,821,977, 638 (2021)	10.9 months (2020)	1.9% (2020)	2.08 (2021)	96% (2021)	11% (2021)

The following observations on the creditworthiness of the Municipality and its eligibility for debt finance can be made:

- The metrics presented show that the Municipality is in a strong position financially, is managing its working capital cycle well and has a low reliance on grant funding.
- The Municipality will be able to raise finance at competitive rates from commercial banks.
- These findings are preliminary and are subject to confirmation and due diligence by future lenders.

2.6.2 Overview of Capital Expenditure (CAPEX) Plans

The above assessment must be reviewed in context of the Municipality's direct plans/committed funds to Capital Expenditure.

Table 2-17 and its associated graphs provide a detailed breakdown of the SM Waste Management Capital Budget for the next three financial years, highlighting the allocated capital budget in terms of overall capital expenditure plans for the Municipality as well as split in capital spend planning internal to Waste Management Directorate.

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[6] Source: 2020/21 Annual Report and https://municipalmoney.gov.za

[7] The movement of cash into and out of the municipality. Section 71-level aggregation of mSCOA data from 2019-20 onwards

From this data, it can be seen that Waste Management has only been allocated just under 14% of the capital expenditure budget for the next 3 financial years by the Municipality, with investment in Electrical (27.36%), Water (25.22%) and Sanitation (13.78%) infrastructure being a clear priority for the Municipality.

Of the R187 244 985 budget allocated to Waste, close to 55% of this budget has been allocated to Disposal, in particular the expansion of the existing landfill site, with a further 21.9% of the budget being allocated to the Landfill Gas to Energy project at the landfill site, leaving 23.15 % or R43 344 985 to cover capital spend in upgrading and developing new Drop-Offs, procurement of new collection vehicles, waste minimisation projects, upgrading the existing MRF amongst other smaller commitments.

Funds for covering capital expenditure will be sourced mainly from loans with 77% of the overall spend being financed, with the remaining 22% being sourced from the Municipality's own capital reserves, and 1% from excess direct revenue. In the medium-term, based on projected excess revenue, it may be possible to pay off these loans on an accelerated basis or cover the finance costs associated with the loans.

Table 2-17: Stellenbosch CAPEX Budget for Solid Waste Management for next 3 FY

STELLENBOSCH LM | CAPEX BUDGET SPLIT FOR FY 2023 --> 2026			
Cleaning	R	3 000 000.00	1.60%
Collections	R	300 000.00	0.16%
Disposal/landfill	R	102 900 000.00	54.95%
Drop-offs	R	16 399 985.00	8.76%
Equipment	R	145 000.00	0.08%
Minimisation	R	1 500 000.00	0.80%
MRF	R	2 500 000.00	1.34%
Transfer Station	R	11 000 000.00	5.87%
Vehicles	R	8 500 000.00	4.54%
Waste to energy	R	41 000 000.00	21.90%
Total	**R**	**187 244 985.00**	**100.00%**

2.6.3 Overview of Operational Expenditure (OPEX) Plans

Table 2-18 below provides a breakdown of the SM Waste Management Operational Budget for the next 3 financial years, highlighting the areas where costs are incurred in terms split in operational spend planning internal to Waste Management Directorate.

From this data, Waste Management incurs 42% of operational spend within disposal operations, with 34% associated with the costs of collections. The remaining 18% is allocated to the costs of street cleaning.

Reviewing the last 8 years of data in **Table 2-19**, the trend of increasing cost of disposal vs. collections, however 2021 and 2022 seems to go against this trend. No data is recorded for the KTS costs before 2023/24 Financial Year; therefore, these costs might be merged into the overall disposal costs which might explain the drop in disposal costs recorded for the 2023/24 and 2024/25 financial years.

It is expected that after the construction of the new landfill cells at SLF, the current operational costs currently being incurred to truck waste to Vissershok Landfill should drop significantly, which may make funds available for investment in creating capacity to drive diversion projects, in particular organics diversion which is a key Provincial Waste Management target in the medium term.

Table 2-18: Stellenbosch OPEX Budget for Solid Waste Management for next 3 FY

STELLENBOSCH LM | OPEX BUDGET SPLIT FOR FY 2023 --> 2026		
Collections	R 129 064 660.00	33.83%
Disposal	R 164 034 400.00	42.99%
Klapmuts Transfer Station	R 69 600 000.00	18.24%
Street cleaning	R 18 841 661.00	4.94%
Total	**R 381 540 721.00**	**100.00%**

Table 2-19: Stellenbosch OPEX Budget Split for Solid Waste Management showing trend in growth over 7 FY

	ACTUAL COST (AS % SPLIT)					BUDGET PROVISION (AS % SPLIT)		
Year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Disposal	41%	53%	54%	58%	54%	34%	41%	55%
Collections	40%	27%	29%	24%	26%	30%	32%	44%
Street cleaning	19%	19%	18%	18%	21%	11%	1%	1%
Klapmuts Transfer Station	NR	NR	NR	NR	NR	24%	26%	0%

2.6.4 Expected Performance of Solid Waste Management Directorate over the Short Term

Historical performance and future budgets for Solid Waste Management in Stellenbosch are presented in **Table 2-20**. There was a noticeable change in performance from 2019/20 – 2021/22 where the waste management expenditure was (and is currently) considerably higher than the revenue. This coincides with the SLF closing and puts into stark perspective the rapid increase in costs (85% increase from 2018/19 – 2021/22) incurred to haul waste to an alternative site. To narrow the deficit the municipality has increased tariffs at well above inflation, with an annual average increase of 20% between 2018/19 and 2022/23.

Table 2-20: Financial Performance of the Municipality 2018/2019 – 2024/25 (from NT mSCOA accounts)

Budget Parameter	2018/19 Audit	2019/20 Audit	2020/21 Audit	2021/22 Audit	2022/23 Forecast	2023/24 Forecast	2024/25 Forecast
(Figures in R thousands)							
Total Revenue (excl. capital transfers & contrib.)	R79 088	88 804	106 035	121 589	133 289	144 453	156 584
Total Expenditure	R79 846	118 829	116 723	147 785	131 508	140 658	139 819
Surplus / Deficit	-R759	-R30 025	-R10 687	-R26 197	R1 781	R3 795	R16 765

The forecast budgets show a stabilising of operating expenditure from 2023/24. Presumably the landfill site will be operational by this time, effectively eliminating the logistics costs it is currently incurring, so it is unclear what will be maintaining this cost.

Due to tariffs being unlikely to be adjusted downward once the landfill becomes operational, the Municipality is projecting a significant over recovery of revenue from 2023/24. This is potentially good news for waste diversion efforts as the likely short-term increase in costs to implement projects (including separation at source efforts) may be sufficiently covered by the excess revenue projected.

Table 2-21 shows the historic and projected domestic waste management tariffs for the Municipality.

Table 2-21: Change in (domestic) waste management tariffs 2016/17 – 2022/23 (mSCOA data)

	Audited	Audited	Audited	Adjusted	Forecast	Forecast	Forecast
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Effective Refuse Tariff *(ZAR / month / household)*	127	127	135	181	211	246	287
Effective Tariff Increases		0%	6%	34%	17%	17%	17%

It is important to realise that the above inflation increases are placing a growing burden on the local community and are unlikely to be justified once the landfill is operational. Tariff charges are the primary external revenue source for waste management in the Municipality currently.

The Municipality is currently earning revenue by charging a gate fee to private users of the site (above certain mass thresholds), however for domestic users the disposal cost will continue to be internalized in the refuse removal tariff. In other words, there is increasingly limited scope to increase revenue should the projected over recovery be insufficient, especially considering the as yet unknown cost of implementing a separation at source programme needed to support organic waste and recycling projects. For households the tariff charge does not vary by the amount of waste generated (below 250 litres[8]).

2.6.5 Expectations for Future Changes in Investment and Operational Cost

In the medium and long term, a focus of the municipality in terms of waste management strategy would conceivably be focused on waste diversion and waste minimization methods as future landfill airspace becomes depleted. It follows therefore, that operational costs in the diversion and recycling area of the solid waste management directorate should increase with an associated drop in costs in disposal as waste tonnages for disposal decrease, depending on the level of success in implementing the municipalities diversion strategy.

There would also be increased expenditure towards disposal of residual materials to CCT or another regional site, unless a suitable new landfill site can be sited and permitted in the long term to service the municipality.

Table 2-22: Stellenbosch Municipality Waste Management Capital Budget

STELLENBOSCH LM | CAPEX BUDGET SPLIT FOR FY 2023 → 2026				
1	Electrical Services	R	376 626 517.28	0.02%
2	Water and Wastewater Services: Water	R	347 250 000.00	13.60%
3	Water and Wastewater Services: Sanitation	R	189 640 350.00	27.36%
4	Waste Management: Solid Waste Management	R	187 244 985.00	2.15%
5	Transport Planning	R	95 578 000.00	25.22%
6	Roads and Stormwater	R	90 250 000.00	13.78%
7	Traffic Engineering	R	60 279 950.00	6.56%
8	Project Management Unit (PMU)	R	29 530 000.00	4.38%
9	Infrastructure Services	R	225 000.00	6.94%
	TOTAL	**R**	**1 376 624 802.28**	

[8] Each household is provided with a 240l bin

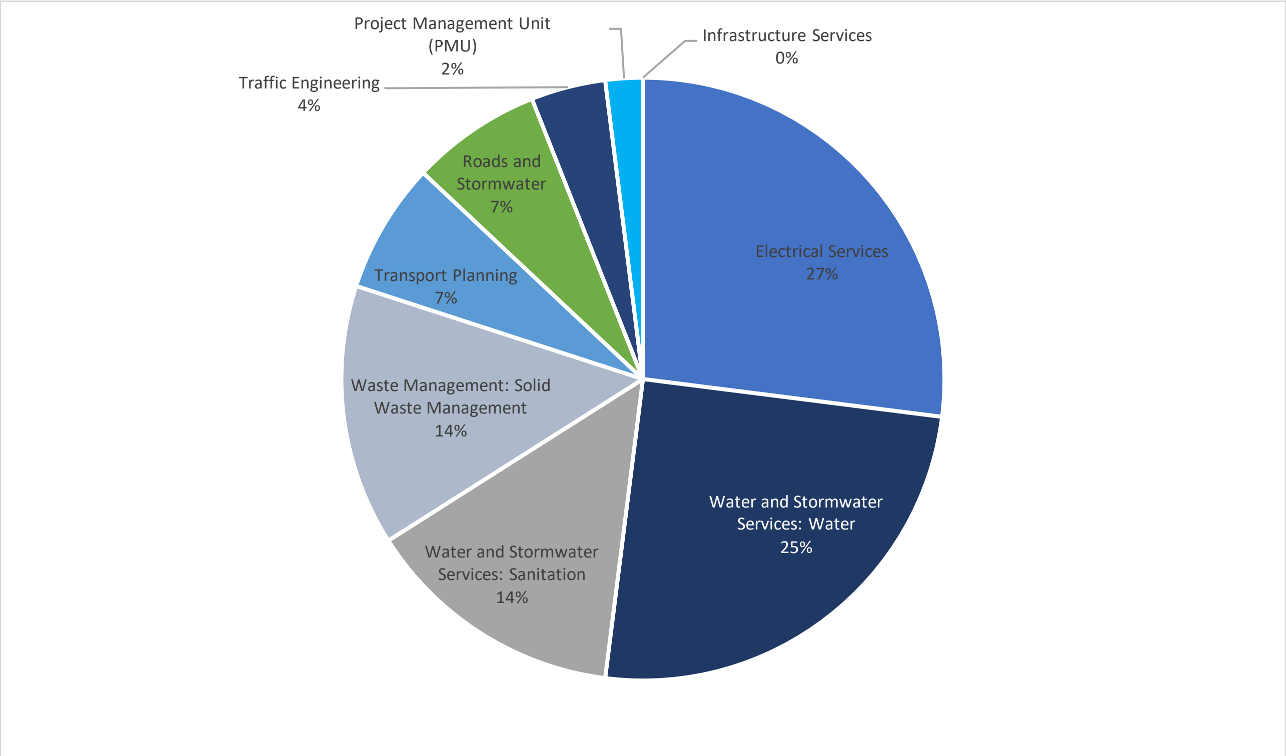


Figure 2-35: CAPEX Budget Split – By Division for FY 2023-2026.

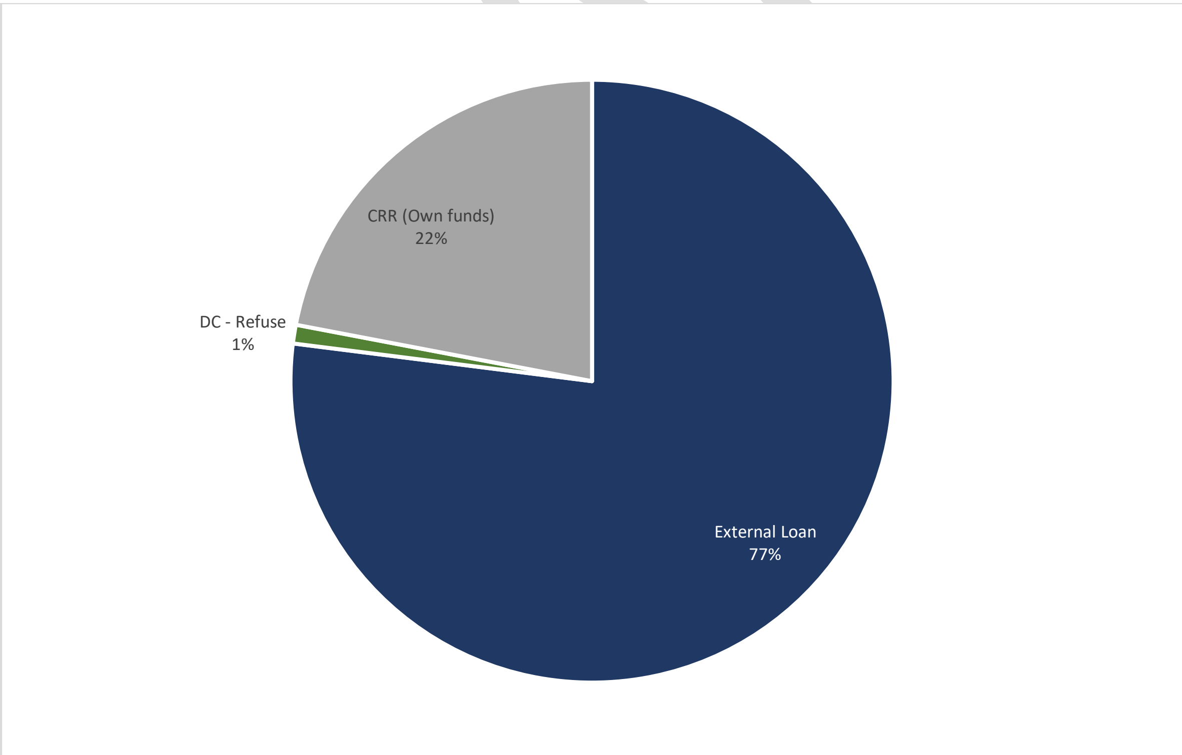


Figure 2-36: CAPEX Budget by Investor Source.

