

**6. WRITING OFF OF NON-TECHNICAL WATER AND ELECTRICITY LOSSES**

5/17/2

S Müller

(028) 313 8019

Hermanus Administration

9 September 2016

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**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.

**2. Service Delivery and Budget Implementation Plan - IGNITE**

Directorate Finance  
Department Revenue

**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 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 caused by illegal connections, inaccurate meters, incorrect meter readings, incorrect billing, etc.

In the case of water:

- technical losses are 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 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 237 305 667 kWh of energy from Eskom during the period under review (1 July 2015 to 30 June 2016) at a total cost of R149 857 264. The unit cost of electricity is therefore R0.63 per kWh.

During the same period, the Municipality sold 222 259 652 kWh of energy to its customers. This equated to a total loss of 15 046 015 kWh (6.34%). 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	4.9%
Kleinmond	3.8% to 4.1%
Hermanus and Hawston	6.6% to 9.6%

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 1.34% or 3 180 732 kWh. At a unit cost of R0.63/kWh this equates to an amount of R 2 003 861.

Water (refer to Annexure B for details)

The Municipality produced 7 148 111 kl of potable water during the period under review (1 July 2015 to 30 June 2016).

During the same period, the Municipality sold 5 657 149 kl of potable water to its customers. This equated to a total loss of 1 490 962 kl (20.86%). The National Treasury norm for water losses is between 15% and 30%.

The technical water losses were calculated to be 63 210 kl (0.88%).

The non-technical losses are therefore 19.97% or 1 427 752 kl and this equates to an amount of R5 299 387.

#### **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 Electrical Losses

Annexure B: Details of Water Losses

#### **RECOMMENDATION TO THE COUNCIL:**

1. that the non-technical electricity losses to the value of R2 003 861 for the 2015/16 financial year be written off; and
2. that the non-technical water losses to the value of R5 299 387 for the 2015/16 financial year be written off.

**RESPONSIBLE OFFICIAL :**

**BA KING**

**TARGET DATE FOR IMPLEMENTATION :**

**30 SEPTEMBER 2016**

ELECTRICITY LOSSES : 12 Months Moving Average : June 2016

Table with columns for months (July 2015 to June 2016) and rows for various subareas including KLEINMOND, HAWSTON, HERMANUS, STANFORD, and ESKOM. Each row contains electricity loss values in kWh and percentage for each month, along with a TOTAL column.

