



REPORT TO: ENERGY AND CLIMATE CHANGE

1. ITEM NUMBER : ECC 10/06/20

2. SUBJECT

**ELECTRICITY GENERATION AND DISTRIBUTION:
PERFORMANCE MONITORING REPORT: MARCH 2020**

**ELEKTRISITEITSGENERERING EN -VERSPREIDING:
VERSLAG OOR PRESTASIE MONITERING: MAART 2020**

**ENGUNDLUNKULU ENGOKUVELISWA NOKUNIKEZELWA KOMBANE:
INGXELO EMALUNGA NOBEK'ILISO KWINDLELA YOKUSEBENZA
EYOKWINDLA 2020**

LSU REF NO: G0261

3. DELEGATED AUTHORITY

In terms of delegation

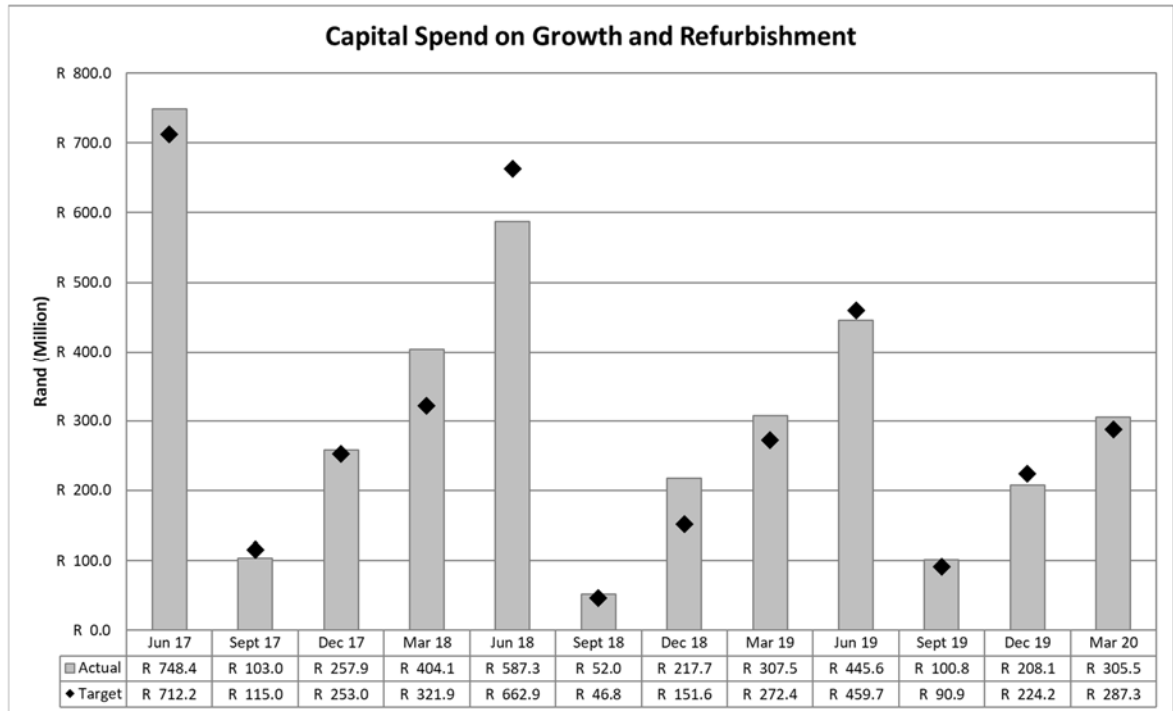
This report is FOR NOTING BY

- Committee name** : Energy and Climate Change
- The Executive Mayor together with the Mayoral Committee (MAYCO)
- Council

4. DISCUSSION

STRATEGIC FOCUS AREA 1: THE OPPORTUNITY CITY

Rand value of capital invested in engineering infrastructure (growth, refurbishment and replacement of Electricity infrastructure).



Capital expenditure on Growth and Refurbishment was at a provisional 106.3% of January adjusted budget at the end of Quarter 3. Delays in the awarding of tenders and stock levels are being addressed to curtail the decline in refurbishment and repairs spend.