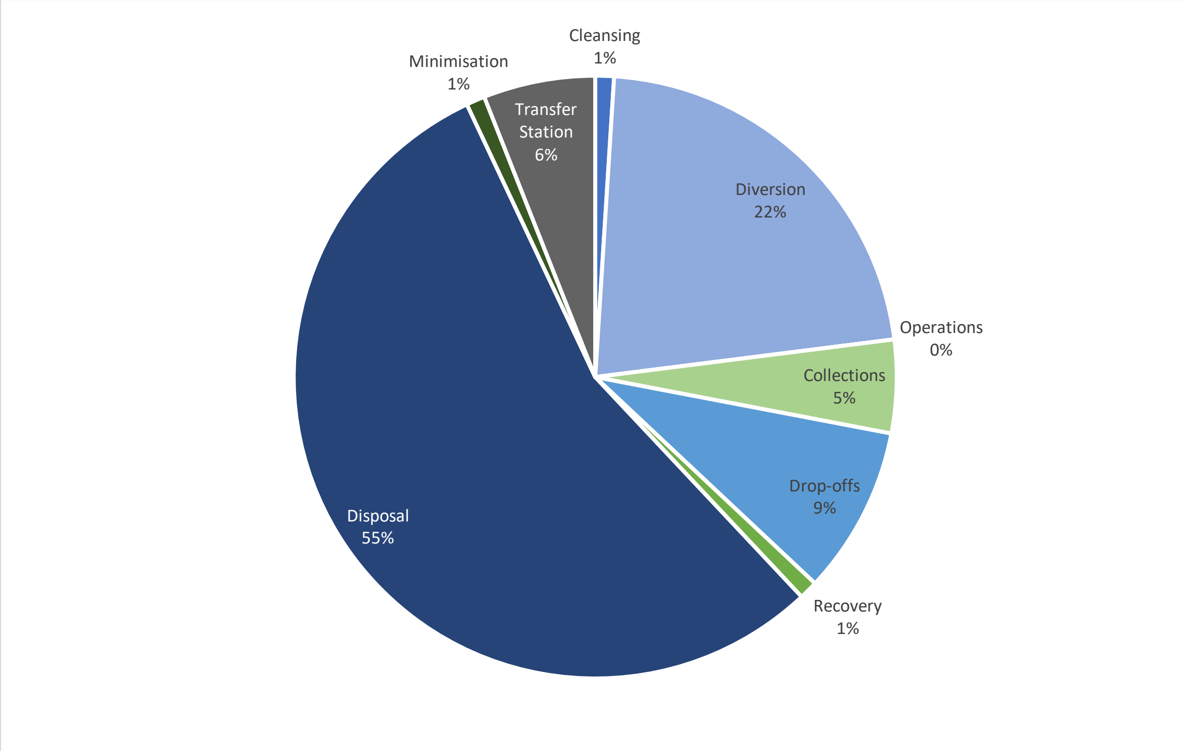


Figure 2-37: CAPEX Budget by Investment Area.

2.6.6 Tariffs

Table 2-23 provides the Refuse Removal Tariffs for the period 01 July 2023 to 30 June 2024 and **Table 2-24** provides the Disposal Tariffs for the Period 01 July 2023 – 30 June 2024.

Table 2-23: Refuse tariffs for the period 1 July 2023 - 30 June 2024

STELLENBOSCH MUNICIPALITY					
WASTE MANAGEMENT TARIFFS FOR THE PERIOD 1 JULY 2023 TO 30 JUNE 2024 **Applicable to services rendered from 1 July 2023**					
	SERVICES RENDERED	**UNIT**	**COMMENTS**	**Tariff 2022/2023 (VAT Excl.)**	**Tariff 2023/2024 (VAT Excl.)**
Residential Waste Collection (Households, Flats, Hostels, Retirement homes, Churches, Schools, Welfare Organisations, etc.)					
	Definition: 1 refuse unit = 240ℓ = 3 standard refuse bags				
	Indigent subsidy: A monthly subsidy (to be determined by Council) to be credited to a registered indigent consumer's account				
	Black bags (only where wheelie bins have not been introduced and/or stolen or lost)				
	Single residential properties for indigenthouseholds.	per month	Account payable by property owner. Max 3 closed bags. No other extras. Service will cancel when 240ℓ bin	R 248.08	**R 270.41**

			is issued.		
	Basic residential collection based on 3 standard refuse bags once per week - 1st refuse unit - One dwelling on erf	per month	Account payable by property owner. Max 3 closed bags. No other extras. Service will cancel when 240ℓ bin is issued.	R 248.08	**R 270.41**
	Basic residential collection based on 3 standard refuse bags per dwelling (1 refuseunit) for additional dwellings on same erf	per refuseunit per month	Account payable by property owner. Max 3 additional closed bags. No other extras. Per fixed arrangement - not variable. Service will cancel when 240ℓ bin is issued. At cluster housing, flats, etc. 1 refuse unit to be charged for every living unit (per month)	R 248.08	**R 270.66**
	Additional collection based on an additional 3standard refuse bags once per week - 2nd refuse unit or more	per month	Account payable by property owner. Max 3 additional closed bags. No other extras. Per fixed arrangement - not variable. Service will cancel when 240ℓ bin is issued.	R 248.08	**R 270.41**
	Mobile bins (240ℓ Wheelie bin)				
	Black Bin (Black lid Black bin)				
	Basic residential collection based on 1 X 240ℓper week - 1st bin - one dwelling per erf	per month	Account payable by property owner. No extras beside bin. At cluster housing, flats, etc. (units to be charged per quantity of bins used. Only WC024 bins will be collected	R 248.08	**R 270.41**
	Basic residential collection based on 1 X 240ℓper week for additional dwellings on same erf	per refuseunit per month	Account payable by property owner. No extras beside bin. At cluster housing, flats, etc. Units to be	R 248.08	**R 270.41**

			charged per quantity of binsused. Only WC024 bins will be collected.		
	Basic residential collection based on 1 X 240ℓbin per week for additional dwellings	per refuseunit per month	Account payable by property owner. No extras beside bin. At cluster housing, flats, etc. Units to be charged per quantity of binsused. Only WC024 bins will be collected.	R 248.08	**R 270.41**
	Blue Bin (Blue lid Black bin)				
	Three times per week removal with a blue lid 240ℓ refuse bin (sectional title, residential zoned i.e., Hostels, Flats, Old age/retirement villages - NOT HOUSEHOLDS)	Per add 240ℓ bin per month	Account payable by property owner. No extras beside bin. (Sectional title, residential zoned i.e., Hostels, Flats, Old age/retirement villages.(Businesses to be charged per quantity of bins)	R 880.24	**R 959.46**
Non Residential Waste Collections (Business and Commercial)					
	Definition: 1 refuse unit = 240ℓ = 3 standard refuse bags				
	Black bags (Only where Wheelie bins have not been introduced)				
	Collection based on three (3) standard refusebags once (x1) per week	per month	Account payable by business owner. Max 3 closed bags. No other extras. `Black BAG Service will cancel when 240ℓ bin is issued.	R 293.41	**R 319.82**
	Collection based on 3 standard refuse bags 3 xper week - three refuse units per month	per month	Account payable by business owner. Max 3 closed bags. No other extras. Service will cancel when 240ℓ bin is issued.	R 880.24	**R 959.46**
	Additional collection based on additional refuse bags, once (x1) per week - measured inthe number of additional refuse units ((3) standard refuse bags) per week	per month	Account payable by business owner. No other extras. Per fixed arrangement - not variable. Service will cancel when 240ℓ bin is issued.	R 293.41	**R 319.82**
	Additional collection based on an additional	per month	Account payable by business owner. No	R 880.24	**R 959.46**

	refuse bags, 3 x per week - measured in thenumber of additional refuse units (3 standard refuse bags) per week		other extras. Per fixed arrangement - not variable. Service will cancel when 240ℓ bin is issued.		
	Mobile bins (240ℓ Wheelie bin)				
	Blue Bin (Blue lid Black bin)				
	Collection based on 1 X 240ℓ once (x1) perweek measured as one blue bin.	per month	Account payable by business owner. No other extras. Per fixed arrangement - not variable.	R 293.41	**R 319.82**
	Additional 240ℓ removal/s once per week - measured as the number of additional bluebins	per month	Account payable by business owner. No other extras. Per fixed arrangement - notvariable.	R 293.41	**R 319.82**
	Collection based on 1 X 240ℓ three times per week measured as one blue bin.	per month	Account payable by business owner. No other extras. Per fixed arrangement - notvariable.	R 880.24	**R 959.46**
	Additional 240ℓ removals three times per week - measured as the number of additional blue bins	per month	Account payable by business owner. No other extras. Per fixed arrangement - not variable.	R 880.24	**R 959.46**
	Mobile bins (240ℓ Wheelie bin)				
	Red Bin (Red lid Black Bin)				
	Collection based on 1 X 240ℓ five times per week measured as one red bin.	per month	Account payable by business owner. No other extras. Per fixed arrangement - not variable.	R 1 467.03	**R 1 599.06**
	Additional 240ℓ removals five times per week - measured as the number of additional bluebins	per month	Account payable by business owner. No other extras. Per fixed arrangement - notvariable.	R 1 467.03	**R 1 599.06**
Charges and Levies					
	Solid Waste availability charge	per annum	Vacant erven and to all households, **farm dwellings**, businesses, flats, developments not making use of municipal collection services	R 1 556.36	**R 1 696.43**
Collection of garden waste					

	Collection of clean garden waste placed in green refuse bags.	per collection of a maximum of 6 refusebags	Limited to household properties only	R 93.90	**R 102.35**
Cleaning of private erven					
	Hiring of plant, equipment and staff to cleanprivate erf/ erven	per hour	Residents will be required to pay per hourfor the clean-up operation of all general waste including green waste builder's rubble	R 1 296.00	**R 1 412.64**
	Disposal waste from cleaning operation	per ton	All waste will be transported and disposed of at a licenced waste disposal facility and will be charged per ton.	R 1 137.24	**R 1 239.59**

Table 2-24: Disposal Tariffs for the Period 01 July 2023 – 30 June 2024

STELLENBOSCH MUNICIPALITY					
SUNDRY TARIFFS FOR THE PERIOD 1 JULY 2023 TO 30 JUNE 2024 **Applicable to services rendered from 1 July 2023**					
DIRECTORATE: INFRASTRUCTURE SERVICES					
SERVICES RENDERED		**UNIT**	**COMMENTS**	**2022/23**	**2023/24**
Waste Management Services				**R VAT excl**	
Stellenbosch Landfill Site (Devon Valley Site) and Klapmuts Waste Transfer Station (General waste only - NO Medical or Hazardous Waste)					
	Residents and private companies working within WC024				
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any other waste then it will be deemed contaminated garden waste andclassified as general waste	Per metric ton or part thereof	**<u>Vehicles with a carrying capacity up to 1,5 tons</u>**. Must show the latest account that reflects WC024 residency or proof of where in WC024 work is beingdone. Limited to 3 loads per day.	Free	Free
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity exceeding 1,5 tons.</u>** Must show proof of where in WC024 work is being done.	R 23.47	**R 25.22**

	other waste then it will bedeemed contaminated garden waste and classified as general waste				
	Disposal of clean builders' rubble(No plastic, iron, wood,etc.) *If it contains any other waste then it will bedeemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**Vehicles with a carrying capacity up to 1,5 tons.** No material other than clean builder's rubble may form part of the load (e.g., plastic, iron, wood). Limited to 3 loads per day.	Free	Free
	Disposal of clean builders' rubble(No plastic, iron, wood,etc.) *If it contains any other waste then it will bedeemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**Vehicle with a carry capacity exceeding 1,5 tons.** No material other than clean builder's rubble may form part of the load (e.g., plastic, iron, wood).	R 23.47	**R 25.22**
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble will be classified as general waste	Per metric ton or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 717.40	R 717.40
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble will be classified as general waste	Per 500 kg or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 358.70	R 358.70
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble	Per 250 kg or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 179.35	R 179.35

	will be classified as general waste				
	Disposal of soil	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity up to 1.5 tons</u>.** Only soil from within WC024 allowed. Proof of originof waste to be declared by user at disposal facility (written proof if requested)	Free	**Free**
	Disposal of soil	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity exceeding 1.5 tons</u>.** Only soil from within WC024 allowed. Proof oforigin of waste to be declared by user at disposal facility (written proof if requested)	R 23.47	**R 25.22**
	Disposal Household Hazardous Waste	Car, trailer, LDV	**<u>Vehicle with a carrying capacity up to 1.5 tons</u>**. These are limited to items generated on residential properties. Proof of the latest account that reflects payment for refuse removal needs to be shown.	Free	**Free**
Interdepartmental Municipal Charges at Stellenbosch Landfill Site and Klapmuts Waste Transfer Station.					
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble will be classified as general waste	Per metric ton or part thereof	All Departments within Stellenbosch Municipality must pay for the disposal of refuse.	R 717.40	R 717.40
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble will be classified as general waste	Per 500 kg or part thereof	All Departments within Stellenbosch Municipality must pay for the disposal of refuse.	R 344.61	R 344.61
	Disposal of general waste based on actualmass * contaminated garden waste or contaminated builder's rubble	Per 250 kg or part thereof	All Departments within Stellenbosch Municipality must pay for the disposal of refuse.	R 172.30	R 172.30

	will be classified as general waste				
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any other waste then it will be deemed contaminated garden waste and classified as general waste	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity up to 1.5 tons</u>**. Must show the latest account that reflects WC024 residency or proof of where in WC024 work is being done. Limited to 3 loads per day.	Free	**Free**
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any other waste then it will be deemed contaminated garden waste and classified as general waste	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity exceeding 1.5 tons.</u>** Must show proof of where in WC024 work is being done	R 23.47	**R 25.22**
	Disposal of clean builders' rubble (No plastic, iron, wood, etc.) *If it contains any other waste then it will be deemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity up to 1.5 tons</u>**. No material other than clean builder's rubble may form part of the load (e.g., plastic, iron, wood). Limited to 3 loads per day.	Free	**Free**
	Disposal of clean builders' rubble (No plastic, iron, wood, etc.) *If it contains any other waste then it will be deemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity exceeding 1.5 tons</u>**. No material other than clean builder's rubble may form part of the load (e.g., plastic, iron, wood).	R 23.47	**R 25.22**
Klapmuts Transfer Station					
	Disposal of general waste	Per metric ton or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 717.40	R 717.40
	Disposal of general waste	Per 500 kg or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 344.61	R 344.61
	Disposal of general waste	Per 250 kg or part thereof	Only waste from within WC024 allowed. Proof of origin of waste to be declared by user at disposal facility (written proof if requested)	R 172.30	R 172.30
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any other waste	Per metric	**<u>Vehicle with a carry capacity up to 1.5 tons</u>**. Must show the latest account that reflects	Free	**Free**

	then it will be deemed contaminated garden waste and classified as general waste	ton or part thereof	WC024 residency or proof of where in WC024 work is being done. Limited to 3 loads per day.		
	Disposal of clean builders' rubble (No plastic, iron, wood, etc.) *If it contains any other waste then it will be deemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**<u>Vehicle with a carrying capacity up to 1.5 tons.</u>** No material other than clean builder's rubble may form part of the load (e.g., plastic, iron, wood). Limited to 3 loads per day.	Free	**Free**
Franschhoek Drop-off					
	Residential properties ONLY				
	Disposal of garage waste. * Garage waste is any household waste other than clean garden waste, clean builders' rubble, domestic waste or kitchen waste from residential properties.	Car, trailer, LDV	**<u>Vehicles with a carrying capacity up to 1.5 tons.</u>** These are limited to excess waste/ items that cannot fit into your household wheelie bin. Proof of the latest account that reflects payment for refuse removal needs to be shown. Limited to one load per month.	Free	**Free**
	Disposal of clean garden waste (ONLY grass cuttings, leaves etc.) *If it contains any other waste then it will be deemed contaminated garden waste and classified as general waste	Per metric ton or part thereof	**<u>Vehicles with a carry capacity up to 1.5 tons</u>**. Must show the latest account that reflects WC024 residency or proof of where in WC024 work is being done. Limited to 1 load per day, maximum 2 loads per week.	Free	**Free**
	Disposal of clean builders' rubble (No plastic, iron, wood, etc.) *If it contains any other waste then it will be deemed contaminated builder's rubble and classified as general waste	Per metric ton or part thereof	**<u>Vehicles with a carry capacity up to 1.5 tons</u>**. Must show the latest account that reflects WC024 residency or proof of where in WC024 work is being done. Limited to 1 load per day, maximum 2 loads per week.	Free	**Free**
	ALL VEHICLES WITH A CARRYING CAPACITY OF 1.5 TONS OR MORE FOR BUILDER'S RUBBLE AND VEHICLES WITH A CARRYING CAPACITY OF 2 TONS OR MORE FOR GARDEN WASTE MUST BE DISPOSED OF AT THE STELLENBOSCH LANDFILL SITE				
Stellenbosch Waste Material Recovery facility					
	Disposal of garage waste. * Garage waste is any household waste other than clean garden waste, clean builders' rubble, domestic waste or kitchen waste from residential properties.	Car, trailer, LDV	**<u>Vehicles with a carrying capacity up to 1.5 tons.</u>** These are limited to excess waste/ items that cannot fit into your household wheelie bin. Proof of the latest account that reflects payment for refuse removal needs to be shown.	Free	**Free**
	Clean recyclable waste material.	Per metric ton or part thereof	ONLY clear filled bags allowed. No filled black bags will be allowed on site. Must show the latest account that reflects WC024 residency or proof of where in WC024 work is being done.	Free	**Free**

