

Historical overview

1882 South Africa was one of the first countries in the world to use electricity on a commercial basis. As elsewhere, the supply of electricity began under the auspices of various municipalities. Kimberley was the first to introduce electric street lights in 1882, before London had electric lights. Kimberley's first reticulation system was commissioned in 1890, followed by Johannesburg in 1891, Pretoria in 1892, Cape Town in 1895, Pietermaritzburg in 1896, Durban in 1897, East London in 1899, Bloemfontein in 1900 and Port Elizabeth in 1906.

1906 In the 1890s, mining groups combined to erect power stations to supply their own needs. The Victoria Falls Power Company Limited (VFP) was registered in 1906 to harness the Victoria Falls and supply electricity to industries on the Witwatersrand and in Southern Rhodesia, now Zimbabwe. For technical and financial reasons the project was abandoned and the VFP concentrated on the exploitation of Transvaal coal. By 1915 it operated four power stations under the name of The Victoria Falls and Transvaal Power Company and at one stage was the largest utility in the British Empire.

1923 The need for a national power system which could meet the demands of the entire country led to the Electricity Act of 1922 and the establishment of the Electricity Supply Commission in 1923. The Commission's first chairman was Dr H.J. van der Bijl, an internationally recognised scientist who also founded Iscor and the IDC. Eskom began generating power in 1925 and soon became South Africa's leading electricity supplier.

1948 Eskom took over the VFP in 1948, a further step towards a national supply system. By the end of 1989, Eskom was supplying about 97% of South Africa's electricity. It now ranks among the largest electricity utilities in the world.

1962 Eskom's first power stations were far advanced for their time, but small by today's standards with sets of 33 MW and later 60 MW. In 1962, the first "big" sets, 100 MW and 125 MW, were commissioned. This led to the present 600 MW sets which are among the largest and technologically most advanced in the world.

1973 The idea of an integrated transmission system, linking all major cities in the country, was first raised in the 1920s. By 1973 this had become a reality when all Eskom undertakings had been connected. The transmission system today has more than 210 000 km of lines of which 21 000 km are part of the national grid. In 1987, the first 765 kV lines were energised.

1984 With vast deposits of coal available, Eskom's base-load stations are mainly coal fired. It has also harnessed South Africa's meagre hydro potential. In addition, in 1984, South Africa's first nuclear power station became operational.

1985 Eskom was restructured in 1985 to meet the electricity demands of a changing South Africa. The Electricity Supply Commission was replaced by a body corporate known as Eskom (Eskom since 1987), controlled and managed by the Electricity Council and Management Board. Eskom commits itself to being a professionally managed, customer orientated business.

1989 Eskom's commitment to business excellence and customer focus extends to include the accelerated electrification of urban and rural areas and closer contact with other utilities on the subcontinent.

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The information relevant to Eskom in this Yearbook may be reproduced subject to acknowledgement of source.

Additional copies of this Statistical Yearbook, as well as of the Annual Report, may be obtained from the Communication Manager at the above address.

Hierdie publikasie is ook in Afrikaans verkrygbaar.

ESKOM: Highlights of the year

	1989	1988	% Change 1988-89	% Average yearly increase 1985-89
Financial				
Revenue (R million)	9 271	8 159	13,6	19,3
Net income (R million)	728	816	-10,8	-0,1
Fixed assets in commission, at cost (R million)	31 199	28 680	8,8	20,9
Works under construction (R million)	6 638	5 512	20,4	-1,8
Net capital expenditure (R million)	3 993	3 969	0,6	1,4
Total net borrowings (R million)	24 630	22 779	8,1	12,2
Average price per kW.h sold (cents)	6,90	6,30	9,5	14,0
Average coal cost per ton (rand)	20,94	18,67	12,2	10,8
Operations				
Electricity sold (GW.h)	134 347	129 493	3,7	4,7
Coal burnt in power stations (Mt)	67,5	64,5	4,7	2,8
Water consumed by power stations (Mℓ)	260 154	262 804	-1,0	-0,7
Peak demand on integrated system (MW)	21 871	20 589	6,2	4,8
	(21.07.89)	(24.06.88)		
Assets in commission				
at 31 December				
Installed capacity (MW)	34 141	33 176	2,9	6,8
Assigned sent-out rating (MW)	32 403	31 465	3,0	6,9
Transmission lines (km)	212 114	201 802	5,1	7,4
Staff employed				
at 31 December	51 554	56 726	-9,1	-4,4

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Copies of this Statistical Yearbook are distributed worldwide to utilities, business undertakings, banks, management consultants, consulting engineers, research institutions as well as industry and consumer associations.

Foreword

Eskom's 1989 Statistical Yearbook contains the latest available data of electricity supply in South Africa.

I am also pleased to report that we have received tremendous co-operation from our neighbours and as a result we are now able to present a more comprehensive picture of electricity supply in southern Africa as well. My sincere thanks to all those who contributed to making this publication possible. It is providing us with an increasingly useful picture of our region.

IAN McRAE

Chief Executive of Eskom and Chairman of the Management Board

9 April 1990

ESKOM: Statistical overview

Table 1

	1989	1988
Financial, R million		
Revenue	9 271	8 159
Net income ¹	728	816
Fixed assets in commission, at cost	31 199	28 680
Works under construction	6 638	5 512
Capital expenditure	3 993	3 969
Total net borrowings	24 630	24 334
Plant performance		
Total power station capacity, installed rating, MW	34 141	33 176
Total power station capacity, assigned sent-out rating, MW	32 403	31 465
Peak demand on integrated Eskom system, MW	21 871	20 589
Average station availability % ²	78,1	79,1
Station load factor, % ³	51,1	52,3
Integrated Eskom system load factor, %	73,7	75,5
Water consumed in Eskom power stations, Mℓ	260 154	262 804
Coal burnt, thousands of tons	67 529,3	64 489,6
Coal burnt, kg/kW.h sent out	0,523	0,521
Average heat rate of coal-fired stations, MJ/kW.h sent out	10,72	10,71
Average heat content of coal (as received), MJ/kg	20,20	20,44
Overall thermal efficiency, sent-out basis	33,6	33,6
Average coal cost, R/ton	20,94	18,67
Average coal cost, c/kW.h sent out	1,1023	0,9727
Electricity output		
Total electricity sent out in South Africa, GW.h ⁴	146 161	140 802
Total electricity sent out as percentage of South African total	96,7	97,0
Total electricity sent out on Eskom system (Eskom stations and purchased), GW.h ⁵	143 548	139 197
Total sent out from Eskom stations, GW.h	143 204	138 837
Subtotal from coal-fired stations, GW.h	128 304	123 777
Subtotal from hydro-electric stations, GW.h	2 759	3 162
Subtotal from pumped-storage stations, GW.h	1 039	1 403
Subtotal from diesel and gas-turbine stations, GW.h	3	2
Subtotal nuclear power station, GW.h	11 099	10 493
Total purchased by Eskom and sent out on Eskom system, GW.h	344	360
Total consumed by Eskom power stations, GW.h ⁶	2 265	2 567
Total available for distribution, GW.h	141 283	136 630
Total sold, GW.h ⁷	134 347	129 493
Growth in kW.h sales, %	3,7	5,7
Employees		
Total number at 31 December	51 554	56 726
Ratio number/GW.h sold	0,384	0,438
Power station assigned sent-out rating, MW		
Subtotal coal fired (18 stations) ⁸	28 233	27 295
Subtotal gas turbine (3 stations) ⁹	390	390
Subtotal hydro-electric (2 stations) ¹⁰	540	540
Subtotal pumped storage (2 stations) ¹¹	1 400	1 400
Subtotal nuclear (1 station)	1 840	1 840
Total power station assigned sent-out rating, MW	32 403	31 465

1. Certain adjustments had to be made to make figures comparable with current figures, which are presented in terms of the Eskom Act of 1987. 2. Capacity hours available x 100/total capacity hours in year. 3. kW.h sent out x 100/(average assigned sent-out rating x hours in year). 4. Electricity sent out by Eskom, some industries and municipalities which generate all or part of their electricity requirements. 5. Includes Eskom electricity sent out to neighbouring countries.

	1987	1986	1985	1984	1983	1982	1981	1980
Revenue	7 046	5 845	4 625	3 832	3 302	2 695	2 141	1 772
Net income ¹	702	781	738	732	744	671	507	414
Fixed assets in commission, at cost	24 986	19 907	15 496	12 058	9 218	7 689	6 323	5 604
Works under construction	6 075	7 753	8 552	7 271	6 434	5 198	3 854	2 644
Capital expenditure	3 895	3 755	4 757	3 719	2 757	2 741	1 951	1 447
Total net borrowings	21 475	19 462	17 621	13 861	10 686	8 534	6 334	5 013
Plant performance								
Total power station capacity, installed rating, MW	31 261	28 086	25 716	24 514	22 949	21 749	20 049	18 349
Total power station capacity, assigned sent-out rating, MW	29 618	26 682	24 359	23 168	21 673	20 523	18 989	17 339
Peak demand on integrated Eskom system, MW	20 001	18 278	17 852	17 296	15 639	15 532	14 674	13 668
Average station availability % ²	79,2	78,5	77,5	74,9	71,9	74,3	74,2	74,7
Station load factor, % ³	54,3	55,5	58,0	58,1	55,6	59,3	62,2	57,8
Integrated Eskom system load factor, %	73,9	77,3	76,2	75,0	76,9	75,3	77,6	77,5
Water consumed in Eskom power stations, Mℓ	274 804	262 372	275 716	269 868	255 654	265 933	235 138	214 813
Coal burnt, thousands of tons	65 787,0	58 915,9	59 488,6	58 703,6	55 010,2	55 198,4	53 903,7	46 755,0
Coal burnt, kg/kW.h sent out	0,535	0,515	0,522	0,533	0,546	0,551	0,563	0,568
Average heat rate of coal-fired stations, MJ/kW.h sent out	11,00	10,95	11,26	11,45	11,57	11,82	12,01	12,16
Average heat content of coal (as received), MJ/kg	20,48	21,19	21,52	21,38	21,11	21,39	21,25	21,34
Overall thermal efficiency, sent-out basis	32,7	32,9	32,0	31,4	31,1	30,5	30,0	29,6
Average coal cost, R/ton	17,11	14,87	13,25	12,55	12,44	11,75	9,71	8,12
Average coal cost, c/kW.h sent out	0,9155	0,7665	0,6916	0,6692	0,6793	0,6471	0,5473	0,4614
Electricity output								
Total electricity sent out in South Africa, GW.h ⁴	134 751	130 056	126 206	120 835	112 366	109 536	106 135	99 905
Total electricity sent out as percentage of South African total	96,1	95,1	94,5	94,3	93,8	93,6	93,9	93,0
Total electricity sent out on Eskom system (Eskom stations and purchased), GW.h ⁵	132 774	126 766	122 494	117 086	108 321	104 920	100 425	93 021
Total sent out from Eskom stations, GW.h	132 507	126 511	121 987	116 581	103 295	102 769	97 824	83 362
Subtotal from coal-fired stations, GW.h	122 947	114 298	113 941	110 094	100 738	100 217	95 675	82 342
Subtotal from hydro-electric stations, GW.h	1 617	1 623	624	560	595	1 016	1 653	992
Subtotal from pumped-storage stations, GW.h	1 774	1 785	2 107	1 994	1 957	1 519	415	—
Subtotal from diesel and gas-turbine stations, GW.h	2	2	0	8	5	17	81	28
Subtotal nuclear power station, GW.h	6 167	8 803	5 315	3 925	—	—	—	—
Total purchased by Eskom and sent out on Eskom system, GW.h	267	255	507	505	5 026	2 151	2 601	9 659
Total consumed by Eskom power stations, GW.h ⁶	3 229	3 018	3 265	3 188	2 917	2 404	712	71
Total available for distribution, GW.h	129 545	123 748	119 229	113 898	105 404	102 516	99 713	92 950
Total sold, GW.h ⁷	122 524	117 353,0	112 305,9	106 904,1	98 251,1	96 135,9	93 844,0	87 539,3
Growth in kW.h sales, %	4,4	4,5	5,1	8,8	2,2	2,4	7,2	8,6
Employees								
Total number at 31 December	56 830	60 800	66 000	64 560	62 420	58 850	52 080	47 490
Ratio number/GW.h sold	0,464	0,518	0,588	0,604	0,635	0,612	0,555	0,542
Power station assigned sent-out rating, MW								
Subtotal coal fired (18 stations) ⁸	25 848	22 912	20 637	20 366	19 791	18 641	17 607	16 475
Subtotal gas turbine (3 stations) ⁹	390	390	342	342	342	342	342	342
Subtotal hydro-electric (2 stations) ¹⁰	540	540	540	540	540	540	540	540
Subtotal pumped storage (2 stations) ¹¹	1 000	1 000	1 000	1 000	1 000	1 000	500	—
Subtotal nuclear (1 station)	1 840	1 840	1 840	920	—	—	—	—
Total power station assigned sent-out rating, MW	29 618	26 682	24 359	23 168	21 673	20 523	18 989	17 339

6. In respect of pumped-storage facilities and synchronous condenser mode of operation. See Note. g, Table 6. 7. Difference between electricity available for distribution and electricity sold is due to transmission losses. 8. Base-load stations, except in the case of older, uneconomical plant, which are used only for peak demands or in emergencies. 9. Used only for peaking or in emergencies. 10. Use restricted to peaking and emergencies and availability of water in Hendrik Verwoerd and P.K. le Roux dams. 11. Pumped-storage facilities are net users of electricity and are used for peaking. Water is pumped during off-peak periods to generate electricity during peak periods.

ESKOM: Financial statistics

Table 2

	1989	1988	1987
Energy sold, thousand GW.h	134	129	123
Annual increase, thousand GW.h	5	7	5
Annual increase, %	3,75	5,69	4,41
Electricity revenue (R million)	9 271	8 159	7 046
Annual increase, %	13,63	15,80	20,55
Cents per kW.h	6,90	6,30	5,75
Annual increase, %	9,52	9,57	15,46
Charges against revenue (R million)			
Total operating expenditure	5 644	4 858	4 207
Annual increase, %	16,18	15,47	22,12
Depreciation	1 364	1 150	963
Annual increase, %	18,61	19,42	18,74
Interest and finance charges	2 899	2 485	2 137
Annual increase, %	16,66	16,28	32,00
Net income	728	816	702
Assets (R million)			
Total fixed assets	31 728	29 169	26 970
Assets in commission	24 751	23 384	20 649
Works under construction	6 638	5 512	6 075
Equipment and vehicles	339	273	246
Non-current assets	2 185	2 244	2 068
Stores, material and fuel	1 259	1 176	705
Debtors	920	796	729
Financing (R million)			
Net loans and debt	24 630	22 779	21 304
Other liabilities	2 405	2 302	1 702
Reserves and provisions	9 057	8 304	7 466
Debt/Equity ratio	2,8	2,8	2,9

ESKOM: Cash flow statement

for the year ended 31 December 1989

Table 3

(Figures in R million)

	1989	1988
Cash generated from operations		
Net operating income	3 627	3 301
Non-cash items	1 419	1 328
	<u>5 046</u>	<u>4 629</u>
Cash released from working capital	60	284
	<u>5 106</u>	4 913
Net financing charges	(2 884)	(2 372)
Net cash flow from operations	<u>2 222</u>	<u>2 541</u>
Loans and facilities raised		
Local registered stock	1 825	865
Foreign and other	2 023	1 356
Net proceeds on maturity of forward cover contracts	1 289	1 348
Total raised	<u>5 137</u>	<u>3 569</u>
Total cash generated	<u>7 359</u>	<u>6 110</u>
Cash applied		
Loans and facilities repaid		
Local and registered stock	(181)	(42)
Foreign and other	(1 454)	(759)
Total repaid	<u>(1 635)</u>	<u>(801)</u>
Investments and deposits	(1 731)	(1 340)
Capital expenditure	(3 993)	(3 969)
Total cash applied	<u>(7 359)</u>	<u>(6 110)</u>

ESKOM: Summary of operations

Table 4

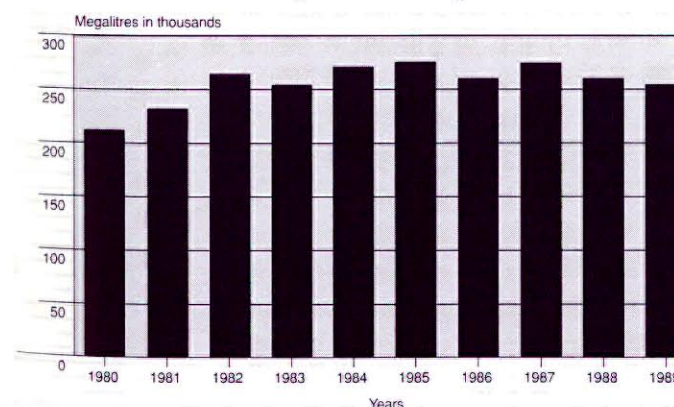
Year	Coal-fired power stations					Coal cost	
	Coal used					Coal cost	
	Thousands of tons	Average heat content (as received) MJ/kg	Consumption sent-out basis kg/kW.h	Average heat rate sent-out basis MJ/kW.h	Overall thermal efficiency sent-out basis %	Average R/ton	c/kW.h sent out
1950	6 323,4	22,72	0,869	19,74	18,2	0,84	0,0729
1951	6 662,9	22,72	0,855	19,43	18,5	0,98	0,0840
1952	7 113,4	22,75	0,865	19,68	18,3	1,20	0,1037
1953	7 393,9	23,08	0,837	19,32	18,6	1,33	0,1116
1954	8 024,9	23,06	0,805	18,56	19,4	1,41	0,1136
1955	8 999,7	22,89	0,788	18,04	20,0	1,52	0,1201
1956	9 688,5	22,96	0,765	17,56	20,5	1,62	0,1236
1957	10 220,6	22,79	0,750	17,09	21,1	1,69	0,1266
1958	10 784,1	22,73	0,743	16,89	21,3	1,77	0,1312
1959	11 548,7	22,44	0,732	16,43	21,9	1,82	0,1329
1960	12 512,6	22,52	0,723	16,28	22,1	2,03	0,1466
1961	13 194,9	22,39	0,722	16,17	22,3	2,10	0,1516
1962	13 955,5	22,22	0,719	15,98	22,5	2,09	0,1507
1963	14 721,1	22,15	0,708	15,68	23,0	2,11	0,1492
1964	15 654,7	22,15	0,692	15,33	23,5	2,07	0,1430
1965	16 726,7	22,39	0,680	15,23	23,6	2,09	0,1423
1966	16 982,3	22,20	0,666	14,79	24,4	2,23	0,1486
1967	18 307,7	22,44	0,645	14,47	24,9	2,30	0,1482
1968	19 133,9	22,63	0,620	14,03	25,6	2,33	0,1446
1969	19 982,9	22,73	0,595	13,52	26,6	2,37	0,1412
1970	21 630,6	22,97	0,580	13,32	27,0	2,26	0,1308
1971	23 416,2	23,30	0,576	13,42	26,8	2,25	0,1297
1972	24 952,8	22,89	0,571	13,07	27,5	2,25	0,1285
1973	27 907,9	22,47	0,563	12,65	28,5	2,39	0,1348
1974	30 891,4	22,42	0,560	12,56	28,7	2,92	0,1637
1975	34 231,7	22,21	0,567	12,59	28,6	4,05	0,2295
1976	37 257,4	21,87	0,579	12,66	28,4	5,39	0,3122
1977	37 505,6	21,78	0,576	12,55	28,7	6,22	0,3582
1978	39 589,5	21,61	0,574	12,44	28,9	6,67	0,3824
1979	43 264,9	21,22	0,580	12,33	29,2	6,96	0,4045
1980	46 755,0	21,34	0,568	12,16	29,6	8,12	0,4614
1981	53 903,7	21,25	0,563	12,01	30,0	9,71	0,5473
1982	55 198,4	21,39	0,551	11,82	30,5	11,75	0,6471
1983	55 010,2	21,11	0,546	11,57	31,1	12,44	0,6793
1984	58 703,6	21,38	0,533	11,45	31,4	12,55	0,6692
1985	59 488,6	21,52	0,522	11,26	32,0	13,25	0,6916
1986	58 915,9	21,19	0,515	10,95	32,9	14,87	0,7665
1987	65 787,0	20,48	0,535	11,00	32,7	17,11	0,9155
1988	64 489,6	20,44	0,521	10,71	33,6	18,67	0,9727
1989	67 529,3	20,20	0,523	10,72	33,6	20,94	1,1023

^a kW.h sent out x 100 / (average assigned sent-out rating x hours in year)

Power station output (sent-out basis)

Coal-fired stations GW.h	Hydro-electric stations GW.h	Pumped-storage stations GW.h	Diesel and gas-turbine stations GW.h	Nuclear station GW.h	Total power station output GW.h	Total power station capacity assigned sent-out rating at 31 December MW	Average power station plant load factor ^a %
7 267	7	—	4	—	7 287	1 290	64,7
7 797	6	—	3	—	7 806	1 361	66,1
8 220	6	—	1	—	8 227	1 454	66,9
8 838	7	—	—	—	8 845	1 635	65,5
9 971	6	—	—	—	9 977	1 846	66,4
11 419	6	—	—	—	11 425	2 145	65,9
12 663	7	—	—	—	12 670	2 498	61,2
13 634	6	—	—	—	13 640	2 555	61,1
14 511	5	—	—	—	14 516	2 748	62,0
15 774	3	—	—	—	15 777	2 983	62,6
17 306	2	—	—	—	17 308	3 091	65,2
18 282	2	—	—	—	18 284	3 226	66,2
19 401	3	—	—	—	19 404	3 406	65,8
20 789	4	—	—	—	20 793	3 788	65,7
22 634	5	—	—	—	22 639	4 077	65,2
24 583	—	—	—	—	24 583	4 181	67,4
25 504	—	—	—	—	25 504	4 377	67,1
28 371	—	—	—	—	28 371	5 328	66,8
30 843	—	—	—	—	30 843	5 800	62,9
33 598	—	—	—	—	33 598	6 441	62,1
37 321	—	—	—	—	37 321	7 060	62,9
40 645	94	—	—	—	40 739	8 373	61,3
43 662	813	—	—	—	44 475	8 849	59,6
49 570	189	—	—	—	49 759	9 482	62,5
55 141	1 110	—	—	—	56 251	10 002	66,3
60 400	1 098	—	—	—	61 498	10 522	68,6
64 309	1 853	—	26	—	66 188	11 688	66,8
65 114	1 924	—	12	—	67 050	12 756	61,9
69 004	1 887	—	11	—	70 902	13 595	60,7
74 485	1 144	—	14	—	75 643	15 056	60,9
82 342	992	—	28	—	83 362	17 339	57,8
95 675	1 653	415	81	—	97 824	18 989	62,2
100 217	1 016	1 519	17	—	102 769	20 523	59,3
100 738	595	1 957	5	—	103 295	21 673	55,6
110 094	560	1 994	8	3 925	116 581	23 168	58,1
113 941	624	2 107	0	5 315	121 987	24 359	58,0
114 298	1 623	1 785	2	8 803	126 511	26 682	55,5
122 947	1 617	1 774	2	6 167	132 507	29 618	54,3
123 777	3 162	1 403	2	10 493	138 837	31 465	52,3
128 304	2 759	1 039	3	11 099	143 204	32 403	51,1

Water consumption



ESKOM: Power station operating statistics

for the year ended 31 December 1989

Table 5

Power station	Sent-out rating on 31 December 1989 MW	Energy sent out GW.h	Maximum demand 1 hour sent out MW	Station load factor ¹ %
Coal-fired stations				
Arnot	1 955	11 601	2 014	67,7
Camden ⁶	760	2 971	748	44,6
Duvha	3 450	20 377	3 500	67,4
Grootvlei ⁶	570	2 276	546	45,6
Hendrina	1 900	10 127	1 723	60,8
Highveld ⁶	103	9	110	0,9
Ingagane ⁶	186	596	190	25,8
Kendal	640	2 563	959	45,7
Komati ⁶	702	2 864	626	49,3
Kriel	2 850	15 773	2 789	63,2
Lethabo	2 965 ²	13 116	3 000	56,1
Matimba	2 460 ²	10 985	2 398	62,8
Matla	3 450	19 859	3 565	65,7
Salt River ⁶	114	21	117	3,2
Taaibos ⁶	0	13	111	1,8
Tutuka	2 925	14 665	3 007	57,2
Vaal ^{4,6}	0	-2 ⁵	55	-
Vierfontein ⁶	0	62	179	10,1
Wilge ⁶	110	428	118	44,4
Subtotal for coal-fired stations	25 140	128 304		59,4
Gas-turbine stations				
Acacia	171	0	51	0,0
Port Rex	171	0 ⁵	123	0,0
Paratus	48	3	-	0,7
Subtotal for gas turbine stations	390	3		0,1
Hydro-electric stations				
Hendrik Verwoerd	320	1 328	389	47,4
Vanderkloof	220	1 431	259	74,3
Subtotal for hydro-electric stations	540	2 759		58,3
Pumped-storage stations				
Drakensberg	1 000	888	1 077	10,1
Palmiet	400	151	422	4,3
Subtotal for pumped-storage stations	1 400	1 039		8,5
Nuclear station				
Koeberg	1 840	11 099	1 855	68,9
Subtotal for nuclear station	1 840	11 099	1 855	68,9
Total/weighted average all Eskom	29 310	143 204		56,7
Other power sources				
Cahora Bassa		-5 ⁵		
SWAWEK		238		
Tescor		40		
Other		71		
Subtotal for other power sources	0	344		
Total/weighted average	29 310	143 548		53,3

¹ Station load factor = $\frac{\text{kW.h sent out} \times 100}{(\text{assigned sent-out rating}) \times \text{hours in year}}$

² Operating statistics are based on average capacity during the year.

³ Availability = $\frac{\text{capacity hours available} \times 100}{\text{total capacity hours in year}}$

⁴ Decommissioned during 1989.

⁵ Auxiliary consumption exceeded energy generated.

⁶ Non-reserve stored capacity used for calculation of station load factor, and availability.

⁷ Actual fuel burnt excluding 464 995 tons coal stock adjustment on 31 December 1989.

⁸ Efficiency based on adjusted heat content.

Specific water consumption £/kW.h	Availability ³ %	Overall thermal efficiency % sent out	Fuel burnt tons	kg of coal/kW.h sent out	Heat content of coal (as received) MJ/kg	Station heat rate MJ/kW.h sent out
2,33	87,8	33,1	5 665 595	0,488	22,20	10,87
2,62	54,9	28,3	1 609 652	0,542	23,47	12,74
2,03	80,8	34,8	9 607 304	0,471	21,90	10,34
3,23	68,0	28,7	1 432 666	0,629	19,00 ⁸	12,56
2,44	70,4	31,7	5 263 199	0,520	21,79	11,36
42,24	91,7	17,4	8 525	0,947	21,10	20,64
4,73	78,3	27,1	358 094	0,601	21,94	13,29
0,60	58,3	30,3	1 513 541	0,591	19,04 ⁸	11,89
3,51	57,9	26,7	1 738 644	0,607	22,14	13,47
2,01	70,5	35,0	8 194 449	0,520	19,78	10,29
1,77	67,7	35,1	8 854 860	0,675	15,16	10,27
0,36	69,5	32,5	5 829 115	0,531	18,46 ⁸	11,07
2,20	86,7	35,2	9 508 143	0,479	21,34	10,23
2,60	75,5	14,8	19 997	0,952	25,98	24,40
39,35	100,0	15,3	14 776	1,137	21,10	23,51
1,81	87,2	35,8	7 028 658	0,479	20,92	10,05
-	100,0	-	5 904	-	-	-
13,14	100,0	12,1	87 595	1,413	21,00	29,81
8,33	96,1	22,5	323 633	0,756	21,10	16,02
2,02	76,6	33,5	67 064 350⁷	0,523	20,20	10,72
			172			
	91,2		201			
	84,2		889			
	87,7		1 262			
		96,9				
		99,6				
		98,0				
		88,4				
		44,2				
		75,8				
0,11	76,0					
	76,0					
	77,0					
	77,0					

ESKOM: Power stations in service

at 31 December 1989

Table 6

Name of station	Location	No. and rating of generator sets, MW	Total installed rating MW	Total assigned sent out rating, MW ^a	Turbo-generators in reserve storage Number	Total rating MW
Coal fired stations						
Arnot ^b	Middelburg, Tvl	6 x 350	2 100	1 955	—	—
Camden ^c	Ermelo	8 x 200	1 600	1 520	4	760
Duvha ^b	Witbank	6 x 600	3 600	3 450	—	—
Grootvlei ^c	Balfour	6 x 200	1 200	1 130	3	560
Hendrina ^b	Hendrina	10 x 200	2 000	1 900	—	—
Highveld ^d	Sasolburg	8 x 60	480	412	6	309
Ingagane ^c	Newcastle	5 x 100	500	465	3	279
Kendal ^b	Witbank	1 x 686	686 ^b	640 ^g	—	—
Komati ^c	Middelburg, Tvl	5 x 100	500	473	2	189
		4 x 125	500	418	—	—
Kriel ^b	Bethal	6 x 500	3 000	2 850	—	—
Lethabo ^b	Sasolburg	5 x 618	3 090	2 965	—	—
Matimba ^b	Ellisras	4 x 665	2 660	2 460 ^g	—	—
Matla ^b	Bethal	6 x 600	3 600	3 450	—	—
Salt River ^d	Cape Town	4 x 30	120	114	4	114
		2 x 60	120	114	—	—
Taaibos ^d	Sasolburg	8 x 60	480	440	8	440
Tutuka ^b	Standerton	5 x 609	3 045	2 925	—	—
Vierfontein ^d	Viljoenskroon	12 x 30	360	336	12	336
Wilge ^d	Witbank	2 x 30	60	56	3	106
		3 x 60	180	50	—	—
				110		
Subtotal coal fired stations (18)			29 881	28 233	45	3 093
Gas turbine and diesel stations^d						
Acacia	Cape Town	3 x 57	171	171	—	—
Port Rex	East London	3 x 57	171	171	—	—
Paratus	Walvis Bay	1 x 22,4	22,4	22,4	—	—
		4 x 6,4	25,6	25,6	—	—
Subtotal gas turbine and diesel stations (3)			390	390	—	—
Hydro-electric stations^e						
Hendrik Verwoerd	Norvalspont	4 x 80	320	320	—	—
Vanderkloof	Petrusville	2 x 110	220	220	—	—
Subtotal hydro-electric stations (2)			540	540	—	—
Pumped storage stations^f						
Drakensberg	Bergville	4 x 250	1 000	1 000	—	—
Palmiet	Grabouw	2 x 200	400	400	—	—
Subtotal pumped storage stations (2)			1 400	1 400	—	—
Nuclear station						
Koeberg	Cape Town	2 x 965	1 930	1 840	—	—
Total in service, 26 Eskom stations			34 141	32 403	45	3 093

^a Difference between installed capacity and sent-out rating reflects auxiliary power consumption and reduced capacity caused by age of plant and/or low coal quality.

