



REPORT TO: ENERGY AND CLIMATE CHANGE

1. ITEM NUMBER : ECC 12/06/20

2. SUBJECT

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

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

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

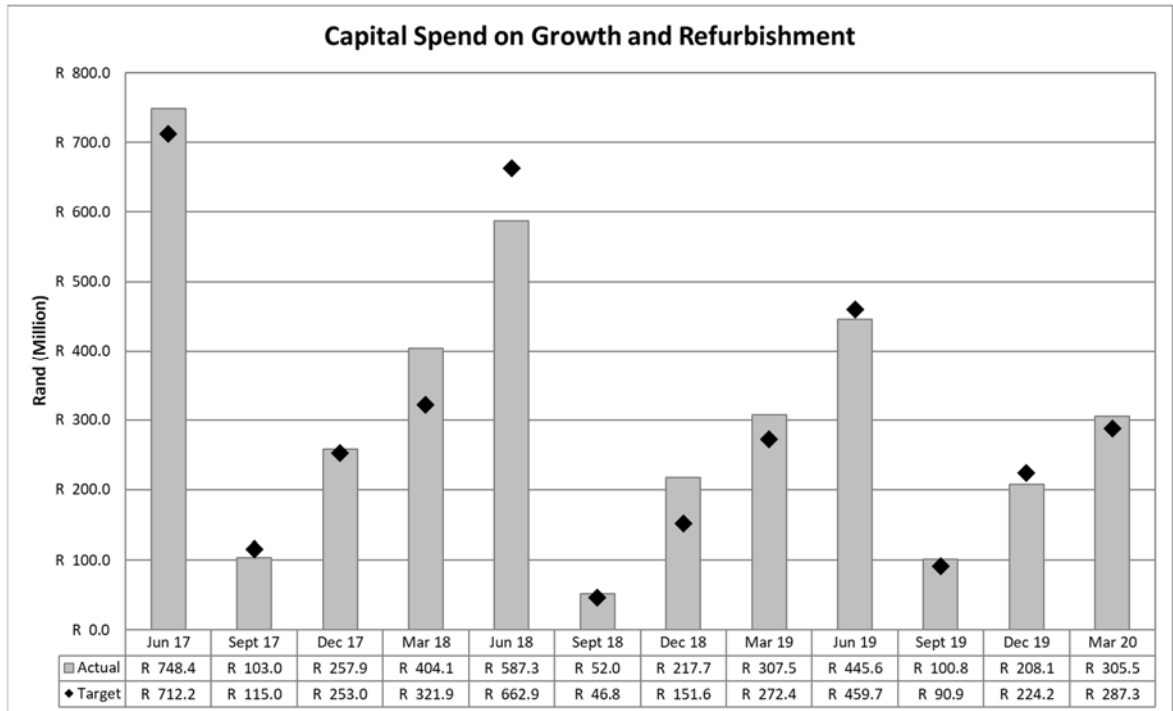
4. DISCUSSION

COVID-19

Significant drop offs in performance can be noted throughout this report in April as a result of the impact of national COVID-19 Lockdown restrictions to the business. Where results appear out of the normal parameters, it can be assumed that these are the result of such impacts. It is projected that these impacts will further continue until such time as the lockdown is materially lifted, and a new “business as usual” can be established.

STRATEGIC FOCUS AREA 1: THE OPPORTUNITY CITY

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



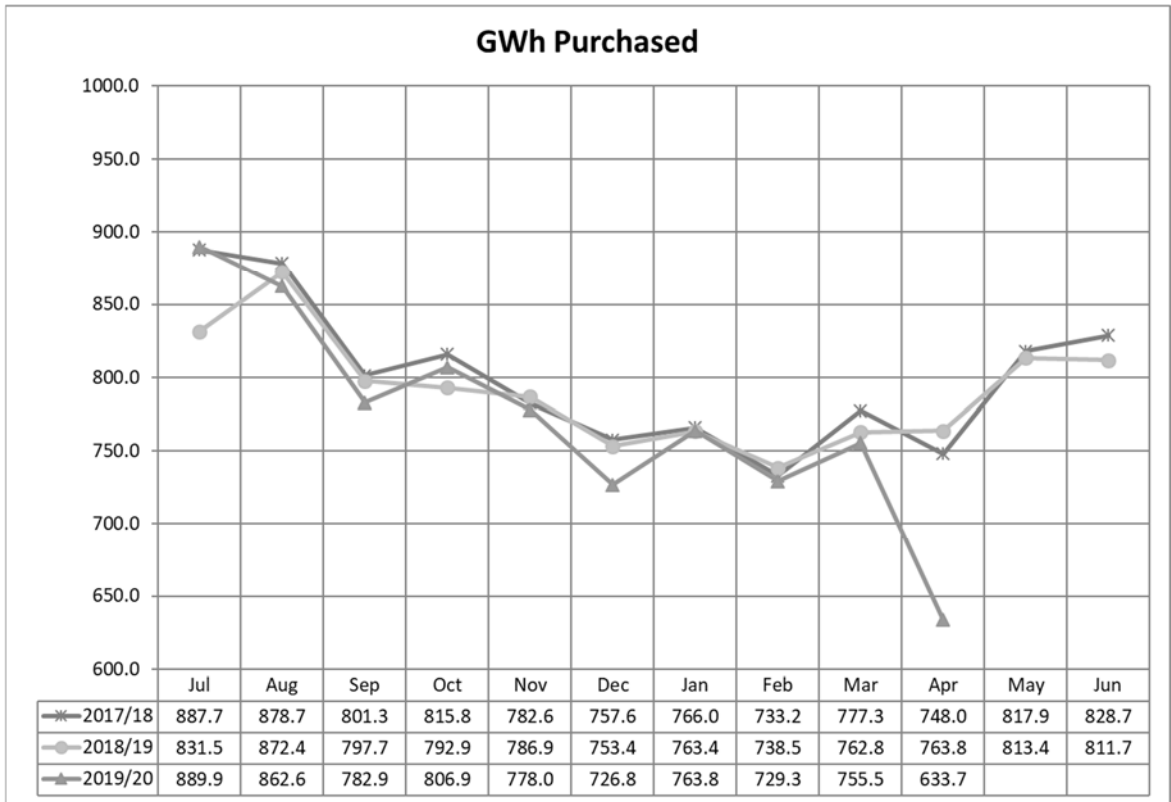
Capital expenditure on Growth and Refurbishment was at a provisional 106.3% of January adjusted budget at the end of Quarter 3. Delays in the awarding of tenders and stock levels are being addressed to curtail the decline in refurbishment and repairs spend.