	Disposal E-Waste	Car, trailer, LDV	**Vehicle with a carrying capacity up to 1.5 tons**. These are limited to items generated on residential properties. Proof of the latest account that reflects payment for refuse removal needs to be shown.	Free	**Free**
Replacement of bin or lid or wheel or axel					
	For bin age up to 5 years		For malicious damage where there is negligence on the part of the owner.		
	For the replacement of a complete bin	Replacement	Applicable to malicious damage Lost or stolen bin must be reported to the nearest Police Station and a case number be presented to Council before replacement commences. The replacement due to theft on refuse removal day will be excluded from this arrangement. Client still to obtain a case number from the SAPS and present it to Council before replacement will take effect. Maximum of twice per year.	Cost + 15% applicable to malicious damage, lost or theft. Must be reported tothe SAPS and a case number and payment to be presented to Council before replacement. The replacement due to theft on refuse removal day will be excluded from this arrangement (Maximum two replacement allowed during the financial year, thereafter payment to be presented before replacement). Client still to obtain a case number from the SAPS and present it to Council before replacement will take effect.	
Hiring and servicing of 240ℓ bins					
	Hiring of 240ℓ wheelie bin	Per bin per day	For the hiring of 240ℓ bins to a third party within WC024 (includes delivery, collection and servicing of the bin). Subject to prior approval and availability.	R 65.94	**R 71.87**
	Servicing of event bins	Per lift	A charge to empty an event bin.	R 57.28	**R 62.44**
	Hiring of 240ℓ wheelie bins: Basic charge for collection and/or delivery on Saturday	Once-off per event	Compulsory fee to be paid when hiring municipal wheelie bins for events taking place over a weekend in WC024	R 3 277.45	**R 3 572.42**
	Hiring of 240ℓ wheelie bins: Basic charge for collection and/or delivery on Sunday	Once-off per event	Compulsory fee to be paid when hiring municipal wheelie bins for events taking place over a weekend in WC024	R 4 320.28	**R 4 709.11**

2.7 3rd Generation (2020 – 2023) Integrated Waste Management Plan implementation

Table 2-25 presents an evaluation of the implementation progress of the gaps and needs identified in the 3rd Generation IWMP. Together with the status quo assessment, the evaluation presented in **Table 2-25** informed the gaps and needs for the 4th Generation IWMP.

Table 2-25: Implementation progress of the 3rd Generation IWMP

Gaps and Needs (SM IWMP 2020-2023)	Activity	Achieved or Not Achieved
Legislation	The Municipality's solid waste by-law has been approved by Council.	The Municipality's solid waste by-law has been approved by Council.
	The general awareness of the latest legislation has been identified as a gap. Various waste generators (especially hazardous waste) are unaware of the requirements listed in the legislation pertaining to the transport and disposal of waste.	This activity has been achieved by the Municipality and waste generators have been notified regarding the requirements that are listed in the legislation pertaining to the transport and disposal of waste. The Municipality also has a Site Notice Board at the Entrance to each facility which indicates the type of waste that can be disposed of at each site. The SM started an Accreditation Process for Waste Transporters in 2022. The accreditation is valid for 2 years and allows the Transporter's information to be pre-loaded at the weighbridge.
	The non-compliances (where applicable) at the municipal solid waste facilities need to be comprehensively assessed through internal and external audits. The overall compliance identified during audits and the enforcement of any non-compliances, are areas that need improvement. These findings must be communicated to the DEA&DP. This is not considered a gap at the moment as it is being completed, however, it is mentioned here in order to include in the upcoming implementation items	SRK Consulting (South Africa) Pty Ltd (SRK) are appointed as the independent consultant to undertake external and review audits at three waste management facilities. The review audit precedes the external compliance audit and provides an indication of progress.
	Cell 1 and 2 at the Stellenbosch landfill has been issued with a closure licence and it is required that rehabilitation commence before the dates specified in the licences in order to achieve compliance.	The rehabilitation of Cell 1 and 2 has been completed. It must be noted that erosion control measures are to be implemented on Cell 1 and 2, as stormwater runnels have been created on the sides of the Cells.
	The national waste management strategy was recently updated, and the Municipality is required to stay up to date with the latest requirements from national and provincial government. Communication channels between national, provincial and local government are meant to relay this information, but in some cases these communication channels require some improvement. There exists a need for the Municipality to obtain more direct guidance from the provincial and national government on how to continuously improve waste management service delivery.	The Municipality is in contact with the relevant departments to obtain direct guidance on how to continuously improve waste management service delivery within the municipality.
Waste Generated Quantities	Excellent data is available for the generated waste quantities within Stellenbosch. Data is well recorded by the contractor operating the landfill site, but care must be taken to ensure records are kept for specific categories and not spread over too many categories in order to avoid confusion.	Records of the amount of waste collected from households and businesses from the municipal wards are kept by the municipality. The Municipality records the waste quantities and types accepted at the Stellenbosch Landfill Facility and Klapmuts Transfer Station.

Gaps and Needs (SM IWMP 2020-2023)	Activity	Achieved or Not Achieved
	An identified gap is the recording of waste data during the time that waste will be transported to the Vissershok Landfill. Detail records should be kept on how much waste gets collected from the households and businesses, how much waste is accepted at the Stellenbosch Landfill and Klapmuts Transfer Station, and how much waste is being transported to the Vissershok site so that a waste flow and volume balance can be established.	The Service provider provides an invoice which details the amount of waste that is being transported to the Vissershok site so that a waste flow and volume balance can be continuously established. A system for overall waste flow and volume balance has not been established. The aim would be to provide an overall picture of waste generation within the Municipality.
Waste Minimization, Recycling and Re-Use Initiatives	A new MRF (situated adjacent to the Stellenbosch Landfill) is currently operational and will address some of the waste minimisation and diversion needs of the Municipality. More work is however, always required in the waste minimisation and recycling space and residents should be encouraged to further increase separation at source at all times. **In this regard the Municipality must consider increasing the separation at source, to more wards and areas.**	The recently constructed MRF started operations on 1 April 2021. Clear bags collected in the Municipality are taken to this new facility for sorting and recycling. The MRF has the capacity to process 450 tons of incoming material per month and can employ up to 40 people. The Municipality has included new areas for each year of the contract to expand the separation at source programme i.e., to include more households in the initiative. Recyclable material that is accepted includes paper, newspapers, magazines, cardboard, glass, plastic bottles and containers, food tins, cooldrink tins, and liquid board packaging.
	There remains a need for the development of a solid waste transfer station in the Franschhoek area and this needs to be budgeted for. Previous studies to find a suitable site for development of the transfer station have been unsuccessful due to the lack of suitably sized land close enough to the town. It is recommended that another feasibility (including site selection) assessment be initiated by the municipality, in order to develop this solid waste transfer station.	This has been partly achieved. The Municipality has provided one mini public drop off located in the Franschhoek area which accepts garden waste and builder's rubble.
	The municipality needs to include more information on their website related to what is recyclable and where the public can go to find recycling centres.	The municipality website has been updated to provide information on what is recyclable and the location of the recycling facilities. This can however be improved.
Institutional and Organisational Needs	There are many vacancies in the solid waste management staff compliment, including a few in key positions. Appropriate persons should be appointed for these positions and receive adequate training. There is a need for more technical staff in the waste management division and it should be made a priority to appoint suitably qualified staff to the required positions and reflect this in the municipal budget. In a recent site visit to the waste management facilities, the Municipal official indicated the need for skilled staff (i.e., mechanic supervisors) to assess with mechanical difficulties encountered with on-site equipment / vehicles and advise on corrective action. Currently all mechanical repairs on equipment and vehicles are outsourced by the municipality which has a significant cost and time implication.	As per the Municipality Organogram, vacant posts are still to be occupied. A better organogram is required. The Municipal official had indicated during the site visits that the need for specifically skilled staff (i.e., mechanic supervisors) to assess with mechanical difficulties encountered with on-site equipment / vehicles and advise on corrective action. Currently all mechanical repairs on equipment and vehicles are outsourced by the municipality which has a significant cost and time implications. In addition, this can result in legislative compliance risks.
	The SM proposed establishing an IWMP Monitoring Advisory Committee to monitor the implementation of the 3rd generation IWMP. It is recommended that the Committee is established upon approval of the 4th Generation IWMP and that the monitoring and review	This is being undertaken by means of the IDP review process.

Gaps and Needs (SM IWMP 2020-2023)	Activity	Achieved or Not Achieved
	process by the SM IWMP advisory committee, should, as a minimum, consist of: • The Stellenbosch Waste Management Officer with assistance from the Operational Services Department's Supervisors and Foremen. • The SM Deputy Director Infrastructure Services • The SM Deputy Director Operational Services • An appointed consulted (where required)	
Identification of Alternatives	Current organic diversion rates achieved are adequate but needs to improve in order to achieve 100% diversion by 2027. The waste characterisation study needs to give additional detail to identify effective alternatives for diverting the remainder of the organic waste fraction. Possible additional treatment could include Mechanical Biological Treatment (MBT) in order to separate the organic fraction from the collected waste stream and beneficiate it. This is, in part, the intention of the planned organic waste transfer station and the detail design process for the transfer station would have to investigate the secure off-takers for the organic waste diverted by the transfer station.	An Organic Waste Diversion Plan for the SM was completed in November 2021 and is still to be implemented. It was recommended that the SM pursue a multi-pronged approach to organic waste diversion which favours and encourages separation at source, identifies a treatment option and creates an enabling environment.
Funding Mechanisms	Funding mechanisms need to be explored. The capital cost requirements of required infrastructure and possible alternatives in order to achieve the required diversion rates are too high to be funded by the solid waste department itself. As described in this report budgets have been allocated for waste management infrastructure and services but the high capital requirements of many of the required developments indicates that the Municipality will have to look outside its borders for funding. This is particularly true for the costs of landfill closure and rehabilitation.	Is still to be achieved with the Municipality.
	Waste minimisation, including recycling, composting, and crushing of builders' rubble, will require financial support and continual public awareness and education (which is on-going and very important) is also a continuous expense.	This activity refers to waste diversion rather than minimisation and is ongoing. The Municipality provides continual public awareness and education regarding waste minimisation, including recycling, and composting which is also a continuous expense. The SM have advertised for a Technician in order to build capacity to implement this on an ongoing basis.
	The Municipality must make provision for the rehabilitation of Cell 1 and 2 at the Stellenbosch Landfill. It was however noted during the site visit, that Cells 3 and 4 are currently under development. With the requirements set in the latest issued licences (which take into account that sites were not constructed with impermeable base liner), the rehabilitation costs have become unaffordable in the short to medium term. It would be most beneficial if the funding allocation for landfill rehabilitation would come through, or be sourced by, the Provincial government systems.	Cell 3 currently receives waste from municipal area clean ups, but not general household waste as it has reached its' maximum height. The construction of a new cell, Cell 4, is planned and it is expected it will start receiving waste in 2024. Cell 4 will be developed between Cells 2 and 3 and will be filled ("piggy-backed") above the slopes of Cells 2 and 3.
Public Awareness and Education	Public awareness and education must always be a continual requirement and the current work done by the Stellenbosch Municipality must continue and be expanded wherever possible. The Municipality does good work with the schools in its jurisdiction and more work is required to ensure that the awareness and education	The MRF has been developed at the Stellenbosch IWMF which addresses some of the waste minimisation and diversion needs of the Municipality. The MRF is in operation and an open day was held on the 27 September 2021

Gaps and Needs (SM IWMP 2020-2023)	Activity	Achieved or Not Achieved
	passes through to the youth by these initiatives, can continue. The Municipality publishes an annual newspaper called "Utter Rubbish" in which it provides information to the public on waste related matters. This is a very good method of relaying important information to the general public and should be committed and improved upon where possible. A dedicated Municipal official should continuously investigate and implement public awareness and education campaigns related to waste management to ensure that the public understands the need for sustainable waste management within the Municipality. During a recent visit to the MRF, the Municipal Official suggested the development of signage (to be constructed out of colourful recyclables) which could be erected at the front gate of the MRF and make this facility more visible to the general public. This would be a simple and cost-effective public awareness strategy.	which allowed residents, students, scholars and visitors an opportunity to tour the facility. The Municipality provides 3 schools, namely Rhenish Girls High, Rhenish Primary and Eikestad Primary with collection services of recyclable materials at their schools in addition to the normal kerbside collection. It must be noted that more work is always required in the waste minimisation and recycling area and that residents should be encouraged to separate all waste items accordingly, the Municipality must therefore consider increasing the separation at source project to more wards and areas. Public awareness and education on recycling must be a continuous requirement and the current work done by the Stellenbosch Municipality must continue and expand wherever possible. The municipality does good work with the schools within the area to create awareness programmes and more work is required to ensure that the awareness and education is passed through to the youth

3 Gaps and Needs

Based on the information obtained from the Status Quo assessment, a Gap Analysis and Needs Assessment has been conducted for the existing municipality's waste management practices.

This phase is very important in the compilation of the IWMP as it identifies the waste management priority areas within the municipal area, and whether the targets have been achieved as set out in the previous IWMP update dated September 2020. The gaps and needs in achieving these targets will be highlighted in this report, and recommendations (solutions) proposed to address these shortcomings.

From the status quo evaluation, the gaps and needs were identified and are discussed below. The methodology used to determine these gaps and needs were through a combination of the following methods and processes:

- Gaps and needs specifically identified by the municipality's waste management officials during the meetings between JG Afrika and the SM.
- Shortcomings of the municipal infrastructure and/or systems to adhere to the national and provincial requirements of waste volume recording and reporting and management.
- Processes and practices identified that could assist the municipality to adhere to the principles of the National Waste Management Strategy and the NEMA Waste Act and its regulations.
- External and internal audit reports of waste management facilities.
- General DEA&DP comments on the other municipal IWMP reports.

Table 3-1: Gaps and Needs identified.

Waste Management Aspect	Gap	Need
Waste By-Laws and Policies	Review of By-Law	Although the current By-law is comprehensive and does not require any revisions at this stage, as new or amended national legislation comes into force, the By-law should be reviewed to ensure it complies.
Waste collection fleet	Vehicles are serviced / repaired only when authorisation is given by the Service Provider - no mechanical supervisor is present on site. Ageing fleet with more than half the compactors between 5 and 10 years old.	Investigate the appointment of a mechanical supervisor within the Department for small daily repairs and to manage the maintenance process. Ensure budget allocation for replacement of compactors in next 5 years.
Transfer Stations	Drop-offs need to be upgraded to keep up with planned growth, as well as to support decentralisation initiatives. Also, investigate including more garden / green waste drop-offs within the residential areas.	Introduce these Drop-off upgrading needs in planning and capital budgeting.
Landfill Site Management	Landfill Airspace and Cell 4 lifespan Management of Waste Pickers	Develop a long-term planning strategy to maximise airspace. Develop a plan for waste picker management when Cell 4 becomes operational.
Increased diversion of recyclables	Only 32% of the Municipality is provided with a two-bag collection.	All residents within the SM to be included in the two-bag system.
Organic Waste Diversion	The 2021 Organic Waste Diversion Plan (OWDP) has not been implemented.	The OWDP needs to be updated and a practical plan for implementation included in the IWMP. Identify an off-take for organic waste. Provide garden waste collection in Klapmuts.
Staff	There are a number of vacant posts in the Waste Management Department creating operational capacity constraints.	Vacant posts to be filled.
Public Awareness and Education	No overarching waste education and awareness strategy for the municipality.	Municipality to develop a long-term waste education and awareness strategy.