^b Base-load station

^c Mid-merit station.

^d Stations used for peaking or emergency supplies.

^e Use restricted to peaking and emergencies and availability of water in Hendrik Verwoerd and P.K. le Roux dams.

^f Pumped storage facilities are net users of electricity and are used for peaking. Water is pumped during off-peak periods to generate electricity during peak periods.

^g Dry cooled unit specifications are based on design back-pressure and ambient air temperature.

ESKOM: Generating sets taken into service during 1989

Table 7

	Total installed rating MW	Total sent-out rating MW
Lethabo, set 5	618	593
Matimba, set 4	665	615
Total	1 283	1 208

ESKOM: Generating sets on order

at 31 December 1989

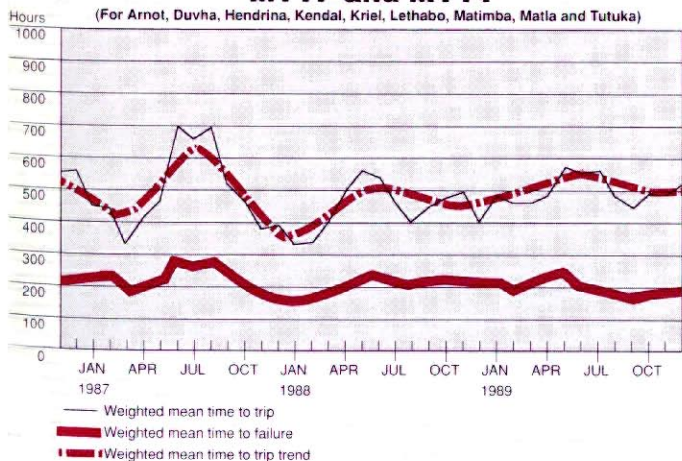
Table 8

Name, type and location of power station	No. and installed rating of set MW	Sent-out rating of set MW	Total installed rating of station MW	Total sent-out rating of station MW	No. of sets in service (on order)	Total installed rating of sets on order MW	Total sent-out rating of sets on order MW	Year of completion first (last) set
Kendal, coal fired, Kendal	6 x 686	640	4 116	3 840	1 (5)	3 430	3 200	1988 (1993)
Lethabo, coal fired, Vereeniging	6 x 618	593	3 708	3 558	5 (1)	618	593	1985 (1990)
Majuba, coal fired, Volksrust	3 x 657 3 x 711	3 x 612 3 x 668	4 104	3 840	0 (6)	4 104	3 840	1996 (2001)
Matimba, coal fired, Ellisras	6 x 665	615	3 990	3 690	4 (2)	1 330	1 230	1987 (1991)
Tutuka, coal fired, Standerton	6 x 609	585	3 654	3 510	5 (1)	609	585	1985 (1990)
Total generating sets on order						10 091	9 448	

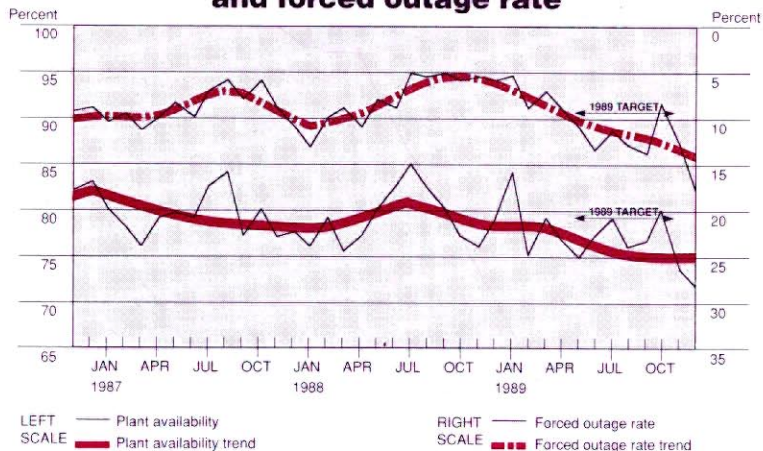
Dates on which sets on order will be taken into commercial service may change, depending on growth in electricity demand.

Eskom 3-monthly weighted MTF and MTTT

(For Arnot, Duvha, Hendrina, Kendal, Kriel, Lethabo, Matimba, Matla and Tutuka)



Eskom trends in plant availability and forced outage rate

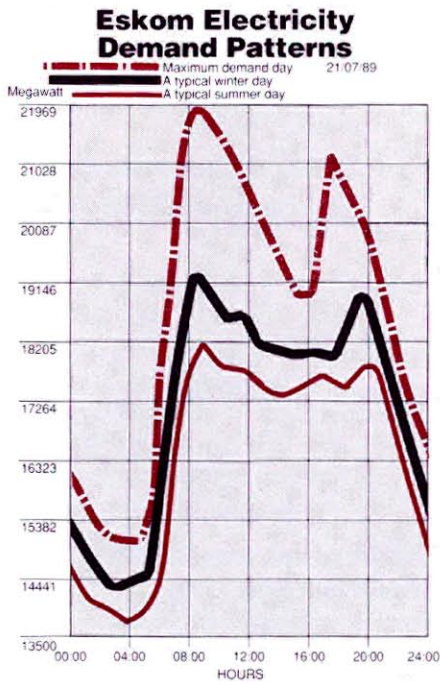


ESKOM: Power stations with highest thermal efficiency 1989

Table 9

Station	Steam conditions at turbine inlet		Assigned sent-out rating MW	Energy sent out GW.h	Station load factor %	Gross C.V. of coal MJ/kg	Overall thermal efficiency sent-out basis %	Date of commercial operation	Type of steam supply
	Pressure MPa (abs)	Temperature °C							
Tutuka	16,1	535	2 925	14 665	57	20,92	35,8	1985-90	Reheat
Matla	16,1	535	3 450	19 859	66	21,34	35,2	1979-83	Reheat
Lethabo ^a	16,1	535	2 965	13 116	56	15,16	35,1	1986-90	Reheat
Kriel	16,0	510	2 850	15 773	63	19,78	35,0	1976-79	Reheat
Duvha	16,1	535	3 450	20 377	67	21,90	34,8	1980-84	Reheat
Arnot	15,9	510	1 955	11 601	68	22,20	33,1	1971-75	Reheat
Matimba ^a	16,1	535	2 460	10 985	63	18,46	32,5	1987-91	Reheat
Hendrina	10,3	538	1 900	10 127	61	21,79	31,7	1970-77	Non-reheat
Kendal	16,1	535	640	2 563	46	19,04	30,3	1988-93	Reheat
Grootvlei	10,3	538	1 130	2 276	23	19,00	28,7	1969-77	Non-reheat
Camden	10,3	538	1 520	2 971	22	23,47	28,3	1967-69	Non-reheat
Ingagane	8,4	510	465	596	15	21,94	27,1	1963-69	Non-reheat

^a Operating statistics are based on average capacity during the year.

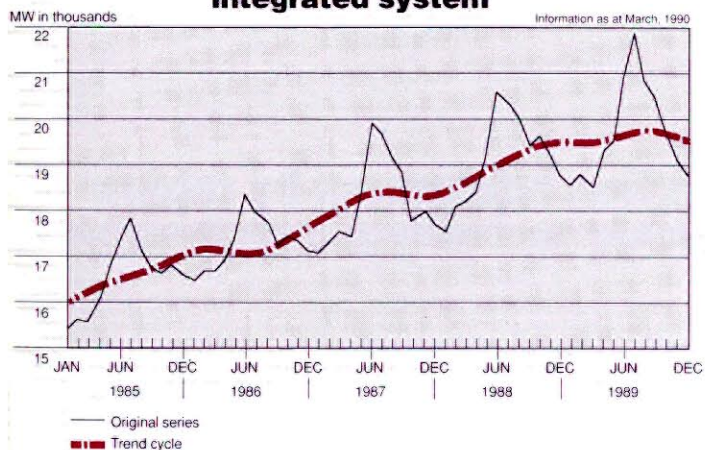


ESKOM: Maximum one-hour demand

Table 10

	1989	1988	1987	1986	1985	1984	Increase 1988-89 %	Average yearly increase 1985-89 %
Maximum simultaneous one-hour demand on total Eskom system, MW	21 871	20 589	20 001	18 278	17 852	17 296	6,2	4,8
Date	21.07.89	24.06.88	26.06.87	20.06.86	12.07.85	15.06.84		
Time	09h00	09h00	09h00	09h00	11h00	09h00		

Maximum demand on Eskom total integrated system



ESKOM: Transmission and distribution equipment in service

at 31 December 1989

Table 11

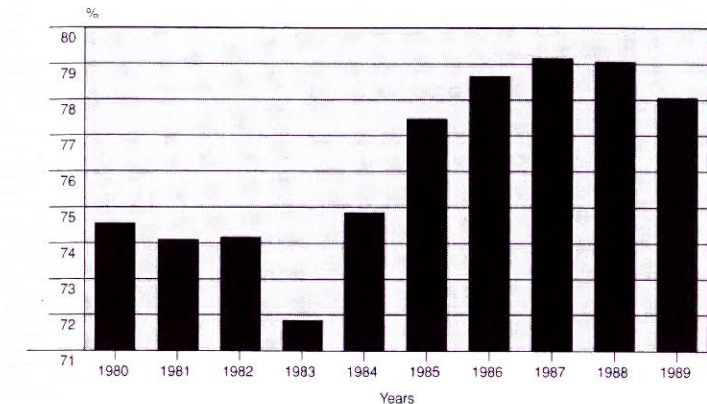
Circuit kilometres (excluding service connections on reticulation systems) of lines and cables and capacity of transformers in service

		1989	1988	Change
Main transmission system	765 kV ^a	871	871	0
	533 kV DC (monopolar)	1 030	1 030	0
	400 kV	11 789	11 220	569
	275 kV	6 944	6 718	226
	220 kV	1 239	1 239	0
Distribution lines	165 – 132 kV	16 107	15 923	184
	88 – 33 kV	20 824	20 579	245
Reticulation lines	22 kV – lower	153 310	144 222	9 088
Total all lines		212 114	201 802	10 312
Cables	165 – 132 kV	67	67	0
	88 – 33 kV	345	393	(48)
	22 kV – lower	4 257	3 929 ^b	328
Total all cables		4 669	4 389	280
Transformers	Capacity MVA	142 352	141 475	877
	Number	122 680	117 496	5 184

^a Although two lines are constructed at 765 kV only one runs at this voltage at present and the other at 400 kV.

^b Adjusted figure

Plant Availability



ESKOM: Transmission and distribution equipment by region

as at 31 December 1989

Table 12

Circuit kilometres (excluding service connections on reticulation systems) of lines and cables and capacity of transformers in service

Transmission lines									Underground cables				Transformers		
Region	765 kV ^a	533 kV DC (monopolar)	400 kV	275 kV	220 kV	165 kV to 132 kV	88 kV to 33 kV	22 kV and lower	Total	165 kV to 132 kV	88 kV to 33 kV	22 kV and lower	Total	Capacity MVA	Number in service
Southern Transvaal			584	1 015		884	3 754	5 170	11 407	30	72	274	376	29 283	6 714
Western Transvaal		52	1 250	781		1 960	2 747	24 401	31 192			15	15	20 726	17 426
Eastern Natal			255	620		779	1 103	7 554	10 310			531	531	6 924	8 621
Eastern Transvaal	76	227	1 723	736		1 746	1 403	12 840	18 751			43	43	17 481	8 620
Central Transvaal		119	331	622		269	1 481	5 493	8 316	13	188	839	1 040	15 443	9 992
Orange Free State	795		1 070	692		1 826	2 322	24 518	31 222			21	23	12 910	14 281
Western Cape			698			657	1 194	6 788	9 337	24	78	2 020	2 122	9 425	8 297
North-eastern Transvaal		632	276	731		1 823	438	9 395	13 295			27	27	7 280	7 951
Western Natal			1 422	968		351	2 247	14 440	19 428			228	228	7 348	12 391
Eastern Cape			2 327		822	1 719	1 215	18 093	24 176			203	203	7 151	9 943
Northern Cape			825	779	417	2 471	1 450	13 575	19 517			3	3	5 046	8 449
Southern Cape			1 027			1 622	1 470	11 043	15 163		4	53	57	3 335	9 995
Total	871	1 030	11 789	6 944	1 239	16 107	20 824	153 310	212 114	67	344	4 257	4 668	142 352	122 680

^aAlthough two lines are constructed at 765 kV, only one runs at this voltage at present, and the other at 400 kV.

ESKOM: Electricity sent out and sold

Table 13

Year	Electricity sent out							
	South Africa total sent out GW.h	Eskom electricity available for distribution as % of South African total ^a	Electricity sent out from Eskom power stations GW.h	Electricity purchased from other sources GW.h	Own consumption GW.h	Available for distribution GW.h	Peak demand on integrated Eskom system MW	
1950	10 437 ^b	71,1	7 287	131	—	7 418	1 182 ^b	
1951	11 098 ^b	72,1	7 806	195	—	8 001	1 212 ^b	
1952	11 678 ^b	74,1	8 227	424	—	8 651	1 265 ^b	
1953	12 823 ^b	73,3	8 845	550	—	9 395	1 394 ^b	
1954	14 167 ^b	73,5	9 977	437	—	10 414	1 570 ^b	
1955	16 021 ^b	73,4	11 425	339	—	11 764	1 806 ^b	
1956	17 293 ^b	74,8	12 670	257	—	12 927	2 001 ^b	
1957	18 720	73,7	13 640	163	—	13 803	2 151 ^b	
1958	19 765	74,3	14 516	164	—	14 680	2 249 ^b	
1959	21 051	75,4	15 777	94	—	15 871	2 429 ^b	
1960	22 717	76,3	17 308	15	—	17 323	2 605 ^b	
1961	23 760	77,0	18 284	8	—	18 292	2 733 ^b	
1962	25 599	75,8	19 404	13	—	19 417	2 925 ^b	
1963	27 335	76,1	20 793	19	—	20 812	3 183 ^b	
1964	29 547 ^b	76,8	22 639	41	—	22 680	3 460 ^b	
1965	31 939	77,4	24 583	126	—	24 709	3 669	
1966	33 929 ^b	77,0	25 504	630 ^c	—	26 134	3 906	
1967	36 897	77,1	28 371	70	—	28 441	4 227	
1968	39 761	77,6	30 843	8	—	30 851	4 658	
1969	42 847	78,4	33 598	8	—	33 606	5 055	
1970	47 456	77,7	37 321	7	—	37 328	5 622	
1971	51 081	79,8	40 739	8	—	40 747	6 115	
1972	55 332	80,4	44 475	10	—	44 485	6 630	
1973	60 700	82,0	49 759	11	—	49 770	7 350	
1974	66 412 ^b	84,7	56 251	8	—	56 259	8 552	
1975	70 111	87,8	61 498	35	—	61 533	9 185	
1976	75 381	89,4	66 188	1 226	—	67 414	10 085	
1977	79 352	89,8	67 050	4 241	27	71 264	10 735	
1978	84 812	91,7	70 902	6 924	52	77 774	11 490	
1979	92 615	92,8	75 643	10 394	58	85 979	12 855	
1980	99 905	93,0	83 362	9 659	71	92 950	13 668	
1981	106 135	93,9	97 824	2 601	712	99 713	14 674	
1982	109 536	93,6	102 769	2 151	2 404	102 516	15 532	
1983	112 366	93,8	103 295	5 026	2 917	105 404	15 639	
1984	120 835	94,3	116 581	505	3 188	113 898	17 296	
1985	126 206	94,5	121 987	507	3 265	119 229	17 852	
1986	130 056	95,1	126 511	255	3 018	123 748	18 278	
1987	134 751	96,1	132 507	267	3 229	129 545	20 001	
1988	140 802 ^e	97,0 ^e	138 837	360	2 567	136 630	20 589	
1989	146 161	96,7	143 204	344	2 265	141 283	21 871	

^aIncludes Eskom electricity sent out to neighbouring territories.

^bEstimates based on limited information.

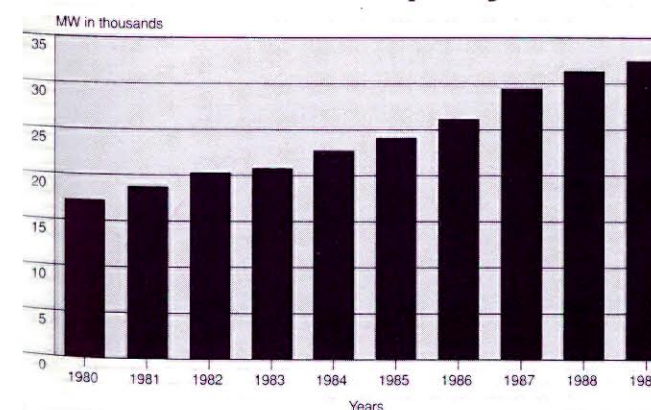
^cIncludes purchases from City of Johannesburg during serious drought.

^dAir and steam production now excluded.

^eRevised figures.

Integrated Eskom system load factor %	Electricity sales				Employees	
	Ratio GW.h sold/available for distribution	Electricity sold GW.h	Growth for the year %	Average selling price c/kW.h	Total number at 31 December	Ratio number/GW.h sold
71,6	0,894 ^d	6 633,7 ^d	11,5 ^d	0,2701 ^d	9 352	1,410 ^d
75,4	0,898 ^d	7 189,0 ^d	8,4 ^d	0,2877 ^d	10 336	1,438 ^d
77,9	0,903 ^d	7 815,8 ^d	8,7 ^d	0,3055 ^d	10 889	1,393 ^d
76,9	0,904 ^d	8 498,0 ^d	8,7 ^d	0,3492 ^d	11 518	1,355 ^d
75,7	0,908 ^d	9 457,1 ^d	11,3 ^d	0,3763 ^d	12 317	1,302 ^d
74,4	0,914 ^d	10 751,8 ^d	13,7 ^d	0,4099 ^d	12 490	1,162 ^d
73,5	0,915 ^d	11 828,3 ^d	10,0 ^d	0,4209 ^d	12 977	1,097 ^d
73,3	0,913 ^d	12 603,5 ^d	6,6 ^d	0,4409 ^d	13 421	1,065 ^d
74,5	0,916 ^d	13 448,6 ^d	6,7 ^d	0,4664 ^d	14 312	1,064 ^d
74,6	0,919 ^d	14 586,3 ^d	8,5 ^d	0,4863 ^d	13 947	0,956 ^d
75,7	0,922 ^d	15 968,4 ^d	9,5 ^d	0,4987 ^d	14 654	0,918 ^d
76,4	0,923 ^d	16 889,4 ^d	5,8 ^d	0,5096 ^d	15 441	0,914 ^d
75,3	0,927 ^d	18 005,3 ^d	6,6 ^d	0,5109 ^d	16 467	0,915 ^d
74,6	0,931 ^d	19 384,8 ^d	7,7 ^d	0,5125 ^d	16 804	0,867 ^d
74,6	0,933 ^d	21 153,6 ^d	9,1 ^d	0,5073 ^d	17 172	0,812 ^d
76,9	0,933 ^d	23 056,1 ^d	9,0 ^d	0,5051 ^d	17 851	0,774 ^d
76,4	0,938 ^d	24 514,9 ^d	6,3 ^d	0,5218 ^d	18 579	0,758 ^d
76,8	0,937	26 657,1	8,7 ^d	0,5466 ^d	19 817	0,743
75,4	0,936	28 885,0	8,4	0,5550	20 893	0,723
75,9	0,937	31 505,6	9,1	0,5565	21 644	0,687
75,8	0,935	34 890,6	0,7	0,5545	22 700	0,651
76,1	0,934	38 040,0	9,0	0,5772	25 050	0,659
76,4	0,936	41 648,9	9,5	0,6108	26 937	0,647
77,3	0,936	46 578,4	11,8	0,6484	28 559	0,613
75,1	0,935	52 585,1	12,9	0,6822	29 891	0,568
76,5	0,940	57 869,2	10,0	0,7950	33 999	0,588
76,1	0,940	63 355,7	9,5	1,0360	36 915	0,583
75,8	0,942	67 125,4	5,9	1,5353	39 112	0,583
77,3	0,936	72 780,4	8,4	1,7887	41 040	0,564
76,4	0,937	80 582,8	10,7	1,8980	43 690	0,542
77,5	0,942	87 539,3	8,6	2,0242	47 490	0,542
77,6	0,941	93 844,0	7,2	2,2811	52 080	0,555
75,3	0,938	96 135,9	2,4	2,8038	58 850	0,612
76,9	0,932	98 251,1	2,2	3,3606	62 420	0,635
75,0	0,939	106 904,1	8,8	3,5842	64 560	0,604
76,2	0,942	112 305,9	5,1	4,1179	66 000	0,588
77,3	0,948	117 353,0	4,5	4,9803	60 800	0,518
73,9	0,946	122 523,6	4,4	5,7512	56 830	0,464
75,5	0,948	129 492,6	5,7	6,3004	56 726	0,438
73,7	0,951	134 347,4	3,7	6,9012	51 554	0,384

Sent-out Capacity



ESKOM: Customer categories by distribution region

in order of sales volume

Table 14

Electricity sold by a distribution region is purchased from the Generation Group. The cost of a region's own usage is allocated to working costs. A region's sales to other SBUs are charged out. Usage on Eskom's distribution premises and sales to rural/farming customers, previously included under industrial sales, are now listed separately.

Distribution region and category	Number of customers	GW.h sold 1989	% of total GW.h	% growth 1988-89	Revenue 1989 R000	% of total revenue	Average price cents per kW.h 1989	Average price cents per kW.h 1988
Southern Transvaal								
Bulk sales ^a	61	14 235	45,8	10,2	975 296	46,7	6,851	6,324
Domestic and street lighting	6 958	100	0,3	136,2	11 432	0,5	11,463	9,631
Industrial/commercial	930	10 000	32,2	-1,1	646 751	31,0	6,467	5,907
Mining	79	5 921	19,1	-5,8	388 490	18,6	6,561	5,993
Rural/farming	3 370	117	0,4	18,7	13 807	0,7	11,819	12,055
Traction	2	627	2,0	0,5	50 873	2,4	8,116	7,405
Own usage ^b	17	55	0,2	-7,7	1 883	0,1	3,447	1,112
Total	11 417	31 055	100,0	3,1	2 088 532	100,0	6,725	6,150
Western Transvaal								
Bulk sales ^a	59	2 790	15,1	26,2	200 104	16,0	7,172	6,821
Domestic and street lighting	376	3	0,0	11,9	440	0,0	12,943	13,196
Industrial/commercial	235	614	3,3	-13,9	44 517	3,6	7,251	6,633
Mining	74	14 372	77,8	3,4	924 438	73,9	6,432	5,785
Rural/farming	15 969	431	2,3	7,6	54 532	4,4	12,663	12,976
Traction	5	261	1,4	2,1	27 010	2,2	10,361	9,588
Own usage ^b	2	8	0,0	-31,5	0	0,0	0,000	0,000
Total	16 720	18 478	100,0	5,7	1 251 041	100,0	6,770	6,168
Eastern Natal								
Bulk sales ^a	35	8 925	56,6	5,5	585 280	56,1	6,558	6,021
Domestic and street lighting	18 465	178	1,1	15,1	21 470	2,1	12,081	11,845
Industrial/commercial	2 300	5 908	37,4	1,6	360 293	34,6	6,098	5,502
Mining	14	40	0,3	0,7	3 783	0,4	9,535	8,605
Rural/farming	8 331	353	2,2	14,1	39 601	3,8	11,221	10,637
Traction	3	374	2,4	34,8	32 237	3,1	8,616	7,864
Own usage ^b	1	0	0,0	-	0	0,0	0,000	0,000
Total	29 149	15 777	100,0	4,8	1 042 664	100,0	6,609	6,016
Eastern Transvaal								
Bulk sales ^a	55	1 721	11,2	2,7	128 650	12,4	7,475	6,649
Domestic and street lighting	1 044	13	0,1	14,1	1 594	0,2	12,738	11,582
Industrial/commercial	541	9 957	64,8	-9,4	627 468	60,7	6,302	5,587
Mining	134	2 602	16,9	0,0	195 162	18,9	7,500	6,824
Rural/farming	7 643	246	1,6	-1,4	31 829	3,1	12,928	11,599
Traction	5	424	2,8	-6,2	38 157	3,7	8,993	7,817
Own usage ^b	39	397	2,6	8,3	11 143	1,1	2,808	3,087
Total	9 461	15 360	100,0	-6,1	1 034 003	100,0	6,732	5,994
Central Transvaal								
Bulk sales ^a	33	7 555	64,0	7,9	489 235	59,6	6,476	6,110
Domestic and street lighting	14 879	365	3,1	18,2	38 530	4,7	10,568	10,405
Industrial/commercial	5 104	2 870	24,3	26,2	203 162	24,8	7,078	6,778
Mining	21	356	3,0	20,3	26 436	3,2	7,433	6,718
Rural/farming	7 019	257	2,2	8,2	31 612	3,9	12,280	11,105
Traction	1	337	2,9	4,3	29 771	3,6	8,842	8,074
Own usage ^b	3	65	0,5	11,4	1 713	0,2	2,641	2,669
Total	27 060	11 805	100,0	12,4	820 458	100,0	6,950	6,552

^a Supplies to municipalities, local authorities and electricity undertakings in neighbouring states for redistribution.

^b Own usage consists of electricity used on a region's distribution premises and its internal sales to other SBUs.

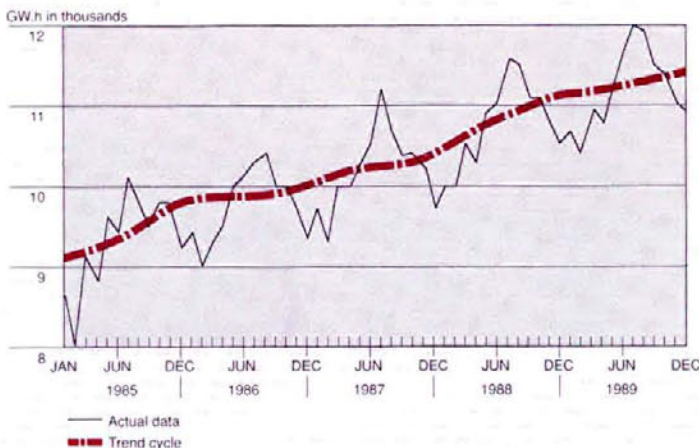
Table 14 continued

Distribution region and category	Number of customers	GW.h sold 1989	% of total GW.h	% growth 1988-89	Revenue 1989 R000	% of total revenue	Average price cents per kW.h 1989	Average price cents per kW.h 1988
Orange Free State								
Bulk sales ^a	80	2 499	23,0	6,8	169 872	22,9	6,798	6,136
Domestic and street lighting	286	2	0,0	-54,5	297	0,0	13,703	10,935
Industrial/commercial	229	203	1,9	10,0	18 278	2,5	9,013	8,195
Mining	28	7 716	71,1	0,2	501 448	67,5	6,499	5,899
Rural/farming	12 999	230	2,1	12,4	37 117	5,0	16,167	14,209
Traction	1	201	1,9	4,2	15 343	2,1	7,621	7,127
Own usage ^b	1	0	0,0	-	0	0,0	0,044	0,000
Total	13 624	10 851	100,0	2,1	742 355	100,0	6,841	6,175
Western Cape								
Bulk sales ^a	53	6 481	72,8	25,5	388 869	61,4	6,001	5,182
Domestic and street lighting	48 013	455	5,1	-36,7	63 397	10,0	13,927	12,587
Industrial/commercial	2 104	1 370	15,4	-27,3	113 417	17,9	8,280	7,650
Mining	17	14	0,2	-9,1	2 076	0,3	14,795	13,684
Rural/farming	7 511	246	2,8	3,5	30 493	4,8	12,416	11,392
Traction	3	337	3,8	0,2	35 247	5,6	10,473	9,279
Own usage ^b	15	4	0,0	-75,4	5	0,0	0,133	0,000
Total	57 716	8 906	100,0	6,4	633 504	100,0	7,113	6,719
North-eastern Transvaal								
Bulk sales ^a	34	1 707	25,7	5,7	131 539	27,2	7,704	6,868
Domestic and street lighting	737	9	0,1	1,4	1 201	0,2	12,819	11,685
Industrial/commercial	379	2 737	41,1	6,4	176 277	36,5	6,442	6,052
Mining	59	1 669	25,1	2,5	114 949	23,8	6,889	6,218
Rural/farming	7 625	423	6,4	-2,5	48 650	10,1	11,512	9,817
Traction	2	106	1,6	-2,8	10 957	2,3	10,356	9,541
Own usage ^b	3	0	0,0	0,0	2	0,0	8,958	0,000
Total	8 839	6 650	100,0	4,4	483 575	100,0	7,272	6,625
Western Natal								
Bulk sales ^a	15	2 465	42,8	6,6	166 466	39,3	6,753	6,221
Domestic and street lighting	5 290	60	1,0	19,3	6 804	1,6	11,377	11,555
Industrial/commercial	1 369	1 748	30,4	9,0	116 664	27,5	6,675	6,169
Mining	55	343	6,0	5,0	28 519	6,7	8,316	7,662
Rural/farming	11 469	367	6,4	33,2	42 269	10,0	11,532	12,101
Traction	5	754	13,1	-14,9	61 868	14,6	8,209	7,366
Own usage ^b	3	18	0,3	-	1 205	0,3	6,735	0,000
Total	18 206	5 754	100,0	5,5	423 796	100,0	7,366	6,823
Eastern Cape								
Bulk sales ^a	83	3 898	86,8	1,8	239 905	75,1	6,154	5,576
Domestic and street lighting	3 605	14	0,3	5,4	2 640	0,8	18,217	17,274
Industrial/commercial	553	68	1,5	-7,5	8 670	2,7	12,776	11,031
Mining	0	-	0,0	-	-	0,0	-	-
Rural/farming	9 196	197	4,4	9,0	28 274	8,8	14,353	13,080
Traction	4	321	7,2	67,2	40 014	12,5	12,447	13,010
Own usage ^b	47	4	0,1	-7,6	0	0,0	0,000	0,000
Total	13 488	4 503	100,0	4,8	319 502	100,0	7,095	6,349

Table 14 continued

Distribution region and category	Number of customers	GW.h sold 1989	% of total GW.h	% growth 1988-89	Revenue 1989 R000	% of total revenue	Average price cents per kW.h 1989	Average price cents per kW.h 1988
Northern Cape								
Bulk sales ^a	56	1 181	33,1	20,5	84 585	29,6	7,162	6,669
Domestic and street lighting	646	7	0,2	-21,3	956	0,3	14,614	13,071
Industrial/commercial	299	215	6,0	3,2	16 552	5,8	7,690	6,980
Mining	80	1 626	45,5	5,1	123 949	43,4	7,624	6,978
Rural/farming	8 554	210	5,9	20,3	30 329	10,6	14,422	12,881
Traction	3	331	9,3	7,7	28 956	10,1	8,755	8,142
Own usage ^b	1	1	0,0	3,3	1	0,0	0,035	0,000
Total	9 639	3 571	100,0	10,6	285 328	100,0	7,990	7,327
Southern Cape								
Bulk sales ^a	61	966	59,0	4,3	73 074	49,8	7,564	6,835
Domestic and street lighting	2 799	15	0,9	-8,4	2 328	1,6	15,227	13,749
Industrial/commercial	483	130	7,9	-9,5	14 242	9,7	10,970	9,389
Mining	4	2	0,1	29,0	330	0,2	14,134	12,942
Rural/farming	10 435	363	22,1	0,2	43 371	29,6	11,963	10,792
Traction	0	157	9,6	-4,8	13 421	9,1	8,536	7,363
Own usage ^b	36	4	0,2	34,3	0	0,0	0,000	0,000
Total	13 818	1 637	100,0	1,2	146 766	100,0	8,966	8,068
Eskom total								
Bulk sales ^a	625	54 423	40,5	10,1	3 632 876	39,2	6,675	6,118
Domestic and street lighting	103 098	1 221	0,9	-9,0	151 088	1,6	12,376	11,914
Industrial/commercial	14 526	35 820	26,7	-2,1	2 346 291	25,3	6,550	5,968
Mining	565	34 661	25,8	0,9	2 309 579	24,9	6,663	6,035
Rural/farming	110 121	3 438	2,6	8,7	431 884	4,7	12,562	11,672
Traction	34	4 229	3,1	2,7	383 854	4,1	9,076	8,171
Own usage ^b	168	556	0,4	6,8	15 952	0,2	2,872	2,599
Total	229 137	134 347	100,0	3,7	9 271 524	100,0	6,901	6,300

Eskom Total Sales



ESKOM: Number of customers by category (excluding traction and own use)

Table 15

Sales to rural/farming customers, previously included under industrial sales, are now listed separately from 1988.

