

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

5/17/2

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10 September 2015

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Corporate Head Office

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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****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 229 983 675 kWh of energy from Eskom during the period under review (1 July 2014 to 20 June 2015) at a total cost of R127 947 289. The unit cost of electricity is therefore R0.5563 per kWh.

During the same period, the Municipality sold 216 711 279 kWh of energy to its customers. This equated to a total loss of 13 272 396 kWh (5.77%). 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 0.77% or 1 773 212 kWh. At a unit cost of R0.5563/kWh this equates to an amount of R986 494.80

**AGENDA OF THE MAYORAL COMMITTEE MEETING: 30 SEPTEMBER 2015**

Water (refer to Annexure B for details)

The Municipality produced 7 121 MI of potable water during the period under review (1 July 2014 to 20 June 2015) at a total cost of R23 522 842. Refer to Annexure B for details on the unit cost of water per distribution area.

During the same period, the Municipality sold 5 744 MI of potable water to its customers. This equated to a total loss of 1 377 MI (19.33%). The National Treasury norm for water losses is between 15% and 30%.

The technical water losses were calculated to be 96 MI (1.34%).

The non-technical losses are therefore 17.99% or 1 281 MI and this equates to an amount of R5 018 708.27

**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 R986 494.80 for the 2014/15 financial year, **be written off**; and
2. that the non-technical water losses to the value of R5 018 708.27 for the 2014/15 financial year, **be written off**.

**RESPONSIBLE OFFICIAL :**

**B KING**

**TARGET DATE FOR IMPLEMENTATION :**

**30 SEPTEMBER 2015**

**Electricity : Value of kWh Units purchased from Eskom July 2014 to June 2015**

	<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>
<b>July</b>	275 084.27	440 404.52	1 755 110.99	372 546.65	819 343.37	3 662 489.80
	532 882.06		3 406 525.19		1 501 413.91	5 440 821.16
	739 552.29		4 670 877.67		2 185 816.52	7 596 246.48
<b>August</b>	291 757.67	444 179.28	1 800 885.94	371 222.14	873 314.92	3 781 359.95
	569 915.27		3 116 139.92		1 375 472.22	5 061 527.41
	790 668.78		3 978 452.79		1 930 763.63	6 699 885.20
<b>September</b>	270 331.83	374 390.10	1 350 611.82	302 659.19	630 981.76	2 928 974.70
	483 869.36		1 424 972.68		709 174.95	2 618 016.99
	572 615.88		2 261 677.16		1 030 987.59	3 865 280.63