Waste Management Aspect	Gap	Need
	More successful short-term projects to be implemented with schools and communities.	Public awareness and education campaigns must be consistent, ongoing, and implemented by the Stellenbosch Municipality. The SM to introduce/provide a circular/flyer which will provide information on the waste education awareness events that will be undertaken as well as to provide residents with information on the drop-off areas / facilities within the municipal area. The SM is planning to expand on the school programme and to approach other schools within the municipal area and to formalise the education awareness campaigns which will promote waste reduction, recycling and composting. To ensure that waste is sorted at the source i.e., by the household/generator.

4 Goals, objectives, and targets

In order to address the gaps and needs that have been identified, goals and objectives must be set. The terminology used in the goals and objectives, and implementation plan sections of this report has been aligned with the DEA&DP Integrated Waste Management Planning Guideline.

"Goals" are the long-term ends toward which programs, activities and projects are ultimately directed, while "objectives" are specific measurable intermediate ends that are achieved, and which marks the progress towards a goal. Both strategic and operational objectives can be set, and a goal may have a number of objectives and each objective may have a number of policy statements.

The objectives determined by municipalities may contribute only to the solving of local problems, but they must be aligned with the overall objectives of the NWMS.

The 2020 NWMS provides a set of goals that municipalities must achieve within a defined period. The NWMS strategic approach is based on Three Pillars, namely;

- Waste Minimisation,
- Effective and Sustainable Waste Services, and
- Compliance, Enforcement and Awareness.

Each pillar has goals and expected outcomes/targets, which set a desired level of performance and measurable achievements.

Strategic goals can be divided into:

- Immediate: 1 year,
- Short-term: 2 to 3 years,
- Medium term: 3 to 5 years and
- Long-term: 5 to 10 years.

A total of 5 goals have been identified for the SM, building on the goals from the previous IWMP and informed by the status quo, gap and needs assessment and updated legislation and provincial policies and strategies.

4.1 Goals for Stellenbosch Municipality

A total of five goals were identified for the SM. The development of these goals has been informed by the previous IWMP, situational analysis and gap and needs assessment, as follows:

Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management.
Goal 2: Improved integrated waste management planning and implementation for efficient and financially viable waste management services and infrastructure.
Goal 3: Effective and efficient utilisation of resources.
Goal 4: Improved compliance monitoring and enforcement.
Goal 5: Increased waste diversion and recycling.

4.2 Alignment with National and Provincial Waste Management Goals

The following table identifies the alignment of these goals with the National Waste Management Strategy, 2020, the **Draft WC IWMP** and the SM's previous IWMP.

SM Goals	WC IWMP	NWMS 2020
Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management.	Goal 1: Strengthened education, capacity, awareness and advocacy towards Integrated Waste.	Pillar 3: Compliance, Enforcement and Awareness
Goal 2: Improved integrated waste management planning and implementation for efficient and financially viable waste management services and infrastructure.	Goal 2: Improved integrated waste management planning and implementation for efficient waste services, technologies and infrastructure.	Pillar 2 Effective and Sustainable Waste Services
Goal 3: Effective and efficient utilisation of resources.	Goal 3: Effective and efficient utilisation of resources.	Pillar 1: Waste Minimisation
Goal 4: Improved compliance monitoring and enforcement.	Goal 4: Improved compliance with the environmental regulatory framework.	Pillar 3: Compliance, Enforcement and Awareness
Goal 5: Increased waste diversion and recycling.	Goal 3: Effective and efficient utilisation of resources.	Pillar 1: Waste Minimisation

4.3 Implementation Plan

The IWMP Implementation Plan is presented in a table format. A timeline, proposed budget, responsibility, and priority have been assigned to each task. These tasks should be reviewed annually by the SM and amended or adjusted accordingly. While all projects in the implementation plan should be implemented, in the event that budget for waste projects is cut the high priority projects should be implemented before low priority projects. The objectives have been aligned with the overall objectives of the NWMS and the WC IWMP (draft). The Organic Waste Diversion Plan activities have been updated and included in **Table 4-1**.

Time Frame	Key	Priority	Key	Budget Category
Ongoing		**High**	**H**	**Capital**
Annual		**Medium**	**M**	**Operating**
2023		**Low**	**L**	
2024				
2025				
2026				
2027				
2028				

Table 4-1: IWMP Implementation Plan

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management					
1.1 Facilitate industry responsibility in integrated waste management	• Ensure all necessary waste information is available on the municipal website in an easy to navigate format.	H	2024	Operating	SM: Waste Dept – Education and Awareness
	• Include industry and business in the overarching Waste Awareness Strategy *(see Goal 1.2)* with campaigns and a plan for execution.	M	2024	Operating	SM: Waste Dept – Education and Awareness
	• Undertake hazardous waste awareness programmes with business and industry.	M	2025	Operating	SM: Waste Dept – Education and Awareness
	• Undertake recycling and waste diversion campaigns with business and industry, including Organic Waste separation.	M	2025	Operating	SM: Waste Dept – Education and Awareness
1.2 Promote and ensure awareness and education of integrated waste management	• Develop an annual waste awareness calendar with dates for events as per the Strategy	H	Annual	Operating	SM: Waste Dept – Education and Awareness
	• Detailed records are to be kept of all waste awareness campaigns undertaken.	H	Annual	Operating	SM: Waste Dept – Education and Awareness
	• Partner with industry bodies like PROs, Plastics SA, ORASA, etc. for training programmes, workshops etc.	M	Annual	Operating	SM: Waste Dept – Education and Awareness
	• Develop a **5 Year Waste Awareness Strategy** with annual and ongoing campaigns with plans for execution.	H	2024	Operating	SM: Waste Dept – Education and Awareness
	• Include the development of a Household Hazardous Waste and Organic Waste Diversion communication and awareness plan as part of the overarching Strategy	H	2024	Operating	SM: Waste Dept – Education and Awareness
	• Develop sufficient awareness materials for the waste awareness campaigns, and update as required	H	2024	Operating	SM: Waste Dept – Education and Awareness

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
	• Ensure personnel undertaking the Waste awareness campaigns are trained and experienced personnel.	H	Ongoing	Operating	SM: Waste Dept – Education and Awareness
	• Ensure that the Strategy includes waste awareness campaigns to be undertaken at all schools so that all learners are provided with opportunity to be educated on good waste management practices. ○ Develop a programme to roll waste awareness out to remaining schools within the Municipality. ○ Provide all schools with an opportunity to participate in a recycling programme whether municipal or private.	H	2026	Operating	SM: Waste Dept – Education and Awareness
1.3 Build and strengthen waste management capacity	• Attend DEA&DP, DFFE and other industry body (e.g., IWMP) seminars, training, conferences and forums.	H	Ongoing	Operating	SM: Waste Dept – WMCO
	• The WMCO to continue to attend provincial forums such as the Cape Winelands Provincial Waste Forum, The Western Cape Recycling Action Group as well as DEA&DP Waste Managers Forum.	H	Ongoing	Operating	SM: Waste Dept - WMCO
	• Outsource specific skills that might be required to consultants e.g., communication and awareness, mechanical repairs.	M	Ongoing	Operating	SM: Waste Dept/ Supply Chain
	• Develop an in-house staff training schedule detailing the training needs for staff as required. Update annually.	H	2024 Annual	Operating	SM: Waste Dept/ HR Dept
	• Update the current organogram, include job description and training/qualification requirements	H	2024	Operating	SM: Waste Dept/ HR Dept
	• Fill all vacant posts as soon as possible.	H	2024	Operating	SM: Waste Dept/ HR Dept
	• Assess whether staff have the necessary skills and what the training needs are to meet job/project requirements.	H	2024	Operating	SM: Waste Dept/ HR Dept
	• Motivate for new positions such as in-house Mechanical Repair position	M	2025	Operating	SM: Waste Dept/ HR Dept

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
Goal 2: Improved integrated waste management planning and implementation for efficient and financially viable waste management services and infrastructure					
2.1 Facilitate municipal integrated waste management planning	• Obtain approval for 4th generation IWMP	H	2023	Operating	SM: Waste Dept - WMCO
	• Undertake annual review of the IWMP and submit annual report along with an update of project implementation to DEA&DP.	H	Annual	Operating	SM: Waste Dept - WMCO
	• Review Waste disposal tariffs annually ensuring the process is informed by a full cost accounting. ○ This should include consideration of differentiated tariffs to incentivise separation at source and organic waste diversion or alternatively cover costs. Feedback from pilot project and existing strategies should be included in the tariff review	H	Annual	Operating	SM: Waste Dept
	• Develop a Master Plan/Strategy for long term waste management in the Municipality including infrastructure requirements to maximise lifespan of new cell at SLF.	M	2025	Operating	SM: Waste Dept - Appoint Consultant
2.2 Promote industry waste management planning and the circular economy	*Linked to Goal 1.* • Identify projects/industries or role-players in the SM and facilitate industry waste diversion initiatives that promote the circular economy principles.	L	2025	Operating	SM: Waste Dept
	• Implement a system to request Waste Management Plans from Businesses and Industry showing diversion including organic waste	M	2026	Operating	SM: Waste Dept
	• Undertake a regular Collection Service Review	H	Annual	Operating	SM: Waste Dept
	• Planning processes to be in place to ensure that key vacancies in the solid waste department are filled to ensure continued and consistent service levels.	H	Annual	Operating	SM: Waste Dept/HR Dept
	• Planning processes to be in place to ensure that service providers are timeously appointed.	H	Annual	Operating	SM: Waste Dept
	• Develop a fleet management, maintenance, and replacement strategy to allow budgeting to take place.	H	2024	Operating	SM: Waste Dept

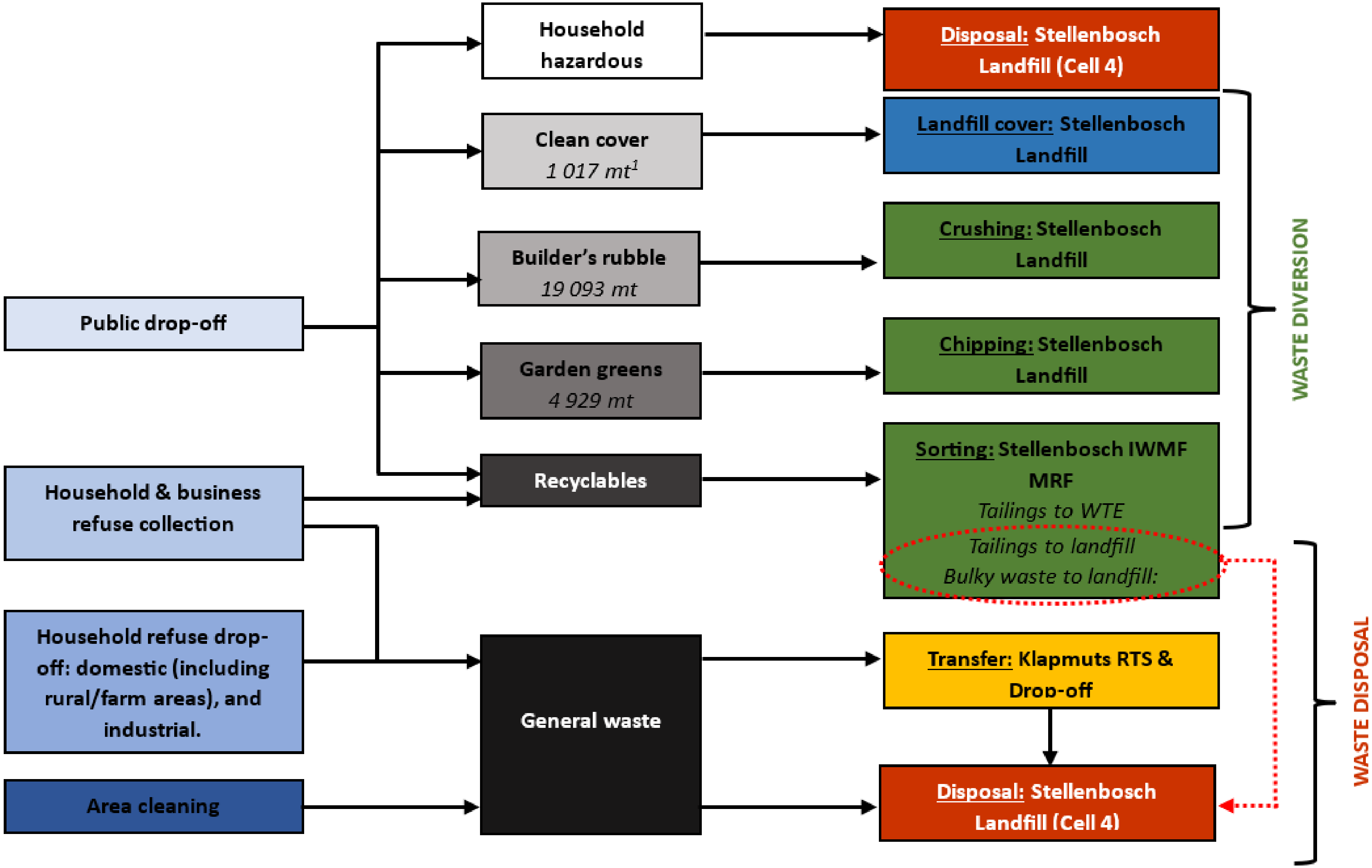
Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
2.3 Promote the establishment of integrated waste management infrastructure and services	• Make provision for Garden Waste drop-off at the Klapmuts RTS.	H	2024	Capital	SM: Waste Dept
	• Include budget in the 2024/25 Financial Budget for a pilot project for organic waste drop-off points at existing drop-offs and a service provider to collect and treat the organic waste.	H	2024	Operating	SM: Waste Dept
	• Develop a tender specification for a suitable off-taker for the Organic Waste from drop-offs pilot project from July 2024. Budget to include the collection and treatment fee.	H	2024	Operating/ Capital	SM: Waste Dept
	• Ensure budget allocation for ongoing upgrade and replacement of compactors over next 5 years.	H	2024	Capital	SM: Waste Dept
	• Pilot the collection of Organic Waste (including food waste) at the existing drop-off sites, commencing July 2024.	H	2024/25	Operating	SM: Waste Dept
	• Pilot the collection of Organic Waste at a selected CBD focusing on business waste to develop a costing model for future implementation.	H	2025	Operating	SM: Waste Dept
	• Install HHW collection infrastructure at all municipal drop-off facilities.	M	2025	Capital	SM: Waste Dept
	• Ensure budget allocation for ongoing upgrade and replacement of compactors over next 5 years.	H	2025	Capital	SM: Waste Dept
	• Construct mini-MRF in Franschhoek (based on outcome of current project to identify a site).	H	2025	Capital	SM: Waste Dept
	• Construct drop-off and mini-MRF in Klapmuts	H	2025	Capital	SM: Waste Dept
	• Initiate engagement with other departments in order to facilitate a better and more supportive understanding of roles and responsibilities, so as to improve communication and integration of services	M	2025	Operating	SM: Waste Dept
	• Enforce the implementation of organic waste separation in the Business and Industrial sector by appointing a service provider to collect and treat from all the CBD and Industrial areas.	H	2026	Operating	SM: Waste Dept

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
	• Ensure budget allocation for ongoing upgrade and replacement of compactors over next 5 years.	H	2025	Capital	SM: Waste Dept
	• Construct Organic Refuse Transfer Station	H	2027	Capital	SM: Waste Dept
2.4 Ensure effective and efficient waste information management	• Ensure IPWIS reporting continues and assess accuracy on a regular basis.	H	Annual	Operating	SM: Waste Dept
	• Continuous maintenance of waste infrastructure like weighbridges, updating of waste information systems (software) in accordance with a maintenance schedule.	H	Annual	Operating	SM: Waste Dept
	• Effective and ongoing training of weighbridge / waste information system operators.	H	Annual	Operating	SM: Waste Dept/ HR Dept
	• Review Municipal waste generation and management data annually to ensure a "big picture" view of waste flows within the municipality as well as if diversion targets are being met.	M	2025 Annual thereafter	Operating	SM: Waste Dept
Goal 3: Effective and efficient utilisation of resources					
3.1 Minimise the consumption of natural resources and promote the circular economy	*Ties in with Goal 1 and Goal 2 – Objective 2.2* • Facilitate private initiatives such as glass reuse rather than recycling e.g., Bottle Traders	L	2027	Operating	SM: Waste Dept
	• Support local recyclers and buy-back centres	L	2027	Operating	SM: Waste Dept
3.2 Stimulate job creation within the waste economy	• Implement the waste picker integration plan (WPIP)	M	2024	Operating	SM: Waste Dept
	• Manage EPWP programme to maximise employability with the Municipality	L	2024 Every 6 months	Operating	SM: Waste Dept
	• Appoint service providers for landfill management, MRF management, waste collection and chipping which employ local residents with a focus on employing women, youth, and people with disabilities.	H	2024 Every 3 years	Operating	SM: Waste Dept
3.3 Increase waste diversion through reuse, recovery and recycling	• Commence with the implementation of OWDP actions.	H	2024	Operating	SM: Waste Dept
	• Continue to roll-out separation-at-source to all households.	H	2025	Operating	SM: Waste Dept
	• Continue to roll-out separation-at-source to all households - Groendal, Mooiwater and La Motte.	H	2024	Operating	SM: Waste Dept