Year	Bulk ^a	Domestic and street lighting	Industrial/commercial	Mining	Rural/farming	Total for all categories	% Change
1950	70	35 090	2 759	133	—	38 052	
1951	79	37 937	3 023	138	—	41 177	8,2
1952	96	30 691	2 839	141	—	33 767	-18,0
1953	100	33 063	3 015	144	—	36 322	7,6
1954	108	33 877	3 089	145	—	37 219	2,5
1955	115	36 452	3 274	151	—	39 992	7,5
1956	125	38 944	3 490	166	—	42 725	6,8
1957	134	41 113	3 551	170	—	44 968	5,2
1958	137	43 665	4 216	174	—	48 192	7,2
1959	146	46 437	4 593	177	—	51 353	6,6
1960	155	49 968	5 039	183	—	55 345	7,8
1961	168	53 908	5 453	192	—	59 721	7,9
1962	179	56 456	6 410	209	—	63 254	5,9
1963	186	61 093	7 128	230	—	68 637	8,5
1964	187	66 397	7 782	240	—	74 606	8,7
1965	203	71 517	9 051	251	—	81 022	8,6
1966	208	77 121	10 278	259	—	87 866	8,4
1967	220	83 189	11 435	267	—	95 111	8,2
1968	233	85 227	13 540	276	—	99 276	4,4
1969	249	91 999	14 978	289	—	107 515	8,3
1970	265	98 155	16 336	294	—	115 050	7,0
1971	289	106 684	16 927	297	—	124 197	8,0
1972	310	108 517	18 500	299	—	127 626	2,8
1973	326	117 034	20 049	302	—	137 711	7,9
1974	332	106 857	41 647	314	—	149 150	8,3
1975	353	109 029	43 598	325	—	153 305	2,8
1976	365	105 482	61 142	333	—	167 322	9,1
1977	368	106 743	62 507	340	—	169 958	1,6
1978	386	109 317	65 797	354	—	175 854	3,5
1979	404	101 792	65 656	357	—	168 209	-4,3
1980	419	109 558	69 479	386	—	179 842	6,9
1981	434	113 552	77 722	403	—	192 111	6,8
1982	453	119 889	82 801	418	—	203 561	6,0
1983	468	124 433	89 439	421	—	214 761	5,5
1984	487	130 471	94 863	410	—	226 231	5,3
1985	528	135 770	101 246	524	—	238 068	5,2
1986	571	137 820	108 386	546	—	247 323	3,9
1987	562	142 050	116 067	544	—	259 223	4,8
1988	595	153 577	18 903	555	101 749	275 379	6,2
1989	625	103 098	14 526	565	110 121	228 935 ^b	-16,9

^a Supplies to municipalities, local authorities and electricity undertakings in neighbouring states for redistribution.

^b Reduction in number of customers due to the sale of circuits to municipalities.

ESKOM: Total electricity sold

Table 16

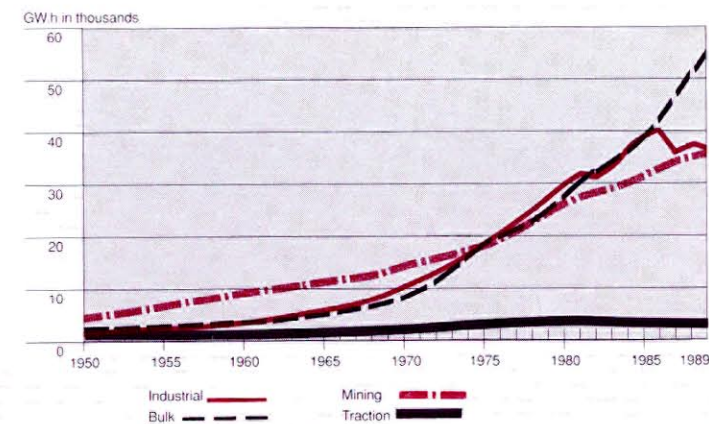
Sales to rural/farming customers, previously included under industrial sales, are now listed separately.

Year	Sales in GW.h, per category						
	Bulk ^a	Domestic and street lighting	Industrial/commercial	Mining	Rural/farming	Traction	Own ^b usage
1950	1 106	114	991	3 899	-	524	-
1951	1 261	134	1 150	4 105	-	539	-
1952	1 459	131	1 338	4 333	-	555	-
1953	1 640	135	1 402	4 736	-	584	-
1954	1 839	142	1 540	5 317	-	619	-
1955	2 048	157	1 881	5 977	-	690	-
1956	2 282	174	2 187	6 445	-	740	-
1957	2 540	190	2 331	6 790	-	753	-
1958	2 838	206	2 480	7 136	-	789	-
1959	3 058	228	2 737	7 676	-	887	-
1960	3 243	253	3 169	8 259	-	1 045	-
1961	3 368	279	3 437	8 626	-	1 178	-
1962	3 570	303	3 692	9 143	-	1 296	-
1963	3 998	329	4 253	9 416	-	1 389	-
1964	4 494	381	4 873	9 847	-	1 559	-
1965	4 921	439	5 663	10 271	-	1 763	-
1966	5 344	492	6 069	10 775	-	1 836	-
1967	5 966	563	6 729	11 441	-	1 958	-
1968	6 628	642	7 439	11 995	-	2 181	-
1969	7 264	719	8 574	12 642	-	2 307	-
1970	8 108	817	9 608	13 948	-	2 410	-
1971	9 265	918	11 014	14 227	-	2 616	-
1972	10 716	1 000	12 642	14 509	-	2 782	-
1973	12 752	1 105	14 026	15 800	-	2 896	-
1974	15 522	909	16 106	16 941	-	3 108	-
1975	18 055	1 013	18 050	17 444	-	3 307	-
1976	20 096	1 093	19 946	18 746	-	3 475	-
1977	20 862	1 030	21 586	20 139	-	3 508	-
1978	21 834	960	24 181	22 219	-	3 586	-
1979	24 133	940	27 475	24 000	-	4 035	-
1980	26 923	906	29 373	25 882	-	4 455	-
1981	29 961	1 002	31 091	27 131	-	4 660	-
1982	32 349	1 020	30 959	27 372	-	4 436	-
1983	32 729	1 078	32 286	28 021	-	4 137	-
1984	35 541	1 144	36 119	29 506	-	4 595	-
1985	37 451	1 204	38 215	30 849	-	4 587	-
1986	40 570	1 252	39 170	31 860	-	4 501	-
1987	45 418	1 279	35 262	32 849	3 022	4 049	645
1988	49 433	1 341	36 574	34 341	3 163	4 120	520
1989	54 423	1 221	35 820	34 661	3 438	4 229	556

^a Supplies to municipalities, local authorities and electricity undertakings in neighbouring states for redistribution.

^b Own usage consists of electricity used on region's distribution premises and its internal sales to other SBUs.

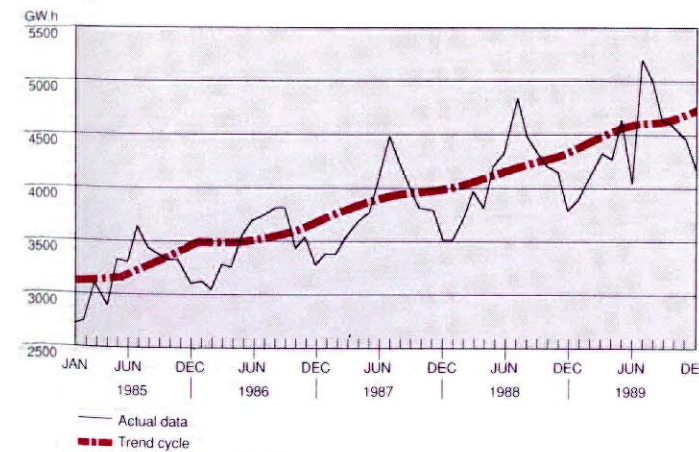
Sales growth by category



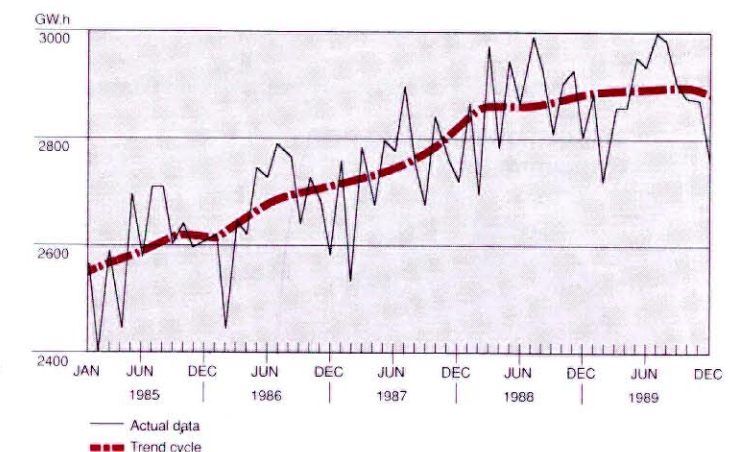
Sales as a percentage of total GW.h sold

Total sold during year	Sales as a percentage of total GW.h sold						
	Bulk ^a	Domestic and street lighting	Industrial/commercial	Mining	Rural/farming	Traction	Own usage ^b
6 634	16,7	1,7	14,9	58,8	-	7,9	-
7 189	17,5	1,9	16,0	57,1	-	7,5	-
7 816	18,7	1,7	17,1	55,4	-	7,1	-
8 498	19,3	1,6	16,5	55,7	-	6,9	-
9 457	19,4	1,5	16,3	56,2	-	6,5	-
10 752	19,0	1,5	17,5	55,6	-	6,4	-
11 828	19,3	1,5	18,5	54,5	-	6,3	-
12 603	20,2	1,5	18,5	53,9	-	6,0	-
13 449	21,1	1,5	18,4	53,1	-	5,9	-
14 586	21,0	1,6	18,8	52,6	-	6,1	-
15 968	20,3	1,6	19,8	51,7	-	6,5	-
16 889	19,9	1,7	20,4	51,1	-	7,0	-
18 005	19,8	1,7	20,5	50,8	-	7,2	-
19 385	20,6	1,7	21,9	48,6	-	7,2	-
21 154	21,2	1,8	23,0	46,6	-	7,4	-
23 056	21,3	1,9	24,6	44,5	-	7,6	-
24 515	21,8	2,0	24,8	44,0	-	7,5	-
26 657	22,4	2,1	25,2	42,9	-	7,3	-
28 885	22,9	2,2	25,8	41,5	-	7,5	-
31 506	23,1	2,3	27,2	40,1	-	7,3	-
34 891	23,2	2,3	27,5	40,0	-	6,9	-
38 040	24,4	2,4	29,0	37,4	-	6,9	-
41 649	25,7	2,4	30,4	34,8	-	6,7	-
46 578	27,4	2,4	30,1	33,9	-	6,2	-
52 585	29,5	1,7	30,6	32,2	-	5,9	-
57 869	31,2	1,8	31,2	30,1	-	5,7	-
63 356	31,7	1,7	31,5	29,6	-	5,5	-
67 125	31,1	1,5	32,2	30,0	-	5,2	-
72 780	30,0	1,3	33,2	30,5	-	4,9	-
80 583	29,9	1,2	34,1	29,8	-	5,0	-
87 540	30,8	1,0	33,6	29,6	-	5,1	-
93 844	31,9	1,1	33,1	28,9	-	5,0	-
96 136	33,6	1,1	32,2	28,5	-	4,6	-
98 251	33,3	1,1	32,9	28,5	-	4,2	-
106 904	33,2	1,1	33,8	27,6	-	4,3	-
112 306	33,3	1,1	34,0	27,5	-	4,1	-
117 353	34,6	1,1	33,4	27,1	-	3,8	-
122 524	37,1	1,0	28,8	26,8	2,5	3,3	0,5
129 493	38,2	1,0	28,2	26,5	2,4	3,2	0,4
134 347	40,5	0,9	26,7	25,8	2,6	3,1	0,4

Bulk Sales



Mining Sales



ESKOM: Revenue per kW.h by category of customer

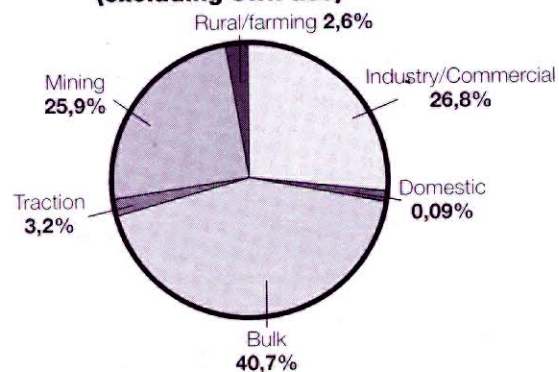
Table 17

Sales to rural/farming customers, previously included under industrial sales, are now listed separately.

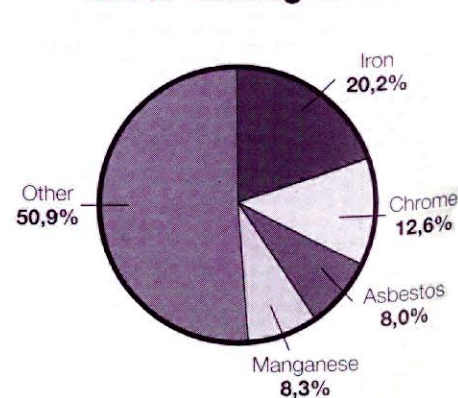
Year	Actual price (in c/kW.h)							Change %
	Bulk ^a	Domestic and street lighting	Industrial/commercial	Mining	Rural/farming	Traction	Average for all categories	
1950	0,3535	1,0870	0,2860	0,2069	—	0,3557	0,2701	
1951	0,3606	1,0321	0,3030	0,2274	—	0,3574	0,2877	6,5
1952	0,3807	1,0630	0,3128	0,2454	—	0,3811	0,3055	6,2
1953	0,4199	1,2083	0,3604	0,2829	—	0,4618	0,3492	14,3
1954	0,4638	1,3247	0,3881	0,2992	—	0,5318	0,3763	7,8
1955	0,5225	1,3485	0,3991	0,3262	—	0,6177	0,4099	8,9
1956	0,5448	1,3625	0,3992	0,3344	—	0,6349	0,4209	2,7
1957	0,5694	1,3847	0,4150	0,3527	—	0,6448	0,4409	4,8
1958	0,5861	1,4294	0,4407	0,3790	—	0,6557	0,4664	5,8
1959	0,6049	1,4411	0,4682	0,3963	—	0,6671	0,4863	4,3
1960	0,6009	1,4492	0,4833	0,4144	—	0,6644	0,4987	2,5
1961	0,6127	1,4843	0,4943	0,4216	—	0,6727	0,5096	2,2
1962	0,6094	1,4784	0,4874	0,4174	—	0,7398	0,5109	0,3
1963	0,6044	1,4761	0,4878	0,4192	—	0,7283	0,5125	0,3
1964	0,5912	1,4429	0,4902	0,4121	—	0,6910	0,5073	-1,0
1965	0,5912	1,3983	0,4819	0,4057	—	0,6963	0,5051	-0,4
1966	0,5969	1,3851	0,5108	0,4182	—	0,7172	0,5218	3,3
1967	0,6063	1,3931	0,5368	0,4444	—	0,7524	0,5466	4,8
1968	0,6037	1,3911	0,5513	0,4493	—	0,7553	0,5550	1,5
1969	0,5988	1,3695	0,5496	0,4545	—	0,7550	0,5565	0,3
1970	0,6001	1,3453	0,5498	0,4501	—	0,7562	0,5545	-0,4
1971	0,6139	1,3608	0,5734	0,4716	—	0,7630	0,5772	4,1
1972	0,6366	1,4156	0,6008	0,5104	—	0,7913	0,6108	5,8
1973	0,6741	1,5049	0,6377	0,5418	—	0,8424	0,6484	6,2
1974	0,7036	1,5480	0,7057	0,5572	—	0,8828	0,6823	5,2
1975	0,8079	1,7079	0,8219	0,6590	—	1,0162	0,7950	16,5
1976	1,0529	2,0915	1,0641	0,8726	—	1,3264	1,0360	30,3
1977	1,5779	3,1778	1,5641	1,2946	—	2,0040	1,5353	48,2
1978	1,7789	3,7875	1,7989	1,6044	—	2,3868	1,7887	16,5
1979	1,8715	3,9826	1,8924	1,7311	—	2,6018	1,8980	6,1
1980	2,0027	4,2754	2,0256	1,8540	—	2,6762	2,0242	6,6
1981	2,2697	4,7314	2,2837	2,0787	—	2,9888	2,2811	12,7
1982	2,8078	5,4182	2,8250	2,5405	—	3,6495	2,8038	22,9
1983	3,3671	6,2323	3,3769	3,0483	—	4,5506	3,3607	19,9
1984	3,5934	6,6614	3,5947	3,2681	—	4,6955	3,5842	6,7
1985	4,1243	7,5074	4,1198	3,7889	—	5,3734	4,1179	14,9
1986	4,8706	9,1951	5,0250	4,7218	—	6,2367	4,9803	20,9
1987	5,5795	10,9537	5,4697	5,5404	10,4398	7,6119	5,7512	15,5
1988	6,1181	11,9144	5,9678	6,0348	11,6716	8,1715	6,3004	9,5
1989	6,6752	12,3759	6,5502	6,6634	12,5615	9,0758	6,9012	9,5

^a Supplies to municipalities, local authorities and electricity undertakings in neighbouring states for redistribution.

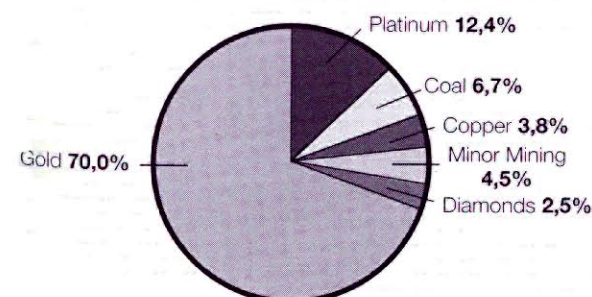
Sales per Category (excluding own use)



Minor Mining Sales



Major Mining Sales



Producer Price Index 1985 = 100	Real price (in c/kW.h)							Average for all categories	Change %
	Bulk ^a	Domestic and street lighting	Industrial/commercial	Mining	Rural/farming	Traction			
9,1	3,8821	11,9372	3,1408	2,2721	—	3,9062	2,9662		
10,4	3,4756	9,9477	2,9204	2,1917	—	3,4447	2,7729	-6,5	
11,9	3,1936	8,9174	2,6240	2,0586	—	3,1970	2,5628	-7,6	
12,0	3,4902	10,0433	2,9956	2,3514	—	3,8384	2,9025	13,3	
12,1	3,8200	10,9107	3,1965	2,4643	—	4,3801	3,0993	6,8	
12,5	4,1892	10,8119	3,1999	2,6154	—	4,9525	3,2865	6,0	
12,7	4,2921	10,7341	3,1450	2,6345	—	5,0019	3,3160	0,9	
12,9	4,4281	10,7686	3,2274	2,7429	—	5,0145	3,4288	3,4	
12,9	4,5385	11,0687	3,4126	2,9348	—	5,0775	3,6116	5,3	
12,9	4,7042	11,2072	3,6411	3,0820	—	5,1879	3,7819	4,7	
13,0	4,6137	11,1269	3,7108	3,1817	—	5,1012	3,8290	1,2	
13,2	4,6259	11,2065	3,7320	3,1831	—	5,0789	3,8475	0,5	
13,4	4,5629	11,0697	3,6495	3,1253	—	5,5393	3,8254	-0,6	
13,5	4,4701	10,9171	3,6077	3,1004	—	5,3864	3,7904	-0,9	
13,9	4,2679	10,4165	3,5388	2,9750	—	4,9884	3,6623	-3,4	
14,3	4,1361	9,7827	3,3714	2,8383	—	4,8714	3,5337	-3,5	
14,8	4,0208	9,3301	3,4408	2,8170	—	4,8311	3,5149	-0,5	
15,2	3,9950	9,1793	3,5370	2,9282	—	4,9576	3,6016	2,5	
15,4	3,9208	9,0347	3,5805	2,9180	—	4,9054	3,6045	0,1	
15,7	3,8071	8,7071	3,4943	2,8897	—	4,8002	3,5382	-1,8	
16,2	3,6986	8,2914	3,3886	2,7741	—	4,6607	3,4175	-3,4	
17,0	3,6116	8,0057	3,3734	2,7745	—	4,4888	3,3957	-0,6	
18,4	3,4640	7,7029	3,2692	2,7773	—	4,3058	3,3236	-2,1	
20,8	3,2486	7,2523	3,0732	2,6110	—	4,0597	3,1247	-6,0	
24,5	2,8714	6,3175	2,8800	2,2740	—	3,6028	2,7845	-10,9	
28,8	2,8098	5,9400	2,8585	2,2920	—	3,5343	2,7650	-0,7	
33,1	3,1851	6,3269	3,2189	2,6397	—	4,0124	3,1339	13,3	
37,4	4,2233	8,5054	4,1863	3,4650	—	5,3637	4,1093	31,1	
41,0	4,3383	9,2368	4,3871	3,9127	—	5,8208	4,3622	6,2	
47,2	3,9616	8,4305	4,0059	3,6644	—	5,5075	4,0177	-7,9	
55,2	3,6289	7,7470	3,6704	3,3594	—	4,8493	3,6679	-8,7	
62,7	3,6203	7,5469	3,6427	3,3157	—	4,7673	3,6385	-0,8	
71,5	3,9288	7,5813	3,9528	3,5547	—	5,1065	3,9232	7,8	
79,0	4,2636	7,8916	4,2760	3,8599	—	5,7622	4,2555	8,5	
85,6	4,1981	7,7824	4,1996	3,8181	—	5,4857	4,1873	-1,6	
100,0	4,1243	7,5074	4,1198	3,7889	—	5,3734	4,1179	-1,7	
119,5	4,0746	7,6923	4,2037	3,9501	—	5,2174	4,1663	1,2	
136,2	4,0965	8,0422	4,0158	4,0677	7,6649	5,5886	4,2225	1,3	
154,1	3,9692	7,7296	3,8717	3,9152	7,5721	5,3014	4,0875	-3,2	
177,6	3,7586	6,9684	3,6882	3,7519	7,0729	5,1102	3,8858	-4,9	

ESKOM: Sales to mining sector, GW.h

Table 18

Year	Gold and uranium	Diamond	Coal mines	Platinum	Copper	Chrome
1967	9 946	264	453	308	235	11
1968	10 339	281	480	378	256	14
1969	10 647	282	495	653	282	17
1970	11 504	288	535	941	343	20
1971	11 662	297	563	962	374	25
1972	11 773	325	589	990	422	31
1973	12 263	334	620	1 581	565	33
1974	12 803	338	648	1 978	653	52
1975	13 108	346	705	2 001	679	42
1976	13 918	343	812	2 184	728	61
1977	14 708	342	941	2 287	874	84
1978	16 241	497	1 078	2 388	1 023	106
1979	17 201	596	1 248	2 772	1 042	126
1980	18 477	678	1 426	2 973	1 117	127
1981	19 406	714	1 522	3 014	1 131	117
1982	20 069	656	1 691	2 466	1 178	105
1983	20 724	649	1 686	2 552	1 178	99
1984	21 427	634	1 873	3 023	1 160	106
1985	22 088	652	2 142	3 402	1 304	175
1986	22 756	700	2 052	3 438	1 385	189
1987	23 421	745	2 064	3 746	1 439	189
1988	24 380	820	2 291	3 982	1 355	195
1989	24 247	883	2 323	4 309	1 326	198

Year	Asbestos	Iron	Manga- nese	Other ^a	Total	Growth %
1967	91		74 ^b	59	11 441	5,8
1968	107		81 ^b	59	11 995	4,8
1969	118		80 ^b	68	12 642	5,4
1970	137		88 ^b	92	13 948	10,3
1971	152		92 ^b	100	14 227	2,0
1972	161		101 ^b	117	14 509	2,0
1973	168	86	27	123	15 800	8,9
1974	193	104	30	142	16 941	7,2
1975	238	121	37	167	17 444	3,0
1976	266	180	49	205	18 746	7,5
1977	275	271	62	295	20 139	7,4
1978	223	272	72	319	22 219	10,3
1979	233	334	83	365	24 000	8,0
1980	242	361	94	387	25 882	7,8
1981	240	335	104	548	27 131	4,8
1982	235	305	113	554	27 372	0,9
1983	225	215	77	616	28 021	2,4
1984	186	286	73	738	29 506	5,3
1985	184	306	84	512	30 849	4,5
1986	162	294	88	796	31 860	3,3
1987	130	264	89	762	32 849	3,1
1988	118	292	104	702	34 239	4,2
1989	126	318	130	801	34 661	1,2

^a Includes stone quarrying, clay and sand pits, chemicals and fertilizers, mineral mining, salt mining and evaporating, precious and semi-precious stone mining (except diamond mining) and other non-metallic mineral mining.

^b Up to 1972, iron and manganese figures were combined.

ESKOM: Sales to industry, GW.h

Table 19 (a)

Year	Building, cement and quarrying	Chemical	Engineering, iron, steel and base metals	Foodstuffs, cons. goods, commercial and other	Paper and paper products	Other	Total	Growth %
1966	530	1 098	2 850	935	416	240	6 069	
1967	562	1 214	3 224	1 022	469	238	6 729	10,9
1968	646	1 241	3 529	1 111	493	419	7 439	10,6
1969	716	1 272	4 207	1 088	542	749	8 574	15,3
1970	782	1 376	4 683	1 407	485	875	9 608	12,1
1971	824	1 444	5 652	1 673	494	927	11 014	14,6
1972	878	1 639	6 864	1 852	520	889	12 642	14,8
1973	1 096	1 921	7 687	2 747	575		14 026	10,9
1974	1 148	2 160	8 835	3 359	604		16 106	14,8
1975	1 115	2 382	10 180	3 790	583		18 050	12,1
1976	1 068	2 655	11 173	4 350	661		19 907	10,3
1977	1 087	3 103	11 927	4 819	650		21 586	8,2
1978	1 198	4 117	13 338	4 916	612		24 181	12,1
1979	1 121	4 657	15 600	5 378	719		27 475	13,6
1980	1 194	5 751	15 900	5 688	840		29 373	6,9
1981	1 353	7 215	15 316	6 341	866		31 091	5,8
1982	1 413	7 258	14 754	6 688	846		30 959	-0,4

Note: Figures not available for years prior to 1966

ESKOM: Sales to industry, GW.h

Table 19 (b)

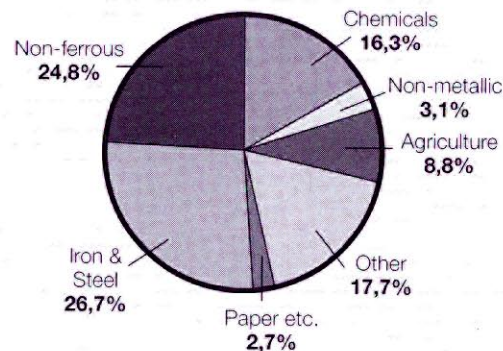
By Standard Industrial Classification of selected economic activities (SIC)

Year	Division												Growth %
	11	31	32	33	34	35	36	371	372	38	Other ^a	Total	
1983	2 051	397	380	175	1 056	7 046	1 231	7 754	6 935	440	4 822	32 286	4,3
1984	2 295	407	400	181	1 288	7 389	1 342	8 793	8 654	441	4 929	36 119	11,9
1985	2 665	422	410	186	1 550	7 511	1 232	9 939	8 779	434	5 088	38 215	5,8
1986	2 863	382	430	189	1 500	7 758	1 206	10 302	9 030	484	5 026	39 170	2,5
1987	2 833	355	412	186	1 239	7 283	1 224	10 522	9 078	340	4 812	38 284	-2,3
1988	3 163	357	422	206	1 268	6 868	1 343	10 603	9 613	355	5 540	39 738	3,8
1989	3 438	328	412	212	1 062	6 386	1 219	10 464	9 743	316	5 678	39 258	-1,2

Standard Industrial Classification Divisions

- 11 *Agriculture, hunting, forestry and logging, and other rural supplies*
 - 31 *Manufacture of food, beverages, and tobacco*
 - 32 *Manufacture of textiles, wearing apparel and leather goods*
 - 33 *Manufacture of wood and wood products, including furniture*
 - 34 *Manufacture of paper and paper products, including printing and publishing*
 - 35 *Manufacture of chemicals and of chemical petroleum, coal, rubber and plastic products*
 - 36 *Manufacture of non-metallic mineral products*
 - 371 *Iron and steel basic industries*
 - 372 *Non-ferrous metal basic industries*
 - 38 *Manufacture of fabricated metal products, machinery and equipment*
- ^a *Includes other manufacturing and commercial enterprises*

Sales to Sectors of Industry



ESKOM: Sales to industry, GW.h

Table 19 (a)

Year	Building, cement and quarrying	Chemical	Engineering, iron, steel and base metals	Foodstuffs, cons. goods, commercial and other	Paper and paper products	Other	Total	Growth %
1966	530	1 098	2 850	935	416	240	6 069	
1967	562	1 214	3 224	1 022	469	238	6 729	10,9
1968	646	1 241	3 529	1 111	493	419	7 439	10,6
1969	716	1 272	4 207	1 088	542	749	8 574	15,3
1970	782	1 376	4 683	1 407	485	875	9 608	12,1
1971	824	1 444	5 652	1 673	494	927	11 014	14,6
1972	878	1 639	6 864	1 852	520	889	12 642	14,8
1973	1 096	1 921	7 687	2 747	575		14 026	10,9
1974	1 148	2 160	8 835	3 359	604		16 106	14,8
1975	1 115	2 382	10 180	3 790	583		18 050	12,1
1976	1 068	2 655	11 173	4 350	661		19 907	10,3
1977	1 087	3 103	11 927	4 819	650		21 586	8,2
1978	1 198	4 117	13 338	4 916	612		24 181	12,1
1979	1 121	4 657	15 600	5 378	719		27 475	13,6
1980	1 194	5 751	15 900	5 688	840		29 373	6,9
1981	1 353	7 215	15 316	6 341	866		31 091	5,8
1982	1 413	7 258	14 754	6 688	846		30 959	-0,4

Note: Figures not available for years prior to 1966

ESKOM: Sales to industry, GW.h

Table 19 (b)

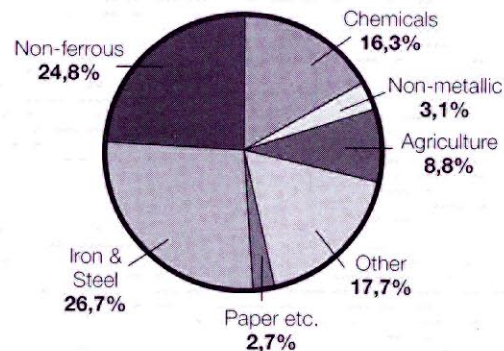
By Standard Industrial Classification of selected economic activities (SIC)

Year	Division											Total	Growth %
	11	31	32	33	34	35	36	371	372	38	Other ^a		
1983	2 051	397	380	175	1 056	7 046	1 231	7 754	6 935	440	4 822	32 286	4,3
1984	2 295	407	400	181	1 288	7 389	1 342	8 793	8 654	441	4 929	36 119	11,9
1985	2 665	422	410	186	1 550	7 511	1 232	9 939	8 779	434	5 088	38 215	5,8
1986	2 863	382	430	189	1 500	7 758	1 206	10 302	9 030	484	5 026	39 170	2,5
1987	2 833	355	412	186	1 239	7 283	1 224	10 522	9 078	340	4 812	38 284	-2,3
1988	3 163	357	422	206	1 268	6 868	1 343	10 603	9 613	355	5 540	39 738	3,8
1989	3 438	328	412	212	1 062	6 386	1 219	10 464	9 743	316	5 678	39 258	-1,2

Standard Industrial Classification Divisions

- 11 *Agriculture, hunting, forestry and logging, and other rural supplies*
 - 31 *Manufacture of food, beverages, and tobacco*
 - 32 *Manufacture of textiles, wearing apparel and leather goods*
 - 33 *Manufacture of wood and wood products, including furniture*
 - 34 *Manufacture of paper and paper products, including printing and publishing*
 - 35 *Manufacture of chemicals and of chemical petroleum, coal, rubber and plastic products*
 - 36 *Manufacture of non-metallic mineral products*
 - 371 *Iron and steel basic industries*
 - 372 *Non-ferrous metal basic industries*
 - 38 *Manufacture of fabricated metal products, machinery and equipment*
- ^a *Includes other manufacturing and commercial enterprises*

Sales to Sectors of Industry



^a The 1986 figures have been adjusted due to reclassification of categories within the rural tariff, disconnections and network sales.