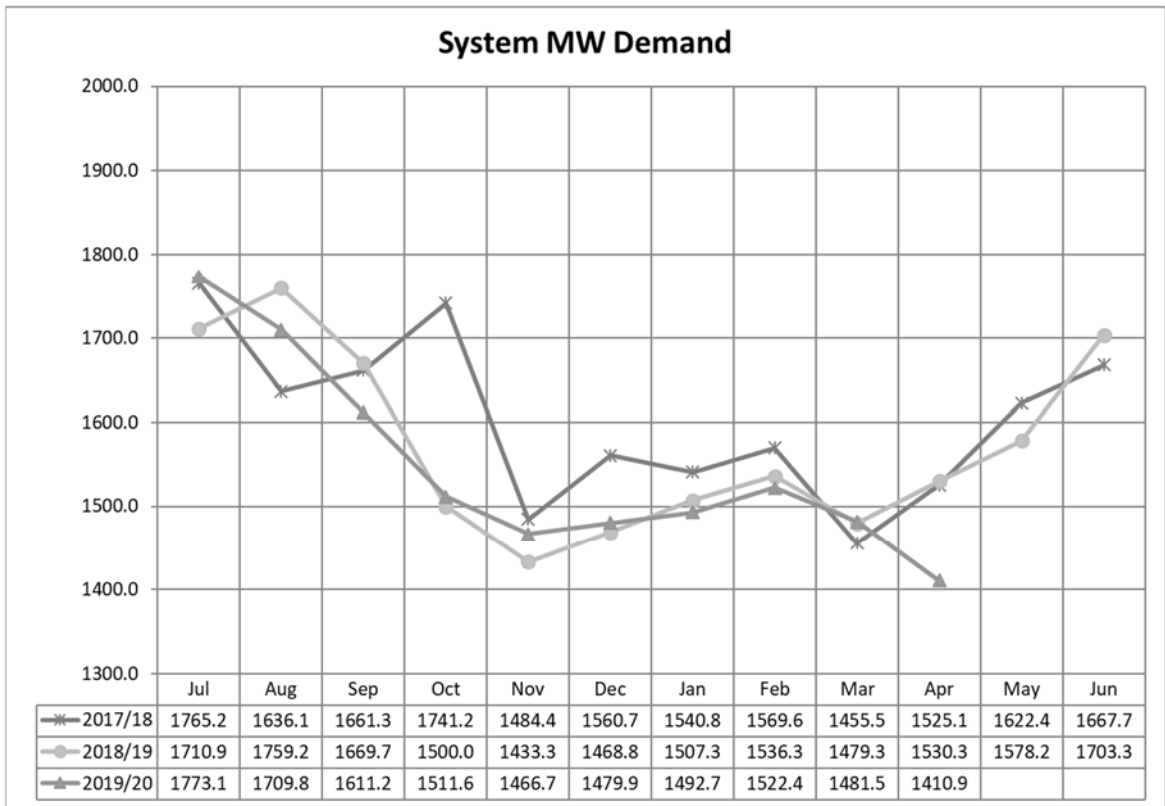
Energy Purchases

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.





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).