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
	• Continue to roll-out separation-at-source to all households - Kayamandi North and Kayamandi South.	H	2025	Operating	SM: Waste Dept
	• Continue to roll-out separation-at-source to all households - Klapmuts and Lanquedoc.	H	2026	Operating	SM: Waste Dept
	• Roll out home composting programme in all suburbs/areas by 25 % increase per year until all residents have been offered the opportunity to participate.	M	2025	Capital/Operating	SM: Waste Dept
	• Roll out home composting programme in all suburbs/areas by a further 25 % increase per year until all residents have been offered the opportunity to participate.	M	2026	Capital/Operating	SM: Waste Dept
	• Roll out home composting programme in all suburbs/areas by a further 25 % increase per year until all residents have been offered the opportunity to participate.	M	2027	Capital/Operating	SM: Waste Dept
	• Allow for a garden waste drop-off at KRTS	H	2026	Capital	SM: Waste Dept
Goal 4: Improved compliance with environmental regulatory framework					
4.1 Strengthen compliance monitoring and enforcement	• Conduct required internal and external compliance audits at all waste management facilities as required, including appointing specialists to undertake monitoring of air and groundwater etc. according to licences conditions. • Submit compliance audits to DEA&DP, where required, and ensure corrective action is taken to address non-compliances.	H	Annual	Operating	SM: Waste Dept
	• Report against OWDP targets	H	Annual	Operating	SM: Waste Dept
	• Report against NMWS Diversion Targets	M	2025	Operating	SM: Waste Dept
	• Develop an Illegal Dumping Strategy	M	2026	Operating	SM: Waste Dept
4.2 Remediate and rehabilitate contaminated land and Waste Management Facilities	• Capping of Cell 3 and 4. ((Cell 3 will be left dormant till closure of Cell 4 and both will be capped together)	H	2028 (TBC)	Capital	SM: Waste Dept

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
4.3 Facilitate the development of waste policy instruments	• Expand Capital Development Budgeting to include additional Drop Off facilities.	M	2025	Capital	SM: Waste Dept
	• Review Waste By-Law to ensure relevant and up to date.	L	2025	Operating	SM: Waste Dept
	• Develop and implement a waste Infrastructure masterplan to guide the development and financing of waste facilities over the next 10 – 15 years and maximise available airspace.	H	2026	Operating	SM: Waste Dept
Goal 5: Increased waste diversion and recycling to promote a Circular Economy					
5.1 Increased diversion of recyclables	• Increase participation rates in the separation-at-source programme.	H	Ongoing	Operating	SM: Waste Dept
	• Implement pilot project to increase accessibility in terms of recycling by placing facilities/containers in parks for people to take their recyclables to - pilot project.	M	2025	Capital	SM: Waste Dept
	• Plan the continued roll-out from 2028 of the separation-at-source programme to meet the NWMS target for diversion of recyclables from landfill to 40% of waste from landfill within 5 years (and 55% within 10 years; and at least 70% of waste within 15 years.)	H	2027	Operating	SM: Waste Dept
5.2 Increase organic waste diversion from landfill to comply with mandatory national and provincial targets.	• Promote increased private sector composting.	L	2026	Operating	SM: Waste Dept
	• Implement the objectives and targets presented in the Organic Waste Diversion Plan (50% by the end of 2022 and 100% by the end of 2027).	H	2027	Operating	SM: Waste Dept
	• Collaborate with generators of organic waste in the commercial/industrial sector to ensure reduction and diversion from landfill.	M	2027	Operating	SM: Waste Dept
5.3 The diversion of household hazardous wastes from landfill.	• Develop HHW Guideline for residents which details the drop-off service provided by the Municipality.	M	2025	Operating	SM: Waste Dept
5.4 Waste picker integration	• Liaise with PRO's to facilitate the registration of Waste Pickers (WP).	L	2024	Operating	SM: Waste Dept
	• Develop a waste picker integration plan (WPIP) appropriate to the SM and in line with DFFE's	M	2025	Operating	SM: Waste Dept

Objective	Actions and Targets	Priority	Timeframe	Budget	Responsibility
	guidelines upon re-opening of the landfill site as well as for street pickers.				



Household hazardous
Clean cover
1 017 mt[1]
Builder's rubble
19 093 mt
Public drop-off
Garden greens
4 929 mt
Recyclables
Household & business refuse collection
Household refuse drop-off: domestic (including rural/farm areas), and industrial.
Area cleaning
General waste
Disposal: Stellenbosch Landfill (Cell 4)
Landfill cover: Stellenbosch Landfill
Crushing: Stellenbosch Landfill
Chipping: Stellenbosch Landfill
Sorting: Stellenbosch IWMF MRF
Tailings to WTE
Tailings to landfill
Bulky waste to landfill:
Transfer: Klapmuts RTS & Drop-off
Disposal: Stellenbosch Landfill (Cell 4)
WASTE DIVERSION
WASTE DISPOSAL

Figure 4-1: Potential/future waste management system within SM

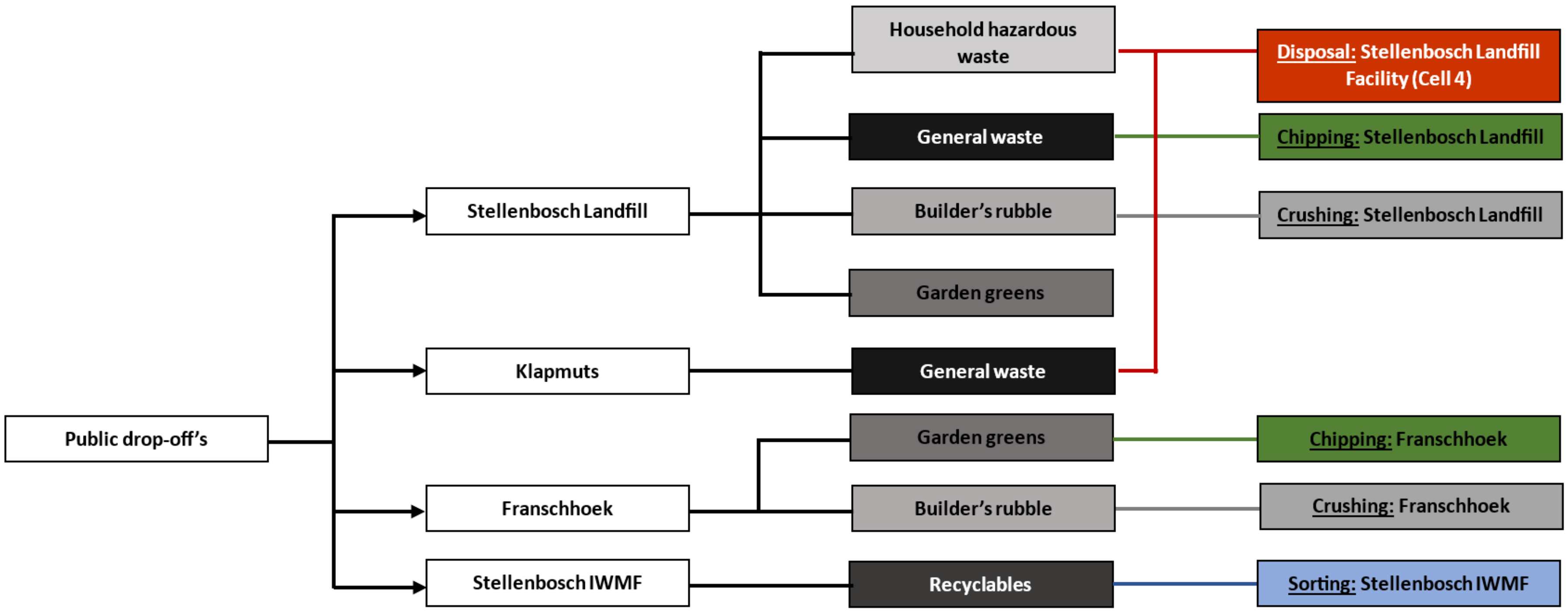


Figure 4-2: Potential future Waste flows within the SM upon implementation of the actions contained in the IWMP

5 Monitoring and review

5.1 Monitoring

In accordance with the DEA&DP IWMP guidelines titled "Towards Integrated Sustainable Waste Management: A Guide for Waste Management Planning" (IWMP guidelines) the monitoring of the IWMP should run in parallel with the agreed municipal IDP. Monitoring refers to monitoring progress towards achieving the goals and targets set in the IWMP.

Monitoring of the IWMP is essential for strategic planning, technical and financial performance assessment, compliance monitoring, and public accountability. To ensure corrective action is taken where necessary, and that long-term strategic goals are met, it is imperative that monitoring focuses on the short-term objectives of the IWMP. Monitoring also makes provision for the adjustment of the IWMP.

Monitoring of the IWMP will be undertaken by means of the IDP review process. A monitoring framework must therefore be developed by the SM to identify the different tasks of the role players in monitoring and measuring and allocating specific tasks for the gathering of data and submission of reports.

An annual monitoring report in terms of section 13 (1) of the NEM:WA and section 46 of the Municipal Systems Act (MSA) which contains information on the implementation of municipal integrated waste management plans must be compiled and submitted to the DEA&DP.

The annual monitoring report must be compiled in accordance with section 13 (2) of the NEM:WA which stipulates the following requirements for the annual monitoring report:

1. The extent to which the plan has been implemented during the period.
2. The waste management initiatives that have been undertaken during the reporting period.
3. The delivery of waste management services and measures taken to secure the efficient delivery of waste management services, if applicable.
4. The level of compliance with the plan and any applicable waste management standards.
5. The measures taken to secure compliance with waste management standards.
6. The waste management monitoring activities.
7. The actual budget expended on implementing the plan.
8. The measures that have been taken to make any necessary amendments to the plan.
9. In the case of a province, the extent to which municipalities comply with the plan and, in the event of any non-compliance with the plan, the reasons for such non-compliance; and
10. Any other requirements as may be prescribed by the Minister.

5.2 Review

The DEA&DP IWMP guidelines stipulate that to ensure the continued suitability, adequacy, and effectiveness of the IWMP, the IWMP must continuously be reviewed. The review of the IWMP refers to the review of the whole IWMP document as well as the IWMP projects and strategic goals.

Within 3-months of the end of the 5-year IWMP implementation period, a review report of the IWMP must be documented for formal submission to SM's Council and to the DEA&DP. The report should be made available to interested and affected parties (including the public). The review should include issues such as performance levels related to the implementation of the IWMP, improvements from baseline conditions /

indicators, and the public's perceptions and opinions regarding waste management in general and its associated services.

The effectiveness of the SM 4th Generation IWMP will be reviewed 5 years post its implementation date. The IWMP will be implemented once the IWMP has been approved by the DEA&DP. The following time schedule applies for the monitoring and review of the 4th Generation IWMP.

Implement IWMP

- Implementation shall commence once the IWMP is approved by the DEA&DP.

Annual Monitoring of IWMP goals

- Annual monitoring report submitted to DEA&DP
- Report must be in accordance with section 13 of NEM:WA and section 46 of the MSA

5-yearly review

- Review report submitted to SM Council and DEA&DP 3-months before the end of the 5-year implementation period.
- 5th Generation IWMP to be compiled for approval and implementation.

7.7	**PARKS, OPEN SPACES AND ENVIRONMENT: (PC: J WILLIAMS)**

NONE

7.8	**PLANNING AND LOCAL ECONOMIC DEVELOPMENT AND TOURISM :(PC: CLLR C VAN WYK)**

NONE

7.9	COMMUNITY SERVICES:(PC: CLLR X KALIPA)

7.9.1	GRANT IN AID POLICY REVIEW

Collaborator No:
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **14 February 2024**

1. SUBJECT: GRANT IN AID POLICY REVIEW

2. PURPOSE

To obtain council approval for the reviewed Grant in Aid Policy.

3. DELEGATED AUTHORITY

For approval by Council.

4. EXECUTIVE SUMMARY

Feedback reports and comments received during the April 2023 period for comments on the draft budget raised concern and led the department to reconsider the Grant in Aid policy with specific reference to:

a. Consequences relating to misappropriation of funds and
b. The misuse of the comment/appeal period after the closing date for applications.

The recommended changes in the attached GiA Policy **(ANNEXURE A)** aims to address the above concerns.

After in-principle approval of the reviewed Grant in Aid Policy was obtained at the Special Council Meeting on 27-09-2023 **(ANNEXURE B)**, same was advertised for public comment in the Eikestad News of 26 October 2023 as Notice 138/23 **(ANNEXURE C)** with a closing date of 24 November 2023. By the closing date, no comments were received.

5. RECOMMENDATION

that the revised Grant in Aid Policy be approved.

6. DISCUSSION / CONTENTS

6.1 <u>Background</u>

The Grant in Aid policy is reviewed annually as part of the suite of policies with financial implications. The review serving at council during the May 2023 council meeting include the following changes:

a. General changes to correct language use contributing to clarity throughout the policy

b. Defining the concept of emerging organization not requiring audited financial statements as organization not older than 5 years of the application in question.
c. Including churches as PBO's as bodies used by government as an agency to serve the poor, marginalised or otherwise vulnerable as envisaged in as far as alleviating the burden on municipal cemeteries to erect "Memorial Walls".
d. Clarifying the responsibility of applicants to respond to the Call for Proposals by RSVP'ing to attend the compulsory clarification meeting.
e. Health Category: Including services aimed at addressing mental health within communities/schools.
f. Environment Category: Include facilities created to alleviate the burden on municipal cemeteries.
g. Services for persons living on the street: Create opportunities for organisations other than Night Shelters to apply for Category B applications to include the following services for persons living on the streets: "Provision of social relief and healthy living, trauma, mental and substance support, job rehabilitation, skills development, job creation, readiness and placement services specifically for persons on the streets"
h. Inclusion of specific mandatory template to use for feedback reports which will
    a. Assist with standardization of assessments of feedback reports and
    b. Assist organization to include all required information in feedback reports

6.2 <u>Discussion</u>

No comments were received on the above-mentioned changes. Internal discussions based on the previous funding feedback reports and appeals relating to non-recommended applications led the department to review the policy again.

The concerns raised relates to governance of smaller community-based organisations who has been in existence for many years, but who clearly operate outside their own constitutions. Although it being important that the municipality should assist smaller organisations, it cannot do so outside the framework of the MFMA. Furthermore, it is incumbent on the municipality to build capacity within these smaller organisations with a focus on governance and financial management to contribute towards the sustainability of said organisations. For this reason, the following further changes to the Grant in Aid policy are recommended for approval.

a. Clarification under definitions relating to the seriousness of discrepancies between the funding application and what the funds end up being used for, explaining the prerogative of the municipality to decide on the sanction to apply. (Section 1: Definitions)
b. Confirming that although a Category B application is approved for a period of three years, the applicant MUST re-apply for each of the three years to ensure provision is made for funding on each of the approved annual budgets. (Paragraph 7.13)
c. Clarification of the purpose of the comment and appeal period to exclude appeals based on applicants own mistakes. (Paragraph 8.4)
d. Clarification that misappropriation of donations will result in sanction from the municipality including returning of funds and/or exclusion from access to funding for a period of 5 years. (Paragraph 8.5)

The Grant in Aid Policy with the above recommended changes was approved in principle by council and advertised for public comment in the Eikestad News of 26 October 2023 as Notice No 138/23 with a closing date of 24 November 2023. By the closing date no comments were received.