ESKOM: Annual non-cumulative rural and farming supplies

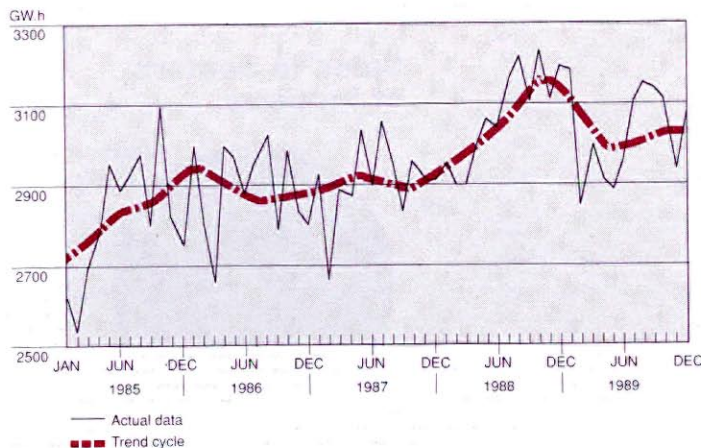
by region^a

Table 20 (b)

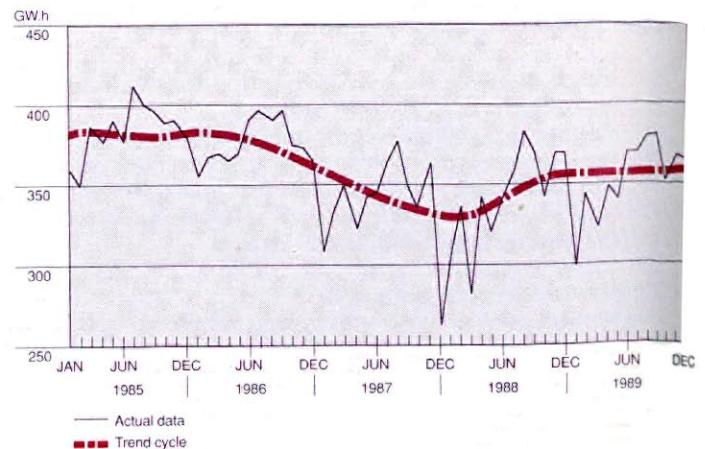
Region	Total connections			
	1989	1988	1987	1986
Southern Transvaal	196	251	224	302
Western Transvaal	1 278	1 547	2 287	2 222
Eastern Transvaal	439	457	421	476
Eastern Natal	584	663	361	396
Orange Free State	755	2 772	1 848	847
Central Transvaal	357	382	396	361
Western Cape	334	402	350	358
North-eastern Transvaal	613	731	568	446
Western Natal	797	616	1 168	1 229
Eastern Cape	1 409	1 745	978	817
Northern Cape	753	568	520	429
Southern Cape	826	880	937	780
	8 341	11 014	10 058	8 663

^a Disconnections, network sales, regional border adjustments and reclassifications not taken into account.

Industrial Sales



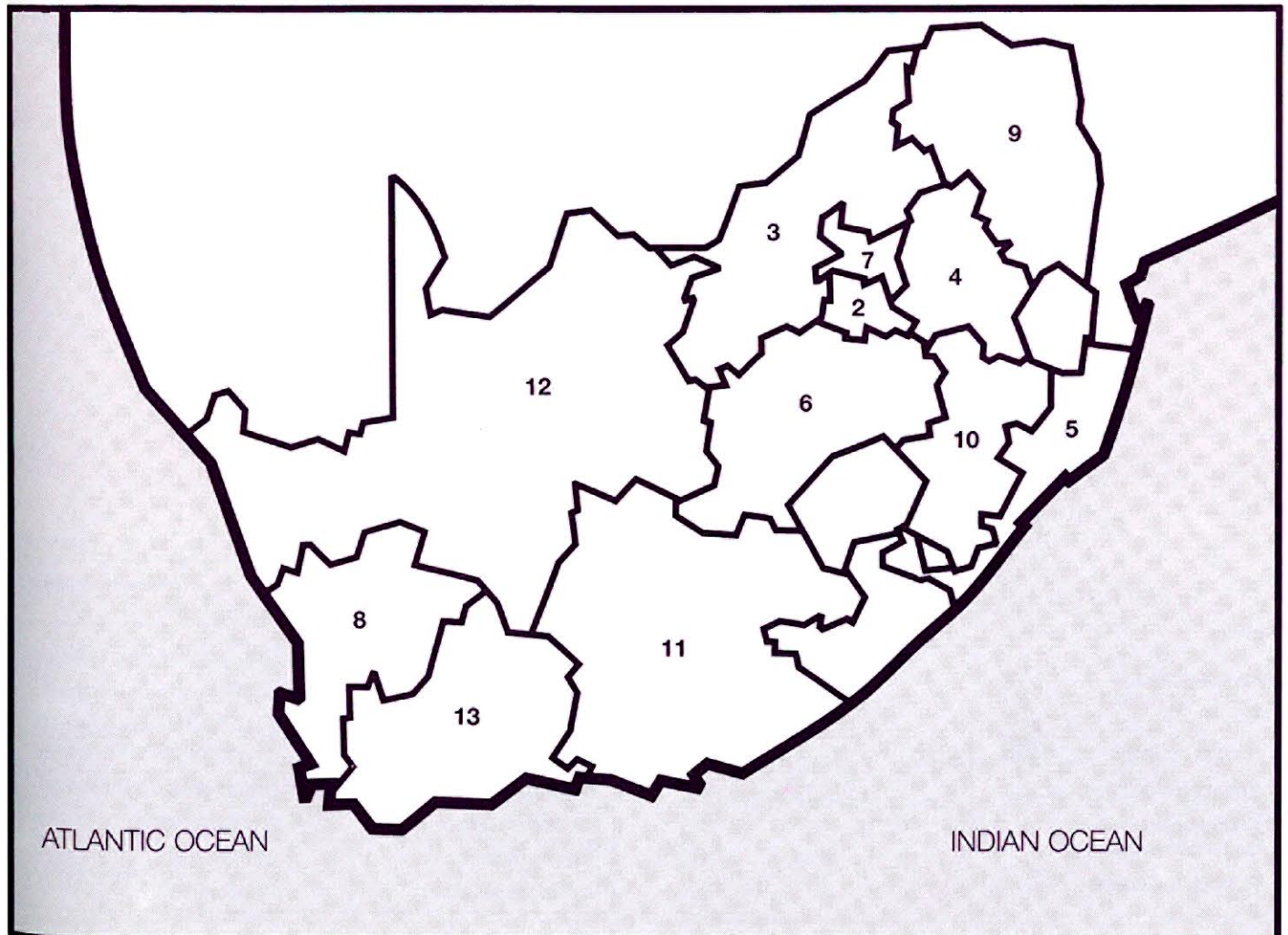
Traction Sales



ESKOM: Distribution regions in the RSA

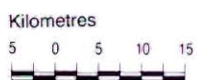
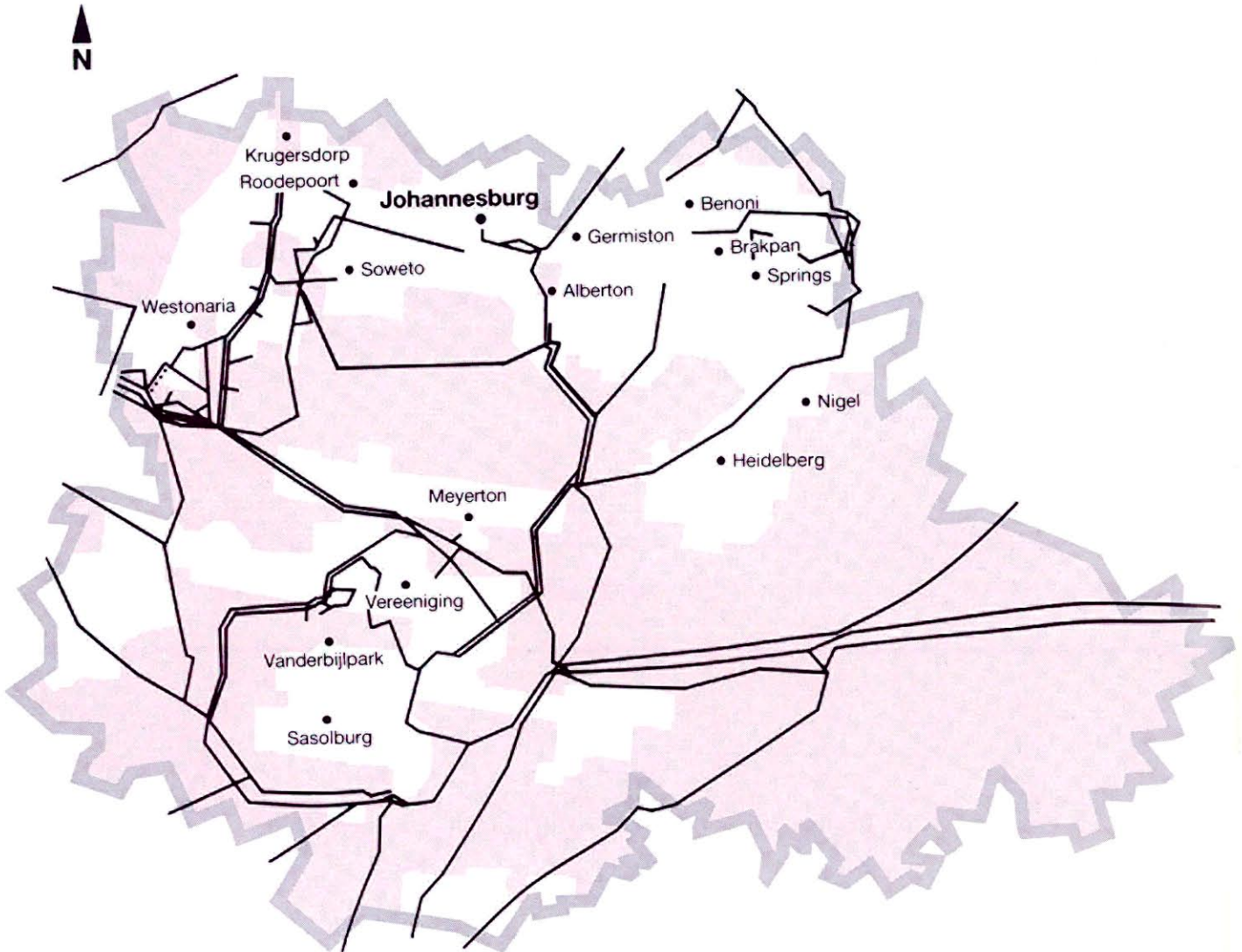
Map 1

- Map 2: **Southern Transvaal** – Johannesburg
- Map 3: **Western Transvaal** – Johannesburg
- Map 4: **Eastern Transvaal** – Witbank
- Map 5: **Eastern Natal** – Durban
- Map 6: **Orange Free State** – Bloemfontein
- Map 7: **Central Transvaal** – Johannesburg
- Map 8: **Western Cape** – Bellville
- Map 9: **North-Eastern Transvaal** – Nelspruit
- Map 10: **Western Natal** – Pietermaritzburg
- Map 11: **Eastern Cape** – East London
- Map 12: **Northern Cape** – Kimberley
- Map 13: **Southern Cape** – George



ESKOM: Southern Transvaal Distribution Region

Map 2

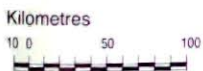


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Southern Transvaal Region	
Customers:	11 417
Sales GW.h:	31 055
Line length km:	11 783
Area sq km:	12 285
Regional Office: Johannesburg	(011) 711-9111
Nigel District	(011) 739-2161
Vereeniging District	(016) 21-3410
Randfontein District	(011) 693-5348/9
Brakpan District	(011) 740-1622
Vanderbijlpark District	(016) 814030/1/2/3

ESKOM: Western Transvaal Distribution Region

Map 3

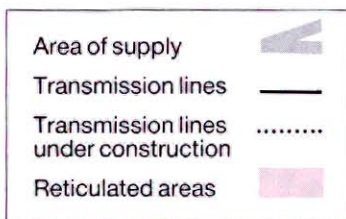


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Western Transvaal Region	
Customers:	16 720
Sales GW.h:	18 478
Line length km:	31 207
Area sq km:	111 012
Regional Office: Johannesburg	(011) 711-9111
Carletonville District	(01491) 7-2064/5
Klerksdorp District	(018) 2-4740/2-9703
Lichtenburg District	(01441) 2-6284/5/6/7
Rustenburg District	(01421) 2-0217 ext 225
Thabazimbi District	(01537) 2-1291/2/3
Warmbaths District	(015331) 2140

ESKOM: Eastern Transvaal Distribution Region

Map 4



Eastern Transvaal Region	
Customers:	9 461
Sales GW.h:	15 360
Line length km:	18 794
Area sq km:	47 107
Regional Office: Witbank	(01351) 67-9111
Wildebees District	(01363) 71184-7
Ermelo District	(01341) 9-7450/1/2/3/4/5
Witbank District	(01351) 67-3733
Middelburg District	(01321) 461631-7
Groblersdal District	(01202) 4039/4041

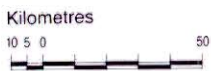
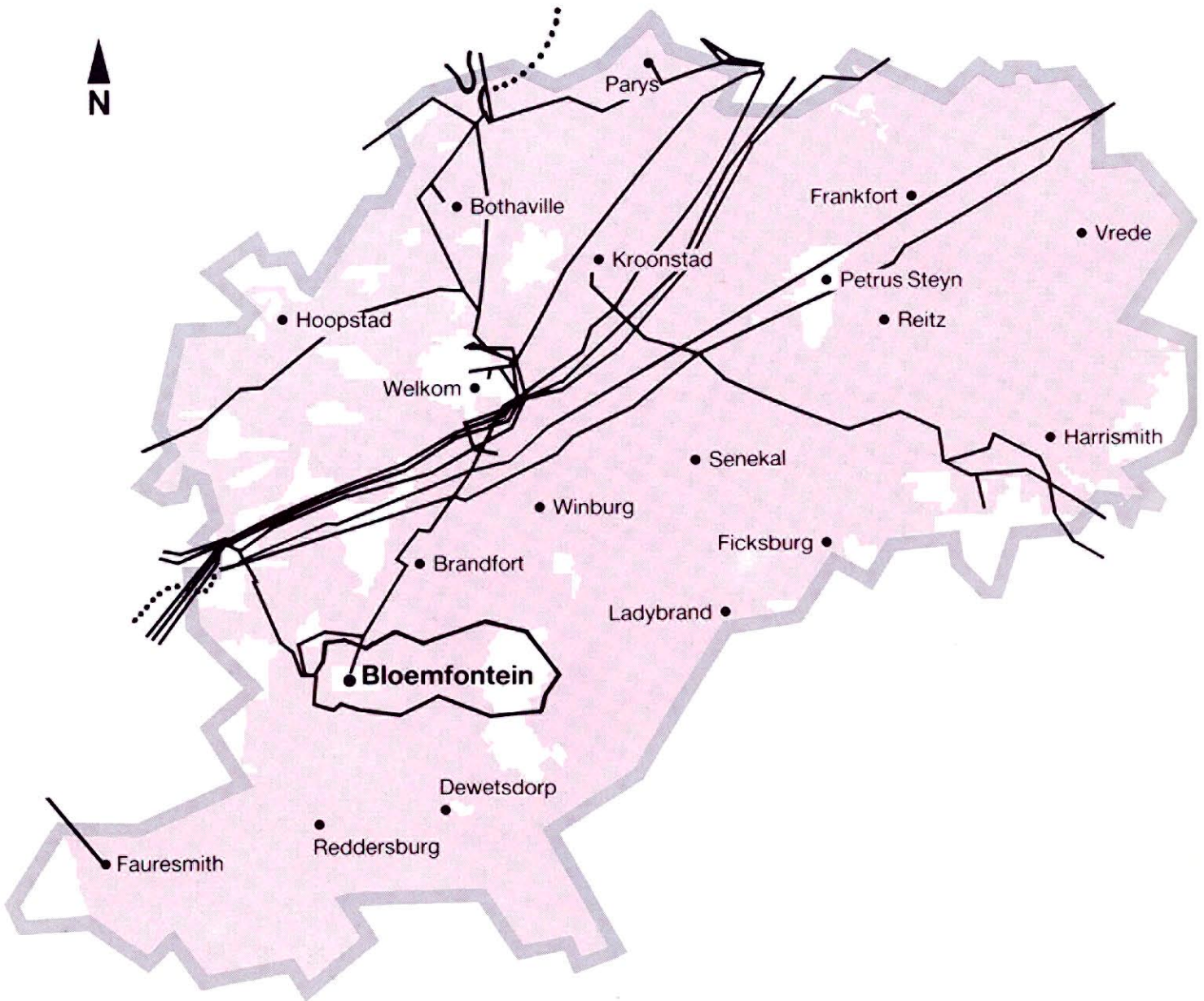
ESKOM: Eastern Natal Distribution Region

Map 5



ESKOM: Orange Free State Distribution Region

Map 6

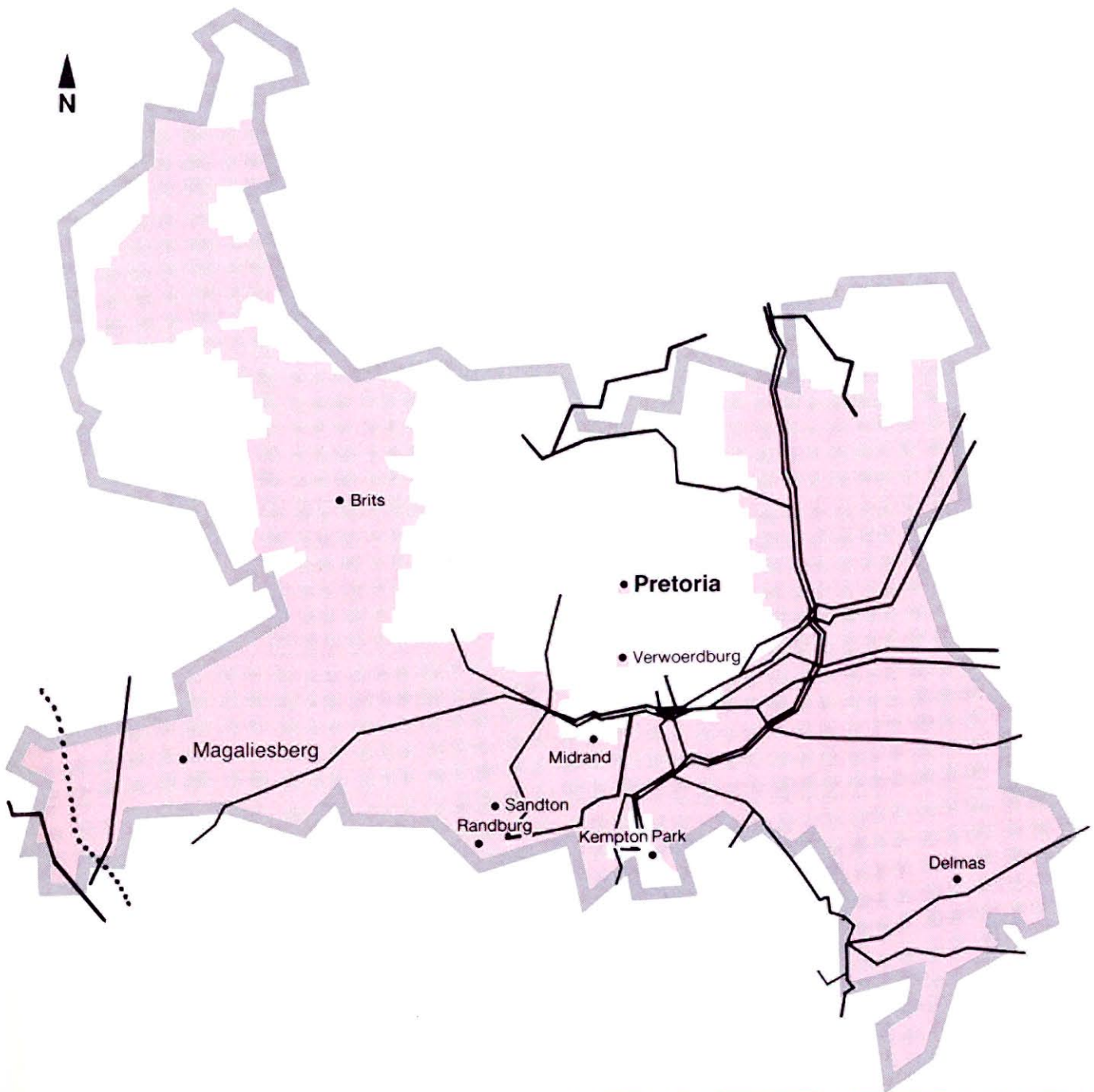


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Orange Free State Region	
Customers:	13 624
Sales GW.h:	10 851
Line length km:	31 246
Area sq km:	96 980
Regional Office: Bloemfontein	(051) 30-2411
Bloemfontein District	(051) 35-2853
Welkom District	(0171) 2-4236
Bethlehem District	(01431) 3-5133
Bothaville District	(01414) 3960
Kroonstad District	(01411) 3-2757/8/9

ESKOM: Central Transvaal Distribution Region

Map 7

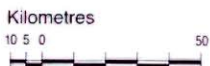
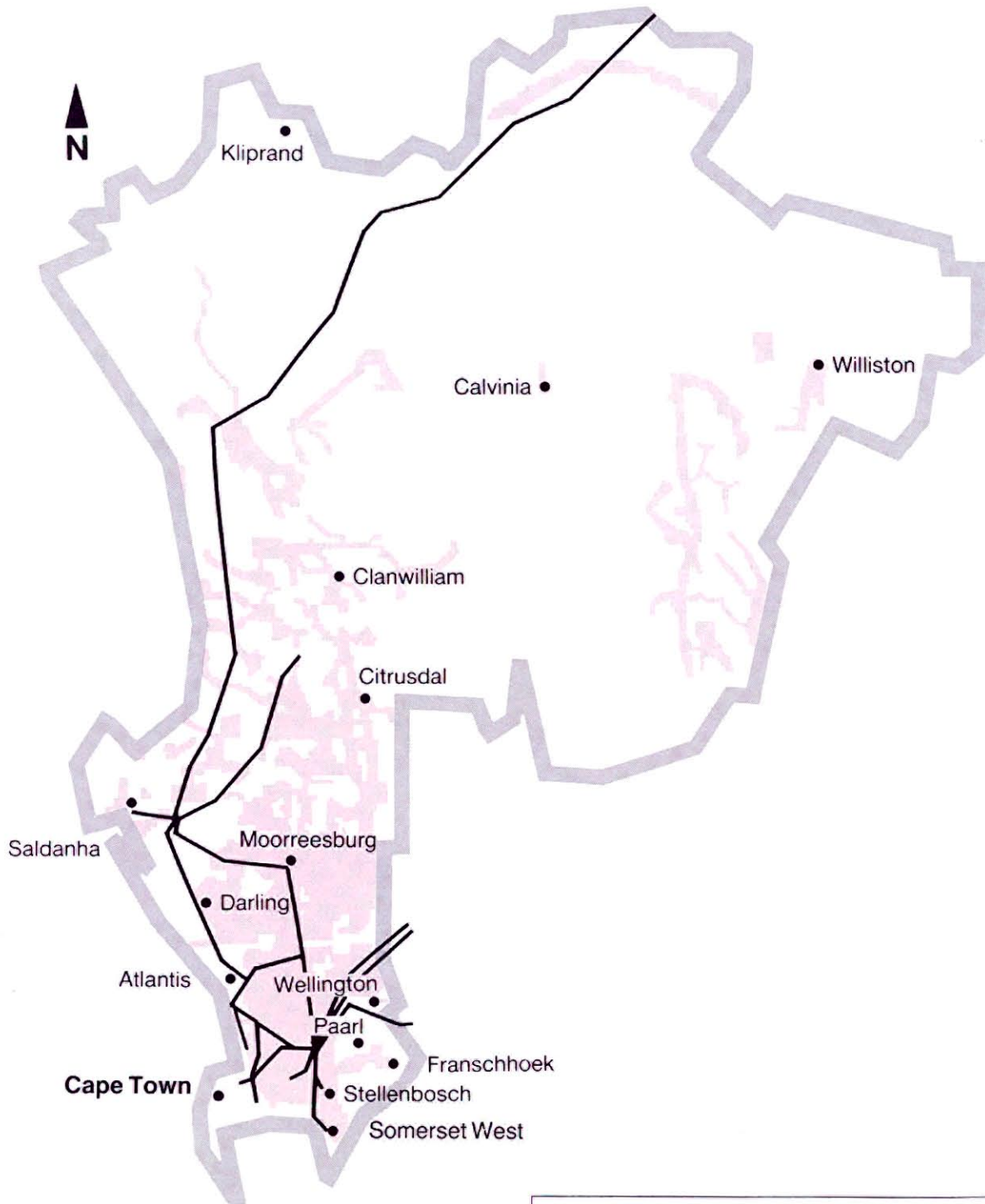


Central Transvaal Region

Customers:	27 060
Sales GW.h:	11 805
Line length km:	9 356
Area sq km:	11 499
Regional Office: Johannesburg	(011) 711-9111
Irene District	(012) 61-2236
Sandton District	(011) 54-8356
Midrand District	(012) 61-2236
Randburg District	(011) 711-2913
Petit District	(011) 786-4746
Brits District	(01211) 20438

ESKOM: Western Cape Distribution Region

Map 8

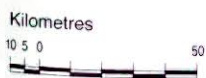
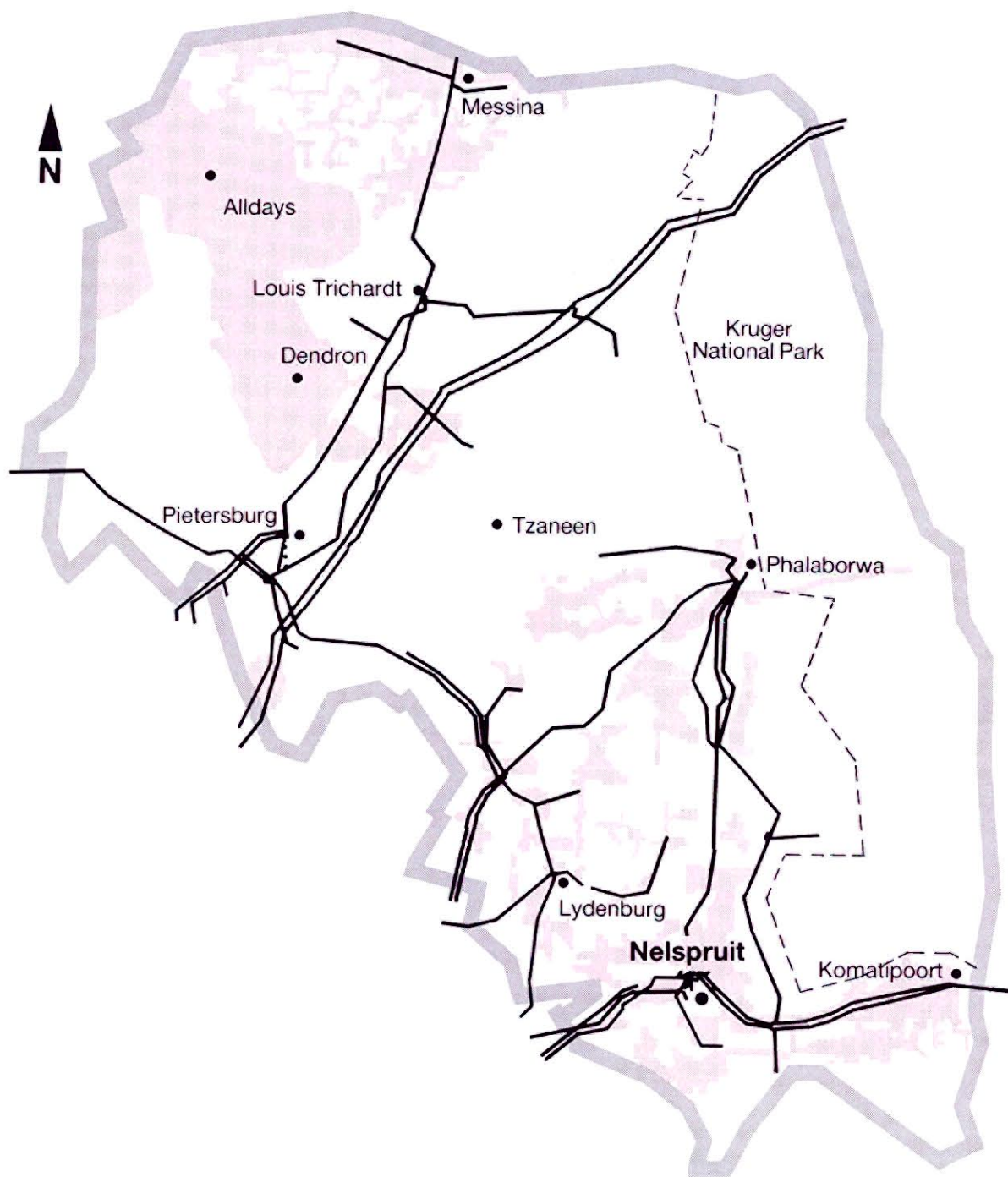


