

12.

WRITING OFF OF 2019/20 NON-TECHNICAL WATER AND ELECTRICITY LOSSES

7/2/3/2

S Müller

Director : Infrastructure & Planning

5 August 2020

(028) 313 8019

1. Executive Summary

National Treasury issued guidelines (MFMA Circular No. 70, December 2013) on how to deal with non-revenue water and electricity. Annexure B of Circular No. 70 provides guidance on the accounting treatment of non-technical losses and mentions that a council resolution is required to write off the losses. The purpose with this report is to obtain Council's approval for writing off the water and electricity losses for 2019/20.

2. Service Delivery and Budget Implementation Plan - IGNITE

Directorate Finance
Department Financial Services

3. Compliance with Strategic Priorities

Provision of democratic, accountable and ethical governance
Provision and maintenance of municipal services

4. Delegated Authority

None

5. Legal Requirements

Local Government: Municipal Finance Management Act, Act 56 of 2003

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

National Treasury issued guidelines (MFMA Circular No. 70, December 2013) on how to deal with non-revenue water and electricity. Annexure B of the Circular provides guidance on the accounting treatment of non-technical losses and mentions that a council resolution is required to write off the losses.

Discussion

Losses occur in every water and electricity distribution system. Losses are divided into technical losses and non-technical losses. Technical losses are authorised, unmetered uses or unavoidable internal system losses, whereas non-technical losses are unauthorised, unmetered uses and avoidable system losses.

In the case of electricity:

- Technical losses are losses caused by the physical properties of the components of the power system. The most obvious example is the power lost in the distribution lines and transformers due to unavoidable internal electrical resistance,
- Non-technical losses are losses caused by illegal connections, inaccurate meters, incorrect meter readings, incorrect billing, etc.

In the case of water:

- Technical losses are losses caused by unmetered, authorised water uses such as fire fighting, cleaning of reservoirs, flushing of pipelines and losses associated with the water treatment process (i.e. backwashing of filters),
- Non-technical losses are losses caused by leaks, pipe bursts, illegal connections, inaccurate meters, incorrect meter readings, incorrect billing, etc.

Evaluation

Electricity (refer to Annexure A for details)

The Municipality purchased 253 954 893.82 kWh of energy from Eskom during the period under review (1 July 2019 to 30 June 2020) at a total cost of R217 927 028.50. The unit cost of electricity is therefore R 0.8581 per kWh.

During the same period, the Municipality sold 238 676 275.5 kWh of energy to its customers. This equated to a total loss of 15 278 618.32 kWh (6.02%). The National Treasury norm for electricity losses is between 7% and 10%.

The technical losses were calculated for the different supply areas as follows:

Gansbaai	4.4%
Kleinmond, Hermanus and Hawston	7.4%

Based on the calculations above, it is estimated that the technical electrical losses for the entire system is 5.0%.

The non-technical losses are therefore 1.02%, or 2 580 873.63 kWh. At a unit cost of R0.8581 / kWh this equates to an amount of R 2 214 732.36.

Water (refer to Annexure B for details)

The Municipality produced 7 084 354 kl of potable water during the period under review (1 July 2019 to 30 June 2020).

During the same period, the Municipality sold 5 248 253 kl of potable water to its customers. This equated to a total loss of 1 836 101 kl. The technical water losses were calculated to be 203 612 kl (2.87%).

The non-technical losses are therefore 23.04% or 1 632 489 kl, and this equates to an amount of R 2 189 013.46. The National Treasury norm for water losses is between 15% and 30%.

7. Financial Implications

None (disclosed in the notes to the Annual Financial Statements)

8. Staff Implications

None

9. Comments from other Departments, Divisions and Administrations

None

10. Annexures

Annexure A: Details of Electricity Losses

Annexure B: Details of Water Losses

RECOMMENDATION TO THE COUNCIL:

1. that the non-technical electricity losses to the value of R2 214 732.36 for the 2019/20 financial year be written off; and
2. that the non-technical water losses to the value of R2 189 013.46 for the 2019/20 financial year be written off.