6.3. <u>Financial Implications</u>

Financial implications as per approved budget.

6.4 <u>Legal Implications</u>

The recommendations in this report comply with Council's policies and all applicable legislation.

6.5 <u>Staff Implications</u>

This report has no additional staff implications to the Municipality.

6.6 <u>Previous / Relevant Council Resolutions</u>:

SPECIAL COUNCIL MEETING: 2023-09-27: ITEM 5.9.1

RESOLVED (majority vote with 1 abstention)

(a) that the Revised Grant in Aid Policy be approved in principle, whereafter it be advertised for public comments; and

(b) that all comments received be brought back to Council for final approval of the Revised Grant in Aid Policy.

6.7 <u>Risk Implications</u>

Risks are addressed through the content of the report.

6.8 <u>Comments from Senior Management</u>:

6.8.1 *<u>Director Community and Protection Services:</u>*

Support the item.

6.8.2 *<u>Chief Financial Officer:</u>*

Support the item.

6.8.3 *<u>Municipal Manager:</u>*

Support the item.

ANNEXURES

Annexure A: Grant in Aid Policy Review
Annexure B: Minutes Council Meeting 2023-09-27
Annexure C: Notice 138/23

ANNEXURE A

STELLENBOSCH MUNICIPALITY

GRANT-IN-AID
POLICY

2023/2024

STELLENBOSCH MUNICIPALITY

GRANT-IN-AID POLICY

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1. DEFINITIONS

"**Appendix A**" means the application form for Grant-in-Aid, detailed more fully below, and provided for in clause 5.2.

"**Appendix B**" refers to the template for feedback reporting, and provided for in clause 8.2.

"Appendix C" refers to the memorandum of agreement (MOA), detailed more fully below, and provided for in clause 10.

"**Capacity building**" Capacity building refers to a process which enables human beings to realize their potential, build self-confidence and lead lives of dignity and fulfillment.

"**Community Based Organization (CBO)**" are nonprofit groups that work at a local level to improve life for residents. The focus is to build equality across society in all streams including, but not limited to – health care, environment, quality of education, access to technology, access to spaces and information.

"**Early Childhood Development ("ECD") Facility**" means any place, building or premises, including a private residence, maintained or used partly or exclusively, for the reception, protection and temporary or partial care of more than six children that shall be registered, managed and maintained in terms of the Children's Amendment Act, 41 of 2007.

"**Emerging Organisations"** are organisations which have been established within the past five years of the application in question.

"**Grant-in-aid**" means a grant-in-aid or allocation, as referred to in Section 12, 17 (3) (j) (iv) of the MFMA, made by the municipality to any organisation or body referred to in Section 67(1) and to be utilised to assist the municipality in fulfilling the Constitutional mandates including social developmental and arts and culture programmes as set out therein.

"**Local Agenda 21**" means the international program, adopted by South Africa to put sustainable development into practice.

"**Memorandum of agreement (MOA)**" means the agreement entered into between the municipality and any organisation or body which receives a Grant-in-Aid in terms of this Policy and **Appendix A.**

"**Non-governmental organisation (NGO)**" means a non-governmental organisation (NGO) that is a legally constituted non-profit organisation that operates independently from any form of government.

"**Non-profit company (NPC)**" means a company whose Memorandum of Incorporation must set out at least one object of the company and each such object must be either a public benefit object or object relating to one or more cultural or social activities, or communal or group interests as required by Item 1(1) of Schedule 1 of the Companies Act, 71 of 2008.

"**Non-profit organisation (NPO)"** means a non-profit organisation registered in terms of Section 13 of the NPO Act, 71 of 1997, established for public purpose and which income and property thereof is not distributable to its members or office-bearers, except as reasonable compensation for services rendered.

"Public Benefit Organisations (PBO's)" refers to organisations approved in terms of section 30 of the Income Tax Act, 28 of 1997 and established as

- a non-profit company which has a memorandum of incorporation as a founding document
- a trust which has a trust deed as a founding document or
- an association of persons which has a constitution as a founding document.

"**Stellenbosch Environmental Management Framework (SEMF)**" means legal and moral obligations of Stellenbosch Municipality as it relates to the environment, and provides a dynamic vision, goals and objectives, and spatial and strategic directives towards giving effect to such obligations.

"Seriousness of discrepancies" means that the following not exclusive matters will be taken into consideration when council exercise their prerogative to determine the level of sanction:

- The level of perceived misguidance and misrepresentation
- The level of perceived premeditation linked to the discrepancy
- The discrepancy is criminal in nature

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2. PURPOSE, AIMS AND OBJECTIVES

2.1. This policy aims to provide a framework for Grant-in-Aid to non-governmental organisations (NGOs), community-based organisations (CBOs), non-profit organisations (NPOs) or non-profit companies (NPC), Public Benefit Organisations (PBO's) in so far as to alleviate the burden on municipal cemeteries and bodies that are used by government as an agency to serve the poor, marginalised or otherwise vulnerable as envisaged by Sections 12, 17 and 67 of the Local Government: Municipal Finance Management Act, 2003 (Act 56 of 2003).

2.2. The purpose of the Grant-in-Aid Policy is to complement the goals, objectives, programmes and actions of the Stellenbosch Municipality's Integrated Development Plan (IDP), in order to create a sustainable, credible and caring municipality by empowering and building communities and enhancing growth and sharing through partnerships. Priority ward needs as identified through Council's IDP MUST be the guiding factor in developing these partnerships.

2.3. Grant-in-Aid should not duplicate services already provided for by Council or which falls within the geographical jurisdiction in which Council operates, being WC024.

2.4. Grant-in-Aid should improve the opportunity for Council to elicit the support of external organisations to deliver those services to communities which fall within the Council's area of responsibility in a way that allows the Stellenbosch community and town to create an enabling environment for community development.

3. LEGAL FRAMEWORK

All transfers of funds in terms of this policy shall comply with the: Constitution of the Republic of South Africa, 1996 as amended (Constitution); Local Government: Municipal Systems Act, 2000 (Act 32 of 2000) as amended (MSA); Local Government: Municipal Finance Management Act, 2003 (Act 56 of 2003) (MFMA); and any other applicable legislation, regulations and policies that may govern the transfer of municipal funds and that are not in contradiction to the above.

4. RESTRICTIONS

4.1. The Policy applies to all transfers of grants made by the Municipality towards support of services for the poor, marginalized or otherwise vulnerable people. Individuals may not apply for Grant-in-Aid and no payment may be made under this policy to individuals. Council may however set aside a specific amount from which the Municipal Manager, after consultation with the Executive Mayor, may, at his/her discretion, make donations to support individual, meritorious cases in order to assist and/or recognise individual excellence in whichever field. Bursaries to individuals are treated according to the Council's Bursary Policy.

4.2. The total expenditure on grants may not exceed 1% of the operational budget of the Municipality.

4.3. Grants will only be made for services rendered in the WCO24.

4.4. Transfers made to categories A and B

4.4.1. Transfers provided for those listed in Category A below may be made to a maximum of R40 000-00 per organisation or body per annum.

4.4.2. Transfers in Category B may exceed this amount where funding relates to services for homeless persons or addresses specific ward priorities identified and specified in the IDP and upon proper motivation contained in a business plan to address said issue. Consideration for grants larger than R 40 000, 00 requires audited financial statements, schedule of ~~estimated~~ annual costs linked to~~and~~ a business plan as provided for in 6 below. The decision to grant an amount more than R 40 000,00 is solely at the discretion of council and subject to available funds.

4.5. Grant-in-Aid transfers/payments shall be restricted to deserving organisations and bodies serving, especially those working with the poor/aged/youth/disabled/women/children, as per the eligible categories in 6.2, provided that such organisations or bodies:

4.5.1. Operate as a separate legal entity and are recognised as such by South African legislation;

4.5.2. Are governed by their constitutions, have regular meetings with their membership and subscribe to sound accounting practices; and

4.5.3. Are located and serve communities and individuals who are most in need within the jurisdiction of the Municipality.

4.6. No Grant-in-Aid may be made to any political body, rate payers association or for any religious purposes.

4.7. No grant will be allocated, under this policy, to organisations or bodies in cases where a member of Council, an official of Stellenbosch Municipality or close relatives of said individuals receive any financial or other gain.

4.8. Funds may only be transferred to an organisation or body if provision has been made for the expenditure on the budget or appropriations budget.

4.9. An organisation or body is only entitled to one allocation per financial year, but disbursements can be made more often.

5. PUBLIC ADVERTISEMENT

5.1. The advertisements must meet the following requirements:

5.1.1. The Municipal Manager must, place a public advert in local newspapers distributed in the Stellenbosch Municipal area, calling for proposals.

5.1.2. This advert must be placed in time to complete all relevant processes prior to the approval of the annual draft budget or any adjustment budget in order to invite public comment on the proposed donations prior to the approval of the final or adjustment budget.

5.1.3. Advertisements should clearly specify the categories for which proposals are called, the closing date for applications, who the proposal should be addressed to, and where and how to obtain the relevant documentation pertaining to such applications/proposals, including the prescribed forms.

5.1.4. Advertisements must clearly specify the dates, times and venues of the compulsory briefing sessions as well as the RSVP dates for these sessions. Only organisations who responded to the advertisement by confirming their interest to attend will be accommodated in the compulsory sessions.

5.1.5. Advertisements should also clearly reflect the Municipality's right not to make an award, as well as the fact that awards will not be made to organisations that have received funds in the previous year but have not submitted a final report on the projects or previous expenditure.

5.1.6. The advertisement should also clearly state that final approval is reliant on the approval of the budget and that **no late submissions will be considered.**

5.2. Only applications made on the prescribed form, being **Appendix A**, may be considered.

5.3. Funds may not be transferred to any organisation or body that has not submitted a proposal in response to a public advertisement and after the attendance of a compulsory briefing session and that have not signed a Memorandum of Agreement with the Municipality.

6. GENERAL GUIDELINES AND CATEGORIES

6.1. General Guidelines

Funding of applications shall proceed on the basis listed below in response to an advertisement issued after the expiry of the relevant period associated with the specific category and after a compulsory workshop explaining the policy, application process and the required documentation has been attended by the applicants. Subject to the MOA provided for in clause 10, all funding is unrequited, provided there is compliance with said MOA. Funding of application in –

6.1.1. Category A will be considered on an annual basis ; and

6.1.2. Category B shall be considered on a three year basis subject to a monthly review at the discretion of the Municipality which may result in early termination for unsatisfactory and reckless expenditure.

6.1.3. Council in 6.1.1 and 6.1.2 reserve the right not to fund an organisation for two periods in succession and to cancel said funding in accordance with the MOA concluded.

6.1.4. Funding applications however will not be considered in the following instances:

- (i) Where a project or organisation is already receiving funds from Council in terms of Council's functions. Applicants are required to disclose other sources of funding;
- (ii) Where in Council's opinion, an organisation receives sufficient funds from other sources to sustain its activities or the project applied for. For this purpose, organisations must submit financial statements and a budget for the ensuing financial year;
- (iii) Where only an individual will benefit;
- (iv) For political or ratepayers organisations/groupings or religious purposes;
- (v) Projects outside the boundaries of the Municipality;
- (vi) Where expenses have already been incurred,
- (vii) Where an applicant did not attend the compulsory clarification session as advertised, and
- (viii) Where applications were received after the due date and time for submissions.

6.1.5. Funding of projects and to organisations shall exclude travel costs, subsistence, accommodation, food or entertainment expenses of any kind, staff salaries, bursaries, payments in lieu of rates or other municipal charges except for where the transport and nutrition is intended for beneficiaries/participants in the projects in question. The Municipality may also exercise their discretion to allow funding to extend to the above costs on a needs basis for the organisation or body clearly motivated for in the application.

6.1.6. Subsequent requests from applicants to cover overspending on projects will not be considered.

6.2. Categories Eligible for Grant-in-Aid

The following categories currently apply. Cognisance should be taken that these categories are not exhaustive. Other than the general guidelines and conditions set out above, categories now indicated may require specific criteria applicable to its projects/programmes:

Category A

6.2.1. **Health**

Projects/programmes include the following but are not limited to:

(i) Public Health interventions inclusive of TB, STDs and HIV/Aids;

(ii) Preventable lifestyle diseases e.g. drug/alcohol abuse, tobacco related illnesses; and

(iii) Promotive and preventative services to infants, children and women.

(iv) Counseling for mental health issues experienced in poorer communities and/or schools.

6.2.2. **Environment**

Purpose: To stimulate the development of sustainable leisure, aesthetic and environmental projects within the municipal area; to increase the awareness of the environment by promoting "Greening of the City"; to promote swimming skills and water safety.

Projects/programmes include the following but are not limited to:

(i) Voluntary rescue organisations;

(ii) Facilities created to alleviate the burden on municipal cemeteries

(iii) Lifesaving clubs and swimming organisations;

(iv) Environmental groups/organisations; and

(v) Organisations promoting community involvement as a means of sustaining leisure, aesthetic or environmental projects.

(vi) Projects which further the Council's aims and the strategies of SEMF (Strategic Environmental Management Framework) and including but not limited to the sustainable management of:

- Riverine corridors;
- Biodiversity;
- Natural and built environment;
- Heritage resources;
- Quality urban spaces;
- Ecological conservation areas;
- Urban agricultural complexes;
- Bioregional planning;
- Nature area management;

- Wetlands;
- Local Agenda 21 projects

6.2.3. **Solid Waste (Cleansing)**

Purpose: Waste Reduction and awareness. Projects/programmes include the following but are not limited to:

(i) Waste reduction and awareness;
(ii) Educational programmes/projects addressing litter and waste handling; and
(iii) Waste minimisation solutions.

6.2.4. **Social Development**

Purpose: The promotion of projects/programmes which stimulates the Stellenbosch Municipality's Integrated Development Plan (IDP) focusing especially on the needs of the most marginalised sectors in the greater Stellenbosch as identified in the ward priorities.

Projects/programmes include the following but are not limited to:

(i) Poverty alleviation;
(ii) Urban renewal;
(iii) Capacity building of communities;
(iv) Youth development;
(v) Women and gender development;
(vi) Early childhood development where an organization is registered with the Department of Social Development of Education as a functional ECD facility;
(vii) Early childhood development where an organization is registered as an NPO, but **not registered with the Department of Social Development or Education** then only regarding application content that will contribute towards compliance with registration requirements. In these cases, also up to a maximum of three years by when said organization must be able to illustrate successful registration;
(viii) Street people programmes;
(ix) Arts and culture programmes
(x) Facilitation of public participation processes; arts and culture programmes
(xi) Development of disabled persons, and
(xii) Development of elderly people

6.2.5. **Sports and Recreation**

Purpose: To stimulate the development of sustainable Sport and Recreation infrastructure and programmes within the municipal area especially targeting disadvantaged communities; encourage creativity and self-reliance on the part of grassroots sport and recreation bodies or groups; to increase participation in sport and recreation programmes and activities.

Projects/programmes include the following but are not limited to:

(i) Local sport and recreation clubs;

(ii) School sport teams
(iii) Local sport and recreation councils or associations
(iv) Informal sport and recreation groups; and
(v) Community and non-government organisations.
(vi)

Category B

6.2.6. **Services for persons living on the street**

Purpose: Provision of shelter and other services for vulnerable individuals living on the street, without homes, in the need of assistance. The Municipality aims to reduce the number of people living on the streets of Stellenbosch and as such the organisation or body's goals should align with this vision. Further the Municipality aims to reduce the socio-economic effects of poverty on the community of Stellenbosch. The organisation or body must therefore present to Council a clear business plan with a comprehensive response to the prevention, reduction, outreach and stabilisation of street people. Organisations or bodies that provide a continuum of services and that collaborate with businesses, government departments and other organisations are preferred.