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Western Cape Region	
Customers:	57 716
Sales GW.h:	8 906
Line length km:	11 459
Area sq km:	79 083
Regional Office: Bellville	(021) 915-9111
Oakdale	(021) 99-1160
Kraaifontein District	(021) 902-7457
Vredenburg District	(02281) 3-1154
Vredendal District	(0271) 3-1020

ESKOM: North-Eastern Transvaal Distribution Region

Map 9

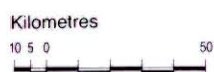
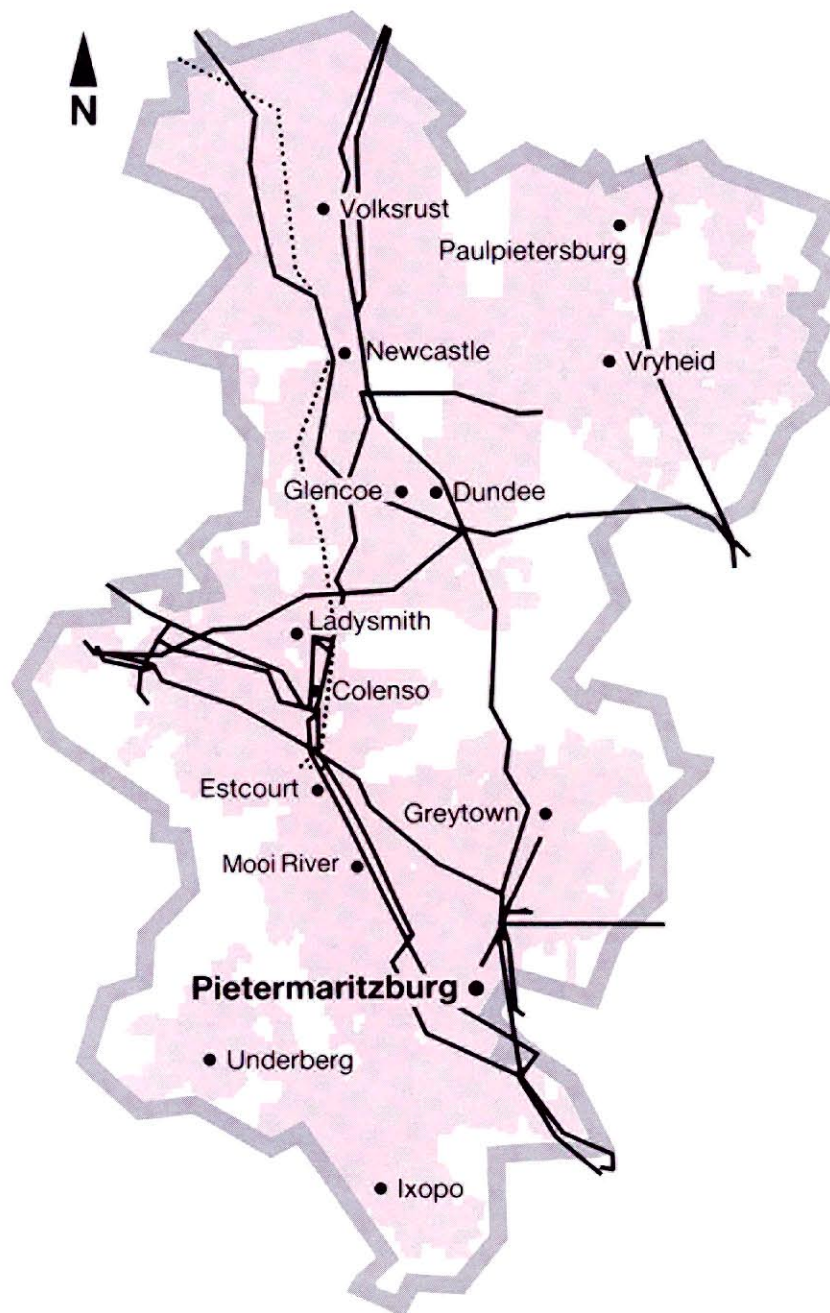


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

North-eastern Transvaal Region	
Customers:	8 839
Sales GW.h:	6 650
Line length km:	13 322
Area sq km:	99 223
Regional Office: Nelspruit	(01311) 5-2001
Pietersburg District	(01521) 7-4821/2/3/4
Nelspruit District	(01311) 5-2001
Lydenburg District	(01323) 2314
Phalaborwa District	(01524) 5888

ESKOM: Western Natal Distribution Region

Map 10

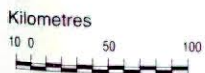
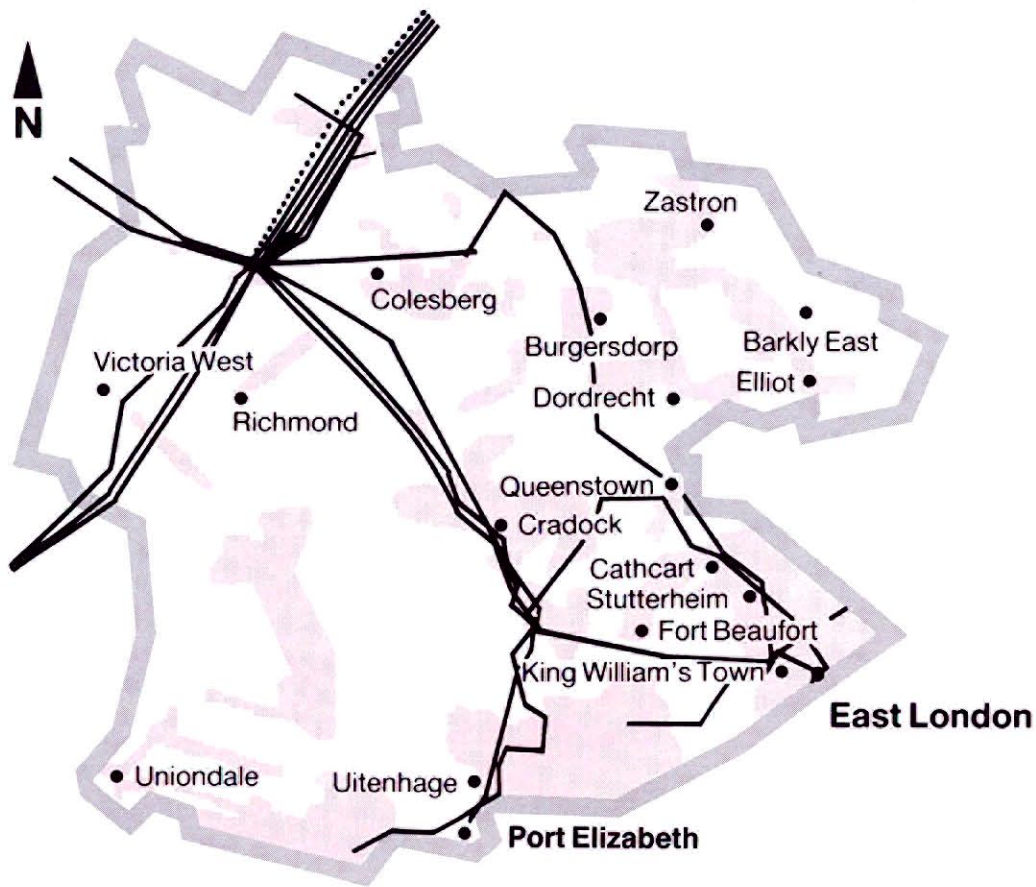


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Western Natal Region	
Customers:	18 206
Sales GW.h:	5 754
Line length km:	19 656
Area sq km:	57 619
Regional Office: Pietermaritzburg	(0331) 94-7245
Newcastle District	(03431) 5-1274/5-1282
Colenso District	(03622) 2232/2101
Pietermaritzburg District	(0331) 94-7351/2/3

ESKOM: Eastern Cape Distribution Region

Map 11

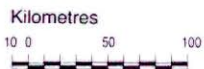
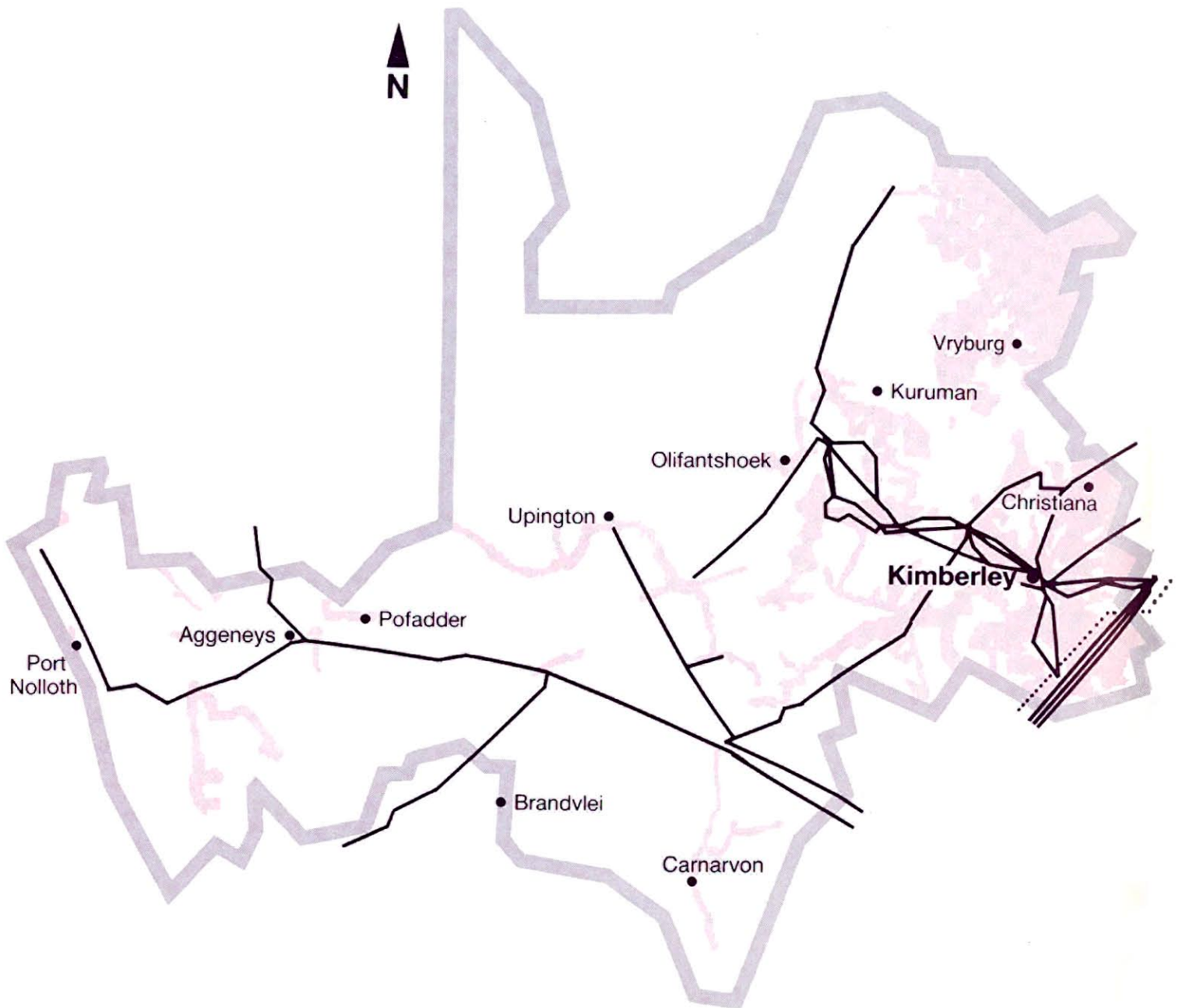


Area of supply	
Transmission lines	
Transmission lines under construction	
Reticulated areas	

Eastern Cape Region	
Customers:	13 488
Sales GW.h:	4 503
Line length km:	24 379
Area sq km:	195 243
Regional Office: East London	(0431) 3-9911
Uitenhage District	(0422) 2-5833
Colesberg District	(05852) 363
East London District	(0431) 47-2493
Grahamstown District	(0461) 2-7031

ESKOM: Northern Cape Distribution Region

Map 12

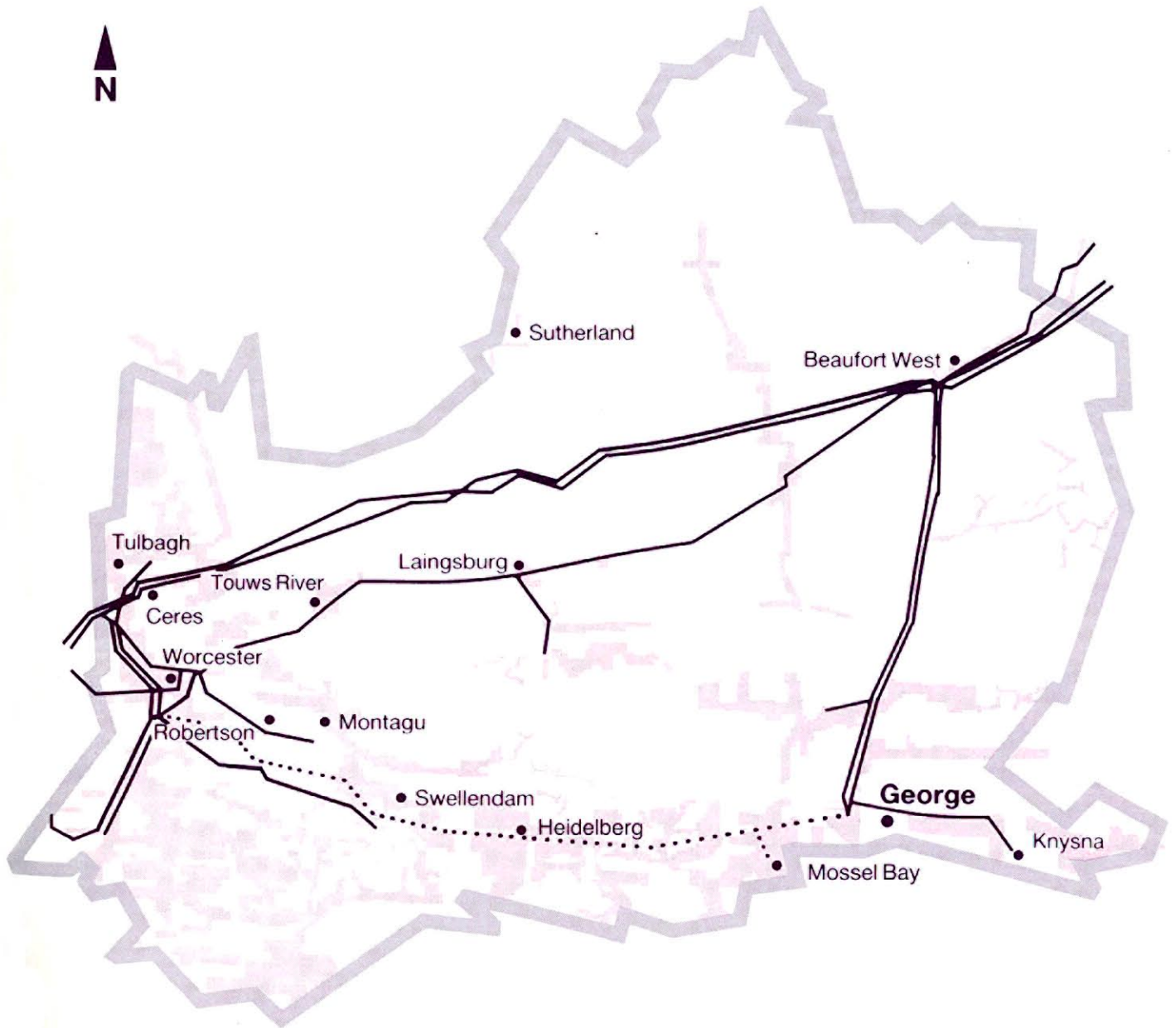


Area of supply	
Transmission lines	
Reticulated areas	

Northern Cape Region	
Customers:	9 639
Sales GW.h:	3 571
Line length km:	19 519
Area sq km:	326 484
Regional Office: Kimberley	(0531) 80-5911
Upington District	(054) 25742
Kimberley District	(0531) 805-876
Kuruman District	(01471) 2-2152
Vryburg District	(01451) 5741/2/3

ESKOM: Southern Cape Distribution Region

Map 13



Southern Cape Region	
Customers:	13 818
Sales GW.h:	1 637
Line length km:	15 220
Area sq km:	100 258
Regional Office: George	(0441) 76-2911
Worcester District	(0231) 2-2394
Grabouw District	(024) 53-1140
George District	(0441) 74-4123
Swellendam District	(0291) 4-1051

SOUTH AFRICA: Motive power employed – electricity

Table 21

Source: Central Statistical Services Census of Electricity, Gas and Steam, Report No. 41-01-01 (1986)^a.

Ownership and group	Steam turbines MW	Gas turbines MW	Steam reciprocating engines MW	Diesel and heavy oil engines MW	Petrol, paraffin and other light oil engines MW	Gas engines MW	Water turbines and water wheels MW	Total MW
Public supply undertakings								
Electricity generating stations								
Private undertakings and Eskom	26 156,0	364,7	–	38,6	–	0,1	1 550,9	28 110,3
Local authorities	1 482,8	316,0	–	5,1	–	–	184,3	1 988,2
Electricity distributing stations								
Private undertakings and Eskom	–	–	–	1,7	–	–	–	1,7
Local authorities	480,0	24,0	–	14,3	0,4	–	0,6	519,3
Total undertakings	28 118,8	704,7	–	59,7	0,4	0,1	1 735,8	30 619,6
Self-producers								
Electricity generating stations	615,8	–	3,4	14,9	2,2	–	2,2	638,4
Electricity distributing stations	378,1	25,9	0,2	82,0	0,3	–	8,6	495,1
Total undertakings	993,9	25,9	3,6	96,9	2,5	–	10,8	1 133,5
Grand total								
All undertakings	29 112,7	730,6	3,6	156,6	2,8	0,1	1 746,6	31 753,1

SOUTH AFRICA: Electricity available for consumption and number of undertakings

Table 22

Source: Central Statistical Services Census of Electricity, Gas and Steam, Report No. 41-01-01 (1986)^a.

Undertaking	Generating undertakings	Distributing undertakings	Gross production of electricity	Purchases outside South Africa	Units consumed by auxiliary installations and lost in station transformers	Units lost in transmission and transformers	Sales outside South Africa	Supply available for consumption in South Africa
	No.	No.	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h
Public supply undertakings								
Private undertakings and Eskom	12	105	133 578	256	10 075	6 627	3 506	113 627
Local authorities	9	286	6 354	55	735	2 509	127	3 037
All undertakings	21	391	139 932	311	10 810	9 136	3 634	116 664
Self-producers								
Mining ^b	2	52	93	—	8	251	—	-166
Manufacturing	41	10	6 430	—	2 431	158	—	3 841
S.A. Transport Services	1	—	0	—	0	56	—	-56
Other	3	1	65	—	0	0	—	65
Total	47	63	6 589	—	2 439	465	—	3 684
All undertakings	68	454	146 521	311	13 249	9 601	3 634	120 348

^a The 1989 census of electricity, gas and steam was carried out in March 1990. The latest figures will be available in our next edition.

^b Negative number of units for mining is caused by transmission losses in the total number of units generated and the number of units bought exceeding units generated.

SOUTH AFRICA: Monthly data on electricity available for consumption

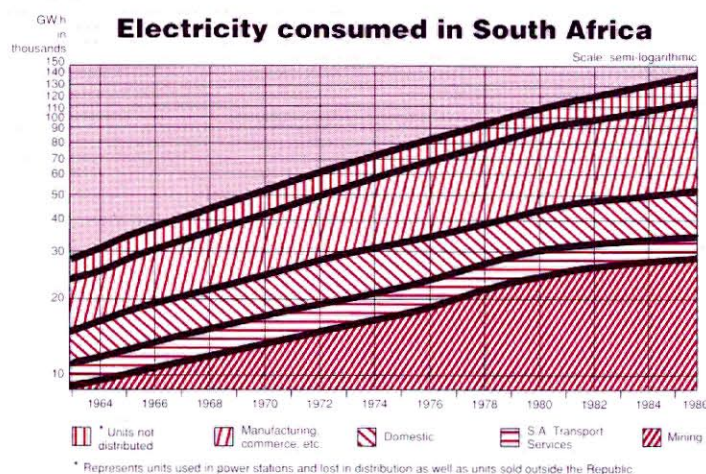
Table 23

Source: Central Statistical Services Census of Electricity, Gas and Steam. Report No. 41-01-01 (1986)^a

Month	1979	1980	1981	1982	1983	1984	1985	1986
Actual data	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h
January	7 074	7 678	8 201	8 687	8 745	9 326	9 801	10 371
February	6 714	7 598	7 724	8 222	8 217	9 131	9 443	9 703
March	7 541	8 140	8 673	9 171	9 103	9 901	10 417	10 861
April	7 307	7 905	8 167	8 872	8 871	9 491	10 015	10 379
May	7 882	8 756	9 176	9 548	9 546	10 415	10 801	11 053
June	8 004	8 816	9 387	9 609	9 661	10 686	11 053	11 432
July	8 611	9 192	9 662	10 119	10 271 ^b	11 139	11 547	11 836
August	8 411	8 913	9 691	9 776	10 202 ^b	10 794	11 230	11 621
September	7 857	8 394	9 103	8 894	9 489 ^b	10 167	10 525	10 772
October	7 950	8 439	9 198	9 193	9 772 ^b	10 164	10 736	11 106
November	7 728	8 195	8 723	8 891	9 382 ^b	9 984	10 521	10 753
December	7 536	7 879	8 430	8 554	9 107 ^b	9 637	10 118	10 168
Annual data	92 614	99 905	106 135	109 536	112 366 ^b	120 835	126 207	130 055
Seasonal variation eliminated								
January	7 423	8 069	8 602	9 112	9 172	9 791	10 295	10 866
February	7 477	8 476	8 602	9 150	9 129	10 121	10 460	10 751
March	7 640	8 186	8 695	9 191	9 110	9 920	10 439	10 848
April	7 635	8 239	8 503	9 238	9 251	9 854	10 397	10 780
May	7 543	8 380	8 809	9 170	9 181	10 043	10 422	10 710
June	7 608	8 372	8 916	9 126	9 179	10 137	10 484	10 820
July	7 751	8 292	8 734	9 159	9 309	10 107	10 482	10 785
August	7 788	8 271	9 014	9 096	9 500	10 074	10 485	10 881
September	7 826	8 388	9 078	8 873	9 468	10 177	10 543	10 836
October	7 871	8 355	9 112	9 098	9 671	10 035	10 601	10 963
November	7 975	8 439	8 998	9 158	9 650	10 257	10 803	10 984
December	8 060	8 452	9 037	9 159	9 741	10 309	10 821	10 852

^a The 1989 census of electricity, gas and steam was carried out in March 1990. The latest figures will be available in our next edition.

^b Estimates obtained from a monthly sample survey.



SOUTH AFRICA: Production and consumption of electricity

Table 24

Source: Central Statistical Service Census of Electricity, Gas and Steam. Report No. 41-01-01 (1986)^a.

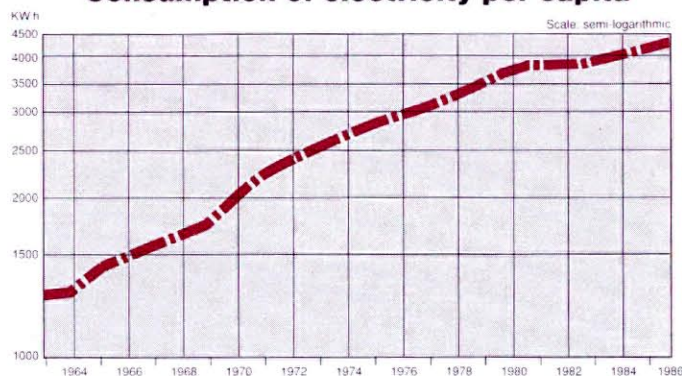
Census year	Production					Electricity supplied for consumption							
	Gross production of electricity	Purchases outside Republic	Used in power stations and lost in distribution	Sales outside Republic	Total no. of units consumed in South Africa	In mining	S.A. Transport Services			For domestic purposes	Manufacturing, commerce, etc ^b	For other purposes ^c	Consumption per capita
							Traction	Other purposes					
GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	GW.h	kW.h
1961	24 299	—	3 401	—	20 902	8 796	1 033	214	3 538	6 764	557	1 189	
1962	25 699	—	3 633	—	22 066	9 121	1 181	223	3 469	7 087	985	1 223	
1963	27 457	—	3 263	—	24 194	9 524	1 296	249	3 724	8 316	1 085	1 304	
1964	29 399	—	4 142	—	25 213	9 758	1 389	277	4 221	8 617	951	1 322	
1965	34 423	—	5 346	—	29 077	10 482	1 676	347	4 960	10 251	1 428	1 483	
1967	39 636	—	5 599	—	34 037	11 759	1 913	409	5 682	12 464	1 810	1 642	
1969	45 968	—	6 359	—	39 610	12 882	2 142	535	6 714	15 246	2 091	1 810	
1971	54 647	—	7 417	14	47 216	14 457	2 676	602	8 088	19 282	2 111	2 086	
1973	64 390	—	8 441	194	55 755	16 102	2 904	616	9 265	24 408	2 461	2 327	
1975	74 894	25	10 121	283	64 514	17 749	3 159	696	9 991	29 784	3 136	2 546	
1976	79 358	1 214	10 559	327	69 686	18 994	3 356	735	10 474	32 558	3 569	2 920	
1977	80 323	4 288	10 547	417	73 648	20 318	3 538	775	11 302	33 615	4 099	3 000	
1978	84 496	6 973	11 837	1 441	78 190	22 400	3 517	796	11 718	35 427	4 332	3 256	
1979	89 748	10 356	12 571	1 795	85 739	23 939	3 730	915	12 330	40 101	4 723	3 524	
1980	98 951	9 645	14 079	1 871	92 646	25 260	4 323	989	13 522	43 049	5 502	3 689	
1981	113 656	2 660	15 894	2 232	98 190	26 311	4 652	999	14 738	45 735	5 755	3 771	
1982	119 012	2 167	18 542	2 406	100 230	27 166	4 883	1 115	14 618	45 691	6 757	3 715	
1983	121 122	5 084	20 367	2 875	102 965	27 806	4 339	921	14 490	49 232	6 177	3 867	
1986	146 521	312	22 850	3 634	120 348	29 942	3 903	828	17 644	60 858	7 174	4 238	

^a The 1989 census of electricity, gas and steam was carried out in March 1990. The latest figures will be available in our next edition.

^b Private businesses

^c Rand Water Board, regional water supply commissions, government departments, provincial administrations, local authorities etc.

Consumption of electricity per capita



SOUTH AFRICA: Consumption of electricity

Table 25

Source: Central Statistical Service Census of Electricity, Gas and Steam. Report No. 41-01-01 (1986)^a.

Units consumed by	GW.h
Mining	
Gold and Uranium mines	22 261
Coal mines	2 035
Other mines	5 646
S.A. Transport Services	
Traction	3 903
Other	828
Own local authority departments	
Water departments	314
Public lighting (street etc)	648
Other purposes	835
Rand Water Board & Regional Water Supply Commissions	1 426
Government Departments, provincial administrations, etc	3 949
Other private business (manufacturing, commerce, etc.)	60 858
Domestic use	17 644
Other	2
	<hr/> 120 348

^a The 1989 census of electricity, gas and steam was carried out in March 1990. The latest figures will be available in our next edition.