<b>October</b>	231 234.11	316 516.94	1 437 157.73	265 486.17	689 077.33	2 939 472.28
	232 137.48		1 394 588.69		681 487.80	2 308 213.97
	381 397.04		2 338 199.23		1 096 453.71	3 816 049.98
<b>November</b>	220 392.08	319 532.66	1 218 789.30	276 230.44	577 121.19	2 612 065.67
	250 708.54		1 447 334.03		726 519.21	2 424 561.78
	371 010.56		2 115 266.03		978 431.42	3 464 708.01
<b>December</b>	230 557.46	137 797.37	1 299 428.12	276 248.53	624 358.28	2 568 389.76
	226 999.20	80 064.26	1 731 970.97		889 475.42	2 928 509.85
	369 042.36	98 802.59	2 248 980.18		1 052 821.65	3 769 646.78
<b>January</b>	245 118.03	135 555.38	1 287 927.24	291 627.85	596 088.18	2 556 316.68
	363 228.40	78 729.27	1 600 566.14		793 781.19	2 836 305.00
	430 920.30	126 299.12	2 260 633.17		1 017 394.10	3 835 246.69
<b>February</b>	208 288.09	93 749.00	1 229 874.63	278 881.69	580 012.65	2 390 806.06
	264 066.49	150 677.09	1 298 847.34		641 817.23	2 355 408.15
	375 281.26	92 149.31	2 007 980.57		931 451.21	3 406 862.35
<b>March</b>	201 882.43	137 041.66	1 374 056.66	254 007.98	686 281.69	2 653 270.42
	219 639.01	86 881.69	1 388 401.28		747 197.81	2 442 119.79
	344 115.65	87 353.05	2 243 420.55		1 098 617.13	3 773 506.38
<b>April</b>	223 669.76	59 616.53	1 255 559.35	285 576.96	588 774.59	2 413 197.19
	277 346.99	83 011.45	1 634 945.76		829 343.56	2 824 647.76
	377 360.20	99 532.26	2 051 717.47		948 771.96	3 477 381.89
<b>May</b>	184 842.08	98 751.10	1 299 200.64	275 819.84	579 362.20	2 437 975.86
	251 895.15	100 479.24	1 588 232.31		753 506.03	2 694 112.73
	372 679.49	146 241.53	2 147 093.39		936 704.20	3 602 718.61
<b>June</b>	407 127.86	256 454.30	1 709 571.79	368 285.62	845 854.44	3 587 294.01
	252 045.72	114 790.22	3 143 377.74		1 400 613.99	4 910 827.67
	437 427.55	199 356.85	4 597 822.97		2 028 464.40	7 263 071.77
<b>Value of kWh</b>	<b>12 477 090.70</b>	<b>4 358 356.77</b>	<b>73 116 197.44</b>	<b>3 618 593.06</b>	<b>34 377 051.44</b>	<b>127 947 289.41</b>
<b>kWh purchased</b>	<b>22 059 838.86</b>	<b>8 573 582.40</b>	<b>130 548 249.50</b>	<b>7 455 086.80</b>	<b>61 346 917.59</b>	<b>229 983 675.15</b>
<b>Unit Cost R/kWh</b>	<b>0.5656</b>	<b>0.5083</b>	<b>0.5601</b>	<b>0.4854</b>	<b>0.5604</b>	<b>0.5563</b>
<b>kWh lost in Distribution 1 July 2014 to 30 June 2015</b>						<b>13 272 396.00</b>
<b>Less : 5 % Non-Revenue Technical losses (229 983 675.15 kWh x 5 %)</b>						<b>11 499 183.76</b>
<b>Non-Technical Losses to be written off at cost price (MFMA Circular No 70)</b>						<b>1 773 212.24</b>
<b>Nett Electricity Distribution Loss 2014/15</b>						<b>0.77%</b>
<b>Value of kWh lost in Distribution : July 2014 to June 2015</b>						<b>986 494.80</b>