RESPONSIBLE OFFICIAL :

BA KING

TARGET DATE FOR IMPLEMENTATION :

1 SEPTEMBER 2020

Electricity : Value of kWh Units purchased from ESKOM July 2019 to June 2020

	<u>Kleinmond</u>	<u>Hawston</u>	<u>Hermanus</u>	<u>Stanford</u>	<u>Gansbaai</u>	<u>Total</u>
	<u>R</u>	<u>R</u>	<u>R</u>	<u>R</u>	<u>R</u>	<u>R</u>
July	451,043.62	177,505.73	2,844,105.46	148,836.81	1,561,698.35	5,183,189.97
	1,409,576.96	551,809.28	7,925,732.48	477,973.76	3,972,084.16	14,337,176.64
	955,062.51	358,682.47	5,742,686.36	323,848.65	2,811,526.75	10,191,806.74
August	470,856.37	188,444.93	3,002,532.35	159,866.35	1,646,504.07	5,468,204.07
	1,236,276.80	492,912.64	7,129,744.25	425,254.72	3,583,187.52	12,867,375.93
	895,554.69	341,184.00	5,520,964.03	307,094.39	2,709,351.74	9,774,148.85
September	589,625.90	230,276.13	3,592,063.34	199,793.38	1,866,479.27	6,478,238.02
	380,569.89	145,635.34	2,165,583.94	126,613.62	1,126,797.00	3,945,199.79
	403,955.75	164,348.77	2,507,315.13	133,471.99	1,451,812.98	4,660,904.62
October	613,922.18	248,513.95	3,866,983.82	217,271.81	1,923,895.99	6,870,587.75
	403,671.96	154,647.92	2,450,323.93	139,963.72	1,220,706.99	4,369,314.52
	361,855.84	148,766.57	2,294,834.38	123,111.25	1,287,430.13	4,215,998.17
November	599,621.93	229,389.53	3,758,854.73	205,732.52	1,896,030.38	6,689,629.09
	370,305.88	137,622.75	2,208,767.85	121,742.23	1,127,165.54	3,965,604.25
	374,246.54	153,812.65	2,382,770.52	126,108.83	1,327,022.04	4,363,960.58
December	620,295.15	213,576.84	3,475,952.19	173,567.43	1,697,372.52	6,180,764.13
	377,765.08	131,282.94	1,974,719.92	99,999.51	979,152.49	3,562,919.94
	527,301.52	192,280.09	2,986,330.73	152,898.14	1,692,521.37	5,551,331.85
January	651,158.78	237,592.59	3,966,308.27	212,736.06	1,948,786.50	7,016,582.20
	405,259.78	145,801.81	2,314,188.23	124,121.09	1,151,291.72	4,140,662.63
	428,473.07	168,379.12	2,554,533.23	135,601.17	1,422,034.11	4,709,020.70
February	573,422.85	209,067.96	3,428,347.31	186,339.43	1,727,234.17	6,124,411.72
	320,004.17	130,443.68	2,040,767.16	111,165.93	1,048,725.06	3,651,106.00
	360,894.73	149,325.29	2,269,255.67	121,707.67	1,264,914.20	4,166,097.56
March	586,785.14	227,131.93	3,615,961.90	203,006.33	1,814,902.12	6,447,787.42
	392,759.27	147,982.05	2,179,037.07	125,561.96	1,120,024.36	3,965,364.71
	388,895.19	163,283.44	2,451,096.37	133,242.99	1,436,923.79	4,573,441.78
April	532,266.87	226,515.57	2,999,212.44	181,115.42	1,721,998.31	5,661,108.61
	325,828.48	132,843.21	1,768,737.52	107,539.08	1,007,028.36	3,341,976.65
	397,234.50	173,326.98	2,421,550.23	135,147.17	1,461,296.29	4,588,555.17
May	598,136.36	248,186.81	3,421,840.59	200,885.43	1,836,606.55	6,305,655.74
	365,411.53	147,871.84	1,993,295.33	122,704.34	1,076,623.89	3,705,906.93
	401,282.38	174,112.71	2,457,359.98	136,144.36	1,418,323.46	4,587,222.89
June	1,244,760.00	487,115.20	6,720,836.62	418,007.04	3,385,472.64	12,256,191.50
	451,598.39	182,414.76	2,655,856.20	141,536.67	1,443,307.72	4,874,713.74
	897,324.58	351,026.09	5,134,920.26	292,022.58	2,459,574.13	9,134,867.64
Value of kWh	20,363,004.64	7,963,113.57	120,223,369.79	6,751,733.83	62,625,806.67	217,927,028.50
kWh purchased	23,026,907.50	9,066,169.93	140,784,103.63	7,601,434.89	73,476,277.87	253,954,893.82
Unit Cost R/kWh	0.8843	0.8783	0.8540	0.8882	0.8523	0.8581
kWh lost in Distribution 1 July 2019 to 30 June 2020						15,278,618.32
Less : 5 % Non-Revenue Technical losses (253 954 893.82 kWh x 5 %)						12,697,744.69
Non-Technical Losses to be written off at cost price (MFMA Circular No 70)						2,580,873.63
Nett Electricity Distribution Loss 2019/20 (July 2019 - June 2020)					1.02%	R 2,214,732.36