SOUTH AFRICA: Municipal statistics

Table 26

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
Transvaal						
Alberton	6/89	19 000	620	400	1	20 021
Alexandra	1988	—	—	—	250	250
Amalia	6/88	—	—	—	—	0
Attridgeville	6/88	10 452	—	—	—	10 452
Balfour	6/89	1 800	—	—	—	1 800
Barberton	6/89	1 432	245	27	234	1 938
Bedfordview	6/89	2 679	114	21	—	2 814
Bekkersdal	6/89	260	—	—	—	260
Belfast	6/89	650	57	9	67	783
Benoni	6/89	21 300	1 600	510	2	23 412
Bethal	6/89	1 499	208	16	247	1 970
Bloemhof	6/88	441	92	9	—	542
Boksburg	6/89	21 200	640	270	—	22 110
Brakpan	6/89	12 600	11 050	250	320	24 220
Brits	6/89	2 776	482	103	213	3 574
Bronkhorstspuit	6/89	1 335	160	60	62	1 617
Carletonville	6/88	6 221	735	107	70	7 133
Carolina	6/89	1 187	130	13	—	1 330
Christiana	6/89	805	185	45	57	1 092
Coligny	6/88	680	37	1	2	720
Delareyville	6/88	503	122	12	24	661
Delmas	6/89	1 427	22	26	—	1 475
Deneysville	6/89	350	30	1	10	391
Duduza	6/89	3 100	720	—	—	3 820
Edenvale	6/89	8 305	416	293	293	9 307
Ellisras	6/88	3 299	291	—	1	3 591
Ennerdale	6/89	2 300	—	—	—	2 300
Erab Ratanda	6/89	280	—	—	—	280
Ermelo	6/89	3 486	502	69	—	4 057
Evander	6/89	2 073	272	68	48	2 461
Fochville	6/88	2 527	190	5	—	2 722
Germiston	6/89	24 200	4 410	—	28 600	57 210
Graskop	6/89	227	45	—	—	272
Greylingstad	6/89	50	—	—	—	50
Groblersdal	6/89	876	245	16	—	1 137
Hartbeespoortdam	6/88	1 672	—	—	—	1 672
Hartbeesfontein	6/88	458	83	10	—	551
Heidelberg	6/89	3 040	310	45	210	3 605
Hendrina	6/89	501	83	—	—	584
Hertzogville	6/88	182	42	—	3	227
Hoopstad	6/88	298	51	11	14	374
Ironsyde	6/89	175	—	—	—	175
Johannesburg	6/89	117 306	6 720	3 795	—	127 821
Kagiso	6/89	370	—	—	—	370
Katlehong	6/89	3 770	—	—	—	3 770
Kempton Park	6/89	23 685	1 057	778	—	25 520
Kinross	6/89	894	84	12	38	1 028
Klerksdorp	12/88	13 345	1 228	90	4	14 667
Kosmos	6/88	288	—	—	—	288
Koster	6/88	863	115	18	—	996
Kriel	6/89	2 881	78	51	—	3 010
Krugersdorp	6/89	15 200	1 290	570	355	17 415
Kwa-Thema	6/89	8 600	375	—	35	9 010
Leeudoringstad	6/88	500	40	15	—	555
Lenasia South	6/89	1 540	—	—	—	1 540
Lichtenburg	6/88	3 232	330	131	140	3 833
Louis Trichardt	6/89	1 823	416	114	987	3 340
Lydenburg	6/89	1 647	272	58	—	1 977
Machadodorp	6/89	492	106	2	1	601
Makwassie	6/86	256	63	1	1	321
Mamelodi	6/88	17 380	297	—	—	17 677

Town	Financial year ended	MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
		Domestic	Business	Industry	Not defined and other	Total				
Alberton	6/89	242 268	18 723	424 577	50 620	736 187	154,90	61,8	5,0	219 000
Alexandra	1988	—	—	—	—	0	6,20	—	—	120 000
Amalia	6/88	—	—	—	—	0	—	—	—	389
Attridgeville	6/88	92 148	—	—	—	92 148	28,80	40,6	—	89 442
Balfour	6/89	21 509	—	—	—	21 509	—	—	—	—
Barberton	6/89	12 995	5 080	21 442	2 135	41 652	5,80	62,0	11,0	5 210
Bedfordview	6/89	83 736	4 594	67 994	—	156 324	36,00	68,0	—	30 000
Bekkersdal	6/89	3 166	—	—	—	3 166	—	—	—	—
Belfast	6/89	5 044	1 940	352	4 712	12 048	2,84	48,4	8,7	13 305
Benoni	6/89	252 611	65 783	385 415	176 348	880 157	181,00	62,7	2,4	245 000
Bethal	6/89	20 146	11 313	25 359	3 212	60 030	10,73	63,9	6,4	44 205
Bloemhof	6/88	—	—	—	13 931	13 931	2,50	70,0	6,1	3 068
Boksburg	6/89	280 562	65 763	510 332	22 921	879 578	176,00	63,3	7,2	244 500
Brakpan	6/89	117 662	21 119	370 012	10 107	518 899	87,0	76,0	3,8	108 000
Brits	6/89	26 869	16 800	124 045	14 087	181 801	37,40	55,6	2,6	1 200
Bronkhorstspuit	6/89	22 000	6 668	54 582	3 918	87 168	19,90	50,0	5,1	16 000
Carletonville	6/88	64 105	38 192	2 882	5 474	110 653	25,40	66,0	7,0	39 000
Carolina	6/89	5 771	2 925	4 730	—	13 426	3,78	40,5	10,0	10 500
Christiana	6/89	5 600	5 400	500	—	11 500	4,00	36,0	7,9	2 300
Coligny	6/88	3 472	665	608	372	5 117	1,80	58,8	9,7	7 400
Delareyville	6/88	4 518	1 633	1 852	863	8 866	2,70	54,0	12,0	1 235
Delmas	6/89	12 526	11 552	4 907	—	28 985	8,00	63,0	8,9	20 000
Deneysville	6/89	3 386	1 576	817	233	6 012	1,70	62,2	7,3	2 200
Duduza	6/89	39 870	14 530	—	—	54 400	10,00	87,0	—	55 000
Edenvale	6/89	118 644	11 127	74 621	5 850	210 242	39,30	62,4	5,4	45 000
Ellisras	6/88	24 300	15 625	—	2 358	42 283	9,35	59,0	5,6	18 400
Ennerdale	6/89	49 717	—	—	—	49 717	—	—	—	—
Erab Ratanda	6/89	9 430	—	—	—	9 430	—	—	—	—
Ermelo	6/89	37 628	10 649	22 719	6 065	77 061	16,63	52,9	9,0	60 450
Evander	6/89	22 986	3 778	3 618	3 796	34 178	22,50	17,3	13,1	36 500
Fochville	6/88	—	—	—	31 179	31 179	9,20	63,0	6,0	14 000
Germiston	6/89	340 537	810 285	—	35 604	1 186 426	250,00	60,0	2,6	150 000
Graskop	6/89	3 749	3 536	—	—	7 285	1,09	47,4	3,2	1 400
Greylingstad	6/89	1 656	—	—	—	1 656	—	—	—	—
Groblersdal	6/89	—	—	—	22 819	22 819	3,84	67,8	7,1	3 200
Hartbeespoortdam	6/88	23 744	—	—	—	23 744	7,05	48,0	15,0	6 800
Hartbeesfontein	6/88	2 836	1 960	1 137	—	5 933	1,60	52,0	6,0	460
Heidelberg	6/89	31 030	15 723	53 172	6 494	106 419	25,27	60,0	5,2	13 000
Hendrina	6/89	4 500	2 100	—	—	6 600	1,49	50,5	—	1 200
Hertzogville	6/88	1 666	807	—	132	2 605	0,67	49,4	4,0	2 650
Hoopstad	6/88	3 610	6 138	135	153	10 036	2,00	54,0	13,0	6 900
Ironsyde	6/89	2 183	—	—	—	2 183	—	—	—	—
Johannesburg	6/89	2 068 318	211 475	3 449 092	—	5 728 885	1 354,70	61,2	2,4	950 000
Kagiso	6/89	12 561	—	—	—	12 561	—	—	—	—
Katlehong	6/89	129 154	—	—	—	129 154	—	48,0	5,0	500 000
Kempton Park	6/89	260 000	60 000	724 000	21 000	1 065 000	215,00	70,0	3,0	95 000
Kinross	6/89	8 844	1 736	4 427	659	15 666	3,32	53,9	8,2	3 550
Klerksdorp	12/88	132 753	37 002	68 823	30 571	269 149	57,00	62,0	3,1	121 925
Kosmos	6/88	1 835	—	—	—	1 835	—	—	—	—
Koster	6/88	7 271	1 356	115	—	8 742	2,30	60,0	9,6	5 095
Kriel	6/89	36 515	1 832	5 086	—	43 433	8,23	60,0	11,2	—
Krugersdorp	6/89	170 958	43 921	255 964	23 474	494 316	103,00	59,0	4,7	134 000
Kwa-Thema	6/89	51 600	—	—	16 131	67 731	19,85	50,0	6,0	122 000
Leeudoringstad	6/88	—	—	—	7 100	7 100	2,10	49,0	5,0	5 200
Lenasia South	6/89	33 405	—	—	—	33 405	—	—	—	—
Lichtenburg	6/88	25 001	5 490	17 918	7 705	56 114	13,49	62,0	4,2	20 640
Louis Trichardt	6/89	18 581	11 335	21 014	56 004	106 934	27,00	92,0	9,2	10 528
Lydenburg	6/89	20 892	4 755	9 093	45	34 785	8,50	70,0	13,3	29 100
Machadodorp	6/89	2 952	—	—	895	3 847	1,10	39,9	8,5	1 084
Makwassie	6/86	3 100	—	—	—	3 100	1,00	91,0	8,0	4 361
Mamelodi	6/88	90 805	15 622	—	—	106 427	42,96	35,5	21,0	175 578

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
<i>Transvaal continued</i>						
Marble Hall	6/89	583	133	61	40	817
Messina	6/89	660	156	6	-	822
Meyerton	6/89	3 000	185	140	150	3 475
Mhluzi	6/89	2 445	42	-	21	2 508
Middelburg	6/89	6 689	967	157	400	8 213
Midrand	6/89	2 119	31	50	-	2 200
Modderfontein	6/89	557	15	3	-	575
Mohlakeng	6/89	600	-	-	-	600
Naboomspruit	6/88	1 025	168	2	-	1 195
Nelspruit	6/88	5 626	802	183	-	6 611
Nigel	6/89	6 000	480	135	55	6 670
Nylstroom	6/89	1 283	275	35	-	1 593
Ogies	6/89	195	44	6	-	245
Oranjeville	6/89	90	-	-	-	90
Orkney	6/89	3 565	327	-	50	3 942
Phalaborwa	6/89	2 349	193	127	706	3 375
Piet Retief	6/89	1 536	314	31	98	1 979
Pietersburg	6/89	9 096	1 096	342	220	10 754
Potchefstroom	6/89	-	-	-	11 000	11 000
Potgietersrus	6/89	3 013	563	52	645	4 273
Pretoria	6/89	130 389	4 296	440	5 269	140 394
Randburg	6/89	17 780	1 423	232	-	19 435
Randfontein	6/89	9 300	770	155	1 300	11 525
Residensia	6/89	1 150	-	-	-	1 150
Rodepoort	6/89	32 300	55	105	1 685	34 145
Rustenburg	6/89	11 072	1 141	1	83	12 297
Sabie	6/89	1 000	200	10	-	1 210
Sandton	6/89	6 262	47	-	2	6 311
Sannieshof	6/89	293	80	3	1	377
Schweizer-Reneke	6/89	781	206	-	-	987
Sebokeng	6/89	2 510	-	-	-	2 510
Secunda	6/89	6 200	267	4	-	6 471
Soweto	6/89	124 850	150	-	-	125 000
Springs	6/89	15 900	1 675	300	80	17 955
Standerton	6/89	3 680	396	103	780	4 959
Stilfontein	6/89	3 751	-	-	489	4 240
Swartruggens	6/89	347	68	2	28	445
Tembisa	6/89	11 900	150	-	-	12 050
Thabazimbi	6/89	1 197	128	5	80	1 410
Trichardt	6/89	431	152	21	-	604
Tsakane	6/89	475	-	-	-	475
Tzaneen	6/89	2 754	555	106	916	4 331
Vanderbijlpark	6/89	17 200	1 100	140	45	18 485
Ventersdorp	6/89	827	24	3	251	1 105
Vereeniging	6/89	17 700	825	170	2 240	20 935
Verwoerdburg	6/89	16 979	265	80	29	17 353
Volksrust	6/88	1 449	208	7	85	1 749
Vosloorus	6/86	5 899	100	1	-	6 000
Vrede	6/88	800	55	-	-	855
Wakkerstroom	-	-	-	-	-	0
Wambaths	6/89	1 371	254	31	880	2 536
Waterval Boven	6/89	387	63	-	-	450
Westonaria	6/89	3 500	1 390	65	50	5 005
White River	6/89	1 800	490	108	12	2 410
Witbank	6/89	11 326	978	34	65	12 403
Wolmaransstad	6/89	660	100	15	-	775
Zakkariya Park	6/89	145	-	-	-	145
Zamdela	6/89	950	-	-	-	950
Zeerust	6/89	1 049	232	72	-	1 353
TOTAL TRANSVAAL		896 513	60 294	11 575	60 044	1 028 426

MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of KW.h sold	Population
Domestic	Business	Industry	Not defined and other	Total				
6 454	9 591	15 186	394	31 625	6,24	57,8	6,6	2 316
5 632	5 398	703	-	11 733	4,00	58,1	13,3	15 006
37 116	11 643	68 355	4 298	121 411	25,62	69,3	5,5	12 000
15 039	415	-	518	15 972	4,45	41,0	10,0	66 000
88 781	14 520	81 465	13 913	198 679	48,96	63,1	7,6	60 000
16 588	2 272	96 319	1 255	116 434	26,50	60,0	6,2	22 000
3 786	1 199	530 615	-	535 600	82,00	84,0	6,5	8 330
20 379	-	-	-	20 379	-	-	-	-
13 744	5 432	405	-	19 581	4,30	66,0	9,8	6 515
70 791	41 191	18 472	-	130 454	37,50	62,0	9,7	60 100
61 267	18 410	118 418	14 710	212 806	47,68	61,5	5,4	32 000
10 582	5 291	9 322	-	25 195	6,60	64,0	9,7	10 810
3 183	1 500	117	-	4 800	0,90	60,8	16,8	-
1 132	-	-	-	1 132	0,30	53,6	13,0	1 500
36 110	10 317	-	5 159	51 586	12,90	76,6	3,8	37 000
34 922	12 418	31 679	10 992	90 011	14,88	67,5	8,1	9 500
20 275	2 458	10 218	2 402	35 353	10,00	53,6	12,1	23 600
94 334	36 145	43 501	89 593	263 573	58,30	64,3	11,6	43 000
-	-	-	283 841	283 841	64,00	68,0	2,5	107 350
64 772	25 189	22 790	7 197	119 948	23,40	62,7	8,7	13 100
1 301 923	493 239	2 268 641	863 941	4 927 744	1 014,40	68,0	3,4	848 870
258 406	40 527	149 050	2 895	450 878	118,00	68,0	6,0	95 500
88 728	24 758	126 973	13 326	253 785	41,19	82,0	7,2	157 000
37 770	-	-	-	37 770	-	-	-	-
469 416	82 311	152 397	110 834	814 957	197,00	68,6	10,5	164 000
229 229	93 776	182 341	15 629	520 975	116,40	80,2	4,6	47 800
13 998	-	-	-	13 998	3,40	53,0	8,0	3 400
124 962	26 056	-	-	151 018	46,00	57,0	4,0	122 300
-	-	-	5 950	5 950	1,70	57,0	5,3	1 500
-	-	-	14 892	14 892	3,40	58,9	11,2	15 295
85 988	-	-	-	85 988	-	-	-	-
50 852	15 577	42 271	-	108 700	18,30	67,8	6,0	35 853
917 115	30 957	-	-	948 072	299,54	45,0	-	1 000 000
191 615	51 895	375 246	46 574	665 330	140,00	64,4	4,7	207 000
43 710	21 484	45 077	304	110 575	22,30	56,6	8,6	15 346
30 739	14 438	1 397	-	46 574	11,00	69,7	11,1	25 800
1 927	1 383	296	1 334	4 940	1,30	72,5	25,0	3 132
86 818	-	-	-	86 818	27,80	45,9	28,4	375 000
10 850	4 649	443	6 200	22 142	5,90	67,0	5,0	15 500
-	-	-	14 218	14 218	2,90	55,9	9,4	2 500
16 262	-	-	-	16 262	-	-	-	-
32 584	61 583	47 082	52 274	193 523	55,00	60,0	13,7	15 756
167 415	27 947	500 937	13 565	709 864	145,64	70,1	3,5	68 000
-	-	-	17 839	17 839	4,10	74,3	15,0	2 500
230 100	20 625	608 260	105 035	964 020	224,00	62,8	6,3	67 000
211 061	20 529	171 316	13 263	416 169	92,63	67,5	2,6	83 797
12 147	4 766	5 622	2 527	25 062	7,20	59,6	8,5	4 213
27 867	1 206	120	-	29 193	11,00	50,0	4,0	95 000
6 007	2 821	-	-	8 828	2,83	35,0	-	14 023
-	-	-	-	0	-	-	-	4 217
-	-	-	37 293	37 293	6,80	75,4	5,0	13 484
3 352	1 346	-	401	5 099	1,90	30,6	5,1	8 057
48 321	19 230	842	656	69 049	19,60	60,0	9,2	20 000
14 400	14 700	27 449	1 500	58 049	10,20	70,1	12,5	6 200
207 156	36 362	74 588	50 994	369 100	68,00	61,9	10,0	102 100
-	-	-	12 981	12 981	3,10	64,0	15,0	2 700
3 097	-	-	-	3 097	-	-	-	-
31 715	-	-	-	31 715	-	-	-	-
-	-	-	39 972	39 972	15,00	74,7	13,1	14 000
10 633 141	2 886 062	12 539 253	2 465 634	28 524 089				8 001 945

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
Natal						
Amanzimtoti	a_	-	-	-	-	0
Ballito	6/89	-	-	-	-	0
Colenso	6/89	494	56	4	-	554
Dundee	6/89	4 200	264	59	-	4 523
Durban	6/89	225 690	28 238	516	-	254 444
Empangeni	2/90	3 586	876	11	7	4 480
Eshowe	6/89	-	-	-	-	0
Estcourt	6/89	3 507	431	25	56	4 019
Glencoe	6/89	946	76	17	303	1 342
Greytown	12/89	1 957	134	14	55	2 160
Harding	6/89	417	117	10	-	544
Howick	12/89	1 353	355	-	182	1 890
Isipingo	a_	-	-	-	-	0
Kingsburgh	a_	-	-	-	-	0
Kloof	a_	-	-	-	-	0
Kokstad	6/89	900	286	14	-	1 200
Ladysmith	12/89	5 817	845	79	-	6 741
Mandini	6/89	-	-	-	-	0
Matatiele	6/89	-	-	-	-	0
Melmoth	6/89	-	-	-	-	0
Mooi River	12/89	553	273	14	56	896
Mtubatuba	6/88	340	99	5	-	444
Mtunzini	6/89	425	38	-	-	463
New Germany	a_	-	-	-	-	0
Newcastle	12/89	13 000	130	10	8	13 148
Paulpietersburg	12/89	295	78	7	-	380
Pietermaritzburg	12/89	40 600	3 400	2 916	1 500	48 416
Pinetown	a_	-	-	-	-	0
Pongola	6/89	188	30	13	-	231
Port Shepstone	6/89	2 567	316	11	64	2 958
Queensburgh	a_	-	-	-	-	0
Richards Bay	6/89	4 329	221	45	-	4 595
Scottburgh	6/88	951	134	-	-	1 085
Stanger	6/89	-	-	-	-	0
Tongaat	6/89	-	-	-	-	0
Utrecht	6/89	590	58	3	72	723
Vryheid	6/89	3 342	984	-	358	4 684
Wartburg	12/89	147	54	-	1	202
Westville	a_	-	-	-	-	0
Winterton	12/89	78	37	-	1	116
TOTAL NATAL		316 272	37 530	3 773	2 663	360 238

^a Supplied by Durban Corporation.

Town	MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
	Domestic	Business	Industry	Not defined and other	Total				
Amanzimtoti	-	-	-	-	0	-	-	-	26 564
Ballito	44 970	-	-	-	44 970	10,68	54,2	-	-
Colenso	4 224	781	186	-	5 191	1,48	51,7	1,9	4 300
Dundee	18 936	12 621	9 289	8 162	49 008	11,84	58,6	12,0	17 805
Durban	1 959 000	1 281 000	4 294 000	-	7 534 000	1 196,64	72,7	4,9	929 266
Empangeni	34 901	41 182	15 260	3 144	94 487	22,04	60,1	-	12 500
Eshowe	9 440	3 372	8 766	900	22 478	5,00	59,1	-	10 500
Estcourt	20 707	10 134	133 001	10 181	174 023	28,56	72,0	5,9	10 722
Glencoe	7 586	-	-	9 767	17 355	4,68	54,6	8,4	5 012
Greytown	15 656	-	-	14 101	29 757	7,36	55,2	12,5	46 560
Harding	-	-	-	-	0	-	-	-	4 495
Howick	19 680	-	11 477	-	31 157	7,44	56,0	7,1	13 100
Isipingo	-	-	-	-	0	-	-	-	24 925
Kingsburgh	-	-	-	-	0	-	-	-	16 858
Kloof	-	-	-	-	0	-	-	-	20 178
Kokstad	60 496	31 423	135 368	11 613	238 900	6,40	-	-	20 000
Ladysmith	7 557	345	-	-	7 902	45,61	67,6	2,6	41 000
Mandini	-	-	-	-	0	2,46	49,2	-	3 600
Matatiele	-	-	-	-	0	-	-	-	3 700
Melmoth	4 388	1 857	-	-	6 245	1,50	54,9	-	2 800
Mooi River	4 424	-	-	37 256	41 680	8,30	63,5	5,7	9 741
Mtubatuba	9 716	12 997	14 353	-	37 066	20,00	34,2	-	1 600
Mtunzini	10 427	5 092	-	-	15 519	12,00	36,0	-	1 530
New Germany	-	-	-	-	0	-	-	-	8 378
Newcastle	82 222	20 455	58 682	506 876	668 235	106,55	84,8	3,6	36 000
Paulpietersburg	2 868	2 049	3 277	-	8 194	2,30	46,5	10,1	1 315
Pietermaritzburg	359 448	100 095	601 313	9 335	1 070 191	213,84	63,8	4,5	174 740
Pinetown	-	-	-	-	0	-	-	-	113 919
Pongola	985	4 273	3 050	-	8 308	2,00	51,6	-	494
Port Shepstone	20 536	-	-	21 545	42 081	10,30	-	-	7 254
Queensburgh	-	-	-	-	0	-	-	-	28 423
Richards Bay	41 400	13 910	374 872	-	430 182	77,20	73,5	-	22 790
Scottburgh	-	-	-	-	0	-	-	-	6 000
Stanger	29 202	21 415	112 919	31 349	194 885	29,49	78,7	6,2	24 000
Tongaat	36 222	11 642	81 544	-	129 408	31,20	59,9	-	72 000
Utrecht	4 720	-	-	5 496	10 216	2,88	48,2	5,0	4 196
Vryheid	27 142	30 624	-	26 738	84 504	20,16	57,0	12,0	12 313
Wartburg	1 165	-	972	43	2 180	-	-	-	990
Westville	-	-	-	-	0	-	-	-	28 021
Winterton	866	-	1 016	15	1 897	-	-	-	280
TOTAL NATAL	2 838 865	1 605 267	5 859 345	696 521	10 999 999				1 767 869

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
Orange Free State						
Allanridge	6/89	711	711	-	10	1 432
Arlington	6/86	-	-	-	-	0
Bethlehem	6/89	3 574	739	55	11	4 379
Bethulie	6/89	484	42	1	34	561
Bloemfontein	6/89	29 668	2 691	380	4 085	36 824
Bothaville	6/89	1 125	309	16	13	1 463
Brandfort	6/89	616	74	3	-	693
Bultfontein	6/89	615	75	12	9	711
Clarens	6/89	-	-	-	1 260	1 260
Clocolan	6/89	532	140	8	-	680
Cornelia	6/89	300	20	-	-	320
Dewetsdorp	6/89	334	101	9	-	444
Edenburg	6/89	306	66	-	-	372
Edenville	6/89	180	20	-	-	200
Excelsior	6/89	152	52	-	-	204
Fauresmith	6/89	180	23	-	17	220
Ficksburg	6/89	992	190	4	30	1 216
Fouriesburg	6/89	176	59	-	-	235
Frankfort	6/89	697	163	12	15	887
Harrismith	6/89	1 637	298	13	5	1 953
Heilbron	6/89	805	153	21	9	988
Hennenman	6/88	1 134	170	8	-	1 312
Hobhouse	6/89	92	11	1	2	106
Jagersfontein	6/89	235	60	3	1	299
Koffiefontein	6/89	995	68	6	1	1 070
Koppies	6/88	418	144	2	-	564
Kroonstad	6/89	5 464	923	240	423	7 050
Ladybrand	6/88	728	156	37	-	921
Lindley	6/89	274	35	1	-	310
Marquard	6/89	314	88	1	13	416
Odendaalsrus	6/89	2 426	346	36	3	2 811
Parys	6/89	2 758	302	42	34	3 136
Petrus Steyn	6/89	250	76	-	2	328
Petrusburg	6/89	290	48	6	40	384
Philippolis	6/89	236	26	-	11	273
Reddersburg	6/89	252	51	-	-	303
Reitz	6/89	972	65	11	40	1 088
Rosendal	6/88	70	20	-	-	90
Sasolburg	6/89	8 170	400	-	866	9 436
Senekal	6/89	848	199	6	-	1 053
Steynsrus	6/89	260	27	-	-	287
Theunissen	6/89	615	79	9	-	703
Tweeling	6/88	169	24	-	-	193
Tweespruit	6/89	140	20	-	-	160
Van Stadensrus	6/88	38	5	-	-	43
Ventersburg	6/88	443	33	-	-	478
Verkeerdevel	6/88	41	5	-	-	46
Viljoenskroon	6/89	569	120	13	19	721
Villiers	6/88	341	58	9	3	411
Virginia	6/88	5 063	594	43	-	5 700
Vredefort	6/88	429	55	4	-	488
Warden	6/88	341	69	14	-	424
Welkom	6/89	15 446	1 622	185	24	17 277
Wesselsbron	6/89	410	90	9	38	547
Winburg	6/88	389	96	7	-	492
Zastron	6/88	700	-	-	-	700
TOTAL ORANGE FREE STATE		94 404	12 011	1 229	7 018	114 662

MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
Domestic	Business	Industry	Not defined and other	Total				
-	-	-	10 456	10 456	3,34	62,0	9,2	17 300
-	-	-	-	0	-	-	-	3 250
35 148	21 620	38 500	-	95 268	24,67	-	5,5	66 300
2 008	480	36	998	3 522	1,10	41,0	11,0	5 550
205 631	91 413	435 792	-	732 836	168,35	61,7	13,8	280 000
10 332	4 584	1 012	63	15 991	6,60	52,2	12,4	4 200
4 154	1 598	-	1 161	6 913	2,16	56,7	16,5	11 560
3 984	2 431	1 058	-	7 473	2,66	53,4	7,3	12 624
-	-	-	-	0	-	-	-	963
2 902	1 642	860	-	5 404	1,82	45,7	14,8	6 780
4 090	1 400	-	-	5 490	-	-	-	1 800
4 330	-	2 000	-	6 330	4,00	50,8	12,5	8 928
1 284	689	1	323	2 297	0,75	47,2	11,0	3 800
1 211	454	-	-	1 665	0,62	52,5	-	2 900
964	492	-	-	1 456	0,49	51,5	27,0	4 360
1 006	381	-	298	1 685	0,50	44,3	5,0	3 253
-	-	-	31 345	31 345	6,72	59,2	10,2	36 620
1 162	846	-	-	2 008	0,77	52,6	-	6 890
5 534	2 345	3 267	-	11 146	4,38	229,0	-	4 542
20 206	10 052	19 495	32 099	81 852	14,56	52,2	-	27 223
7 112	4 801	654	2 184	14 751	5,43	70,3	8,2	4 038
12 129	5 418	12 054	-	29 601	6,20	58,1	5,9	17 650
478	318	-	-	796	-	-	-	1 450
1 979	1 389	-	-	3 368	2,16	52,2	10,8	8 326
6 157	517	150	1 398	8 222	2,60	54,6	7,0	8 028
6 779	-	2 399	-	9 178	2,34	62,0	7,0	2 000
79 912	11 020	76 704	-	167 636	38,50	61,5	7,4	121 000
11 749	6 584	3 223	-	21 556	4,70	52,4	2,2	4 500
1 538	372	59	190	2 159	1,00	49,4	2,1	10 849
3 470	9 280	4 320	-	17 070	13,20	48,7	2,2	5 774
22 486	5 238	4 809	4 005	36 538	10,17	67,0	8,6	11 000
20 000	4 600	17 598	3 138	45 336	12,60	71,0	4,6	44 000
1 995	200	-	-	2 195	1,24	20,2	-	11 400
1 753	1 042	8 479	84	11 358	4,00	36,0	7,9	5 960
1 277	333	-	221	1 831	0,40	53,0	-	3 295
1 269	742	-	-	2 011	-	49,4	8,0	3 455
10 479	1 871	1 263	-	13 613	4,32	48,0	1,9	8 800
749	208	-	-	957	0,21	51,7	10,0	1 231
86 964	19 375	-	12 850	119 188	32,20	67,0	9,8	30 000
6 338	10 641	4 170	441	21 590	5,13	74,5	-	16 400
1 345	109	-	128	1 582	0,80	-	11,0	3 700
3 713	1 851	3 652	-	9 216	2,70	54,0	8,0	19 500
834	281	-	-	1 115	0,71	48,6	-	2 700
670	950	-	-	1 620	0,80	53,0	4,0	4 805
-	-	-	-	0	-	-	-	800
-	-	-	3 588	3 588	0,87	66,2	-	1 230
-	-	-	1 900	1 900	0,40	-	13,6	1 590
4 697	2 319	1 828	209	9 053	3,78	51,0	13,7	18 580
2 684	1 205	766	103	4 758	1,98	56,6	-	5 700
72 787	14 215	23 887	-	110 889	26,44	65,3	7,8	10 200
4 276	1 169	1 048	-	6 493	1,68	44,1	8,0	1 476
2 954	1 228	534	-	4 716	1,60	33,6	-	9 270
165 193	49 556	86 170	6 473	307 392	84,79	58,7	9,0	47 622
2 850	1 020	3 806	649	8 326	3,20	31,5	13,6	10 260
3 497	1 577	3 245	-	8 319	2,08	50,6	7,0	8 343
5 048	-	-	-	5 048	2,00	-	-	5 000
859 107	299 856	762 839	114 304	2 036 105				978 775

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
Cape and Walvis Bay						
Aberdeen	6/89	-	-	-	-	-
Adelaide	6/89	351	77	3	-	431
Agulhas/Struisbaai	6/88	852	11	-	9	872
Alexandria	6/82	260	50	3	20	333
Alicedale	6/85	176	1	-	-	177
Aliwal North	6/89	1 515	62	14	-	1 591
Ashton	6/88	339	30	9	21	399
Atlantis	6/89	7 840	67	79	128	8 114
Barkly East	6/89	288	113	1	4	406
Barkly West	6/89	410	45	2	7	464
Barrydale	6/88	267	20	2	-	289
Bathurst	-	-	-	-	-	0
Beacon Bay	6/86	2 248	65	8	-	2 321
Beaufort West	6/88	2 121	-	445	-	2 566
Bedford	-	-	-	-	-	0
Bellville	12/89	17 791	4 235	575	41	22 642
Berlin	-	-	-	-	-	0
Bethulie	6/89	484	42	1	34	561
Bitterfontein	6/89	38	24	1	-	63
Blue Downs	6/88	300	-	-	2	302
Boichoko	6/89	45	4	-	5	54
Bonnievale	6/89	588	63	87	8	746
Boshof	6/89	397	57	-	-	454
Bot River	6/88	40	-	-	-	40
Brackenfell	6/89	3 680	181	30	3	3 894
Brandvlei	6/88	202	17	-	2	221
Bredasdorp	6/88	1 371	174	14	23	1 582
Britstown	6/89	313	59	-	-	372
Buffels Bay	6/88	180	4	-	6	190
Bull Hill (Boph)	6/88	2	1	-	4	7
Burgersdorp	6/89	655	125	2	11	793
Caledon	6/88	1 042	158	14	23	1 237
Calitzdorp	6/88	488	23	3	26	540
Calvinia	6/89	630	150	3	4	787
Cape Town	6/89	218 617	15 339	471	119	234 546
Carnarvon	6/89	468	18	1	31	518
Cathcart	-	-	-	-	-	0
Ceres	6/88	2 133	1 117	4	208	3 462
Citrusdal	6/89	339	82	2	-	423
Clanwilliam	6/89	563	65	1	10	639
Colesberg	-	-	-	-	-	0
Cradock	6/89	1 620	161	23	118	1 922
Crossroads	6/89	-	1	1	-	2
Darling	6/89	535	36	12	1	584
De Aar	6/89	1 896	263	21	4	2 184
De Doorns	6/88	328	63	7	20	418
De Kelders	6/88	213	-	-	-	213
De Rust	6/88	180	11	-	-	191
Delpoortshoop	6/89	185	15	-	12	212
Despatch	6/88	3 872	155	2	12	4 041
Dordrecht	6/84	355	31	1	72	459
Douglas	6/89	328	84	-	29	441
Durbanville	6/89	4 989	250	16	-	5 255
Dysselsdorp	6/88	115	10	4	25	154
East London	6/89	22 582	1 705	268	-	24 555
Elandsbaai	6/89	50	15	4	-	69
Elliot	6/88	385	26	7	-	418
Fish Hoek	-	-	-	-	-	0
Fort Beaufort	6/89	-	-	-	-	0

MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
Domestic	Business	Industry	Not defined and other	Total				
-	-	-	2 732	2 732	0,80	40,0	-	3 275
3 022	1 416	283	-	4 721	1,30	48,0	15,0	10 900
12 870	3 910	-	5 610	22 390	10,00	-	-	1 156
2 473	1 582	984	-	5 039	1,20	48,0	6,3	6 812
-	-	-	-	0	0,30	33,0	-	7 833
14 983	1 000	12 080	-	28 063	7,10	49,0	8,0	30 000
2 573	731	4 875	4 821	13 000	4,00	52,3	4,0	9 500
40 408	2 686	192 466	3 386	238 946	50,60	62,7	3,5	61 950
3 383	186	21	34	3 624	1,00	42,0	-	7 800
4 772	1 000	60	130	5 962	1,52	56,0	2,3	7 780
-	-	-	2 313	2 313	0,75	53,4	3,0	1 650
-	-	-	-	0	-	-	-	3 275
21 389	1 651	1 957	890	25 887	8,10	47,0	2,9	11 000
10 441	-	12 808	-	23 249	6,00	56,4	11,9	22 946
-	-	-	-	0	0,80	42,0	-	-
122 730	78 645	359 246	995	561 616	111,00	56,0	3,0	115 000
-	-	-	-	0	3,90	43,0	-	-
2 008	480	36	998	3 522	1,10	41,0	11,0	1 300
113	374	-	-	487	0,15	37,6	-	1 000
3 200	-	-	-	3 200	0,40	25,8	-	1 500
582	51	-	60	693	0,14	52,0	1,2	7 438
7 700	816	14 857	447	23 820	3,98	62,7	5,0	5 538
3 100	200	-	-	3 300	0,97	51,0	10,0	5 856
314	-	-	-	314	0,15	-	10,0	2 050
27 128	30 182	26 500	-	83 810	22,90	55,8	5,1	16 000
2 245	2 440	-	550	5 235	2,80	30,5	14,0	1 800
-	-	-	14 887	14 887	3,25	58,4	10,0	7 413
1 297	1 256	-	-	2 553	0,90	39,0	20,0	6 080
2 800	1 260	-	400	4 460	2,80	-	-	-
6	4	-	50	60	0,04	35,0	6,0	110
5 586	3 408	242	989	10 225	2,80	48,0	13,0	14 100
-	-	-	-	0	3,50	-	-	6 965
1 770	158	317	265	2 510	0,75	49,2	2,0	3 380
2 498	1 880	422	396	5 196	1,58	52,9	12,0	8 500
1 604 412	577 859	1 228 396	166 720	3 577 387	759,00	55,8	5,8	1 243 000
2 915	72	101	4 084	7 172	6,90	-	11,0	9 500
-	-	-	-	0	1,10	43,0	-	-
34 400	4 400	23 200	4 000	66 000	20,00	55,7	12,4	13 565
-	-	-	4 939	4 939	1,68	-	15,0	3 140
1 811	850	1 247	100	4 008	1,32	34,6	24,1	3 440
-	-	-	-	0	2,20	50,0	-	-
21 000	1 800	300	1 300	24 400	6,10	45,0	-	39 289
-	-	-	-	0	-	-	-	90 000
2 655	550	5 990	258	9 453	2,25	63,8	6,0	4 450
12 456	4 026	6 189	4 323	26 994	7,60	50,0	21,0	30 620
1 970	1 070	7 193	830	11 063	1,50	-	-	7 490
675	-	-	-	675	0,40	-	13,0	157
993	-	-	-	993	0,30	-	8,0	1 350
1 270	290	-	353	1 913	0,48	-	8,9	6 700
26 177	5 118	797	208	32 300	8,40	48,0	8,0	25 000
4 330	1 990	1 460	11 710	19 490	7,00	45,0	-	7 068
3 148	4 435	-	745	8 328	2,44	46,3	8,2	10 232
-	-	-	6 684	6 684	1,80	-	-	17 887
392	240	192	742	1 566	0,50	-	5,0	15 000
154 050	69 521	364 409	9 175	597 155	124,40	60,0	8,0	199 707
-	-	-	721	721	-	-	-	821
4 150	386	94	-	4 630	1,10	53,0	-	800
-	-	-	-	0	-	-	-	12 400
-	-	-	-	0	3,90	49,0	-	-

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers					Total
		Domestic	Business	Industry	Not defined and other		
<i>Cape and Walvis Bay continued</i>							
Franschhoek	6/89	459	86	2	128	675	
Fraserburg	6/88	700	11	—	—	711	
Galeshewe	6/88	8 000	35	3	—	8 038	
Gansbaai	6/88	446	34	6	—	486	
Garies	6/89	195	25	5	15	240	
Gefco-Bretby	6/89	—	—	1	—	1	
George	6/89	9 412	1 172	147	48	10 779	
Gonubie	6/89	2 121	92	4	—	2 217	
Goodwood	6/89	10 356	682	67	—	11 105	
Gordons Bay	6/89	1 810	70	—	—	1 880	
Gouritsmond	6/88	163	4	—	—	167	
Graaff-Reinet	6/89	2 885	396	—	82	3 363	
Graafwater	6/89	297	13	—	7	317	
Grabouw	6/88	—	—	—	—	0	
Grahamstown	6/88	3 932	463	14	493	4 902	
Great Brak River	6/88	1 404	17	1	—	1 422	
Greyton	—	—	—	—	—	0	
Griquatown	6/89	212	38	2	—	252	
Hanover	—	—	—	—	—	0	
Hartenbos	6/87	865	44	10	61	980	
Hartswater	6/89	515	205	24	—	744	
Hawston	6/88	230	5	—	1	236	
Heidelberg	—	—	—	—	—	0	
Herbertdale	—	—	—	—	—	0	
Hermanus	6/89	3 322	295	16	14	3 647	
Hofmeyer	6/84	110	20	—	1	131	
Hopefield	6/89	500	15	—	—	515	
Hopetown	6/89	255	50	8	—	313	
Humansdorp	6/88	758	236	37	112	1 143	
Imfuleni	6/88	44	3	—	—	47	
Indwe	6/89	165	—	—	—	165	
Jacobsdal	—	—	—	—	—	0	
Jan Kempdorp	6/89	580	95	9	—	684	
Jansenville	6/86	215	65	—	—	280	
Jeffreys Bay	6/88	2 897	75	3	5	2 980	
Jongensfontein	6/88	198	2	—	—	200	
Joubertina	—	—	—	—	—	0	
Kakamas	6/89	468	70	8	6	552	
Kamieskroon	6/89	78	22	—	—	100	
Kathu en Dingle	6/89	1 800	94	—	—	1 894	
Keimoes	6/89	617	82	13	72	784	
Kenhardt	6/89	215	40	—	12	267	
Keurboomsstrand	6/88	91	8	—	3	102	
Khyelitsha	6/88	259	46	—	23	328	
Kimberley	6/89	18 683	789	32	25	19 529	
King William's Town	6/88	3 821	466	65	—	4 352	
Kirkwood	6/89	399	115	—	12	526	
Klawer	6/89	341	47	—	7	395	
Kleinmond	6/88	1 300	27	6	20	1 353	
Klipplaat	6/89	73	16	1	10	100	
Knysna	6/89	3 264	453	—	159	3 876	
Komga	—	—	—	—	—	0	
Kraaifontein	6/89	6 973	67	24	68	7 132	
Kuils River	6/89	5 305	244	18	19	5 586	
Kuruman	6/89	1 680	293	94	—	2 067	
Kutlwano	6/89	—	1	—	2	3	
Ladismith	6/88	522	76	3	—	601	
Lady Grey	—	—	—	—	—	0	
Laingsburg	6/88	288	47	—	22	357	
Lamberts Bay	6/89	1 100	25	—	15	1 140	
Langebaan	6/89	730	34	—	—	764	

Town	Financial year ended	MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
		Domestic	Business	Industry	Not defined and other	Total				
Franschhoek	6/89	2 851	1 889	738	2 096	7 574	5,53	—	5,5	3 346
Fraserburg	6/88	1 669	—	—	—	1 669	0,75	—	7,0	4 136
Galeshewe	6/88	28 268	210	24	—	28 502	—	—	—	81 500
Gansbaai	6/88	2 565	—	2 493	—	5 058	2,50	40,3	11,9	1 031
Garies	6/89	356	302	12	216	886	0,30	64,3	10,0	1 500
Gefco-Bretby	6/89	—	—	37	—	37	0,03	0,6	0,5	2
George	6/89	55 593	20 603	43 012	10 786	129 994	31,00	59,9	5,9	100 329
Gonubie	6/89	17 135	2 683	924	246	20 988	5,10	50,0	5,0	8 000
Goodwood	6/89	—	—	—	—	0	—	—	—	37 500
Gordons Bay	6/89	10 565	4 457	—	—	15 022	3,28	59,6	6,5	3 508
Gouritsmond	6/88	900	200	—	—	1 100	0,30	—	—	162
Graaff-Reinet	6/89	11 445	10 801	—	1 923	24 169	6,50	53,0	24,0	40 000
Graafwater	6/89	1 357	129	—	—	1 486	0,38	44,2	9,5	2 300
Grabouw	6/88	—	—	—	—	0	—	—	—	10 300
Grahamstown	6/88	27 972	12 337	11 886	18 048	70 243	14,70	59,0	5,7	60 700
Great Brak River	6/88	3 691	288	3 206	—	7 185	2,00	47,8	5,0	7 900
Greyton	—	—	—	—	—	0	—	—	—	—
Griquatown	6/89	1 368	521	111	—	2 000	0,57	47,5	14,9	3 931
Hanover	—	—	—	—	—	0	—	—	—	—
Hartenbos	6/87	—	—	—	3 961	3 961	1,60	—	7,0	2 010
Hartswater	6/89	4 341	4 061	5 602	—	14 004	4,80	50,7	10,3	3 290
Hawston	6/88	—	—	—	1 770	1 770	0,75	45,6	12,0	4 857
Heidelberg	—	—	—	—	—	0	—	—	—	5 098
Herbertdale	—	—	—	—	—	0	—	—	—	452
Hermanus	6/89	15 272	4 084	5 218	80	24 654	7,08	55,9	4,5	5 868
Hofmeyer	6/84	429	100	—	50	579	0,30	44,0	—	3 122
Hopefield	6/89	3 385	—	—	—	3 385	0,84	—	7,0	900
Hopetown	6/89	2 000	410	—	—	2 410	1,25	46,4	—	6 890
Humansdorp	6/88	5 089	3 976	642	2 633	12 340	7,30	54,0	12,0	3 500
Imfuleni	6/88	1 610	46	—	—	1 656	0,28	51,4	—	6 700
Indwe	6/89	1 391	—	—	—	1 391	0,40	45,0	11,0	6 000
Jacobsdal	—	—	—	—	—	0	—	—	—	3 474
Jan Kempdorp	6/89	5 202	1 966	4 392	—	11 560	3,84	49,5	8,6	7 446
Jansenville	6/86	960	387	—	—	1 347	0,50	44,0	15,8	3 268
Jeffreys Bay	6/88	13 267	1 517	56	112	14 952	5,72	34,0	13,0	3 500
Jongensfontein	6/88	650	100	—	—	750	0,40	—	—	93
Joubertina	—	—	—	—	—	0	—	—	—	5 543
Kakamas	6/89	6 366	2 288	804	38	9 496	2,96	49,6	1,3	5 150
Kamieskroon	6/89	870	3 060	—	—	3 930	2,00	45,0	10,5	1 016
Kathu en Dingle	6/89	20 849	8 260	—	—	29 109	8,00	72,0	2,1	10 900
Keimoes	6/89	4 756	9 960	1 317	480	16 513	8,00	72,0	4,0	8 320
Kenhardt	6/89	832	367	—	653	1 852	0,34	42,2	18,0	3 600
Keurboomsstrand	6/88	400	1 560	—	100	2 060	0,75	—	—	—
Khyelitsha	6/88	1 462	1 462	—	2 925	5 849	1,43	65,5	—	150 000
Kimberley	6/89	141 348	6 240	112 227	33 930	293 745	69,70	66,2	9,4	84 871
King William's Town	6/88	25 469	12 550	22 621	—	60 640	16,20	50,0	8,0	21 568
Kirkwood	6/89	1 984	2 156	—	2 062	6 202	1,80	44,0	10,0	1 500
Klawer	6/89	1 391	619	—	131	2 141	0,75	32,5	10,0	2 854
Kleinmond	6/88	4 056	403	187	196	4 842	2,50	47,4	—	1 350
Klipplaat	6/89	159	137	4	60	360	0,10	48,0	14,0	3 500
Knysna	6/89	16 606	14 158	—	3 166	33 930	8,16	60,2	9,0	31 657
Komga	—	—	—	—	—	0	—	—	—	—
Kraaifontein	6/89	76 020	15 170	6 910	10 490	108 590	24,24	50,3	—	43 000
Kuils River	6/89	—	—	—	—	0	20,00	—	—	27 340
Kuruman	6/89	15 000	4 000	6 000	1 000	26 000	7,20	53,4	9,2	12 135
Kutlwano	6/89	—	280	—	240	520	0,08	42,1	—	1 600
Ladismith	6/88	3 068	447	1 507	—	5 022	1,50	56,9	16,8	3 997
Lady Grey	—	—	—	—	—	0	—	—	—	—
Laingsburg	6/88	1 461	1 013	—	274	2 748	1,00	57,6	—	2 995
Lamberts Bay	6/89	—	—	—	—	0	1,25	—	4,5	4 800
Langebaan	6/89	5 019	—	—	—	5 019	1,76	53,8	16,0	1 980

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
<i>Cape and Walvis Bay continued</i>						
Linguletu West	6/89	1 576	62	—	23	1 661
Loeriesfontein	6/89	243	30	—	20	293
Loxton	6/89	71	21	—	29	121
Luckhoff	6/89	90	12	—	—	102
Lutsville	6/89	208	35	15	1	259
Maclear	—	—	—	—	—	0
Malmesbury	6/89	2 390	240	82	105	2 817
Marydale	6/89	112	10	4	14	140
Matthomola	6/89	9	2	—	6	17
McGregor	—	—	—	—	—	0
Mdantsane	—	—	—	—	—	0
Melkbos/Bloubergstrand	6/89	1 747	82	—	34	1 863
Mfuleni	6/89	131	—	1	—	132
Middelburg	6/86	980	140	34	—	1 154
Milnerton	6/89	8 291	443	65	31	8 830
Molteno	6/89	224	17	4	3	248
Montagu	6/88	860	80	25	82	1 047
Moorreesburg	6/89	2 037	35	20	33	2 125
Mossel Bay	6/88	4 483	607	339	—	5 429
Mothibistad	6/88	320	16	3	—	339
Motswedimosa	6/89	—	3	—	3	6
Murraysburg	—	—	—	—	—	0
Napier	6/88	311	20	2	16	349
Nature's Valley	6/88	293	1	—	2	296
New Crossroads	6/89	54	—	—	5	59
Niekerkshoop	6/89	62	8	—	—	70
Nieuwoudtville	6/89	119	15	1	10	145
Noupoort	6/88	1 248	52	—	—	1 300
Nuwerus	6/89	18	2	—	7	27
Nyanga	6/89	736	19	—	27	782
Olifantshoek	6/89	272	34	8	60	374
Onrusrivier	—	—	—	—	—	0
Oudtshoorn	6/89	5 529	—	255	—	5 784
Paarl	6/89	17 545	870	105	53	18 573
Pacaltsdorp	6/86	632	9	—	—	641
Parow	6/89	13 715	1 279	158	3	15 155
Patensie	—	—	—	—	—	0
Pearly Beach	6/88	249	2	—	—	251
Pearston	6/86	210	—	—	—	210
Philipstown	—	—	—	—	—	0
Piketberg	6/89	1 041	107	9	12	1 169
Pinelands	6/89	—	—	—	—	0
Plettenberg Bay	6/89	2 441	248	18	42	2 749
Pofadder	6/89	221	36	—	30	287
Port Alfred	6/88	1 516	196	—	46	1 758
Port Elizabeth	6/89	60 328	5 838	559	1 753	68 478
Port Nolloth	6/89	750	45	4	5	804
Porterville	6/89	500	43	9	—	552
Postmasburg	6/89	851	151	42	—	1 044
Prieska	6/89	620	149	17	79	865
Prince Albert	—	—	—	—	—	0
Queenstown	6/86	—	—	—	4 319	4 319
Ratanang	6/88	1	1	—	7	9
Redelinghuys	6/89	39	3	—	—	42
Reivilo	6/89	300	28	1	14	343
Riversdale	6/86	1 058	254	15	—	1 327
Riviersonderend	6/88	276	60	4	5	345
Robertson	6/88	3 072	249	32	355	3 708
Sandbaai	6/88	527	2	—	—	529
Sedgefield	—	—	—	—	—	0
Simon's Town	6/89	—	—	—	—	0
Sishen/Kathu	6/88	1 410	39	8	—	1 457

MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
Domestic	Business	Industry	Not defined and other	Total				
—	—	—	—	0	—	—	8,0	270 000
748	317	—	105	1 170	0,45	48,0	12,0	1 910
223	117	—	39	379	0,12	45,0	3,6	850
—	—	—	5 870	5 870	2,00	47,0	—	1 200
1 021	526	230	10	1 787	0,58	35,2	20,0	1 675
—	—	—	—	0	0,90	43,0	—	—
15 730	4 390	22 680	1 000	43 800	10,50	58,0	7,0	16 663
392	148	8	203	751	0,23	56,0	2,0	2 027
31	1	—	4	36	0,03	36,0	4,6	1 458
—	—	—	—	0	—	—	—	2 250
—	—	—	—	0	30,60	46,0	—	—
14 925	4 392	—	1 882	21 199	6,04	53,7	6,1	7 826
—	—	—	—	0	—	—	5,0	8 000
7 911	2 739	4 564	—	15 214	4,40	45,0	12,2	17 005
—	—	—	—	0	—	—	—	46 000
1 447	1 067	583	33	3 130	0,90	41,0	3,0	16 000
4 439	975	7 019	2 588	15 021	4,00	63,0	9,4	6 587
7 834	1 534	228	367	9 963	3,28	50,4	7,3	6 791
25 900	15 800	16 800	—	58 500	14,00	56,7	9,1	30 000
612	84	21	—	717	1,64	40,0	2,0	15 000
—	20	—	20	40	0,04	52,0	6,0	3 200
—	—	—	—	0	0,50	38,0	—	—
1 220	210	10	290	1 730	0,60	—	—	1 700
292	940	—	180	1 412	0,50	—	—	—
—	—	—	—	0	—	—	15,0	17 000
293	37	—	—	330	0,10	85,0	9,2	1 080
296	138	2	63	499	0,20	50,0	34,4	1 200
2 884	1 015	—	—	3 899	1,30	49,0	—	8 640
280	180	—	320	780	0,13	35,5	19,4	579
—	—	—	—	0	—	—	5,0	57 000
2 100	1 277	44	328	3 748	1,25	51,0	12,1	1 550
—	—	—	—	—	—	—	—	623
38 092	—	28 459	—	66 551	18,40	56,2	12,0	49 175
122 617	8 665	189 157	6 644	327 083	63,36	66,6	—	92 890
5 075	—	—	—	5 075	1,60	50,0	5,0	8 445
—	—	—	—	0	—	—	—	73 170
—	—	—	—	0	—	—	—	2 500
602	88	—	—	690	0,50	—	—	157
1 080	—	—	—	1 080	—	—	—	7 231
—	—	—	—	0	0,30	43,0	—	—
5 500	2 500	1 900	250	10 150	3,00	55,3	1,4	4 943
—	—	—	—	0	—	—	—	11 540
11 159	3 418	7 457	3 193	25 227	8,48	51,1	5,4	11 079
2 320	445	—	380	3 145	1,39	30,5	2,8	4 670
6 174	2 973	—	890	10 037	3,20	47,0	15,6	3 500
443 127	114 381	919 199	540 028	2 016 735	393,60	57,0	5,0	921 327
1 500	400	1 600	100	3 600	1,47	48,0	2,3	6 000
—	—	—	5 003	5 003	1,25	53,0	6,4	3 713
9 942	4 376	1 624	—	15 942	5,00	50,5	12,3	16 050
3 110	2 944	229	8 821	15 104	6,00	51,6	5,2	13 174
—	—	—	—	0	—	—	—	1 800
25 935	—	41 727	—	67 662	18,60	52,0	—	—
7	10	—	43	60	0,03	18,6	2,4	1 444
156	29	—	—	185	0,07	32,8	—	160
2 240	490	1 740	490	4 960	1,28	—	0,4	950
8 953	2 413	808	—	12 174	3,00	54,2	6,8	8 600
2 099	125	370	6	2 600	1,00	49,2	12,1	1 800
16 203	5 099	29 182	18 940	69 424	23,00	60,1	15,4	15 000
1 181	—	—	—	1 181	0,75	—	12,0	450
—	—	—	—	0	—	—	—	—
—	—	—	—	0	—	—	—	10 810
24 800	13 200	1 392	—	39 392	7,92	36,0	3,6	10 000

SOUTH AFRICA: Municipal statistics

Table 26 continued

Town	Financial year ended	Number of customers				
		Domestic	Business	Industry	Not defined and other	Total
<i>Cape and Walvis Bay continued</i>						
Somerset East	6/89	907	178	4	472	1 561
Somerset West	6/89	8 250	680	70	—	9 000
Springbok	6/89	921	221	52	104	1 298
Stanford	6/88	213	34	—	—	247
Steinkopf	12/89	193	12	—	13	218
Stella	6/88	123	46	1	—	170
Stellenbosch	6/89	7 137	554	18	300	8 009
Sterkstroom	6/89	241	19	1	1	262
Steynsburg	—	—	—	—	—	0
Stilbaai	—	—	—	—	—	0
Strand	6/89	8 773	865	56	—	9 694
Strandfontein	6/89	296	5	—	—	301
Strydenburg	6/89	175	17	2	—	194
Sutherland	—	—	—	—	—	0
Swellendam	6/89	1 274	206	15	23	1 518
Tlhakatlou	6/89	207	5	—	—	212
Touws River	6/88	778	57	—	—	835
Tulbagh	—	—	—	—	—	0
Uitenhage	6/88	11 170	827	53	420	12 470
Upington	6/89	5 834	596	—	168	6 598
Utiwanang	6/89	2	6	—	1	9
Vaal-Gamagara	6/89	70	—	—	—	70
Van Dyks Bay	6/88	643	2	1	1	647
Vanrhynsdorp	6/89	393	41	—	3	437
Vanderkloof	6/86	356	15	—	—	371
Vanwyksvlei	6/85	70	7	—	—	77
Velddrif	6/89	667	56	7	37	767
Villiersdorp	6/88	488	72	1	39	600
Vosburg	6/89	63	15	2	30	110
Vredenburg-Saldanha	6/89	3 470	289	121	504	4 384
Vredendal	6/89	1 237	202	9	16	1 464
Vryburg	6/89	2 270	342	93	1	2 706
Waenhuiskraal	6/88	176	2	—	5	183
Walvis Bay	6/89	4 604	233	88	10	4 935
Warrenton	6/89	757	132	7	26	922
Wellington	6/89	3 913	376	38	29	4 356
Wilderness	6/89	730	33	—	—	763
Williston	6/89	242	25	—	45	312
Willowmore	6/89	335	59	3	—	397
Witsand	6/88	198	5	—	—	203
Wittedrif	6/88	32	4	—	6	42
Wolseley	—	—	—	—	—	0
Worcester	6/89	8 617	1 407	115	—	10 139
Yzerfontein	6/89	433	2	—	—	435
Zwelihle	6/88	22	2	—	—	24
TOTAL CAPE AND WALVIS BAY		621 715	51 859	5 360	11 972	690 906
TOTAL SOUTH AFRICA		1 928 904	161 694	21 937	81 697	2 194 232

MW.h sold					Maximum demand MW/MVA	Average monthly load factor	Distribution loss as a % of kW.h sold	Population
Domestic	Business	Industry	Not defined and other	Total				
5 369	2 920	2 189	15 840	26 318	6,70	52,0	15,0	21 800
68 390	23 380	10 440	2 190	104 400	24,00	—	—	23 192
4 274	3 288	1 612	2 908	12 082	4,00	51,7	12,0	8 000
975	366	—	—	1 341	0,50	—	10,0	1 100
661	280	—	213	1 154	0,53	48,7	35,5	6 200
768	797	2	—	1 567	0,87	46,7	5,0	650
70 109	31 840	40 560	38 240	180 749	—	—	7,3	55 960
1 201	60	1	1	1 263	0,50	33,0	12,0	470
—	—	—	—	0	0,80	51,0	—	—
—	—	—	—	0	—	—	—	—
—	—	—	75 307	75 307	17,80	60,0	5,1	35 245
4 230	440	—	—	4 670	1,57	—	—	550
561	259	3	—	823	0,30	33,0	5,0	2 000
—	—	—	—	0	—	—	—	—
7 038	2 864	3 650	926	14 478	3,92	84,0	6,0	8 428
682	395	—	—	1 077	0,48	37,0	2,1	2 500
6 700	3 800	—	—	10 500	4,00	37,0	2,1	2 200
—	—	—	—	0	—	—	—	—
72 977	19 195	265 503	11 969	369 644	77,40	57,0	3,1	213 000
30 154	29 987	—	18 552	78 693	18,24	50,3	10,6	53 880
25	139	—	30	194	0,30	45,0	3,0	6 000
831	—	—	—	831	2,50	55,5	—	350
—	—	—	2 881	2 881	1,00	—	13,1	1 920
1 584	823	716	—	3 123	0,80	53,9	10,9	2 572
903	318	—	—	1 221	0,60	42,0	26,6	846
208	—	—	—	208	—	—	—	1 313
7 600	260	5 040	1 580	14 480	3,52	48,0	8,9	4 200
2 600	1 500	100	300	4 500	2,00	51,2	—	3 163
325	120	7	186	638	0,50	53,0	11,0	1 150
22 984	10 290	43 500	2 100	78 874	17,60	59,6	6,0	26 800
6 706	4 494	2 809	—	14 009	3,60	44,4	13,3	52 464
19 723	4 759	21 709	3 665	49 856	11,70	52,4	12,9	27 563
2 630	2 410	—	960	6 000	4,00	—	—	726
13 838	3 737	38 209	15 124	70 908	17,74	59,1	3,9	29 046
11 000	4 500	3 100	700	19 300	2,59	18,1	10,0	17 500
22 906	7 059	22 572	1 708	54 245	13,28	54,6	4,6	26 400
3 553	4 518	—	—	8 071	2,02	57,6	7,9	6 000
897	166	—	463	1 526	0,55	32,0	18,0	2 573
1 204	689	718	—	2 611	0,90	37,0	11,0	4 768
830	180	—	—	1 010	0,30	—	—	151
190	32	—	71	293	0,10	—	—	—
—	—	—	—	—	2,00	61,9	—	5 054
53 683	13 837	66 746	—	134 266	32,64	68,5	8,8	59 132
1 100	—	—	—	1 100	0,75	—	—	220
79	28	—	—	107	0,30	—	—	1 390
3 992 580	1 340 313	4 302 871	1 148 515	10 784 278				5 533 980
18 323 693	6 131 498	23 464 307	4 424 973	52 344 471				16 282 569

SOUTHERN AFRICA: Installed generating capacity

Table 27

Sources: United Nations Energy Statistics Yearbook 1987, and utilities annual reports
MW

Country	Hydro	Pumped storage	Coal, oil etc	Nuclear	Total	% of total
Angola	400	—	205	—	605	1,37
Bophuthatswana	—	—	—	—	—	—
Botswana	—	—	186	—	186	0,42
Ciskei	—	—	—	—	—	—
Lesotho	2	—	0	—	2	0,00
Malawi	145	—	24	—	169	0,38
Mozambique	1 441	—	182	—	1 623	3,67
Namibia	240	—	166	—	406	0,92
South Africa	551	1 181	30 108	1 930	33 770	76,31
Swaziland	41	—	10	—	51	0,12
Tanzania	259	—	180	—	439	0,99
Transkei	61	—	—	—	61	0,14
Venda	—	—	—	—	—	—
Zaire	2 486	—	55	—	2 541	5,74
Zambia	2 245	—	191	—	2 436	5,50
Zimbabwe	666	—	1 300	—	1 966	4,44
Total, MW	8 537	1 181	30 607	1 930	44 255	100,00
South African Customs Union	895	1 181	30 470	1 930	34 476	77,90

SOUTHERN AFRICA: Production of electricity

Table 28

Sources: United Nations Energy Statistics Yearbook 1987, and utilities annual reports
GW.h

Country	Hydro	Pumped storage	Coal, oil etc	Nuclear	Total	% of Total
Angola	1 335	—	465	—	1 800	1,00
Bophuthatswana	—	—	—	—	—	—
Botswana	—	—	555	—	555	0,31
Ciskei	—	—	—	—	—	—
Lesotho	11	—	—	—	11	0,01
Malawi	560	—	2	—	562	0,31
Mozambique	304	—	—	—	304	0,17
Namibia	1 022	—	98	—	1 120	0,62
South Africa	1 632	1 794	143 351	6 578	153 355	85,12
Swaziland	151	—	2	—	153	0,08
Tanzania	610	—	264	—	874	0,49
Transkei	214	—	—	—	214	0,12
Venda	—	—	—	—	—	—
Zaire	5 156	—	139	—	5 295	2,94
Zambia	9 583	—	—	—	9 583	5,32
Zimbabwe	2 701	—	3 644	—	6 345	3,52
Total, GW.h	23 277	1 794	148 520	6 578	180 169	100,00
South African Customs Union	3 028	1 794	144 006	6 578	155 406	86,26

SOUTHERN AFRICA: Utilisation of installed generating capacity

(quantities in kilowatt hours produced per kilowatt)

Table 29

Sources: United Nations Energy Statistics Yearbook 1987, and utilities annual reports

Country	Hydro	Pumped storage	Coal, oil etc	Nuclear	Total
Angola	3 338	—	2 268	—	2 975
Bophuthatswana	—	—	—	—	—
Botswana	—	—	2 984	—	2 984
Ciskei	—	—	—	—	—
Lesotho	5 250	—	—	—	5 250
Malawi	3 862	—	83	—	3 325
Mozambique	211	—	0	—	187
Namibia	4 256	—	590	—	2 757
South Africa	2 962	1 519	4 761	3 408	4 541
Swaziland	3 671	—	200	—	2 990
Tanzania	2 355	—	1 467	—	1 991
Transkei	3 502	—	—	—	3 502
Venda	—	—	—	—	—
Zaire	2 074	—	2 527	—	2 084
Zambia	4 269	—	0	—	3 934
Zimbabwe	4 056	—	2 803	—	3 227
Total	2 727	1 519	4 555	3 408	4 071
South African Customs Union	3 383	1 519	4 726	3 408	4 508

SOUTHERN AFRICA: Bophuthatswana

Table 30

Source: Bophuthatswana Electricity Corporation (BECOR) for year ended 31 March 1989

	1989	1988	Change %
System load factor, %	51,5	52,2	-1,3
Non-coincident maximum demand, MW	175,0	143,7	21,8
Transmission efficiency, %	92,7	90,0	3,0
Consumption of electricity by region (GW.h)			
(bulk imports from Eskom for redistribution)			
Tlhabane	235,9	221,9	6,3
Molopo	192,8	169,1	14,0
Ga-Rankuwa	289,6	203,8	42,1
Taung	32,1	28,6	12,1
Selosesha	39,0	33,0	18,3
Total bulk imports	789,5	656,5	20,3
Direct supplies from Eskom	1 415,7	1 528,6	-7,4
Total imports from Eskom (GW.h)	2 205,2	2 185,1	0,9
Total bulk sales (GW.h)	731,5	590,7	23,8
Distribution losses on bulk sales	7,9	11,1	-28,9
No. of bulk input points	27	24	12,5
No. of customers supplied by BECOR	35 136	32 131	9,4
No. of new Rural connections	1 081		
Rural power lines erected, km	116,9		
Major substations installations			
(existing and proposed)	Capacity MVA	Voltage kV	Commissioned year
Sun City	50	88,22,11	1977
Mogwase	20	88,11	1985
Mmabatho Main	100	88,33,11	1986
Batlhako Ferro Chrome*	14	88	1987
Mmabatho (Mafikeng)	60	88,33,11	1989
Ga-Rankuwa	110	132,33,11	1989
Kudube	45	132,33,11	1989
Babalegi	60	132,11	1989
Rhovan Mining	10	88,11	1989
Eastern Platinum (existing)*	20	88	1988
Eastern Platinum (future)*	50	88	1990

* Bulk supply provided at 88 kV.