Administration	Suburb	July 2014	August 2014	September 2014	October 2014	November 2014	December 2014	January 2015	February 2015	March 2015	April 2015	May 2015	June 2015	TOTAL	
		kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	
GANSBAAI Metered	Birkenhead	13 194	13 089	14 162	10 774	12 053	10 696	11 658	9 670	9 966	10 657	9 940	9 489	135 348	
	Blompark	12 042	11 330	13 826	11 191	10 430	9 286	6 063	6 159	8 119	9 379	7 763	10 242	115 830	
	De Keiders	199 382	157 941	158 090	167 072	158 758	148 006	227 640	164 772	142 771	139 451	155 144	130 926	1 949 953	
	Franskrail	185 699	144 123	151 396	136 908	147 578	126 097	279 518	178 880	132 132	126 905	184 070	107 384	1 900 690	
	Gansbaai	1 032 174	1 171 712	1 169 475	1 218 867	1 351 918	1 123 633	1 123 038	1 020 263	1 095 946	1 506 422	1 208 498	1 403 407	14 030 407	
	GB Industrie Park	46 985	41 870	48 125	45 413	41 110	41 302	41 943	37 244	44 528	36 205	43 085	38 401	506 211	
	Klembaal	104 107	97 505	92 843	98 427	100 707	89 747	138 853	113 975	87 206	83 813	110 905	89 126	1 207 214	
	Masakhane	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Pearly Beach	139 724	145 522	133 338	125 861	132 928	133 730	250 252	156 103	116 743	121 088	170 429	116 891	1 742 609	
	Bredasdorp Distrik	14 385	14 331	13 900	10 984	13 662	13 773	19 638	12 332	16 430	13 224	17 738	12 756	173 153	
	Caledon Distrik	1 561 635	1 633 142	1 639 143	1 545 045	1 570 517	1 552 751	1 648 165	1 570 171	1 446 712	1 596 990	1 609 812	1 615 146	19 030 229	
	Subtotal	3 309 327	3 430 565	3 434 298	3 370 542	3 539 661	3 249 021	3 746 768	3 314 569	3 100 563	3 644 134	3 513 384	3 138 822	3 138 822	40 791 644
	PREPAID	1 448 659	1 440 985	1 407 083	1 441 217	1 390 283	1 675 531	1 494 565	1 290 579	4 605 148	4 527 547	5 129 641	4 958 193	4 672 324	58 271 357
	Total Sales	4 757 986	4 871 550	4 841 381	4 811 759	4 929 944	4 924 552	5 241 333	4 605 148	4 527 547	5 129 641	4 958 193	4 898 231	5 139 558	61 346 918
	ESKOM	5 282 911	5 133 557	5 014 582	5 134 570	4 893 666	5 599 837	5 200 467	4 547 137	5 336 107	5 166 296	5 797 824	5 508 182	5 800 981	68 802 004
Electricity Losses	524 925	262 007	173 201	322 811	322 811	675 284	-40 866	-58 010	808 559	36 655	-59 962	467 233	3 912 728		
% Electricity Losses	10%	5%	3%	6%	6%	12%	-1%	-1%	15%	1%	-1%	9%	5.0%		
<b>TOTAL for GANSBAAI / STANFORD</b>															
Consumption		3 547 185	3 673 648	3 687 117	3 586 741	3 762 185	3 481 699	4 017 833	3 542 791	3 321 495	3 889 198	3 765 051	3 372 153	43 647 296	
PREPAID		1 810 730	1 789 820	1 743 059	1 779 328	1 719 180	2 044 078	1 835 485	1 605 562	1 772 393	1 820 466	1 788 379	1 533 502	21 241 981	
Total Sales		5 357 915	5 463 468	5 430 176	5 366 069	5 481 365	5 525 977	5 853 318	5 148 353	5 093 888	5 709 664	5 553 430	4 905 655	64 889 277	
ESKOM		5 930 929	5 771 615	5 648 487	5 721 669	5 504 525	6 210 735	5 845 375	5 163 859	5 897 822	5 797 824	5 508 182	5 800 981	68 802 004	
Electricity Losses		573 014	308 147	218 311	355 600	23 161	684 758	-7 942	15 506	803 935	88 160	-45 248	895 326		
% Electricity Losses		9.7%	5.3%	3.9%	6.2%	0.4%	11.0%	-0.1%	0.3%	13.6%	1.5%	-0.8%	15.4%	5.7%	
Total Metered		12 710 110	12 703 362	12 381 497	12 633 835	12 649 606	11 580 927	13 743 831	12 053 123	11 142 819	12 085 031	12 229 501	11 467 903	147 381 545	
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		5 770 593.80	5 618 733.80	5 460 423.60	5 591 828.30	5 362 142.00	6 136 761.30	5 659 403.20	5 023 376.10	5 565 296.50	5 607 825.20	5 658 331.50	5 986 194.80	67 440 910.10	
Total Consumption		18 638 105.80	18 479 497.80	17 999 322.60	18 383 065.30	18 169 150.00	17 875 090.30	19 560 636.20	17 233 901.10	16 865 517.50	17 850 258.20	18 045 234.50	17 611 499.80	216 711 279.10	
ESKOM		20 430 967.83	19 675 228.97	18 978 235.24	19 120 455.72	18 334 722.72	20 203 407.65	20 082 566.87	17 330 598.54	18 780 812.22	18 868 281.11	18 736 734.72	19 441 703.56	229 983 675.15	
Electricity Losses		1 792 862	1 195 731	978 913	737 390	165 573	2 328 317	521 891	96 697	1 915 295	1 018 023	691 500	1 830 204	13 272 396.05	
% Electricity Losses		8.78%	6.08%	5.16%	3.86%	0.90%	11.52%	2.60%	0.56%	10.20%	5.40%	3.69%	9.41%	5.77%	
Metered consumption since 1 July 2014															
Streetlights adjusted w.e.f. 1 Jan 2012															