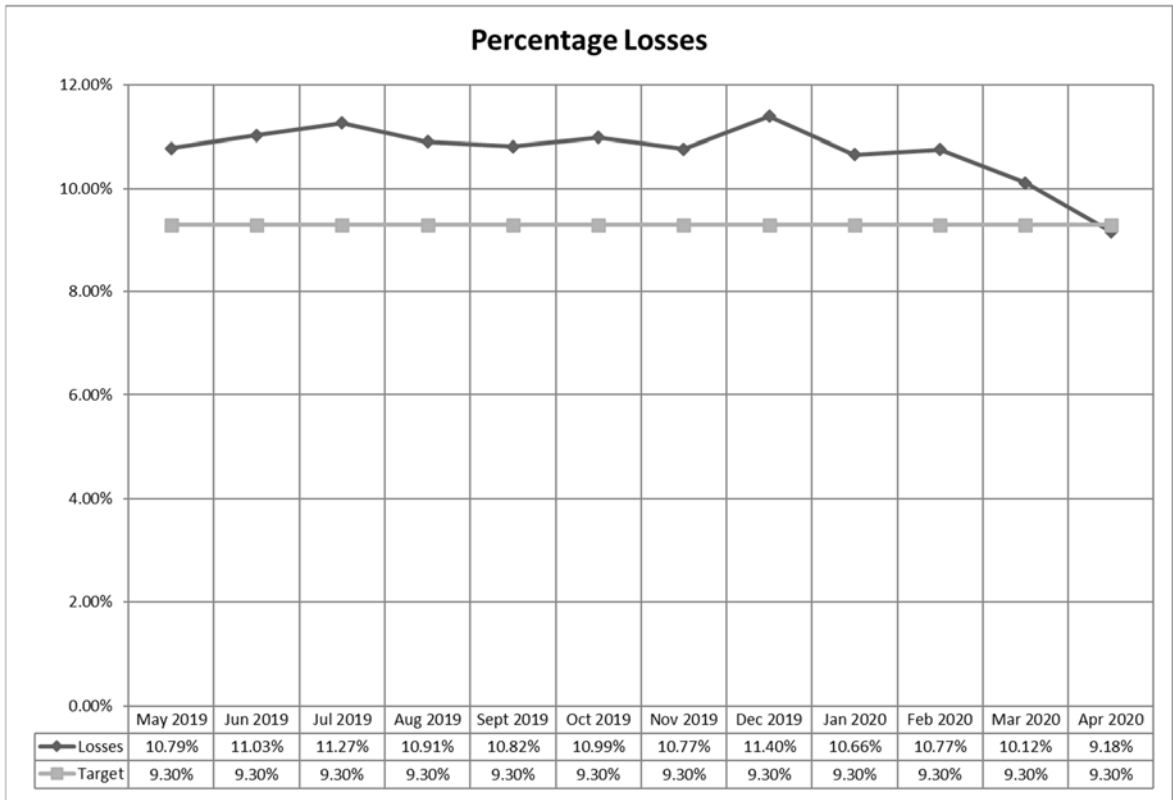
Losses are measured by comparing the energy sent to system (purchases plus net own generation) with the energy sold (billed on credit meters and purchases by prepaid customers) and expressing this ratio as a percentage. It is typically measured over a rolling 12-month period in order to compensate for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

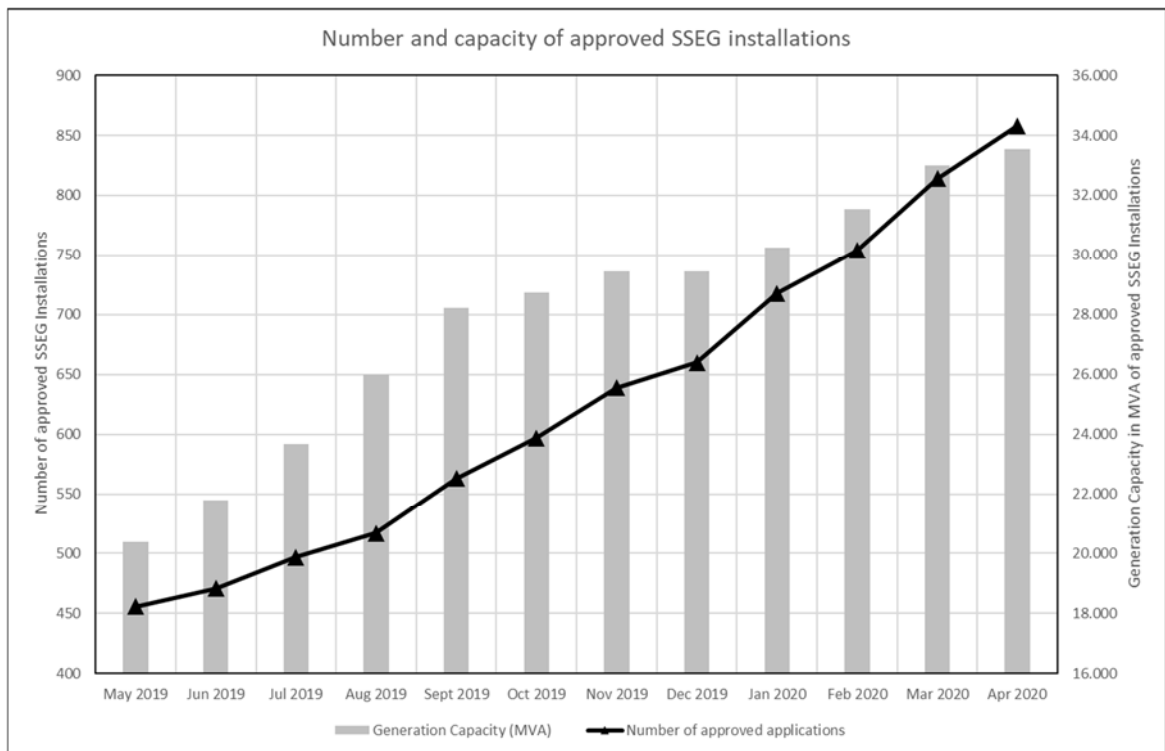
The higher than normal losses seen in December 2019 are the result of a billing issue with the Large Power User customers in that month, which was rectified in

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. This trend resulting from lockdown continued into April, as the large number of estimated accounts included in the sales values does not accurately reflect the actual consumption of those customers. Reality will only become known once meters can again be read and accounts rectified.