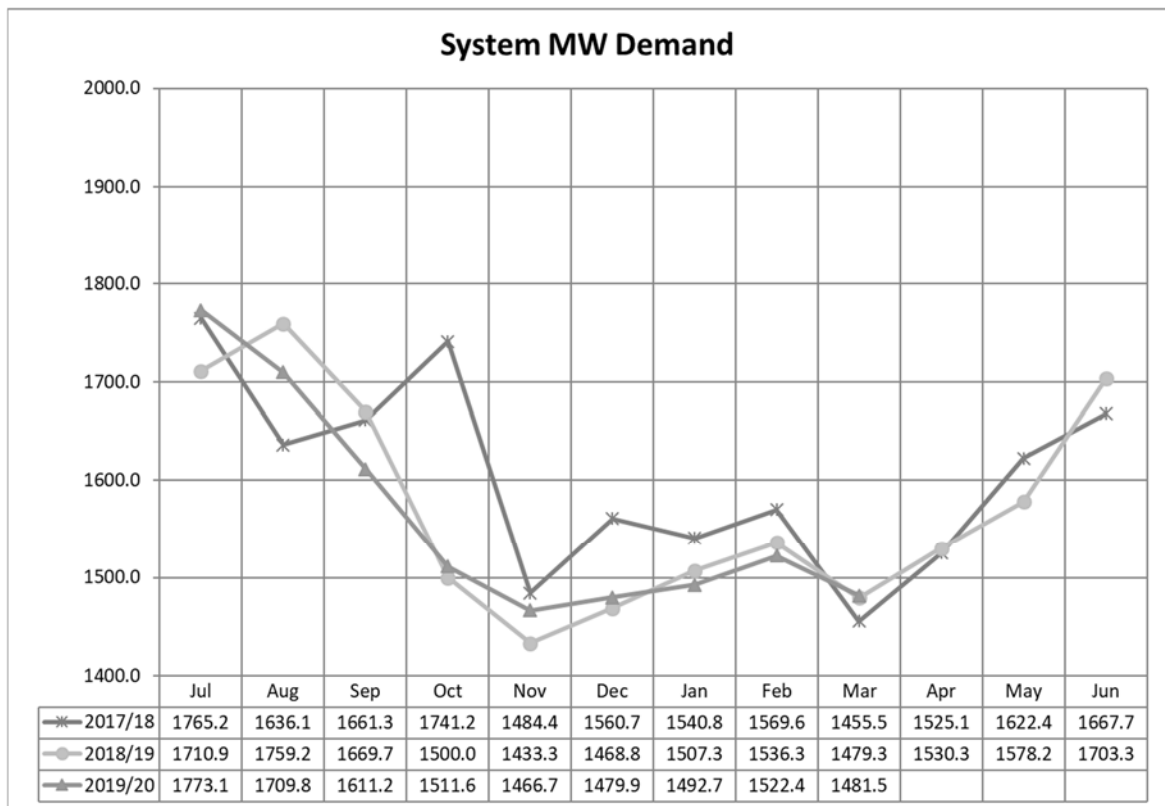
Energy Purchases

This indicator expresses the bulk purchases from Eskom in GWh and MW for the financial year to date compared to the previous financial year.

The 2017/18 financial year continued a trend where each period has been lower than that of the previous year, with only the August figure matching the previous period. All other months have been consistently well below the previous years. An additional reason for the reduced purchases in 2017/18 were the water restrictions, which resulted in reduced water heating loads (less hot water used results in less cold water needing to be heated). The 2018/19 financial year tracked the 2017/18 year closely, with the exception of July and October, which were significantly below the same months in the previous period. The 2019/20 financial year is relatively

closely tracking the previous years in terms of overall purchases. The significantly lower than normal December is assumed to be the impact of the extreme levels of load-shedding that were experienced during that period, with January returning to levels previously experienced. These months would appear to indicate that there is not much impact in terms of purchases even when load-shedding happens at low stages, and impacts are only seen when higher stages are reached. It is anticipated that the impact of the COVID-19 national lockdown will significantly impact on purchases from April, especially on energy purchases if not as much on system demand.





Losses

This indicator shows the losses in electricity for a rolling 12-month period expressed as a percentage of total energy sent to system (purchases plus net own generation).

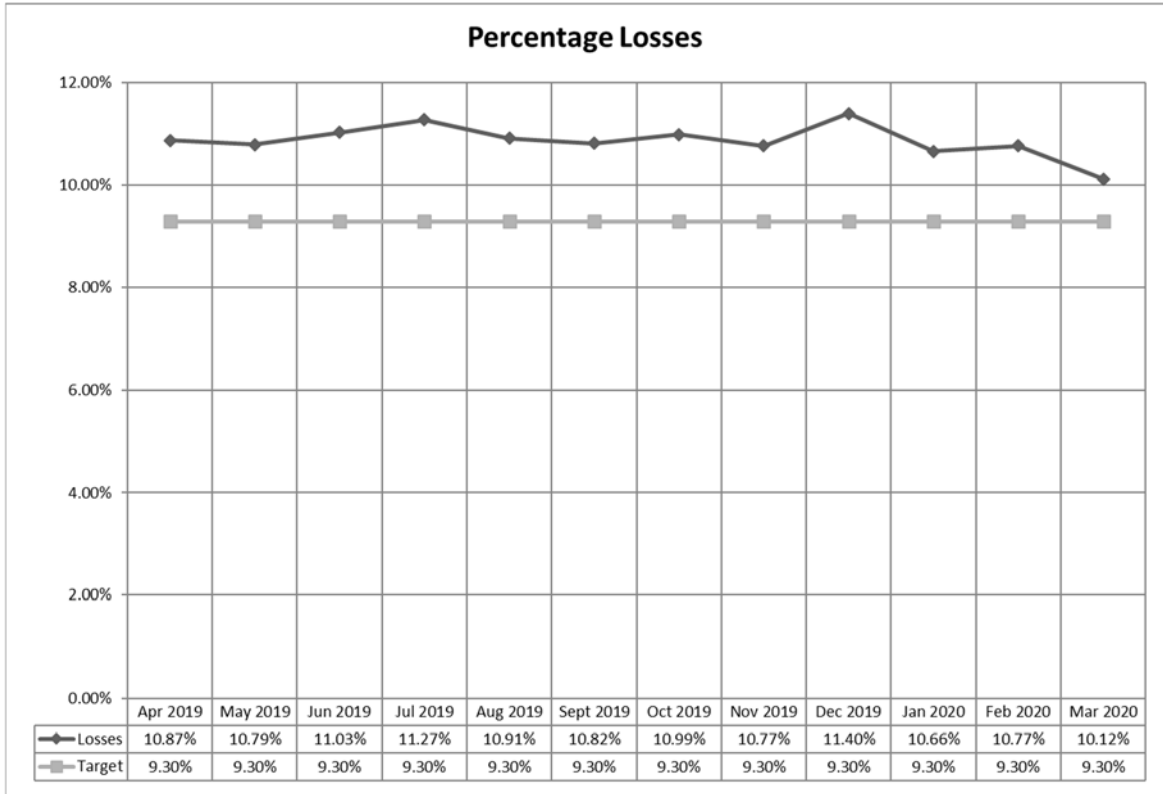
Losses are measured by comparing the energy sent to system (purchases plus net own generation) with the energy sold (billed on credit meters and purchases by prepaid customers) and expressing this ratio as a percentage. It is typically measured over a rolling 12-month period in order to compensate for timing differences in the various measurement periods.

It is worth noting that losses are made up of two primary components, technical losses which are inherent in every distribution system and are relatively constant and unavoidable, and non-technical losses which are made up of theft (through by-passed connections or illegal connections) and administrative losses (billing issues including incorrect accounts, unbilled accounts, timing delays in the issuing of accounts, or simply unaccounted for usage within the network).

The target for this indicator is 9.3%.