**Value of Water Distribution Losses 2014/2015 per Distribution Area**

30 June 2015

VOTE	DEPARTMENT	Direct Labour	General Expenses (Excl Dept. Charges)	Repairs & Maintenance	Capital Charges (Cost)	Total Variable Costs	Bulk Water K€	Water Metered plus Operational Losses K€	Non-Technical Water Losses K€	Cost per K€ Purified Water Losses	Cost of Water Losses
456	Water Treatment : Kleinmond	R 837 864.00	R 2 864 169.87	R 342 164.52	R 209 170.01	R 4 253 368.40	1 410 530	931 800	478 730	R 3.02	R 1 443 581.53
459	Water Treatment : De Bos	R 1 501 224.00	R 1 881 044.00	R 1 087 638.90	R 4 373 436.34	R 8 843 343.24	3 939 770	3 622 258	317 512	R 2.24	R 712 698.36
460	Water Treatment : Stanford	R -	R 9 069.45	R 71 981.99	R -	R 81 051.44	297 946	221 518	76 428	R 0.27	R 20 791.01
462	Water Treatment : Gansbaai	R 720 048.00	R 4 950 993.60	R 1 933 009.39	R 2 639 839.39	R 10 243 890.38					
497	Raw Water : Gansbaai	R -	R -	R 101 188.12	R -	R 101 188.12					
	<b>Total</b>	R 3 059 136.00	R 9 705 276.92	R 3 535 982.92	R 7 222 445.74	R 23 522 841.58	7 121 168	5 839 912	1 281 256	R 3.30	R 5 018 708.27

19.33%	1 376 842
1.34%	95 586
17.99%	1 281 256

Total / General water losses  
Operational / Technical Losses  
Nett / Non-technical water losses

**IF REVALUED AMOUNTS WERE USED INSTEAD OF THE COST PRICES OF PPE:**

VOTE	DEPARTMENT	Direct Labour	General Expenses (Excl Dept. Charges)	Repairs & Maintenance	Capital Charges (Revalued)	Total Variable Costs	Bulk Water K€	Water Metered plus Operational Losses K€	Non-Technical Water Losses K€	Cost per K€ Purified Water Losses	Cost of Water Losses
456	Water Treatment : Kleinmond	R 837 864.00	R 2 864 169.87	R 342 164.52	R 665 879.82	R 4 710 078.21	1 410 530	931 800	478 730	R 3.34	R 1 598 587.58
459	Water Treatment : De Bos	R 1 501 224.00	R 1 881 044.00	R 1 087 638.90	R 4 890 365.64	R 9 360 272.54	3 939 770	3 622 258	317 512	R 2.38	R 754 358.47
460	Water Treatment : Stanford	R -	R 9 069.45	R 71 981.99	R -	R 81 051.44	297 946	221 518	76 428	R 0.27	R 20 791.01
462	Water Treatment : Gansbaai	R 720 048.00	R 4 950 993.60	R 1 933 009.39	R 3 429 334.19	R 11 033 385.18					
497	Raw Water : Gansbaai	R -	R -	R 101 188.12	R 131 763.43	R 232 951.55					
	<b>Total</b>	R 3 059 136.00	R 9 705 276.92	R 3 535 982.92	R 9 117 343.08	R 25 417 738.92	7 121 168	5 839 912	1 281 256	R 3.57	R 5 434 378.91

**NET EFFECT RESULTING FROM USING COST INSTEAD OF REVALUED**

The effect by itself is not material

415 670.65

## Calculation of General Expenses excluding Departmental Charges

	General Expenses	Less : Dept. Charges	Nett General Expenses
456 Water Treatment : Kleinmond	R 4 481 806.83	R 1 617 636.96	R 2 864 169.87
459 Water Treatment : De Bos	R 5 759 461.04	R 3 878 417.04	R 1 881 044.00
460 Water Treatment : Stanford	R 161 839.41	R 152 769.96	R 9 069.45
462 Water Treatment : Gansbaai	R 7 450 505.64	R 2 499 512.04	R 4 950 993.60
497 Water (Raw water) : Gansbaai	R 103 176.96	R 103 176.96	R -
Total	R 17 956 789.88	R 8 251 512.96	R 9 705 276.92

Operational requirements for Water : Per Area : 2014/15

<u>Requirement</u>	<u>2014/2015</u> Kℓ	<u>Kleinmond</u> Kℓ	<u>Hermanus</u> Kℓ	<u>Stanford</u> Kℓ	<u>Gansbaai</u> Kℓ
Fire Fighting	1 705	138	721	246	600
Cleaning of Reservoirs	20 687	3 861	11 613	900	4 313
Flushing of Pipelines after the repair of burst pipes	32 150	21 400	7 650	1 400	1 700
Water treatment works process loss	0	0	0	0	0
Water used by contractors (metered standpipes)	1 311	1 297	14	0	0
Water meter audit (accuracy of domestic watermeters)	39 270	8 248	22 034	1 382	7 606
Replacement of water meters	463	278	185	0	0
<b>Total</b>	<b>95 586</b>	<b>35 222</b>	<b>42 217</b>	<b>3 928</b>	<b>14 219</b>

0