Projects/programmes must include the following but are not limited to:
(i) Provision of basic services (overnight facility, shower, morning and evening meals
(ii) Provision of social work services inclusive of referrals
(iii) Provision of social relief and healthy living, trauma, mental and substance support, job rehabilitation, skills development, job creation, readiness and placement services specifically for persons on the streets
(iv) Family re-integration services
(v) Social support
(vi) Community work programmes
(vii) Facility maintenance (Infrastructure and operational equipment)

6.2.7. **Projects aligned to the strategic objectives of the municipality as described in the IDP**

Purpose: The promotion of projects/programmes which stimulates the Stellenbosch Municipality's Integrated Development Plan (IDP) focusing on the strategic objectives of the Municipality and identified ward priorities. The organisation must therefore present to Council not only a clear business plan detailing how they intend to address the specific issue but how they intend to partner with other organisations to achieve a unified approach to that particular challenge. Organisations or bodies that provide a continuum of services and that collaborate with businesses, government departments and other organisations are preferred.
Projects/programmes include the following strategic objectives but are not limited to:
Those listed in Category A that address specific ward priorities identified

and specified in the IDP and upon proper motivation contained in a potential plan to address said issue.

(i) Valley of Possibility
(ii) Green and Sustainable Valley
(iii) Dignified Living
(iv) Safe Valley
(v) Good Governance and Compliance

7. APPLICATION PROCEDURE

Applications and proposal for Grant-in-Aid must be on the prescribed form stated in 5.2 above, a copy of which is attached hereto as **Appendix A for Category A and B**. Applications must be accompanied by a covering letter on the letterhead of the organisation or body, signed by the head of the organisation or body and must include the following information.

7.1. The applicant's legal name and a brief description of the applicant organisation's or body's business;

7.2. if the applicant claims to be a non-profit organisation, the registration number and the certificate;

7.3. the date of establishment, details of the applicant's member founding documents, including constitution and certificates of incorporation;

7.4. a contact name, full street address, telephone number and an e-mail address;

7.5. if funding is required for a specific project, a brief description of the project what it aims to achieve, as well as the detailed budget for and duration of the project;

7.6. a description on how the project aligns with the needs identified in the community through the IDP process and which ward priorities will be addressed through the project;

7.7. if the request is for general support, the organisation's or body's overall budget must be included;

7.8. references, independent of the applicant and its executive;

7.9. most recent audited financial statements (subject to MFMA, section 67(4)) statements; or at least statements signed off by the treasurer and chairperson of the organization in the case of small emerging organizations;

7.10. a summary of past achievements;

7.11. a declaration by the head of the organization to the satisfaction of the Municipal Manager, that the organisation or body implements effective, efficient and transparent financial management and internal control mechanisms to guard against fraud, theft and financial mismanagement and has in the past complied with requirements for similar transfers of funds; and

7.12. notwithstanding the above requirements, the CFO after considering the merits of an application not complying with the minimum application criteria and after consulting the Municipal Manager, may for the purpose of this policy approve a deviation from the norm;

7.13. Applications for Category B **must** include a schedule of annual costs for a three year period, a three year business plan and audited financial statements. Note that although a Category B application is approved for a period of three years, the application MUST be renewed through repeated annual applications to ensure provision in the budget of subsequent financial years.

8. OBLIGATIONS OF THE APPLICANT

8.1. The head of the organisation or body must acknowledge in writing to the Municipal Manager that the money was received in its bank account and that the amount is/will be utilised to the benefit and in accordance with the role of the organisation or body in society. The funds must be used as outlined in the application form.

8.2. The organisation or body shall report, if and when required but at least once a year, to the Municipal Manager regarding the activities conducted, the ward within which activities are conducted, as well as the number of people benefiting from the activities on the prescribed template (**Appendix B)**.

8.3. The applicant must attend a compulsory workshop on the Grant-in-Aid policy and application procedure prior to submission of the application.

8.4. The applicant is responsible to confirm the outcome of the application after the approval of the draft budget and lodge an appeal prior to the closing date for comments on the budget if they are of the opinion that the municipality has made a mistake with the assessment of the application. Applicants cannot lodge appeals based on their own mistakes during the application process.

8.5. If successful with the application, the applicant must spend funds according to the approved Grant-in-Aid funding request. Should the need change over the funding period, written consent needs to be obtained from the municipality prior to spending the funds on alternative needs. Failure to spend funding on approved projects ~~can~~will result in the applicant being required to return the funding and/or (at the discretion of the municipality depending on the nature and seriousness of the discrepancy) the applicant being excluded from future applications for a period of 5 years.

9. RIGHTS OF THE MUNICIPALITY

9.1. The Municipality shall be entitled, from time-to-time, to verify and inspect the existence and activities of the organisation or body. The municipality will therefore have the right to physically visit the premises where the organisation, or the funded project, is based; to peruse the budgets and any progress reports related to the project (in contract).

9.2. The Municipality shall manage contracts entered into with organisations or bodies by receiving reports and doing the necessary site visits and inspections to ensure that this policy and contract are being complied with.

9.3. The Municipality has the right not to give a Grant-in-Aid to any or all organisations applying for grants. Having been awarded a grant previously does not give an applicant the right to receive a grant again.

9.4. The Municipality will run proposed donations through a public participation process before final awards are made.

10. AGREEMENT

Before any funds are transferred to an organisation an agreement **(Appendix C)** must be concluded by the Municipal Manager with the beneficiary to protect the interest of the Municipality.

11. DEVIATION

This policy constitutes the entire framework for Grant-in-Aid and no deviation will be entertained.

12. COMMENCEMENT

This Policy takes effect on the date on which it is adopted by the Council of Stellenbosch Municipality.

STELLENBOSCH

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

APPENDIX A
(Category A & B)

APPLICATION FOR GRANT-IN-AID: 2024/25

NOTE: ***ATTENDANCE OF THE GRANT-IN-AID WORKSHOP IS COMPULSORY***

PLEASE COMPLETE THE FOLLOWING **(Incomplete applications will not be considered.)**				
A	**REGISTERED NAME OF ORGANISATION**			
B	**DATE AND YEAR IN WHICH THE ORGANISATION WAS FOUNDED:** (include a brief description of the business or activities of the organization)			
C	**ADDRESS OF REGISTERED ORGANISATION**			
	PHYSICAL ADDRESS		**POSTAL ADDRESS**	
	CODE:		**CODE:**	
D	**CONTACT DETAILS** (Details of the person to contact regarding this GIA application)			
	NAME & SURNAME:			
	POSITION:			
	TEL:	**( )**		
	MOBILE:		**ALTERNATIVE:**	
	EMAIL ADDRESS:			

E	REGISTRATION:				
	Is the organization registered as a NP/NG Organisation / NPC / PBO?	**YES**		**NO**	
	If YES, please provide the Registration Number: (Attach a copy of the registration certificate or proof of other affiliation where applicable)				

F	**BOARD/COMMITTEE MEMBERS OF THE ORGANSATION:** (List **ALL** Board/Committee Members of the Organisation) Insert a separate page if the space is not enough).	
1	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
2	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
3	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
4	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	

5	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
6	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
7	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
8	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
9	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	

10	NAME & SURNAME:	
	POSITION:	
	ADDRESS:	
	CONTACT NUMBER:	
G	**PREVIOUS FUNDING:**	
	Have you successfully applied and received Stellenbosch Municipal Grant-In-Aid funding previously?	
	If yes for which financial year?	
	What amount was received?	
	Did you submit Financial Reports for the funds received?	
	Do you receive any other sources of funding? (If YES please provide details)	
H	**CATEGORY A:** For more information refer to the Grant-In-Aid Policy for general guidelines and categories (Please categorize your application by marking the appropriate category with X)	
	HEALTH	
	ENVIRONMENT	
	SOLID WASTE	
	SOCIAL DEVELOPMENT	
	SPORTS & RECREATION	
	CATEGORY B: For more information refer to the Grant-In-Aid Policy for general guidelines and categories (Please categorize your application by marking the appropriate category with X)	
	STREET PEOPLE SERVICES	
	PROJECTS RELATED TO WARD PRIORITIES IN THE IDP (Please specify)	

I	**REQUEST FOR FUNDING:**				
	Is funding required for the ensuing year?	**YES**		**NO**	
	Is funding required for a specific project? (If YES attach details separately)	**YES**		**NO**	
	Is funding required for general support? (If YES, attach a copy of the Organisation's Overall Budget)	**YES**		**NO**	
	Budgeted amount requested				
	Duration of project?				

	If Category B Application					
	Total amount requested for 3 year period					
	Annual amounts requested:	Year 1		Year 2		Year 3
J	**SERVICE FOCUS**					

	Ward number/s in which services are delivered:	
	Which Ward Priority/ies are addressed through the service: (Please provide details below)	
	Describe the services for which funds are requested:	
	Which Municipal Strategic Goal/s is linked to the services: (Please mark with a X)	
	Valley of Possibility	
	Safe Valley	
	Dignified Living	
	Good Governance and Compliance	
	Green and Sustainable Valley	

K	**THE FOLLOWING MUST BE ATTACHED TO THIS APPLICATION: (Category A and B applications)** (Please use this form as a check-list, to ensure that you comply to the specified requirements)	
1	**AUDITED FINANCIAL STATEMENTS** (A copy of the latest audited financial statements. Should the organization be classified as an emerging organization, the financial statements MUST be dated and signed by the Treasurer and Chairperson and MUST include a monthly income and expense statement for the months that the organization has been in existence or for the last 12 months)	
2	**ORGANISATIONAL CONSTITUTION** (A signed and dated copy of the Organisation's Constitution, as well as a signed copy of **the Minutes of the AGM/Special Meeting**, to verify the acceptance of the Constitution.)	
3	**PROJECT PROGRAMME/BUSINESS PLAN** (A copy of the project/program description and/or a business plan for the ensuing financial year. Please ensure that the following is included in the project/program and or business plan, by using the below mentioned bullet points as a guide).	
	❖ Full details of the proposal/project/business plan including objectives;	
	❖ The number of people who will benefit and how the project/program will contribute or enhance the strategic objectives of Stellenbosch Municipality;	
	❖ The project/program commencement and completion dates;	
	❖ Information on the total costs of the project/program budget;	
	❖ A breakdown of costs and an outline of any contributions by fundraising and / or own contributions;	
	❖ A list of all other sources of funding together with the assessments;	
	❖ A summary of past achievements;	
	❖ Reference independent of the applicant and its executive/board or committee members.	
4	**SIGNED AND STAMPED CREDITOR CONTROL FORM** (An original signed copy of a correctly completed Creditors Control form of the Stellenbosch Municipality or an electronic generated confirmation of bank details created through online banking)	
5	**ACCOUNT ON EXPENDITURE FOR PRECEDING FUNDING** (If you have received funding from Stellenbosch Municipality previously, expenditure of the funds received needs to be accounted for with this new application). Please refer to Section M for the format.	
6	**PROOF OF REGISTRATION/AFFILIATION** (Attach a copy of the organisation's Registration Certificate of Affiliation)	

L	**REQUIREMENTS CATEGORY B APPLICATIONS** (Please note that Category B applications **MUST** adhere to the following requirements **and** those listed under section K, except where indicated otherwise.)	
1	**AUDITED FINANCIAL STATEMENTS** A copy of the latest audited financial statements must be included in the application. Category B applications **MUST** submit their latest audited financial statements. Statements signed off by the treasurer, chairperson or other delegated party will not be accepted.	
2	**THREE YEAR BUSINESS PLAN** See the requirements for the business plan as listed under section K as guideline. NOTE: Category B applications MUST provide a clear proposal for a period of three years. Each year must be indicated separately and be costed per annum indicating all expenditure against the projected measurable outcomes. Outcomes must be listed ito how they will be reported on and measured on a monthly basis.	
M	**FORMAT FOR FEEDBACK REPORT**	
1	Narrative report on the project including numbers reached, outcomes reached, evaluation of the project indicating successes and failures/lessons learned.	
2	Pictures of the project/program.	
3	Financial report on expenditure regarding previous donation separate from the annual financial statements. (Attach proof of expenditure).	
N	**THE FOLLOWING SHALL APPLY:**	
1	The allocation of Grant-In-Aid will only be considered if the application document has been **fully completed** and signed and is accompanied by the required and supporting documentation referred to therein.	
2	An applicant who has been registered as a NPC, NGO, NPO or PBO with the necessary proof thereof, submitted together with this application.	
3	Applicants must in their submission clearly indicate/specify and motivate what the funds will be utilized for.	
4	The Grant-In-Aid must be exclusively utilized for the purpose defined and the successful applicant must submit the necessary undertaking to this effect.	
5	Applicants must in their submission satisfy the Council of their ability to execute the project successfully.	
6	Organisations who have already received financial or other assistance from the Council during the previous financial year MUST specify same in their application.	
7	No funding will be considered for political groupings, ratepayers organisations or for religious purposes..	
8	No funding will be considered where only an individual will benefit or where a member of Council or an official of Stellenbosch Municipality will receive any financial or other gain.	
9	Projects outside the boundaries of the Council will not be considered.	
10	Expenditure that will not be funded includes: travel costs (unless it is for the transport of beneficiaries), subsistence, accommodation, food (unless intended for the beneficiaries) or entertainment expenses of any kind, staff salaries including bonuses, bursaries and payments in lieu of rates or other municipal charges.	
11	Subsequent requests from the applicants to cover overspending on projects will not be considered.	
12	Successful applicants must at all times comply with the provisions of Section 67(1) of the Municipal Finance management Act no. 56 of 2003 which inter alia stipulates that the organization or body has to:-	
	❖ Enter into and comply with a Memorandum of Agreement with the Municipality as well as with all reporting financial management and auditing requirements as may be contained in such an agreement. This memorandum of agreement will bind the successful applicant to deliver on what the application speaks to, but also to commit to become involved with municipal programs of the community where it functions. The Memorandum of Agreement will be made available to successful applicants for completion.	
	❖ Report at least once a year on the actual expenditure of the amount allocated to it. Should monthly allocations be made, monthly reports will be required.	
13	The Council reserves the right not to give a Grant-In-Aid to any organization applying for grants. Having been awarded a grant previously does not give an applicant the right to receive a grant again.	
14	Funding will not be considered where a project or organization is already receiving funds from Council in terms of Council's functions. Applicants are required to disclose other sources of funding, failing which such applicant will be disqualified.	
15	Funding will not be considered where in Council's opinion, an organization received sufficient funds from other sources to sustain its activities or the project applied for. For this purpose, organisations must submit financial statements and budget for the ensuing financial year.	
16	Organisations having received funding from Stellenbosch Municipality during the previous financial year, are required to attach to any new application, a copy of the financial statements relating to the year in which the funding was received from Council, as required in terms of Section 17 of the Non-profit Organisation Act, 1997 and Section 67(1) of the Municipal Finance Management Act, 2003 (MFMA).	
17	Funding will not be considered where expenses have already been incurred on a project by the applicant. (The Council's Grant-In-Aid Policy must be consulted for the sake of completeness).	

O	DECLARATION OF INTEREST:
The beneficiary declares that the following municipal employees and/or councillors have a vested interest in the business of the beneficiary. However, they do not benefit directly from this donation and were not part of the decision making process in the allocation of the donations:	
Name & Surname:	
Designation:	
Name & Surname:	
Designation:	

P	UNDERTAKING:
	I/We hereby verify that the information provided in this application is true and correct and that the conditions applicable to the allocation of a Grant-in-Aid as set out above and in the GIA Policy have been read and is understood and will be complied with. I/We also declare that the organization implements effective, efficient and transparent financial management and internal control mechanisms to guard against fraud, theft and financial mismanagement and has in the past complied with requirements for similar transfer(s) of funds. Thus completed and signed at Stellenbosch on this _____ day of ________________________ 20 ____ . ________________________ ________________________ **Chairperson/Authorised Representative** **Secretary/Duly Authorised Signatory**

Q	PLEASE TAKE NOTE: (Completed application forms, together with all the required supporting documentation must be posted to):
	The Director: Community and Protection Services **P O Box 17** **Stellenbosch** **7599** **Or hand delivered to:** **The Manager: Community Development** **21 Simonsberg Road** **Stellenbosch** **7600** **The submission of applications closes at 13H00 on the closing date as per the advertisement.**

Appendix B

STELLENBOSCH MUNICIPALITY GRANT IN AID FEEDBACK REPORT

FOR FUNDING RECEIVED FOR THE PERIOD: **20______ / 20_______**

ORGANISATION NAME ____

TOTAL AMOUNT AWARDED	**R**	
DATE OF RECEIPT		
WAS THE MONEY USED FOR THE REASON STATED IN APPLICATION	**YES**	**NO**
please tick box		

If NO please provide the reasons below and attach proof of permission to deviate:

Please describe how the Grant funding was used by your organisation AND indicate the number of beneficiaries and the benefit gained by the community/beneficiaries.