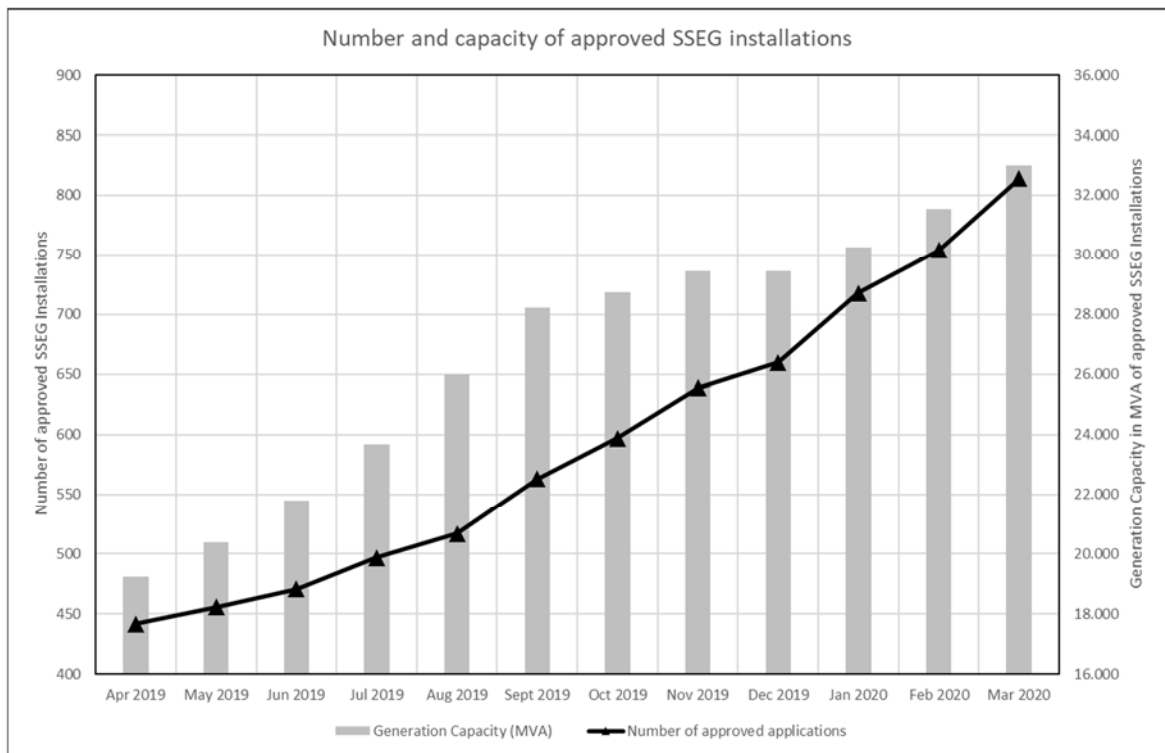
The higher than normal losses seen in December 2019 are the result of a billing issue with the Large Power User customers in that month, which was rectified in

January. The improvement in losses in March may be the result of Portion 20 being largely estimated as a result of the COVID-19 lockdown (meter readers being unable to travel safely to read the meters), it is, however, too early to say definitively.



Small Scale Embedded Generation Installations

This indicates the cumulative number of approved grid-tied small scale embedded generation installations commissioned, and the generating capacity in MVA of these. Growth in these installations is customer driven. As from July 2019 this number now also includes legalised connections.



STRATEGIC FOCUS AREA 3: THE CARING CITY

Quality of supply

SAIFI (System average interruption frequency index)

This indicates how often the average customer connected would experience a sustained interruption per annum.

Mathematically expressed as:

$$\text{SAIFI} = \frac{\text{Total no. of customer interruptions p.a.}}{\text{Total no. of customers served}}$$

SAIDI (System average interruption duration index)

This indicates the length of time the average customer connected would experience a sustained interruption per annum.

Mathematically expressed as:

$$\text{SAIDI} = \frac{\text{Total system hours of customer interruptions p.a.}}{\text{Total no. of customers served}}$$

CAIDI (Customer average interruption duration index)

This indicates the length of time any given customer connected would experience a sustained interruption per annum

Mathematically expressed as:

$$\text{CAIDI} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

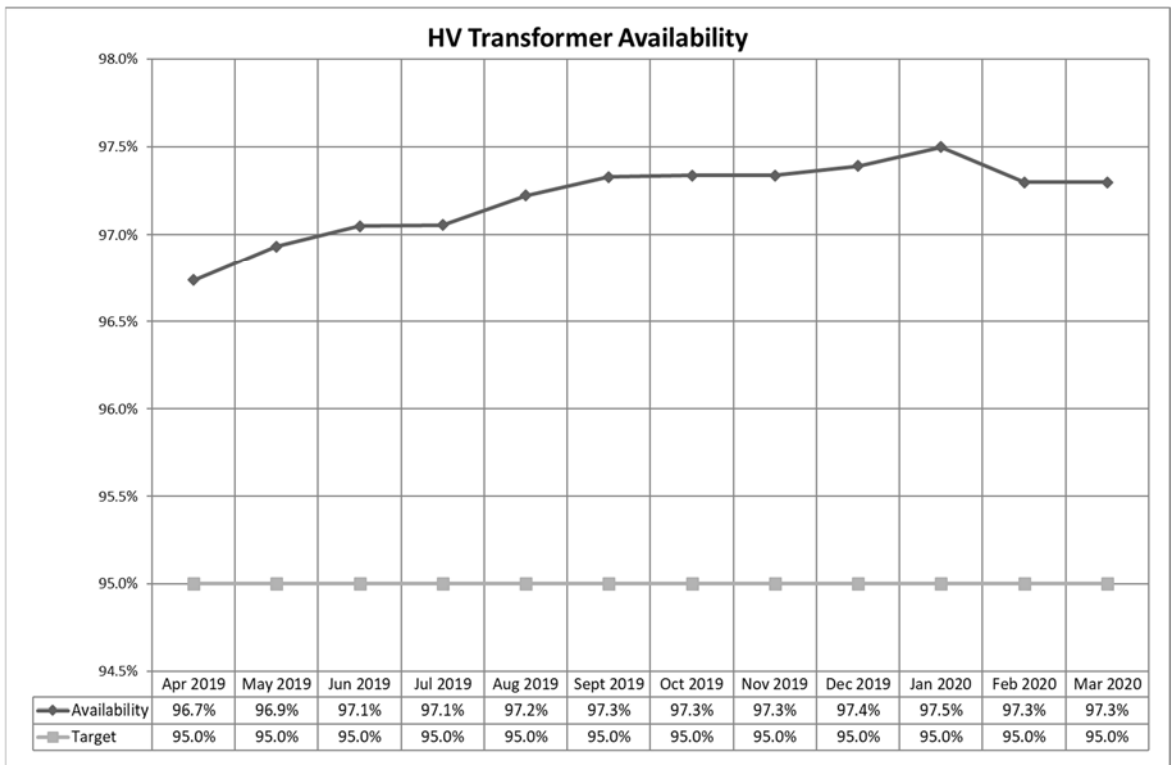
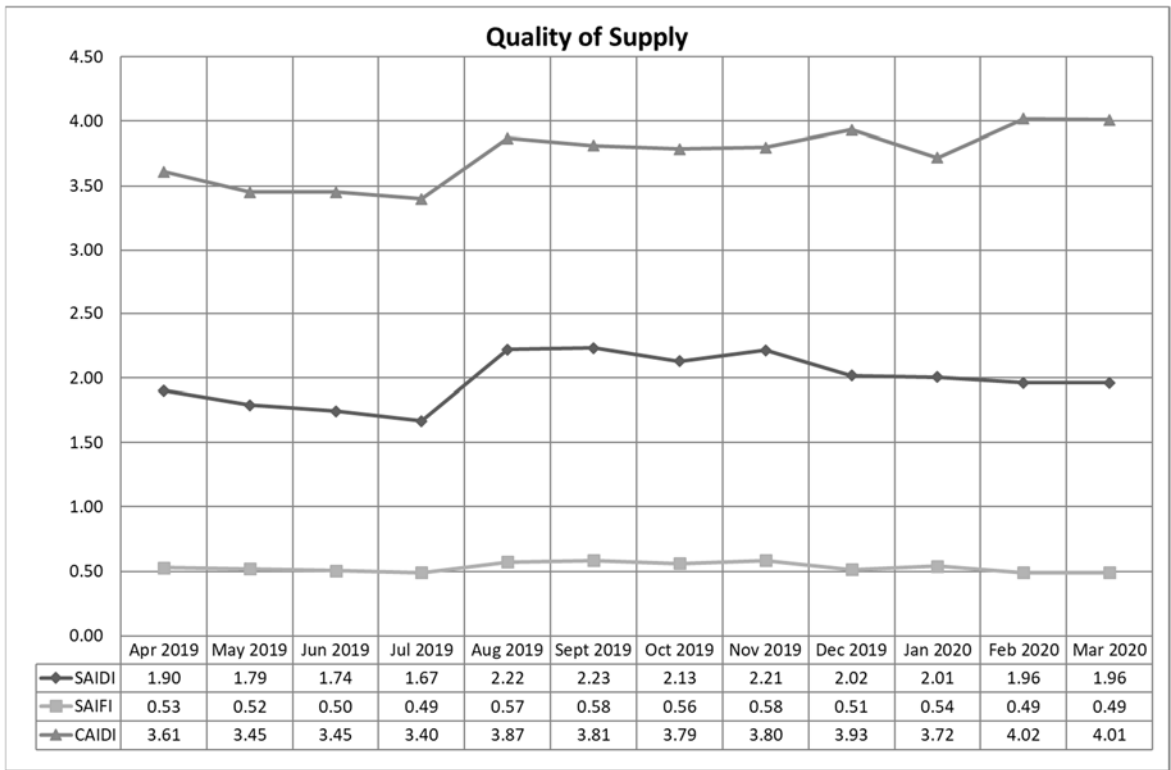
Percentage power transformer availability

This indicator provides a measure of the reliability of the High Voltage electricity network.

The aim of these indicators is to provide the Committee and other regulatory authorities with a measure to assess the reliability and availability of electricity supplied. The Department is currently performing well in this area.

Target for SAIDI is less than 3.0 hours, for SAIFI is less than 1.3 occasions per annum, for CAIDI is less than 2.3 hours, and for percentage power transformer availability is more than 95%.

In recent months the City has suffered from an increased amount of theft and vandalism and equipment failures on its rural overhead lines, which has resulted in long outages which negatively impact on CAIDI. Large portions of the lines will be undergrounded and some of the old overhead line equipment will be replaced. This will however take some time and it is expected that CAIDI will remain high until such time as this is completed.



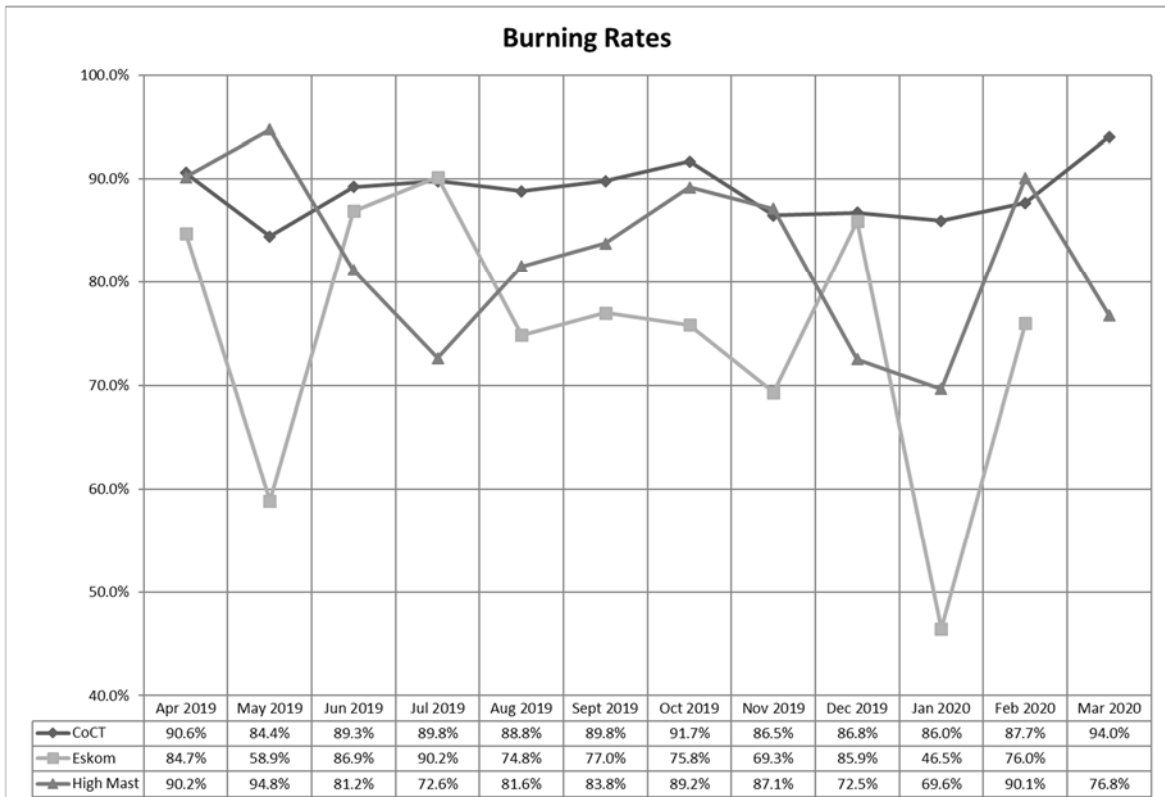
No events larger than 500MVAh (loss of installed capacity) for the period 2019/04/01 to 2020/03/31 occurred.