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:

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

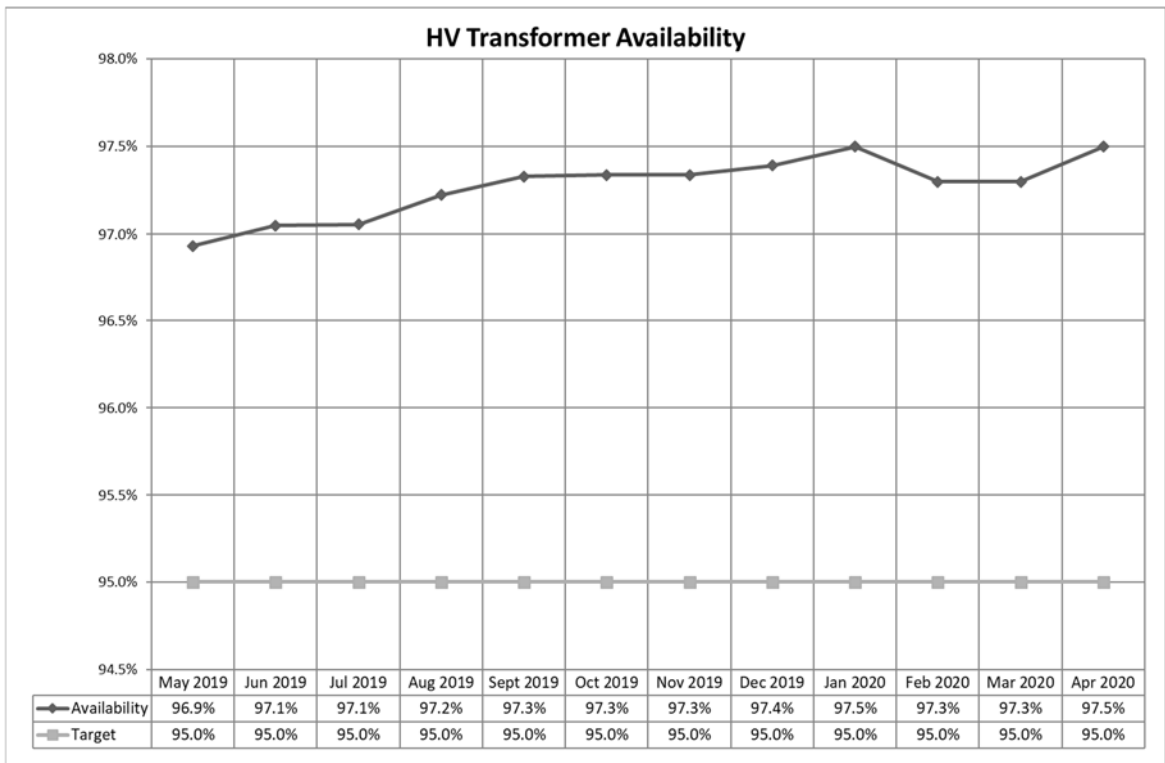
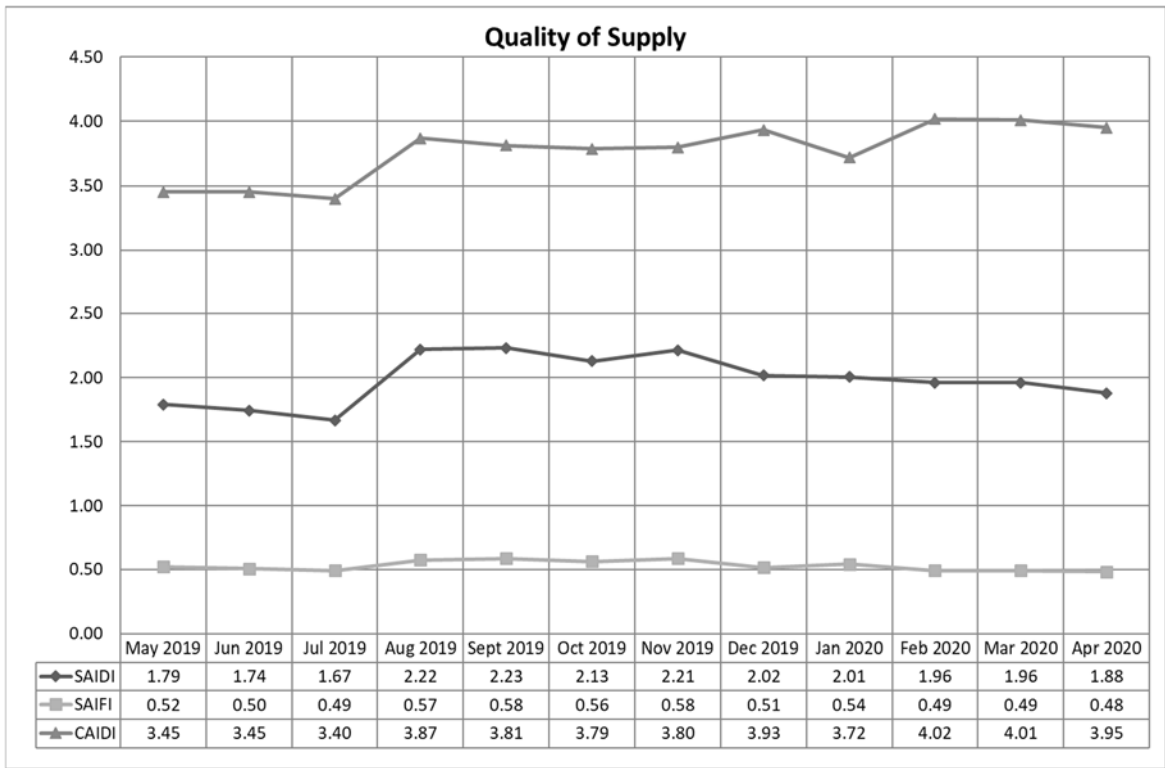
Percentage power transformer availability

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.