PROOF OF EXPENDITURE LIST

NO	ITEM DESCRIPTION	SUPPLIER	TOTAL COST	RECEIPT NUMBER

TOTAL EXPENSES **R**

	PRINT NAME	SIGNATURE	DATE
COMPILED BY TREASURER			
APPROVED BY CHAIRPERSON			

- **ATTACH COPIES OF PROOF OF ALL EXPENDITURE LISTED ABOVE**
- **ATTACH COPIES OF PICTURES DEPICTING THE ITEMS/ACTIVITIES FOR WHICH FUNDING WAS USED**

APPENDIX C

STELLENBOSCH

STELLEN BO SCH • PN I E L • FR ANSC HHOE K

MUNICIPALITY • UMASIPALA • MUNISIPALITEIT

MEMORANDUM OF AGREEMENT

Entered into and between

STELLENBOSCH MUNICIPALITY

(hereafter called the "***MUNICIPALITY***")

Herein represented by **Geraldine Mettler**, in her capacity as **Municipal Manager**, being duly authorised

and

____

(hereafter called the "***BENEFICIARY***")

Herein represented by__________________in his/her capacity as____________________, being duly authorised.

WHEREAS Section 67(1) of the Local Government: Municipal Finance Management Act, Act 56 of 2003 (MFMA) oblige the Accounting Officer of a **MUNICIPALITY** to satisfy himself that, before transferring funds of the **MUNICIPALITY** to an organisation or body outside any sphere of government otherwise than in compliance with a commercial or other business transaction, that such organisation or body:-

(a) has the capacity and has agreed-

(i) to comply with any agreement with the **MUNICIPALITY**;

(ii) for the period of the agreement to comply with all reporting, financial management and auditing requirements as may be stipulated in the agreement;

(iii) to report at least monthly to the Accounting Officer on actual expenditure against such transfer (should transfers be done on a monthly basis); and

(b) implements effective, efficient and transparent financial management and internal control systems to guard against fraud, theft and financial mismanagement; and

(c) has in respect of previous similar transfers complied with all the requirements as set out above; and

(d) give permission to site visits done by the **MUNICIPALITY.**

WHEREAS the **MUNICIPALITY** has approved a Grants-in-Aid Policy, in terms whereof applications are considered;

WHEREAS the **BENEFICIARY** has applied for a grant-in-aid as per the official grant-in-aid application form; and

WHEREAS the **MUNICIPALITY** has approved such application, subject to certain conditions;

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. TRANSFER OF FUNDS

1.1 The **MUNICIPALITY** hereby undertakes to transfer an all-inclusive amount of

R………. (……….), being a donation for the period **01 July 20...** to **30 June 20…** to the **BENEFICIARY**.

1.2 Bank Account details: (The following are confirmed through a correctly completed Creditors Control Form.)

Account number	:	______________________
Name of financial institution	:	______________________
Name of account holder	:	______________________
Branch code	:	______________________
Type of account	:	______________________

1.3 The all-inclusive amount will be transferred in equal amounts on the following dates (if applicable):

____

2. OBLIGATIONS OF BENEFICIARY

2.1 The **BENEFICIARY** must acknowledge in writing to the Municipal Manager that the amount(s) was(were) received in its bank account.

2.2 The **BENEFICIARY** hereby certifies that the money will be utilised in accordance with the role of the organisation or society, to the benefit of the community and in accordance with the project(s) / programme(s) as indicated in the application form.

2.3 The **BENEFICIARY** undertakes to regularly report on a monthly basis to the Municipal Manager regarding the activities conducted, actual expenditure against such transferred funds, as well as the number of people benefiting from the activities should monthly payments be made. If not, an annual report compliant with the reporting requirements will be submitted.

2.4

3. SPECIFIC CONDITIONS

3.1 The parties specifically agree on the following:

That the organization will commit to active involvement in any programme run by the municipality in the area of operation of the organization when such a programme is active in the community.

Other conditions:

____

____

4. DECLERATION OF INTEREST

The beneficiary declares that the following municipal employees and/or councillors have a vested interest in the business of the beneficiary. However, they do not benefit directly from this donation and were not part of the decision making process in the allocation of the donations: (Name and designation)

____

____

5. ACQUISITION OF ASSETS

5.1 Should the **BENEFICIARY** wish to acquire any moveable or immovable assets with the money donated in terms of this Agreement, the **BENEFICIARY** hereby undertakes to:-

5.1.1 adhere to the principles as per the **MUNICIPALITY'S** Supply Chain Management Policy, and

5.1.2 take all reasonable steps to ensure that such assets are maintained and that a system of internal control of such assets is in place.

6. RIGHTS OF THE MUNICIPALITY

6.1 The **MUNICIPALITY** shall be entitled, from time to time, to verify the existence and to inspect the activities of the **BENEFICIARY**, having regards for its right to privacy as entrenched in terms of the Constitution of the Republic of South Africa.

6.2 The **MUNICIPALITY** shall further be entitled to peruse the budgets and any progress reports related to the project / programme as per this Agreement.

7. FAILURE TO COMPLY

7.1 Failure by the **BENEFICIARY** to comply with the obligations as set out in Clause 2 of this Agreement, may lead to the cancellation of this Agreement, in which case the **MUNICIPALITY** may demand that the organisation pays back any unspent funds as per this Agreement. The **MUNICIPALITY** may even, depending on the circumstances leading to the non-compliance by the **BENEFICIARY**, demand that the organisation pays back the full amount paid to the **BENEFICIARY**. Failure to comply may result in not considering applications for grants from the **BENEFICIARY** for a period of 5 years.

8. INDEMNIFICATION

8.1 The **BENEFICIARY** hereby acknowledges that it receives the grant voluntarily and that it shall keep the **MUNICIPALITY** indemnified at all times against any loss, cost, damage, injury or liability suffered by the **MUNICIPALITY** resulting from any action, proceeding or claim made by any person (including themselves) against the **MUNICIPALITY** caused directly or indirectly by the use/spending of the grant.

9. DISPUTE RESOLUTION

9.1 Any dispute arising from this Agreement shall be mediated between the Parties by a mutually agreed upon and suitably skilled mediator. Should the mediator be unsuccessful and the Parties fail to reach agreement, the dispute may be referred by the aggrieved Party to the arbitration of a single arbitrator, to be agreed upon between the Parties, or failing agreement, to be nominated on the application of any Party, by the President for the time being of the South African Association of Arbitrators. The decision of the single arbitrator shall be final and binding on the Parties.

10. NOTICES AND DOMICILIA

10.1 The parties choose as their *domicilia citandi et executandi* their respective addresses as set out in this clause for all purposes arising out of or in connection with the agreement at which addresses all processes and notices arising out of or in connection with this Agreement, its breach or termination, may validly be served upon or delivered to the Parties.

10.2 For purposes of this Agreement the Parties' respective addresses shall be:

10.2.1 The **MUNICIPALITY:**
Town House
Plein Street
Stellenbosch
7600

10.2.2 The **BENEFICIARY:**

____

____

____

____

or at such other address of which the Party concerned may notify the other(s) in writing provided that no street address mentioned in this sub-clause shall be changed to a post office box or poste restante.

10.3 Any notice given in terms of this Agreement shall be in writing and shall-

10.3.1 if delivered by hand be deemed to have been duly received by the addressee on the date of delivery;

10.3.2 if posted by prepaid registered post be deemed to have been received by the addressee on the 8^{th} (eighth) day following the date of such posting;

10.3.3 if transmitted by facsimile/ electronic mail be deemed to have been received by the addressee on the day following the date of dispatch;

10.4 Notwithstanding anything to the contrary contained or implied in this Agreement, a written notice or communication actually received by one of the Parties from another, including by way of facsimile transmission/ electronic mail, shall be adequate written notice or communication to such party.

11. ENTIRE AGREEMENT

This Agreement, including the **Grant-in-Aid policy and application form**, reflects the entire Agreement between the Parties and no variation, amendment or addendum shall be of any force and effect between the Parties unless contained in writing, signed and agreed on by both Parties.

Signed at Stellenbosch on this_______day of____________________20….

…………………………..
for the **MUNICIPALITY**

WITNESS: 1. ……………….……………..

2. ……………….……………..

Signed at Stellenbosch on this________day of____________________20….

……………………………
for the **BENEFICIARY**

WITNESS: 1. ……………………………..

2. ……………………………..

ANNEXURE B

5.9	COMMUNITY SERVICES:(PC: CLLR X KALIPA)

5.9.1	GRANT IN AID POLICY REVIEW

Collaborator No: **755699**
IDP KPA Ref No: **Good Governance and Compliance**
Meeting Date: **Mayco: 13 September 2023 & Special Council: 27 September 202**

1. SUBJECT: GRANT IN AID POLICY REVIEW

2. PURPOSE

To illicit comments from Senior Management for suggested changes to the Grant in Aid Policy prior to submitting same to Council for approval.

3. DELEGATED AUTHORITY

For approval by Council.

4. EXECUTIVE SUMMARY

Feedback reports and comments received during the April 2023 period for comments on the draft budget raised concern and led the department to reconsider the Grant in Aid policy with specific reference to:

a. Consequences relating to misappropriation of funds and
b. The misuse of the comment/appeal period after the closing date for applications.

The recommended changes in the attached GiA Policy (**ANNEXURE 1**) aims to address the above concerns.

SPECIAL COUNCIL MEETING: 2023-09-27: ITEM 5.9.1

RESOLVED (majority vote with 1 abstention)

(a) that the Revised Grant in Aid Policy be approved in principle, whereafter it be advertised for public comments; and

(b) that all comments received be brought back to Council for final approval of the Revised Grant in Aid Policy.

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

Councillors C Noble; and M van Stade.

FOR FURTHER DETAILS CONTACT:

NAME	Michelle Aalbers
POSITION	Manager Community Development
DIRECTORATE	Community and Protection Services
CONTACT NUMBERS	8408
E-MAIL ADDRESS	Michelle.aalbers@stellenbosch.gov.za
REPORT DATE	30-08-2023

ANNEXURE C

STELLENBOSCH

STELLENBOSCH • PNIEL • FRANSCHHOEK

MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

Notice 138/23

INVITATION FOR COMMENT: REVIEWED GRANT IN AID POLICY

Stellenbosch Municipality hereby invites comments on the reviewed Grant in Aid Policy as approved by Council, in principle on 27 September 2023.

The policy is available on the municipal website www.stellenbosch.gov.za or at the municipal offices at 21 Simonsberg Road, Simonswyk, Stellenbosch or available on request via email from fiona.kruywagen@stellenbosch.gov.za.

All comments must be in writing and reach the municipality at the above email address by 24 November 2023.

UITNODIGING VIR KOMMENTAAR: HERSIENDE GRANT IN AID BELEID

Stellenbosch Munisipaliteit nooi u hiermee uit om kommentaar te lewer op die hersiende Grant in Aid Beleid soos, in prinsiep, goedgekeur deur die Raad op 27 September 2023.

Die beleid is beskikbaar op die munisipale webwerf www.stellenbosch.gov.za of by die munisipale kantore te 21 Simonsbergweg, Simonswyk, Stellenbosch en ook beskikbaar op versoek via e-pos van fiona.kruywagen@stellenbosch.gov.za .

Alle kommentaar moet skriftelik gerig word aan die bogenoemde e-pos adres en moet die munisipaliteit bereik teen 24 November 2023.

ISIMEMO SEZIMVO EZIHLAZIYIWEYO ZESIBONELELO SONCEDO

Umasipala wase Stellenbosch umema izimvo zomgaqo nkqubo othe wajongwa futhi wavunywa libhunga ngoko mgaqo ngomhla we 27 kweyomsintsi.

Umgaqo-nkgubo uyafumaneka kwindawo kamasipala yonxibele lwano kweli khonkco lilandelayo www.stellenbosch.gov.za okanye kwi ofisi zikama sipala ezise 21 Simonsberg Road, Simonswyk, Stellenbosch okanye ifumanake kwisicelo ngokusebenzisa Imeyile ethi fiona.kruywagen@stellenbosch.gov.za .

het 'n beroerte geneem voordat ek dit besef het. Ek het nooit geluister toe mense my gewaarsku het nie. Ek was oorgewig; ek het byna 197 kg geweeg."

Hy onthou hoe hy op 3 Junie 2022 deur 'n eienaardige gevoel in sy kop oorval is. Later het hy in sy slaapkamer geval en die gesin het die nooddienste na hul woning ontbied. "Die ambulans was vinnig daar. Ek was by my bewussyn en, omdat ek so groot was, moes ek self aan die paramedici verduidelik hoe om my uit die huis te kry."

Sy vrou, Adelaide, was aan sy sy. Sy onthou toe hulle by die Stellenbosch-hospitaal aankom, het medici gou bepaal Lackay moet vir behandeling na die Tygerberg-hospitaal gaan. Ná 48 uur hier is hy gestabiliseer en na die Stellenbosch-fasiliteit oorgeplaas.

Weens sy unieke omstandighede is besluit hy sal as buitepasiënt ondersteun word, en gemeenskapsgesondheidswerkers het Lackay tydens huisbesoeke ondersteun en gereeld terugvoering met die deskundiges oor sy vordering gedeel. Hy het uiteindelik 'n rolstoel gebruik, maar dit het beteken hulle moes veranderings aan die huis aanbring sodat hy kon rondbeweeg.

As hy gesukkel het om van die bed tot in die rolstoel, of die rolstoel tot op die bed of toilet te beweeg, het die fisioterapeut en dieetkundige van Stellenbosch-hospitaal na sy huis gekom om hom te ondersteun. "Mense het baie oor die hospitaal te sê, maar kyk na my – hier staan ek! 'n Instelling soos dit kan nie bekostig om sulke goeie werkers te verloor nie."

Die eerste twee maande ná die beroerte kon Lackay die reuk van kos wat hy eens geniet het, nie verdra nie. Dít het hom gehelp om 'n gesonder dieet te volg.

As deel van sy werk het hy lang afstande gery en vinnige, maklike kos geëet. Omdat hy gereeld gery het, was hy fisiek nie so aktief nie.

As hy terugdink aan die dae voor die beroerte, besef Lackay dat hy die waarskuwingstekens gemis het. Hy het elke oggend 'n hoofpyn ervaar (wat ongewoon vir hom was) en hy was baie moeg.

"Sodra ek oor iets bekommerd is, besoek ek die kliniek. Ek volg die raad van die gesondheidsorgwerkers tot die letter en weier om sommer medikasie oor die toonbank te koop."

Die gesondheidswerkers wat hom ondersteun, is saam met Lackay en sy gesin bly oor sy herstel. "Ek onthou die dag toe hy ontslaan is. Sy vrou het gesê: 'Oor 'n jaar sal Deon hier instap en maerder wees'," vertel die dieetkundige Lenelle de Lange.

"Ek was bekommerd dat dinge nie in sy guns sou uitwerk nie, maar ek glo sy familie se ondersteuning het die verskil gemaak."

Tekens van 'n beroerte:

- 'n Skielike, erge hoofpyn;
- 'n Skielike swakheid in die arm en been aan een kant van jou liggaam;
- Ervaar skielik swak sig;
- Sukkel skielik met spraak; en
- Jou gesig hang aan die een kant.

Mense wat hierdie tekens ervaar, moet onmiddellik 'n hospitaal besoek. 'n Beroerte is 'n noodgeval!

7.10	RURAL MANAGEMENT: (PC: CLLR J JOON)

NONE

7.11	MUNICIPAL MANAGER

NONE

8.	REPORTS SUBMITTED BY THE EXECUTIVE MAYOR

NONE

9.	URGENT MATTERS

10.	MATTERS TO BE CONSIDERED IN-COMMITTEE

SEE PINK DOCUMENTATION