Large events between 100MVAh and 500MVAh (loss of installed capacity) for the period 2019-04-01 to 2020-03-31 excluding loadshedding							
Description	Tx/Dx	IDate	Lost MVAh	Hrs	Main Stn Area	Cause	Equipment
Live Rock Lobster RMU 2 faulty LV Mccb	Dx	14-May-19	135.92	169.9	Bisschop Road 1	Equipment failure LV	MCCB
Andries Pretorius Cinema Brk Trip E/F	Dx	16-Jul-19	108.60	30.2	SOMERSET WEST	Equipment failure Cable (excl. contr.)	11kV paper
Witvn MS Mtchp 1 and 2 Tripped on Master Trip protection, no fault found returned to service.	Tx	20-Jul-19	150.48	2.1	Weltevreden Valley 1	Operational cause Pilot/protection	Main
WELTEVREDEN Mashinini, Kosovo M1 & Biko Crescent CB trip on E/F alarm	Dx	03-Sep-19	102.42	13.5	Weltevreden Valley 2	Unknown Other	
Rogbi MS Substation catches fire due to exploded 11kV joint. Sub left out of service.	Tx	15-Nov-19	319.12	6.4	Roggebaai 1	Equipment failure Cable (excl. contr.)	11kV paper
Roggebaai Busbar B Fault unknown	Dx	15-Nov-19	247.64	4.6	Roggebaai 2	Unknown Other	
Roggebaai Busbar A Fault unknown	Dx	15-Nov-19	138.53	5	Roggebaai 1	Unknown Other	
Clovelly MS 1 St Georges Street faulty cable	Dx	14-Feb-20	134.68	2.5	Clovelly 1	Equipment failure Cable (excl. contr.)	11kV paper
Weltevreden MS Biko Cres faulty cable	Dx	14-Feb-20	282.18	10.6	Weltevreden Valley 2	Equipment failure Cable (excl. contr.)	11kV paper
Brooklyn Airfield K consumer fault	Dx	20-Feb-20	102.33	10.7	Kensington 2	Unknown	

Burning rate of public lighting

This indicates the percentage of public, street and high mast lighting in both the City and Eskom supply areas that are functioning based on a sample extracted.

Target in all instances is 90%.

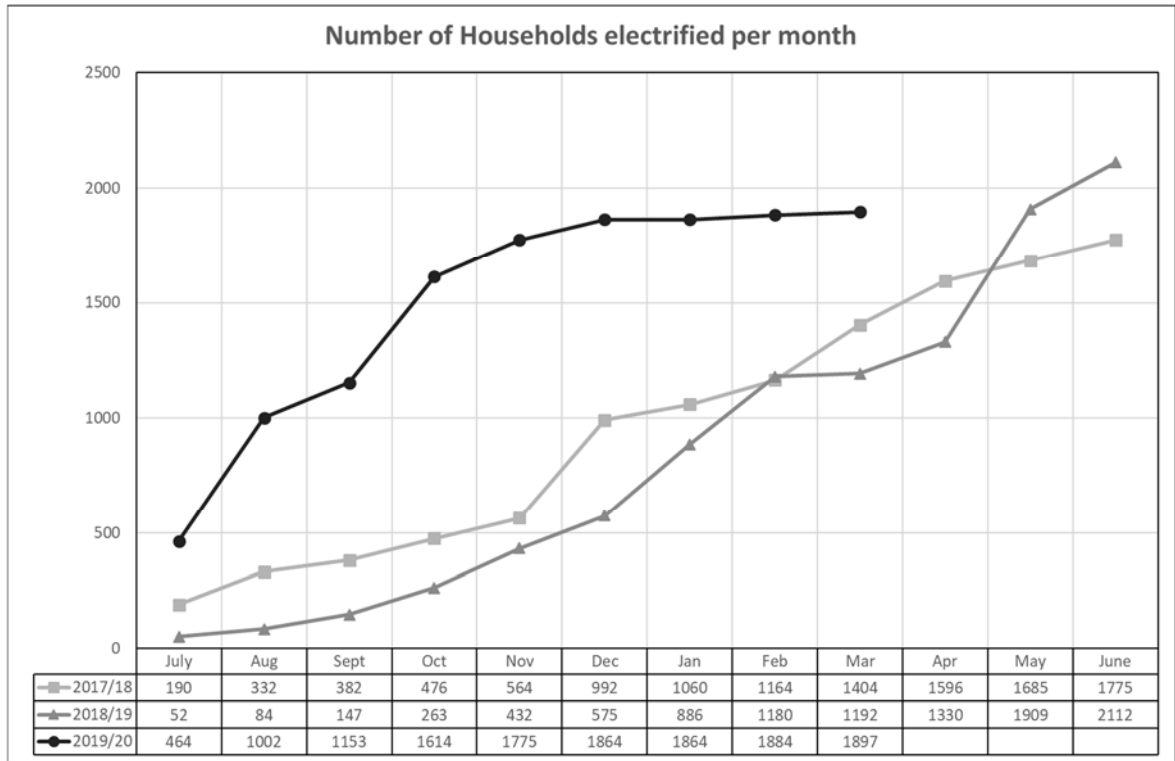


Continued below target performance in all areas throughout the period under review has resulted in a significant level of repairs and maintenance being scheduled.

See Annexure A (Burning Rates) for further details on this indicator.