Electricity Losses 2019/20 : 12 Months Moving Average 30 June 2020

	kWh
Conventional Consumption	159,582,987.00
Streetlights	1,888,824.00
Prepaid	77,204,464.50
Total Sales	238,676,275.50
ESKOM	253,954,893.82
Electricity Losses	15,278,618.32
% Electricity Losses	6.02

Overstrand Municipality Water Distribution Losses 2019/2020 per Distribution Area

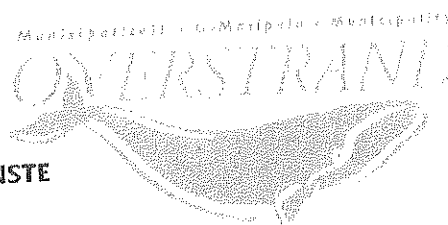
Water Scheme	Bulk Water per Town and Scheme K€	Water Metered K€	Grey Water & Raw Water (Fin) Kl	Water Metered and Grey/Raw Water Kl	Losses per Town K€	Operational (Technical) Losses Kl	Water Metered plus Operational Losses K€	Non-Technical Water Losses K€	Cost per K€ Purified R	Cost of Non-Tech Water Losses R	Cost of Tech Water Losses R	Cost of Sen Water Losses R	Total Cost of Bulk Water R
Water: Kleinmond	824,905	547,983		522,528	302,380	20,725	543,250	281,635	R 0.70	R 197,158.65	R 14,507.50	R 211,666.15	R 577,433.50
Water: Buffelsrivier	688,387	353,116		336,711	331,676	46,397	383,108	305,279	R 1.07	R 325,122.22	R 49,412.81	R 374,535.02	R 733,132.16
Water: Preekstoel De Bos Dem Franschoel Groundwater Greater Hermanus Total	2,537,106 1,146,008 3,683,114	2,240,535 1,012,947 3,252,582		2,136,444 969,029	400,662 180,979 981,641	61,567 27,810 89,377	2,198,011 992,839 3,190,850	339,095 153,169 492,264	R 0.28 R 0.44	R 94,607.50 R 67,241.01 R 161,848.51	R 17,177.19 R 12,208.59 R 29,385.78	R 111,704.70 R 79,449.60 R 191,234.30	R 707,852.57 R 503,097.51 R 1,210,950.09
Water: Stanford	325,072	231,932		221,157	103,915	6,334	229,491	95,581	R 0.02	R 2,293.95	R 200.02	R 2,493.96	R 7,801.73
Water: Franskraal De Kelders Greater Gansbaal Total	1,109,850 281,717 1,391,567	848,660 152,280 1,000,910		809,233 145,177	300,617 136,540 437,157	27,353 6,243 34,296	836,586 152,120 988,706	273,244 129,597 402,861	R 5.03 R 0.33	R 1,375,064.85 R 43,285.48 R 1,418,350.32	R 137,640.30 R 2,318.96 R 139,959.26	R 1,912,705.14 R 45,604.44 R 1,958,309.58	R 5,584,765.20 R 24,093.48 R 5,678,858.68
Water: Baardskaersbos	15,674	8,733		8,327	7,347	428	8,785	4,919	R 5.37	R 37,160.43	R 2,298.79	R 39,459.22	R 84,185.05
Water: Buffeljagsbaai	5,158	4,226		4,032	1,126	135	4,167	991	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Water: Pearly Beach	150,477	104,472		99,618	50,859	3,020	101,538	46,939	R 1.00	R 47,079.38	R 3,931.74	R 51,011.14	R 150,928.43
Overstrand Totals	7,684,354	5,903,956	255,703	5,248,253	1,836,101	203,612	5,451,865	1,632,489		R 2,189,013.46	R 239,695.91	R 2,428,709.37	R 8,443,289.63
	%	Kl	R										
Total / General water losses	25.92%	1,836,101	2,428,709.37										
Operational / Technical Losses	2.87%	203,612	239,695.91										
Nett / Non-technical water losses	23.04%	1,632,489	2,189,013.46										