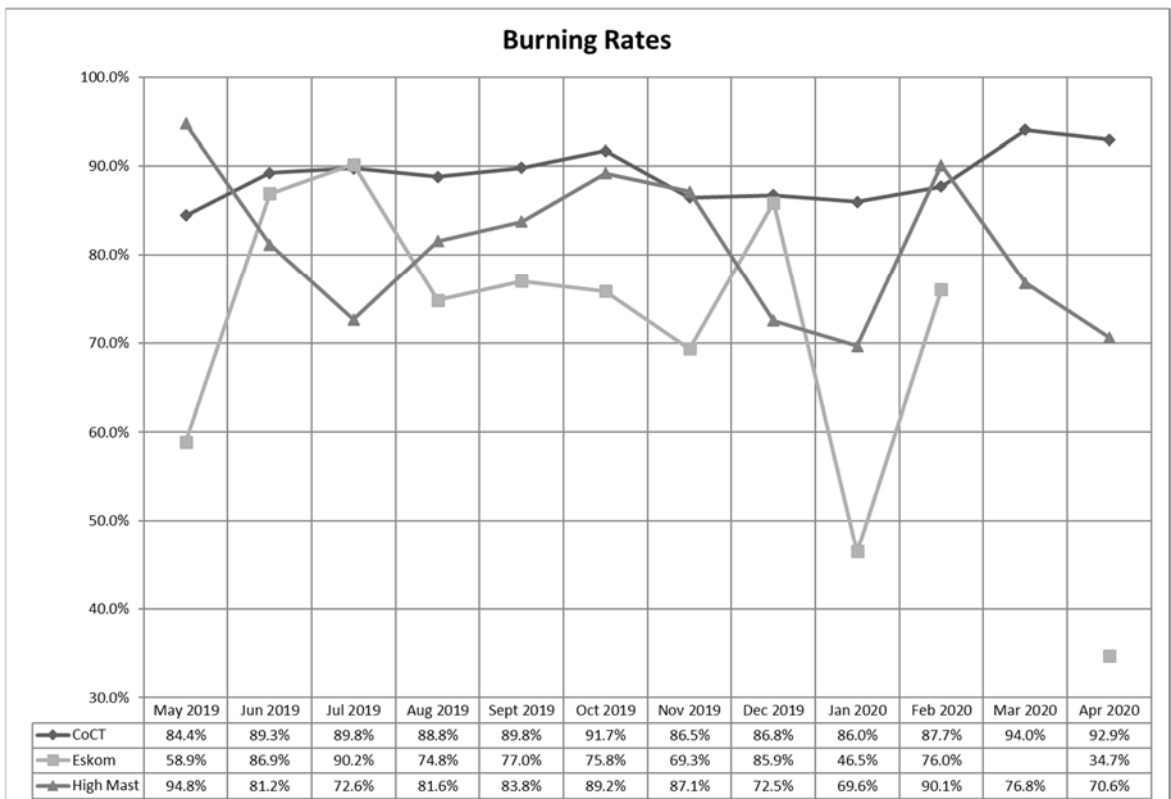
No events larger than 500MVAh (loss of installed capacity) for the period 2019/05/01 to 2020/04/30 occurred.

Large events between 100MVAh and 500MVAh (loss of installed capacity) for the period 2019-05-01 to 2020-04-30 excluding loadshedding							
Description	Tx/Dx	IDate	Lost MVAh	Hrs	Main Strn 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
Wltvn 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%.

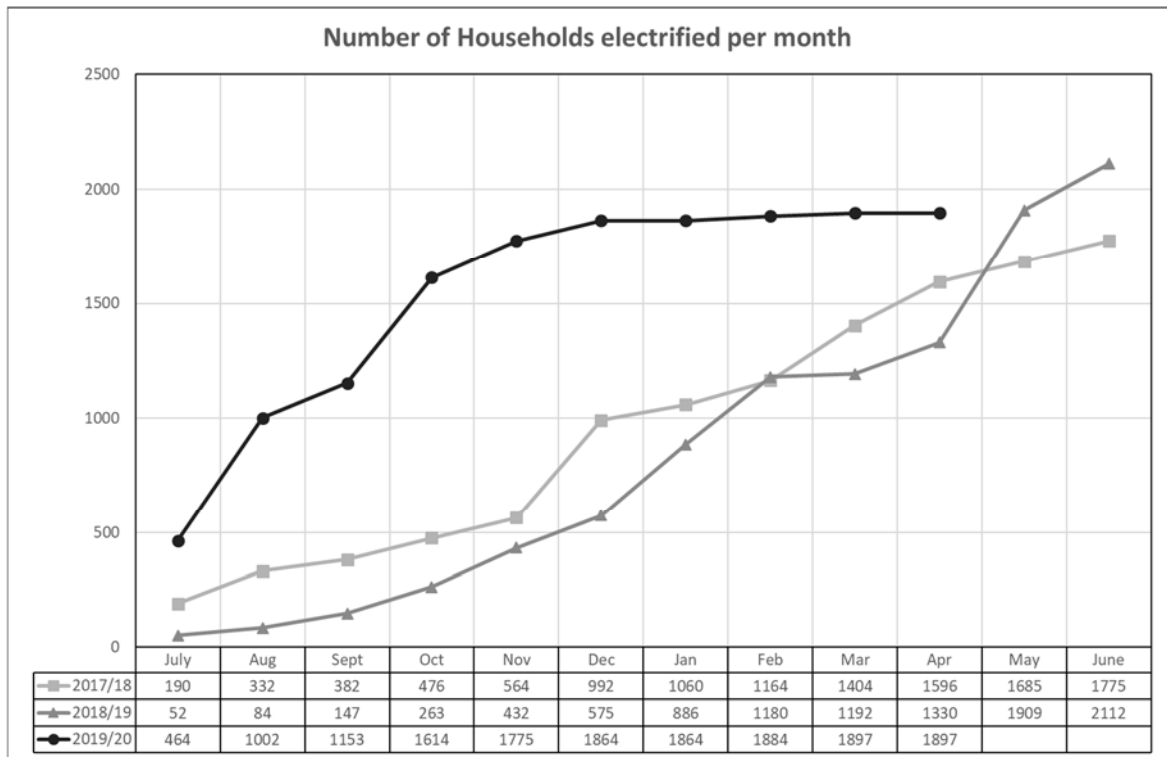


Continued below target performance in all areas throughout the period under review has resulted in a significant level of repairs and maintenance being scheduled.