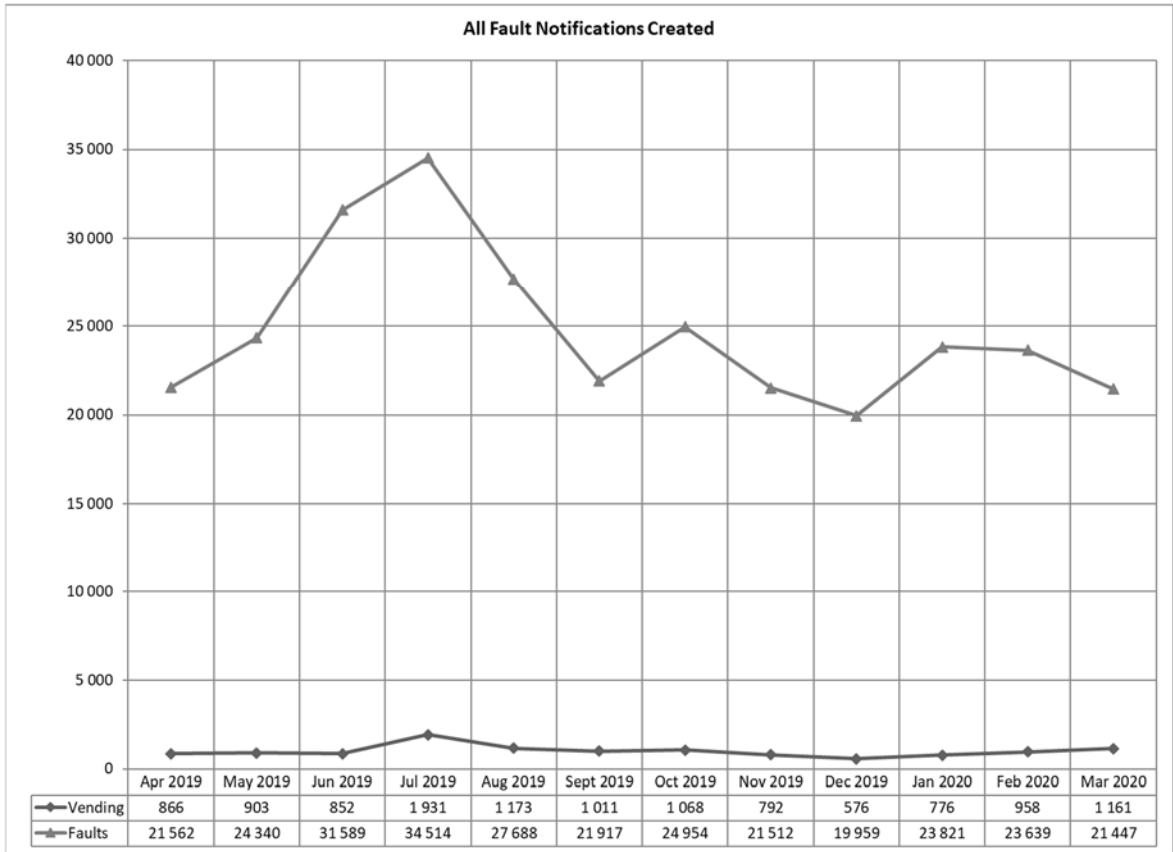
Electrification

This indicates the number of formal and informal households that are connected to the network in a given month in the City area of supply.



C3 Fault Notification Statistics

The breakdown of faults that is reported is based on the number of electricity, vending and street lighting notifications created on SAP. This indicator has been extended to include the number of closed and outstanding notifications.



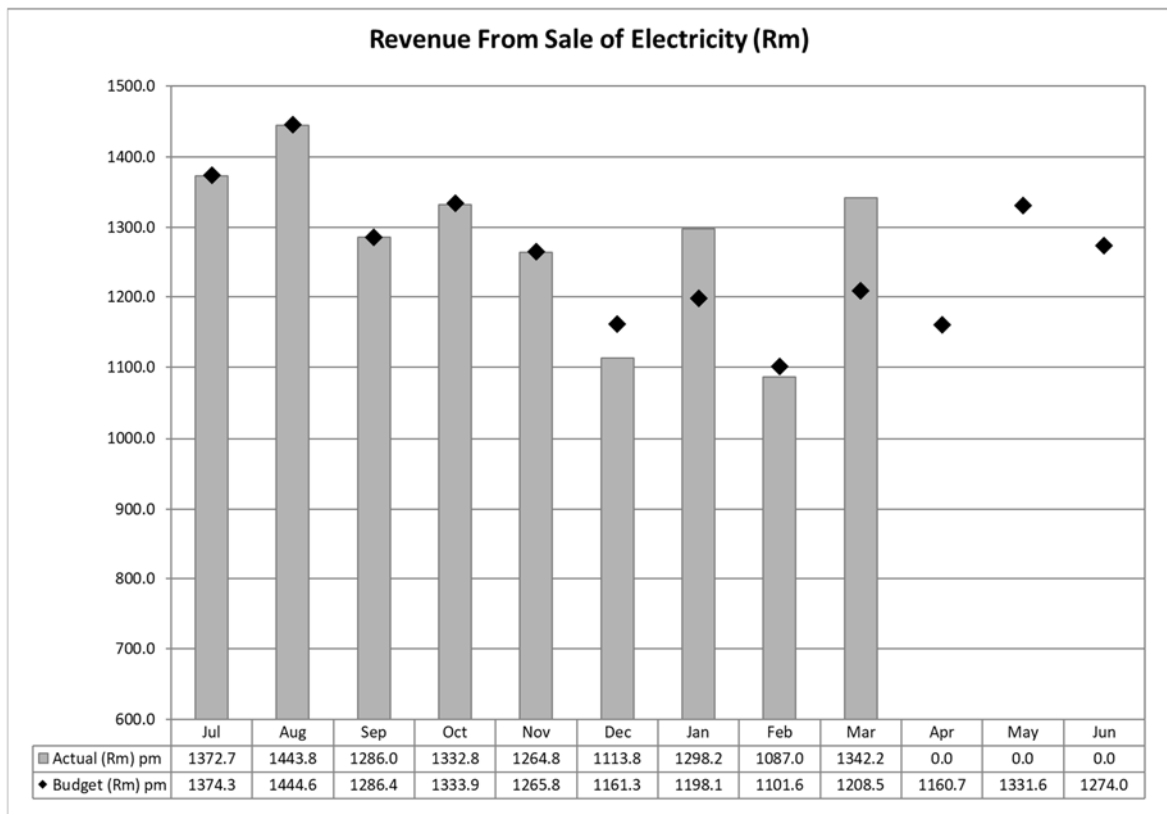
All Faults Breakdown

	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
Created	22 428	25 243	32 441	28 212	28 861	22 928	26 022	22 304	20 535	24 597	24 002	22 608
Completed	21 408	27 989	32 957	27 754	28 744	24 159	27 151	24 685	21 401	23 936	24 432	23 551
Outstanding	13 953	13 358	13 039	16 021	15 527	17 853	17 589	17 426	18 099	20 049	20 324	20 781