Unit Cost per Water Scheme:

Water Scheme Name	Variable cost per Bulk OAM Contract (R/k)
Buffelsrivier Bulk	R 1.07
Kleinmond Bulk	R 0.70
Greater Hermanus Preekstoel De Bos Dam	R 0.28
Greater Hermanus Preekstoel Groundwater	R 0.44
Stanford	R 0.02
Greater Gansbaal - Franskraal	R 5.03
Greater Gansbaal - De Kelders	R 0.33
Pearly Beach Bulk	R 1.00
Buffeljagsbaal Bulk	R 0.00
Baardskaersbos Bulk	R 5.37

MEMORANDUM

KANTOOR VAN DIE ADJUNK DIREKTEUR: OPERASIONELE DIENSTE
OFFICE OF THE DEPUTY DIRECTOR: OPERATIONAL SERVICES



To : CFO Date : 09 July 2019

From : Theo Steenberg

Re : Water losses due to operational requirements for the period 1 July 2019 to 30 June 2020

The operational requirements for purified water for the Overstrand during the 2019/20 financial year can be summarized as follows.

1. Fire fighting.

Fire fighting required 1298 kl (Annex "A")

2. Cleaning of reservoirs.

Reservoirs are cleaned (flushed) once a year to avoid sludge settling in the reservoirs from being distributed in the water network. To avoid "contaminated" water entering the system the reservoirs are allowed to drain into the network to approx. 30% of its capacity.

The balance of the water is flushed out with the sludge when cleaning the reservoirs

The total capacity of Overstrand reservoirs is 67 659 kl (Annex "B")

Total amount flushed water is 20298 kl

3. Flushing of pipelines after the repair of burst pipes.

When burst pipes in the distribution networks occur, a certain amount of "debris" (mud etc.) enters the system. In order to avoid contaminated water being supplied to consumers, the pipelines are flushed through fire hydrants for approx. 1 hour at a time at a rate of 50kl/hr

Due to the long pipelines, lack of valves and fire hydrants in the Betty's Bay network, the flushing time is 6 hours at a time (conservative estimate)

During 2019/20 Betty's Bay, Pringlebay and Rooi Els experienced 123 burst pipes and in the rest of Overstrand 109 pipe bursts occurred. (Annex "C")

Therefore 30750 kl ($123 \times 50 \text{kl} \times 6 \text{hrs}$) for Betty's Bay and 5450 kl ($109 \times 50 \text{kl} \times 1 \text{hr}$) for the rest of Overstrand was flushed, totalling 36200 kl.

4. Water used by contractors (metered standpipes)

Private contractors appointed to execute municipal contract use potable water during the execution of their contracts. This consumption is accounted for by means of metered standpipes. (Annex "D") The total amount used for this purpose is **748 kl**

5. Water meter audit (accuracy of domestic water meters)

Worley Parsons Consulting Engineers audited all water meters in the Overstrand during 2011

With age, the accuracy of the domestic water meters deteriorate and according to this report, meters older than 10 years are reading 8% less than the actual consumption.

According to a report (Annex F) extracted from DB4 **12 998** meters were older than 10 years on 30 June 2020.

The total consumption (billed) for 2019/20 was **5,503 972 kl**, with an average annual consumption of **140 kl** per consumer (**39 450** meters in total).

Thus **12 998** meters were "under reading" by 8% on an average annual consumption of **140 kl**.

1 450 76 kl consumption was therefore not accounted for, due to the "under reading" of the individual water meters, due to their age.

6. Replacement of water meters.

No water meter replacements have been conducted during 2019/20 financial year.

Total losses due to operational requirements during 2019/20 is **203 620 kl**.

Yours sincerely,


T STEENBERG
DEPUTY DIRECTOR: OPERATIONAL SERVICES