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

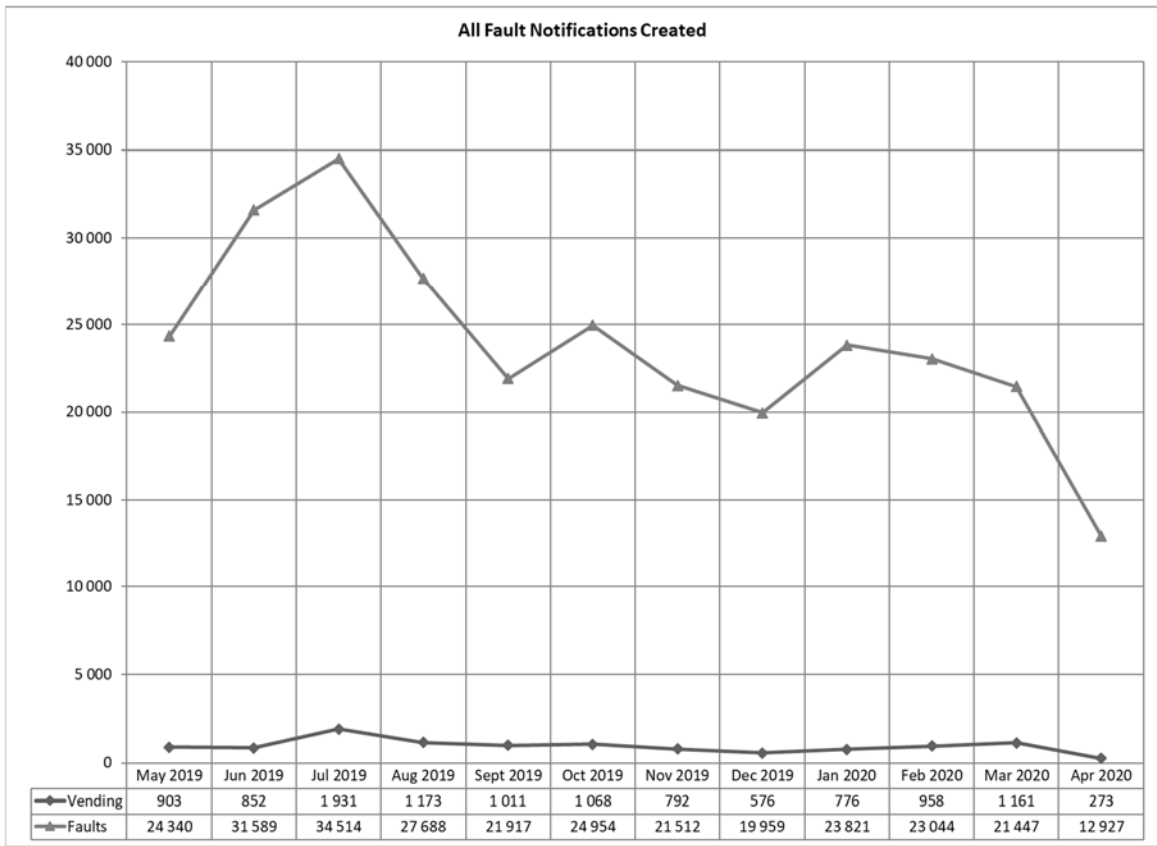
Electrification

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.