STRATEGIC FOCUS AREA 5: THE WELL RUN CITY

Electricity Sales

This indicator expresses the revenue from sale of electricity for the financial year to date compared to the budgeted revenue for the period.



The higher level of sales Revenue seen this financial year is primarily the result of a higher number of customers with a seasonal time of use tariff (which means they have a higher tariff in July, August and June) than previously, the relatively large number of Large Power User customers who have not switched to the time of use tariffs (and are therefore paying more than they have to – customers are beginning to respond to the pricing signal and convert), and higher than expected customer consumption levels. The slightly below target performance in December is again the impact of Load-shedding as well as the billing issue with the Large Power Users previously mentioned (with the correction in January) as the continuation of the above target performance would have been expected.

Metering Efficiency

This indicates the percentage of credit meters that are read on a monthly basis as well as the 3 month averages, along with the reasons for estimation of electricity accounts in the month under review.

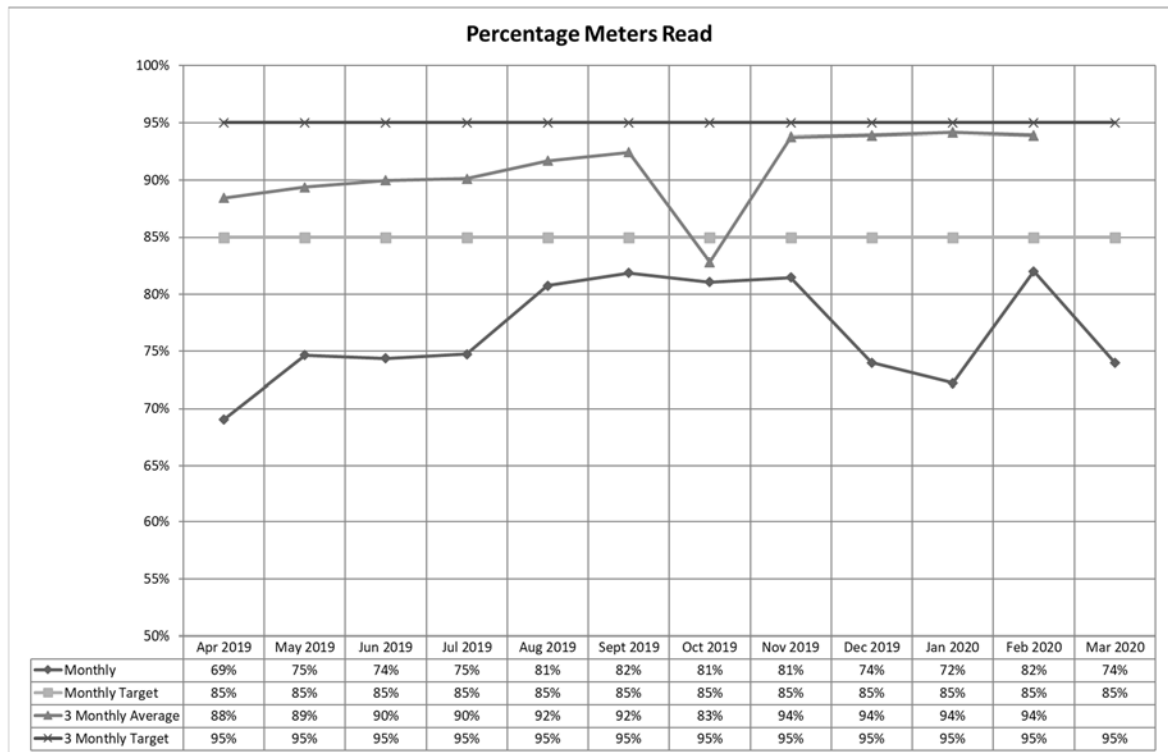
The decline in performance in December and January is the result of skeleton staff over this period. This dip in performance over the festive season is preferred to a decline over a number of months as a result of staggered compulsory annual leave.

The continued issues around meter reading result from an increase in access to meter problems. This will only be fully addressed with the conversion of all older

credit meters and pre-paid meters to the newer split pre-paid meter. The City's meter replacement project aims to address this, although there is some resistance from some customers to convert.

The other issue around meter reading, a new contractor with poorly trained and insufficient staff, is currently being addressed with a view to improving the performance of the contractor. As can be seen below, these efforts are beginning to have an effect, with performance steadily improving.

Data for March is limited as a result of staff not being able to access the necessary reports because of the COVID-19 lockdown.



	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
Reason												
Access problems(no reply at door/gate,dogs)	12791	14379	13502	14721	10506	11566	12365	10455	17599	11754	11435	
Technical data problems (SAP data incorrect)	2170	2291	3056	3225	3003	2697	2405	2235	1908	1480	2032	
Staff reason (staff on leave /sick leave)	15745	7078	6311	4976	2037	2057	2710	3842	7014	11427	2719	
Maintenance problems (faulty locks , doors)	1340	1710	1633	1730	1037	1229	1235	1210	1051	1504	1118	
No report code	1691	2106	3249	2599	4121	1888	1495	1974		3127	1587	
Total	33737	27564	27751	27251	20704	19437	20210	19716	27572	29292	18891	27158
Percentage of total meters	31%	25%	26%	25%	19%	18%	19%	19%	26%	28%	18%	26%

Financial Implications None Opex Capex
 Capex: New Projects
 Capex: Existing projects requiring additional funding
 Capex: Existing projects with no additional funding requirements

Policy and Strategy Yes No

Legislative Vetting Yes No

Legal Compliance

Staff Implications Yes No

Risk Implications Yes No

5. RECOMMENDATIONS

It is recommended that the performance monitoring report BE NOTED.