Administration	Suburb	July 2015	August 2015	September 2015	October 2015	November 2015	December 2015	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	TOTAL	
		kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	
GANSAAI Metered	Birkenhoed	6 704	6 993	11 190	13 341	9 183	8 554	14 956	0	18 890	11 142	9 004	10 937	120 894	
	Blompark	9 535	7 451	10 915	12 628	9 439	8 832	5 606	6 605	9 202	6 972	8 338	9 498	105 021	
	De Kalders	176 161	169 679	115 248	178 649	128 063	142 987	236 225	124 246	144 284	154 205	131 252	154 333	1 855 332	
	Franskrual	169 263	100 550	168 249	146 052	149 758	141 934	286 323	87 513	134 873	163 453	124 019	143 566	1 815 553	
	Gansbaai	1 220 609	1 111 938	1 050 731	952 428	1 237 389	1 258 546	1 177 078	1 028 723	1 274 515	1 339 536	1 260 941	1 322 275	14 234 709	
	GB Industrie Park	37 637	4 196	81 673	40 121	43 487	39 158	77 004	30 719	48 403	40 468	46 555	49 247	538 668	
	Kleinbaai	104 689	89 038	111 287	113 448	88 371	84 704	164 594	76 118	96 358	109 636	85 632	94 713	1 218 588	
	Masakhane	0	0	0	0	0	0	0	0	0	0	0	0	5 696	
	Pearly Beach	138 399	135 046	137 441	135 783	97 349	150 169	262 468	143 509	131 339	161 220	129 630	130 364	1 732 717	
	Bredasdorp Distrik	8 649	34 982	17 117	17 117	13 034	17 096	22 161	14 587	14 523	15 806	13 389	16 968	202 206	
	Caledon Distrik	1 631 788	1 623 772	1 706 290	1 577 208	1 599 300	1 655 948	1 733 978	1 694 455	1 592 182	1 743 452	1 627 669	1 704 824	19 850 866	
	Subtotal	3 508 679	3 257 312	3 428 006	3 186 775	3 335 373	3 507 928	3 980 393	3 206 475	3 464 569	3 745 890	3 436 429	3 509 038	3 642 421	41 700 250
	PREPAID	1 503 697	1 477 970	1 450 258	1 472 012	1 452 985	1 706 169	1 516 872	1 403 456	5 048 579	5 217 723	4 945 467	5 206 887	59 813 016	
	Total Sales	5 012 376	4 735 282	4 878 264	4 658 787	4 788 358	5 214 097	5 497 265	4 609 931	5 048 579	5 217 723	4 945 467	5 206 887	59 813 016	
	ESKOM	5 349 478	5 124 069	4 827 546	5 191 306	5 106 723	5 711 492	5 286 510	4 992 658	5 573 413	5 148 210	5 364 369	5 156 262	62 832 035	
Electricity Losses	337 102	388 788	-50 719	532 518	318 365	497 395	382 727	524 834	-69 513	-1%	8%	8%	-50 624	3 019 019	
% Electricity Losses	6%	8%	-1%	10%	6%	9%	-4%	9%	9%	9%	-1%	8%	-1%	4.8%	
TOTAL for GANSAAI / STANFORD		3 754 720	3 527 890	3 646 571	3 414 155	3 573 130	3 736 887	4 228 583	3 493 404	3 698 098	3 992 589	3 669 479	3 882 881	44 618 387	
Consumption	1 878 230	1 829 764	1 790 334	1 826 590	1 798 149	2 086 936	1 856 898	1 735 693	1 942 867	1 825 835	1 872 169	1 938 614	22 382 078		
PREPAID	5 632 950	5 357 654	5 436 905	5 240 745	5 371 279	5 823 823	6 085 481	5 229 097	5 640 965	5 818 424	5 541 648	5 821 495	67 000 465		
Total Sales	5 981 113	5 775 599	5 462 536	5 797 303	5 729 753	6 340 425	5 959 423	5 648 865	6 180 778	5 788 718	5 985 359	5 839 670	70 489 543		
ESKOM	348 164	417 944	25 631	556 558	358 475	516 602	-126 058	419 768	539 813	-29 707	443 712	18 175	3 489 078		
Electricity Losses	5 8%	7 2%	0 5%	9 6%	6 3%	8 1%	-2 1%	7 4%	8 7%	-0 5%	7 4%	0 3%	4 9%		
% Electricity Losses															
Total Metered	12 481 693	13 091 465	12 431 306	11 725 035	11 982 218	12 361 828	14 020 861	12 445 029	11 945 370	12 833 949	11 961 925	12 186 193	149 466 872		
Total Streetlights	157 402	157 402	157 402	157 402	157 402	157 402	157 402	157 402	157 402	157 402	157 402	157 402	1 888 824		
Total Prepaid	5 948 243 30	5 923 958 70	5 699 978 30	5 830 442 00	5 671 601 40	6 395 451 20	5 800 238 10	5 503 402 60	6 083 867 40	5 795 080 10	5 999 064 40	6 252 628 00	70 903 955 50		
Total Consumption	18 587 338 30	19 172 825 70	18 288 686 30	17 712 879 00	17 811 221 40	18 914 681 20	19 978 501 10	18 105 833 60	18 186 639 40	18 786 431 10	18 118 391 40	18 596 223 00	222 259 651 90		
ESKOM	20 367 694 49	20 210 097 76	19 096 293 99	19 407 865 90	19 008 999 92	20 881 163 94	20 528 383 39	18 801 788 14	19 965 237 35	19 193 277 67	19 748 163 05	20 096 701 18	237 305 666 78		
Electricity Losses	1 780 356	1 037 272	807 608	1 694 987	1 197 779	1 966 483	549 882	695 955	1 778 598	406 847	1 629 772	1 500 478	15 046 015 28		
% Electricity Losses	8 74%	5 13%	4 23%	8 73%	6 30%	9 42%	2 68%	3 70%	8 91%	2 12%	8 25%	7 47%	6 34%		
Metered consumption since 1 July 2015	12 481 693	25 573 158	38 004 464	49 729 499	61 711 717	74 073 545	88 094 406	100 539 435	112 484 805	125 318 754	137 280 679	149 466 872	R/per unit	0.63	
Streetlights adjusted w.e.f. 1 Jan 2012													Total R	9 478 990	
													Tech loss (units)	11 865 283	
													Tech loss (Rand)	7 475 129	
													Non-tech loss (unit)	3 180 731.94	
													Non-tech loss (Rand)	2 003 861.12	

DEPARTMENT	Bulk Water Kℓ	Water Metered plus Operational Losses Kℓ	Non-Technical Water Losses Kℓ	Cost per Kℓ Purified R	Cost of Water Losses R
Water Treatment : Kleinmond	1 265 549	785 746	479 803 R	1.38 R	662 128.14
Water Treatment : De Bos	4 063 620	3 623 963	439 657 R	0.24 R	105 517.68
Water Treatment : Stanford	303 554	228 291	75 263 R	0.03 R	2 257.89
Water Treatment : Gansbaai Raw Water : Gansbaai	1 515 388	1 082 359	433 029 R	10.46 R	4 529 483.34
<b>Total</b>	<b>7 148 111</b>	<b>5 720 359</b>	<b>1 427 752</b>		<b>R 5 299 387.05</b>

DEPARTMENT	Bulk Water Kℓ	Water Metered excluding Operational Losses Kℓ	Non-Technical Water Losses Kℓ	Cost per Kℓ Purified R	Cost of Water Losses R
Water Treatment : Kleinmond	1 265 549	767 696	497 853 R	1.38 R	687 037.14
Water Treatment : De Bos	4 063 620	3 594 497	469 123 R	0.24 R	112 589.52
Water Treatment : Stanford	303 554	223 785	79 769 R	0.03 R	2 393.07
Water Treatment : Gansbaai Raw Water : Gansbaai	1 515 388	1 071 171	444 217 R	10.46 R	4 646 509.82
<b>Total</b>	<b>7 148 111</b>	<b>5 657 149</b>	<b>1 490 962</b>		<b>R 5 448 529.55</b>

Total / General water losses	20.86%	1 490 962 R	5 448 529.55
Operational / Technical Losses	0.88%	63 210 R	149 142.50
Nett / Non-technical water losses	19.97%	1 427 752 R	5 299 387.05