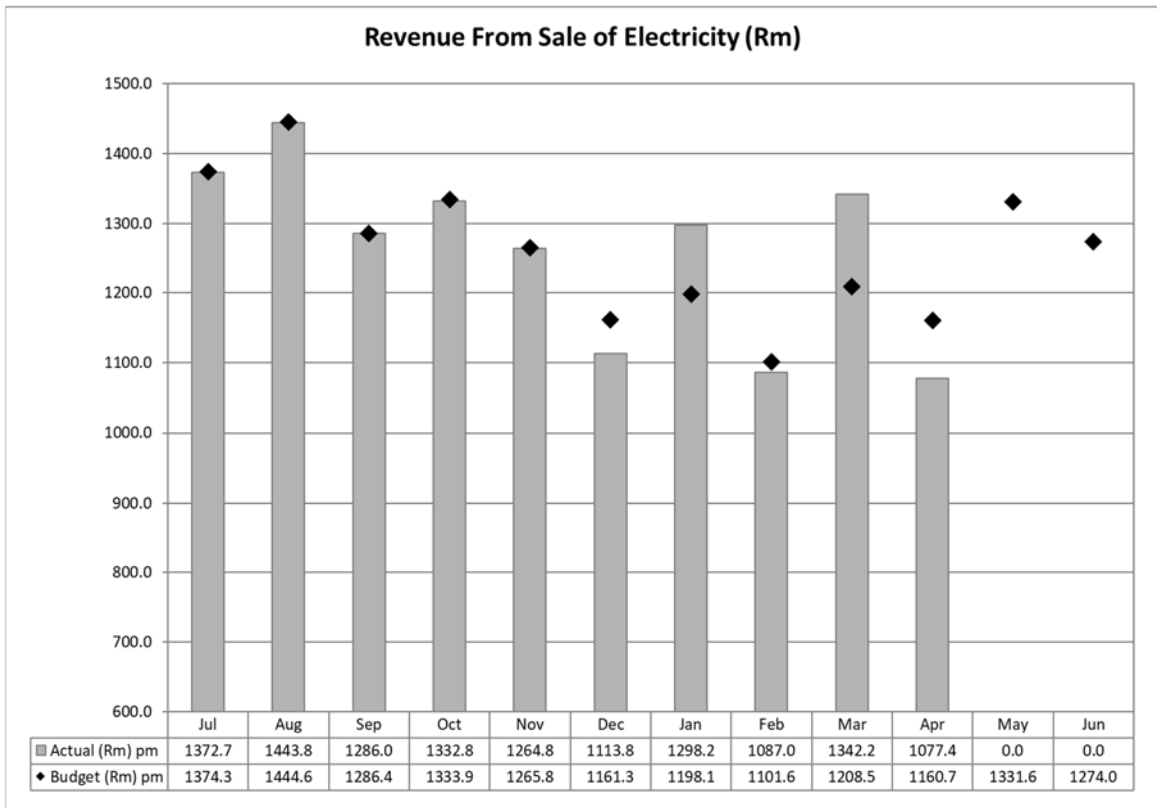
All Faults Breakdown

	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20
Created	25 243	32 441	28 212	28 861	22 928	26 022	22 304	20 535	24 597	24 002	22 608	13 200
Completed	27 989	32 957	27 754	28 744	24 159	27 151	24 685	21 401	23 936	24 432	23 551	13 201
Outstanding	13 358	13 039	16 021	15 527	17 853	17 589	17 426	18 099	20 049	20 324	20 781	20 686

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. The Sales value in April, despite being lower than forecast, is nonetheless expected to be overstated as a result of the large amount of estimated accounts which, specifically in the Commercial sphere, will not be correct and will in fact amount to an overbilling of many of these accounts.

Metering Efficiency

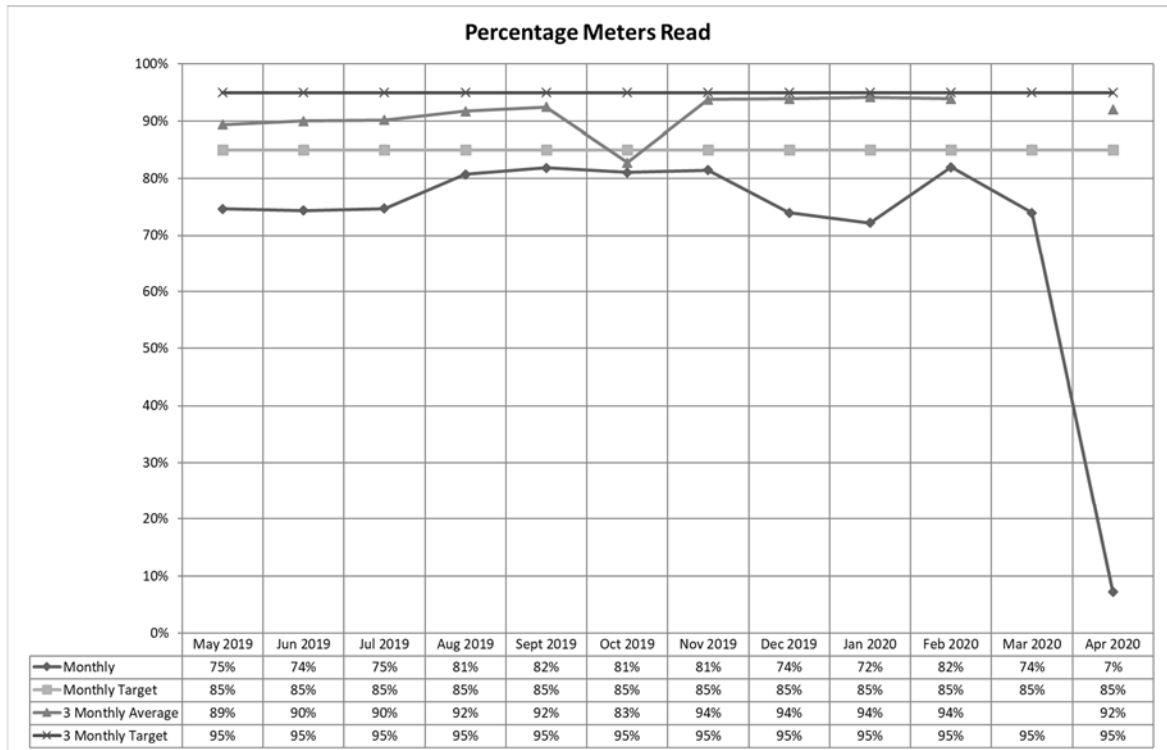
This indicates the percentage of credit meters that are read on a monthly basis as well as the 3 month averages, along with the reasons for estimation of electricity accounts in the month under review.