Kundululwe ukuba MAKUQWALASELWE ingxelo engokubek'iliso kwindlela yokusebenza.

Daar word aanbeveel dat daar van die prestasiemoniteringsverslag KENNIS GENEEM WORD.

[LSU Ref No: H5973]

ANNEXURES**ANNEXURE A: BURNING RATES****FOR FURTHER DETAILS CONTACT**

NAME	Donovan Leeuwendaal	CONTACT NUMBER	0214448501
E-MAIL ADDRESS	Donovan.leeuwendaal@capetown.gov.za		
DIRECTORATE	Energy and Climate Change	FILE REF NO	Energy and Climate Change-Electricity Generation and Distribution(000000514899)

Approval Form

Supported for inclusion on the agenda



EGD Performance Monitoring Report March 2020

Report Reference: 514899
Meeting: Section 79 Portfolio Committee - Energy and Climate Change
Meeting Date: 04.05.2020
Meeting Venue: Committee Room D

Contact Person: Donovan Leeuwendaal
Contact Telephone: 0214448501
Contact Email: DONOVAN.LEEUWENDAAL@CAPETOWN.GOV.ZA

Item	Section	Approver	Approval	Approved Date	Approver Comments
01	Author	Donovan Leeuwendaal	Approved	14.04.2020 10:07:19	in order
02	Director	Leslie Rencontre	Approved	15.04.2020 10:22:55	
03	Executive Director	Kadri Middlekoop Nassiep	Approved	16.04.2020 15:56:02	Approved for submission
04	Legal Compliance	Joan Mari Holt	Approved with Comments	20.04.2020 12:38:37	For information.
05	Chairperson	Zimkhitha Sulelo	Approved	21.05.2020 13:27:19	

ECS Officer:

ANNEXURE A

MAJOR ROUTES BURNING RATE PERFORMANCE AUDIT MARCH 2020

Area East			
Route Description	Total number of lights in route	Number of lights in route out.	Burning rate
Parow / Elsies River / Platteklouf Area			
Tierberg Rd: Voortrekker Rd to Frans Conradie			
Mcintyre Rd: Voortrekker Rd to Frans Conradie	No readings available - Lockdown		
Voortrekker Road: Giel Basson to Mike Pienaar			
Platteklouf Rd: Vryburger to N1			
De La Ray Rd: Voortrekker to Robert Sobukwe Rd			
35th Ave: Voortreker to Francie Van Zijl Rd			
Francie Van Zijl Rd: 35th Ave to De La ray Rd			
Frans Conradie: Giel Bosson to Tierberg Rd			
Total	0	0	
Average burning rate			#DIV/0!

Area North			
Route Description	Total number of lights in route	Number of lights in route out.	Burning rate (%)
Green Point / Sea Point / Clifton / Camps Bay			
Highlevel Road: Buitengracht to Avenue Fresnaye	146	6	
Kloof Road: Regent Road to Victoria Road	115	12	
Beach Road: Regent Road to Portswood Road	246	5	
Main Road: Buitengracht to St. John's Road	250	14	
Total	757	37	
Average burning rate			95.11

Area South			
Route Description	Total number of lights in route	Number of lights in route out.	Burning rate
Claremont / Newlands / Wynberg / Plumstead / Grassy Park			
Paradise Road: M3 to Main Road	80	0	
Protea Road: Paradise Circle to Main Road	71	0	
Trovato Link/Alphen Hill: M3 to Constantia Road	110	15	
Main Road: Belmont Road to Victoria Road	328	19	
Victoria Road: Main Road to Busy Corner	109	18	
Prince George Drive: Victoria Road to Military Road	226	6	
Klip Road: Strandfontein Road to M5	130	13	
Total	1054	71	
Average burning rate			93.26

Eskom Area			
Route Description	Total number of lights in route	Number of lights in route out.	Burning rate
Kraaifontein / Northpine			
Old Paarl Road: Maroela Road to R304			
Botfontein Road: SAPS to Waste Water Treatment Works	No readings available - Lockdown		
Maroela Road: Old Paarl Road to Botfontein Street			
La Boheme Ave: Wolwefontein Ave to Maroela Road			
Northpine Drive: Old Paarl Road to La Boheme Ave			
Edam Ave: Old Paarl Road to La Boheme Ave			
Total	0	0	
Average burning rate			#DIV/0!

Highmasts			
Route Description:Khayelitsha - Illitha Park/Town 2/Makhaya	Total number of	Number of lights	Burning
Illitha Park	lights per mast	out per mast.	rate (%)
KHA 050	6	0	
KHA 051	6	4	
KHA 052	6	1	
KHA 053	6	0	
KHA 054	6	0	
KHA 055	6	4	
KHA 056	6	0	
KHA 057	6	0	
KHA 058	6	4	
KHA 059	6	5	
KHA 060	6	1	
KHA 061	6	4	
KHA 062	6	0	
KHA 063	6	0	
KHA 064	6	3	
KHA 065	6	0	
KHA 187	6	0	
KHA 219	6	2	
KHA 221	6	0	
KHA 223	6	0	
KHA 231	6	1	
Town 2 & Makhaya			
KHA 064	6	0	
KHA 065	6	0	
KHA 079	6	1	
KHA 080	6	0	
KHA 081	6	0	
KHA 082	6	0	
KHA 083	6	0	
KHA 084	6	1	
KHA 085	6	0	
KHA 086	6	1	
KHA 107	6	0	
KHA 126	6	6	
KHA 143	6	6	
KHA 145	6	0	
KHA 148	6	6	
KHA 149	6	3	
KHA 209	6	0	
Maintenance to be scheduled.			
Total	228	53	
Average burning rate			76.75

Average	Total number of	Number of lights	Burning
Area	lights in route	in route out.	rate
East	0	0	
North	757	37	
South	1054	71	
Total	1811	108	
Average burning rate - CoCT Supply			94.04
Eskom	0	0	#DIV/0!
Highmasts	228	53	76.75
Metrowide	2039	161	92.10