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



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 OF PUBLIC LIGHTING****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(000000515016)

Approval Form

Supported for inclusion on the agenda



EGD Performance Monitoring Report April 2020

Report Reference: 515016
Meeting: Section 79 Portfolio Committee - Energy and Climate Change
Meeting Date: 01.06.2020
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	12.05.2020 15:32:30	in order
02	Director	Leslie Rencontre	Approved	13.05.2020 14:09:51	
03	Executive Director	Kadri Middlekoop Nassiep	Approved	22.05.2020 11:56:21	Approved
04	Legal Compliance	Joan Mari Holt	Approved with Comments	22.05.2020 18:37:14	For information.
05	Chairperson	Zimkhitha Sulelo	Approved	25.05.2020 12:28:57	

ECS Officer:

MAJOR ROUTES BURNING RATE PERFORMANCE AUDIT APRIL 2020

Area East			
Route Description	Total number lights in route	Number of lights in route out.	Burning rate
Kraaifontein / Brackenfell / Kuilsriver			
Van Riebeeck Road: R300 to Stellenbosch Road			
Amandel Road :Langverwacht Rd to Bottlary Rd	No readings available - Lockdown		
Langverwacht Road : Van Riebeeck Rd to Zevendal Way			
Bottlary Road : La Belle Road to Brackenfell Blvd			
Nooiensfontein Road:Van Riebeeck Rd to Stellenbosch Rd			
Brackenfell Blvd : Bottlary Road to Langverwacht Road			
Link Road : Bottlary Road to Polkadraai Road			
Brackenfell Blvd : Bottlary Road to Old Paarl Rd			
Protea Road : Brackenfell Blvd to Kruis Pad			
Okavango Road :Old Paarl Rd to Vatican			
Brighton :Okavango Road to Old Paarl Rd			
Langeberg Road : Brackenfell Blvd to Okavango			
Vatican Rd : Okavango Rd to Brackenfell Blvd			
Old Paarl Rd : N1 to Van Riebeeck Rd			
De Bron : Brackenfell Rd to Okavango Rd			
Malborough :Brighton Rd to Okavango Rd			
Frans Conradie Rd : Brackenfell Blvd to Van Riebeeck Rd			
Total	0	0	
Average burning rate			#DIV/0!

Area North			
Route Description	Total number lights in route	Number of lights in route out.	Burning rate (%)
Paarden Eiland / Milnerton / Maitland / Montague Gardens			
Marine Drive: FW De Klerk Blvd to Racecourse Road	356	19	
Koeberg Road:Racecourse Road to Koeberg Interchange	308	28	
Voortrekker Road: M5 to Jakes Gerwel Drive	194	5	
Racecourse Road: Marine Drive to Montague Drive	80	2	
Marine Drive: Racecourse Road to Dolphin Beach	236	3	
Total	1174	57	
Average burning rate			95.14

Area South			
Route Description	Total number lights in route	Number of lights in route out.	Burning rate
Route Description:Rondebosch/Claremont/Nlands/Lansdowne			
Diep River / Bergvliet / Heathfield / Plumstead / Constantia			
Campground Road: Sandown Road to Stanhope Road	100	8	
Lansdowne Road: Stanhope Road to Wolsey Road	112	16	
Newlands/Tennant Road: Paradise Road to Main Road	78	7	
Protea/Campground/Keurboom: Paradise to Belvedere	113	27	
De Waal/Kendall Rds: Victoria Rd to Spaanschemat River	136	19	
Spaanschemat River/Ladies Mile:Constantia Main to Main Rd	202	19	
Main Road: Constantia Road to Tokai Road	163	14	
Tokai Road: Main Road to Steenberg Road	89	2	
Total	993	96	
Average burning rate			90.33

Eskom Area			
Route Description	Total number lights in route	Number of lights in route out.	Burning rate
Bishop Lavis / Elsies River / Airport Industria			
Robert Sobukwe: Salm Road to Radnor Road			
Avonwood Drive: Valhalla Drive to 35th Avenue	No readings available - Lockdown		
Owen Road: Valhalla Drive to 35th Avenue			
Balvenie Road: Valhalla Drive to Halt Road			
35th Avenue: Fransie van Zijl to Robert Sobukwe			
Halt Road: Voortrekker Road to Owen Road			
Borcherd's Quarry Road: Robert Sobukwe to Klipfontein Rd	124	81	
Borcherd's Quarry Rd: high vandalism rate.			
Total	124	81	
Average burning rate			34.68

Highmasts			
Route Description :	Total number	Number of lights	Burning
Makhaza, Khayelitsha			
KHA 097	6	0	
KHA 098	6	3	
KHA 099	6	0	
KHA 100	6	0	
KHA 101	6	2	
KHA 102	6	1	
KHA 103	6	2	
KHA 104	6	0	
KHA 105	6	2	
KHA 106	6	2	
KHA 108	6	0	
KHA 109	6	3	
KHA 110	6	0	
KHA 111	6	4	
KHA 112	6	0	
KHA 113	6	0	
KHA 114	6	4	
KHA 115	6	6	
KHA 116	6	1	
KHA 175	6	0	
KHA 177	6	2	
KHA 179	6	1	
KHA 180	6	3	
KHA 181	6	2	
KHA 182	6	1	
KHA 183	6	3	
KHA 184	6	0	
KHA 185	6	3	
KHA 186	6	0	
KHA 188	6	1	
KHA 189	6	1	
KHA 191	6	6	
KHA 220	6	1	
KHA 232	6	6	
Maintenance to be scheduled			
Total	204	60	
Average burning rate			70.59

Average	Total number	Number of lights	Burning
Area	lights in route	in route out.	rate
East	0	0	
North	1174	57	
South	993	96	
Total	2167	153	
Average burning rate - CoCT Supply			92.94
Eskom	124	81	34.68
Highmasts	204	60	70.59
Combined burning rate: Metrowide	2495	294	88.22