SOUTHERN AFRICA: Botswana

Table 31

Source: Botswana Power Corporation (BPC) for year ended 31 March 1989.

Source of power	Type	MW	
Installed generating capacity			
Morupule Phase 1	Thermal		99
Morupule Phase 2 (under construction)	Thermal		33
Selebi-Phikwe	Thermal		80
Gaborone (standby)	Diesel		7
Total installed generating capacity, MW			219
Other sources			
Eskom			50
Total sources of power, MW			269
Energy sources	1989	1988	Change %
	GW.h	GW.h	
Morupule Phase 1	560,6	466,5	20,2
Selebi-Phikwe	238,4	251,0	-5,0
Gaborone	4,5	4,5	0,0
Imports	59,2	66,8	-11,4
Total sent out, GW.h	862,7	788,8	9,4
Transmission and distribution equipment in service	1989	1988	Change
	km	km	km
Overhead lines			
66 kV	120,0	120,0	0,0
33 kV	215,0	215,5	-0,5
11 kV	466,1	435,3	30,8
Low voltage	584,3	541,6	42,7
Total line length, km	1 385,4	1 312,4	73,0
Underground cable			
11 kV	142,0	117,6	24,4
Low voltage	66,5	59,6	6,9
Total cable length, km	208,5	177,2	31,3
Substations	MVA	MVA	Change
			MVA
66/11 kV	22,50	22,50	0,0
33/11 kV	44,59	41,75	2,84
11/0,4 kV	154,79	133,91	20,88
Total, MVA	221,87	198,15	23,72
Electricity sales by category	GW.h	GW.h	Change %
Mining	503,0	470,9	6,8
Commercial	120,9	121,1	-0,2
Domestic	57,4	53,1	8,1
Government	43,9	34,0	29,1
Total sales	725,2	679,1	6,8
Station usage	83,2	76,2	9,2
Distribution and other losses	54,3	33,5	62,1
Total, GW.h	862,7	788,8	9,4
System maximum demand, MW	137,50	122,10	12,6
No. of customers	-	16 215	-

SOUTHERN AFRICA: Lesotho

Table 32

Source: Lesotho Electricity Corporation for the year ended 31 March 1989

Source of power	Type	MW	
Installed generating capacity			
Mantsonyane	Hydro	2,00	
Semonkong	Hydro	0,18	
Qaga's Nek	Diesel	0,44	
Installed capacity, MW		2,62	
Other sources – Eskom			
Maseru	88kV	39,60	
Maputsoe	11 kV	3,30	
Hololo	88 kV	1,20	
Peka	11 kV	0,13	
Total source of power, MW		46,85	
Transmission and distribution equipment			
	1989	1988	Change
	km	km	km
Overhead lines			
88 kV	86	81	5
33 kV	473	350	123
11 kV	690	690	0
Total, km	1 249	1 121	128
Transformers		Number	MVA
88/33 kV		2	80,0
88/11 kV		1	5,0
33/11 kV		15	86,0
33/0,66 kV		1	2,6
33/0,4 kV		9	1,3
11/0,4 kV		453	88,7
Total		481	263,6
Sale of electricity by category	1989	1988	%
	GW.h	GW.h	Change
Domestic	50,8	46,6	8,9
General purpose	38,7	35,6	8,6
Commercial	37,0	30,9	19,8
Industrial	26,2	22,4	17,3
Total, GW.h	152,7	135,6	12,7
Number of customers	1989	1988	%
			Change
Domestic	6 647	6 150	8,1
General purpose	2 074	2 300	-9,8
Commercial	71	65	9,2
Industrial	64	61	4,9
Total, customers	8 856	8 576	3,3

SOUTHERN AFRICA: Malawi

Table 33

Source: Electricity Supply Commission of Malawi for year ended 31 December 1989.

Source of power			
Installed generating capacity		Type	MW
Tedzani Falls		Hydro	40,00
Nkula Falls "A"		Hydro	24,00
Nkula Falls "B"		Hydro	80,00
Zomba		Hydro	0,60
Chichiri		Gas turbine	15,00
Lilongwe		Diesel	5,34
Kasungu		Diesel	0,36
Mtunthama		Diesel	0,65
Mzuzu		Diesel	1,95
Karonga		Diesel	0,32
Chitipa		Diesel	0,30
Total source of power, MW			168,52
Energy generated			
	1989	1988	%
	GW.h	GW.h	Change
Hydro	627,768	580,261	8,2
Diesel	0,607	0,258	135,3
Gas turbine	0,390	0,053	635,8
Total generated, GW.h	628,765	580,572	8,3
System losses, GW.h	3,632	2,492	45,7
Available for distribution, GW.h	625,133	578,080	8,1
Transmission and distribution lines in service			
(1989 figures not available)	1988	1987	Change
	km	km	km
132 kV lines (wooden poles)	227,92	227,92	0,00
66 kV lines	1 093,04	1 063,04	30,00
33 kV lines	1 444,45	1 367,26	77,19
11 kV lines	1 655,97	1 540,48	115,49
400/230 V lines	1 438,94	1 407,59	31,35
33 kV underground cables	2,69	2,64	0,05
11 kV underground cables	76,97	73,06	3,91
400/230 V underground cables	128,93	121,53	7,40
Total, km	6 068,91	5 803,52	265,39
Sales of electricity			
	1989	1988	%
	GW.h	GW.h	Change
Domestic (in low-density areas)	79,337	71,323	11,2
Domestic (in high-density areas)	15,008	13,648	10,0
Non-domestic (demand less than 25 kVA)	81,337	75,692	7,5
Non-domestic (demand more than 25 kVA)	293,104	264,351	10,9
Largest industrial customer	51,674	52,451	-1,5
Total, GW.h	520,460	477,465	9,0
Number of customers			
	1989	1988	%
Domestic (in low-density areas)	17 025	15 593	9,2
Domestic (in high-density areas)	13 859	13 381	3,6
Non-domestic (demand less than 25 kVA)	8 386	7 695	9,0
Non-domestic (demand more than 25 kVA)	453	431	5,1
Largest industrial customer	1	1	-
Total, GW.h	39 724	37 101	7,1

SOUTHERN AFRICA: Mozambique

Table 34:

Source: *Electricidade De Moçambique for the year ended 31 December 1989*

Source of power	Type	Number of sets	Installed rating MW	Sent-out rating MW	Peak demand MW
Interconnected stations					
Maputo	Thermal	5	57,50	47,00	82,5
Nacala	Diesel	8	24,00	7,00	8,0
Nampula	Diesel	4	8,00	2,80	4,4
Mocuba	Diesel	2	1,00	0,75	0,4
Quelimane	Diesel	2	7,00	6,00	2,9
Tete	Diesel	2	0,80	0,60	4,0
Lionde	Diesel	6	4,00	2,80	1,6
Xai-Xai	Diesel	4	2,60	1,70	1,8
Beira	Gas turbine	1	12,00	12,00	
Maputo	Gas turbine	2	53,50	46,00	
Mavuzi	Hydro	5	46,00	30,00	
Chicamba	Hydro	2	38,40	35,00	
Total interconnected, MW			254,80	191,65	
Isolated stations					
Pemba	Diesel	6	7,00	4,50	1,6
Lichinga	Diesel	4	1,60	1,00	0,9
Inhambane	Diesel	5	3,00	0,70	1,0
Lichinga	Hydro	1	0,75	0,60	
Cuamba	Hydro	2	1,00	1,00	
Total isolated, MW			13,35	7,80	
Import facilities					
Eskom			200,00	200,00	
Zimbabwe			30,00	30,00	
Total import facilities, MW			230,00	230,00	
Total source of power, MW			498,15	429,45	
Energy available for distribution			1989	1988	%
			GW.h	GW.h	Change
Energy generated					
Hydro			153,2	92,1	66,3
Thermal			88,6	95,6	-7,3
Gas turbine			59,1	12,3	380,5
Diesel			41,1	63,4	-35,2
Total generated, GW.h			342,0	263,4	29,8
Import from Eskom			307,0	340,6	-9,9
Acquired from HCB			83,0	40,5	104,8
Total available for distribution, GW.h			732,0	644,6	13,6

SOUTHERN AFRICA: Mozambique

Table 34:

Source: *Electricidade De Moçambique for the year ended 31 December 1989*

Source of power	Type	Number of sets	Installed rating MW	Sent-out rating MW	Peak demand MW
Interconnected stations					
Maputo	Thermal	5	57,50	47,00	82,5
Nacala	Diesel	8	24,00	7,00	8,0
Nampula	Diesel	4	8,00	2,80	4,4
Mocuba	Diesel	2	1,00	0,75	0,4
Quelimane	Diesel	2	7,00	6,00	2,9
Tete	Diesel	2	0,80	0,60	4,0
Lionde	Diesel	6	4,00	2,80	1,6
Xai-Xai	Diesel	4	2,60	1,70	1,8
Beira	Gas turbine	1	12,00	12,00	
Maputo	Gas turbine	2	53,50	46,00	
Mavuzi	Hydro	5	46,00	30,00	
Chicamba	Hydro	2	38,40	35,00	
Total interconnected, MW			254,80	191,65	
Isolated stations					
Pemba	Diesel	6	7,00	4,50	1,6
Lichinga	Diesel	4	1,60	1,00	0,9
Inhambane	Diesel	5	3,00	0,70	1,0
Lichinga	Hydro	1	0,75	0,60	
Cuamba	Hydro	2	1,00	1,00	
Total isolated, MW			13,35	7,80	
Import facilities					
Eskom			200,00	200,00	
Zimbabwe			30,00	30,00	
Total import facilities, MW			230,00	230,00	
Total source of power, MW			498,15	429,45	
Energy available for distribution			1989 GW.h	1988 GW.h	% Change
Energy generated					
Hydro			153,2	92,1	66,3
Thermal			88,6	95,6	-7,3
Gas turbine			59,1	12,3	380,5
Diesel			41,1	63,4	-35,2
Total generated, GW.h			342,0	263,4	29,8
Import from Eskom			307,0	340,6	-9,9
Acquired from HCB			83,0	40,5	104,8
Total available for distribution, GW.h			732,0	644,6	13,6

SOUTHERN AFRICA: Mozambique

Table 34 continued

Source: *Electricidade De Moçambique for the year ended 31 December 1989*

Transmission and distribution lines in service (1989 subject to adjustment)	1989 km	1988 km	Change km
275 kV	75	75	0
220 kV	910	910	0
110 kV	862	754	108
66/60 kV	175	175	0
33/22 kV	1 950	1 900	50
11/6,6 kV	850	800	50
Total, km	4 822	4 614	208
Sales of electricity by category (1989 data incomplete)	1989 GW.h	1988 GW.h	% Change
General	65,2	78,3	-16,7
Domestic	140,9	180,8	-22,1
Medium tension	149,6	119,9	24,8
High tension	117,2	144,2	-18,7
Other	2,9	2,6	11,5
Total sales, GW.h	475,8	525,8	-9,5

SOUTHERN AFRICA: Mozambique

Table 34 continued

Source: *Electricidade De Moçambique for the year ended 31 December 1989*

Transmission and distribution lines in service (1989 subject to adjustment)	1989 km	1988 km	Change km
275 kV	75	75	0
220 kV	910	910	0
110 kV	862	754	108
66/60 kV	175	175	0
33/22 kV	1 950	1 900	50
11/6,6 kV	850	800	50
Total, km	4 822	4 614	208
Sales of electricity by category (1989 data incomplete)	1989 GW.h	1988 GW.h	% Change
General	65,2	78,3	-16,7
Domestic	140,9	180,8	-22,1
Medium tension	149,6	119,9	24,8
High tension	117,2	144,2	-18,7
Other	2,9	2,6	11,5
Total sales, GW.h	475,8	525,8	-9,5

SOUTHERN AFRICA: Namibia

Table 35

Source: S.W.A. Water and Electricity Corporation (Pty) Ltd (SWAWEK) for year ended 30 June 1989.

Source of power

Installed generating capacity (SWAWEK)			
Ruacana (hydro)	240	MW	
Van Eck (thermal)	120	MW	
Total	360	MW	
Import facility (from Eskom)			
Paratus (diesel)	24,0	MW*	
Paratus (gas turbine)	22,0	MW*	
Eskom at Aggeneys	200,0	MW	
Eskom at Lower Orange River	38,5	MVA	

*Paratus Power Station is situated in Walvis Bay enclave.

	1989 GW.h	1988 GW.h	Change %
Energy available for distribution (GW.h)			
Energy generated			
Ruacana (hydro)	1 308	1 086	20,5
Van Eck (thermal)	90	124	-27,5
Eskom – purchases	437	553	-21,0
Total energy into system, GW.h	1 835	1 763	4,1
Transmission losses	176	181	-2,6
Transmission losses %	9,6	10,3	-6,4

	1989 km	1988 km	Change km
Transmission and distribution lines in service			
330 kV	521	521	0
220 kV	1 495	1 495	0
132 kV	790	635	155
66 kV and less	4 387	3 770	617
Total, km	7 193	6 421	772

	1989 GW.h	1988 GW.h	Change %
Sales of electricity			
Namibia			
Local authorities	520,7	484,9	7,4
Mining	716,0	699,5	2,4
Business/manufacturing	3,4	7,9	-56,4
Government departments	72,4	74,0	-2,2
Rural supplies	9,4	6,5	44,7
Subtotal	1 322,0	1 272,8	3,9
Export to Eskom			
Walvis Bay enclave	70,1	76,2	-8,0
Eskom at Aggeneys	266,6	233,1	14,4
Subtotal	336,7	309,3	8,9
Total energy sold, GW.h	1 658,6	1 582,1	4,8
Number of SWAWEK customers	695	583	19,2

SOUTHERN AFRICA: Swaziland

Table 36

Source: Swaziland Electricity Board (SEB) for year ended 31 March 1989.

	1989	1988	1987	1986	1985	1984	1983	1982	1981
Installed generating capacity, MW									
– Hydro	40,5	40,5	40,5	40,5	40,5	20,5	20,5	20,5	20,5
– Diesel	9,5	9,5	9,5	9,5	9,5	9,5	9,5	9,5	9,5
Capacity of Eskom link	60,0	60,0	60,0	60,0	60,0	67,0	67,0	67,0	67,0
Total capacity	110,0	110,0	110,0	110,0	110,0	97,0	97,0	97,0	97,0
System maximum demand, MW	87	97	84	81	78	78	70	72	65
Energy generated, GW.h									
– Hydro	209,9	181,1	150,5	172,2	152,1	79,1	70,4	126,6	123,0
– Diesel	0,8	1,2	2,3	1,9	2,0	1,0	4,8	2,7	2,0
Total generated, GW.h	210,7	182,3	152,8	174,1	154,1	80,1	75,2	129,3	125,0
Energy purchased, GW.h									
– from Eskom	254,6	269,7	282,0	243,1	236,5	309,2	330,6	227,2	209,0
– from industry	–	–	0,2	–	0,6	0,7	–	–	–
Total generated and purchased, GW.h	465,3	452,0	435,0	417,2	391,2	390,0	405,8	356,5	334,0
% Increase on previous year	2,9	3,9	4,3	6,6	0,3	–3,9	13,8	6,7	9,4
Energy sold, GW.h	413,0	396,2	382,0	366,1	345,0	348,5	365,1	323,4	298,3
% Increase on previous year	4,2	3,7	4,3	6,1	–1,0	–4,5	12,9	8,4	8,2
Own use and system losses, GW.h	52,3	55,8	52,0	51,1	46,2	41,5	40,7	33,0	35,7
Own use and system losses, %	11,2	12,3	12,2	12,2	11,8	10,6	10,0	9,3	10,7
Annual sent-out load factor, %	61	53	59	59	57	57	66	56	58

	1989 km	1988 km	Change km
Transmission and distribution equipment in service			
Overhead line lengths, km			
132 kV	87	87	0
66 kV	825	825	0
11 kV	1 884	1 793	91
Total, km	2 796	2 705	91
Substations, MVA			
132/66 kV	78	78	0
Number	2	2	0
66/11 kV	144	144	0
Number	26	26	0
66/11, 3,3 or 0,4 kV	10 + 10	9 + 10 ^a	1
Number	6	5	1
11/0,4 kV	168,7	155	13,7
Number	1 505	1 407	98

Sales of electricity by category	Points of supply			Energy sales in GW.h		
	1989	1988	% Increase	1989	1988	% Increase
Domestic	14 054	13 210	6,4	85,5	80,6	6,1
Commercial	3 357	3 155	6,4	43,2	41,3	4,6
Industrial	448	437	2,5	180,9	152,0	19,0
Irrigation	127	112	13,4	103,4	122,3	–15,5
Total	17 986	16 914	6,3	413,0	396,2	4,2

^a Customer-owned transformers.

SOUTHERN AFRICA: Transkei

Table 37

Source: Transkei Electricity Supply Corporation for the year ended 31 December 1989

Installed generating capacity	Type	MW	
Collywobbles	Hydro	42,0	
First and Second Falls	Hydro	17,0	
Ncora	Hydro	2,4	
Total, MW		61,4	
Energy sources	1989 GW.h	1988 GW.h	% Change
Own generation	290,3	227,0	27,9
Purchased from Eskom	103,1	122,0	-15,5
Total, GW.h	393,4	349,0	12,7
System losses, GW.h	51,5	34,7	48,4
Non-coincident demand, MW	73,1	58,0	26,0
Transmission and distribution equipment in service			
Line lengths			km
132 kV			30
66 kV			366
33 kV and lower			962
Total, km			1 358
Substations		Number	MVA
132/66 kV		1	40,0
66/22/(11) kV		16	157,5
22/11 kV		19	53,0
22 (11)/0,4 kV		325	42,5
Totals		361	293,0
Sales of electricity by category	1989 GW.h	1988 GW.h	% Change
Domestic	26,0	—	—
Commercial	29,4	—	—
Industrial	45,0	—	—
Bulk	201,7	—	—
Export to Eskom	39,9	28,9	38,1
Total internal and export sales, GW.h	341,9	314,3	8,8
Number of customers	1989		
Domestic	3 498		
Commercial	1 258		
Industrial	55		
Bulk	10		
Eskom	1		
Total	4 822		

SOUTHERN AFRICA: Venda

Table 38

Source: Venda Electricity Corporation for the year ended 31 December 1989

	1989 GW.h	1988 GW.h	Change %
Energy available for distribution			
Electricity purchases			
– Eskom	92,7	73,8	25,6
– Louis Trichardt Municipality	1,1	–	–
Total, GW.h	93,8	73,8	27,1
Distribution losses %	10,7	13,4	
Annual load factor (Eskom supply) %	62,9	64,7	
Average monthly load factor (Eskom supply) %	67,0	–	
System maximum demand (Eskom supply) MVA	17,7	15,4	
	1989 km	1988 km	Change km
Transmission and distribution lines in service			
132 kV	95	95	0
66 kV	14	14	0
22 and 11 kV	471	393	78
380/220 volts	282	198	84
Total, km	862	700	162
	1989 GW.h	1988 GW.h	Change %
Sales of electricity by category			
Large power users	53,8	39,2	37,2
Small power users	9,4	8,1	16,0
Domestic users	19,3	18,9	2,1
Other (street lighting, robot supplies, etc)	1,2	1,0	20,0
Total, GW.h	83,7	67,2	24,6
	1989	1988	Change %
Number of customers			
Large power users	129	122	5,7
Small power users	785	746	5,2
Domestic users	4 321	3 795	13,9
Other (street lighting, robot supplies, etc)	23	12	91,7
Total	5 258	4 675	12,5
Total population	504 911	497 023	1,6

SOUTHERN AFRICA: Zambia

Table 39

Source Zambia Electricity Supply Corporation for the year ended 30 June 1989

Installed generating capacity	Type	MW	
Interconnected system			
Kariba North	Hydro	600,00	
Kafue Gorge	Hydro	900,00	
Victoria Falls	Hydro	108,00	
Total interconnected system, MW		1 608,00	
Isolated systems			
Lusiwasi	Hydro	12,00	
Chishimba Falls	Hydro	6,00	
Musonda Falls	Hydro	5,00	
Lunzua River	Hydro	0,75	
Total isolated system, MW		11,75	
Total installed capacity, MW		1 619,75	
Generation of electricity	1989 GW.h	1988 GW.h	% Change
Interconnected system			
Kariba North	2 688	2 789	-3,6
Kafue Gorge	4 766	4 414	8,0
Victoria Falls	556	626	-11,2
Total interconnected system, GW.h	8 010	7 829	2,3
Isolated systems			
Lusiwasi	53	50	6,0
Chishimba Falls	30	27	11,1
Musonda Falls	23	22	4,5
Lunzua River	2	2	0,0
Total isolated systems, GW.h	108	101	6,9
Total generation, GW.h	8 118	7 930	2,4
Trade of electricity (Zaire – Société Nationale d'Electricité)	1989 GW.h	1988 GW.h	% Change
Exports	313	315	-0,6
Imports	320	315	1,6
Net Zambia/SNEL	7	0	-
Total sent out	1989 GW.h	1988 GW.h	% Change
Interconnected	7 996	7 814	2,3
Isolated systems	107	101	5,9
SNEL imports	7	0	-
Total, GW.h	8 110	7 915	2,5
Bulk deliveries (availability of energy, interconnected only)	1989 GW.h	1988 GW.h	% change
Local	6 513,8	6 476,0	0,6
For export	1 233,1	966,2	27,6
Total, GW.h	7 746,9	7 442,2	4,1

SOUTHERN AFRICA: Zimbabwe

Table 40

Source: Zimbabwe Electricity Supply Authority for year ended 30 June 1989

Source of power	Type	MW	
Installed generating capacity			
Hwange 1	Thermal	480,0	
Hwange 2	Thermal	440,0	
Munyati	Thermal	120,0	
Harare 2	Thermal	75,0	
Harare 3	Thermal	60,0	
Bulawayo	Thermal	120,0	
Kariba South	Hydro	666,0	
Beitbridge	Diesel	4,5	
Total installed generating capacity, MW		1 965,5	
Energy available for distribution	1989 GW.h	1988 GW.h	% Change
Energy generated			
Thermal	5 374,3	5 456,5	-1,5
Hydro	3 195,8	2 620,4	22,0
Other	0,0	0,0	-
Total generated, GW.h	8 570,1	8 076,9	6,1
Energy imported, GW.h	891,8	916,2	-2,7
Total generation and imports, GW.h	9 461,9	8 993,1	5,2
Transmission and distribution losses, GW.h	854,8	880,5	-2,9
Total sales, GW.h	8 607,1	8 112,6	6,1
Transmission and distribution lines in service	1989 km	1988 km	Change km
330 kV	3 443,9	3 443,9	0,0
132 kV	1 021,0	1 021,0	0,0
88 kV	2 081,9	1 970,6	111,3
66 kV	178,0	178,0	0,0
Other	46 671,6	42 270,2	4 401,4
Total, km	53 396,4	48 883,7	4 512,7
Sales of electricity by category	1989 GW.h	1988 GW.h	% Change
Local authorities	1 420,4	1 304,1	8,9
Mining	1 499,1	1 472,7	1,8
Business/manufacturing	4 934,2	4 722,4	4,5
Rural	697,6	613,4	13,7
Exports	55,8	0,0	-
Total sales, GW.h	8 607,1	8 112,6	6,1
Total number of customers	307 156	299 666	2,5

AFRICA: Electricity Supply Statistics

Table 41

Source: United Nations Energy Statistical Yearbook – 1987 and utilities annual report

Country	Net installed capacity of generating plant (self-producers and public), MW ^a					
	Total	Thermal	Hydro	Nuclear	Geothermal	% of total
Algeria	3 836	3 551	285	–	–	5,6
Angola	605	205	400	–	–	0,9
Benin	15	15	–	–	–	0,0
Burkina Faso	59	59	–	–	–	0,1
Burundi	19	7	12	–	–	0,0
Cameroon	605	77	528	–	–	0,9
Cape Verde	5	5	–	–	–	0,0
Central African Rep.	43	21	22	–	–	0,1
Chad	31	31	–	–	–	0,0
Comoros	5	4	1	–	–	0,0
Congo	149	29	120	–	–	0,2
Cote d'Ivoire	1 163	278	885	–	–	1,7
Djibouti	38	38	–	–	–	0,1
Egypt	6 340	3 640	2 700	–	–	9,3
Equatorial Guinea	5	4	1	–	–	0,0
Ethiopia	363	133	230	–	–	0,5
Gabon	200	75	125	–	–	0,3
Gambia	11	11	–	–	–	0,0
Ghana	1 185	113	1 072	–	–	1,7
Guinea	176	129	47	–	–	0,3
Guinea-Bissau	7	7	–	–	–	0,0
Kenya	575	176	354	–	45	0,8
Liberia	325	244	81	–	–	0,5
Libyan Arab Jamah.	2 000	2 000	–	–	–	2,9
Madagascar	102	57	45	–	–	0,1
Malawi	168	24	145	–	–	0,2
Mali	87	42	45	–	–	0,1
Mauritania	114	114	–	–	–	0,2
Mauritius	279	220	59	–	–	0,4
Morocco	2 236	1 617	619	–	–	3,3
Mozambique	1 623	182	1 441	–	–	2,4
Niger	63	63	–	–	–	0,1
Nigeria	4 040	2 140	1 900	–	–	5,9
Reunion	151	26	125	–	–	0,2
Rwanda	60	4	56	–	–	0,1
Sao Tome-Principe	6	4	2	–	–	0,0
Senegal	207	207	–	–	–	0,3
Seychelles	19	19	–	–	–	0,0
Sierra Leone	110	108	2	–	–	0,2
Somalia	60	60	–	–	–	0,1
South African Customs Union ^c	31 652	28 917	895	1 840	–	46,4
St. Helena & Depend	2	2	–	–	–	0,0
Sudan	450	225	225	–	–	0,7
Togo	34	30	4	–	–	0,0
Tunisia	1 414	1 350	64	–	–	2,1
Uganda	163	7	156	–	–	0,2
United Republic of Tanzania	439	180	259	–	–	0,6
Western Sahara	56	56	–	–	–	0,1
Zaire	2 541	55	2 486	–	–	3,7
Zambia	2 436	191	2 245	–	–	3,6
Zimbabwe	1 966	1 300	666	–	–	2,9
AFRICA	68 238	48 052	18 302	1 840	45	100,0
WORLD	2 563 186	1 663 463	585 250	307 108	7 366	

^aNet installed capacity is measured at the terminals of the station, i.e. after deduction of the power absorbed by the auxiliary installations and the losses in the station transformers, if any.

^bElectricity production refers to gross production, which includes the consumption by station auxiliaries and any losses in the transformers that are considered integral parts of the station. Excluded is electricity produced from pumped storage.

^cBophuthatswana, Botswana, Ciskei, Lesotho, Namibia, South Africa, Swaziland, Transkei, Venda.

AFRICA: Electricity Supply Statistics

Table 41

Source: United Nations Energy Statistical Yearbook – 1987 and utilities annual report

Country	Net installed capacity of generating plant (self-producers and public), MW ^a					
	Total	Thermal	Hydro	Nuclear	Geothermal	% of total
Algeria	3 836	3 551	285	–	–	5,6
Angola	605	205	400	–	–	0,9
Benin	15	15	–	–	–	0,0
Burkina Faso	59	59	–	–	–	0,1
Burundi	19	7	12	–	–	0,0
Cameroon	605	77	528	–	–	0,9
Cape Verde	5	5	–	–	–	0,0
Central African Rep.	43	21	22	–	–	0,1
Chad	31	31	–	–	–	0,0
Comoros	5	4	1	–	–	0,0
Congo	149	29	120	–	–	0,2
Cote d'Ivoire	1 163	278	885	–	–	1,7
Djibouti	38	38	–	–	–	0,1
Egypt	6 340	3 640	2 700	–	–	9,3
Equatorial Guinea	5	4	1	–	–	0,0
Ethiopia	363	133	230	–	–	0,5
Gabon	200	75	125	–	–	0,3
Gambia	11	11	–	–	–	0,0
Ghana	1 185	113	1 072	–	–	1,7
Guinea	176	129	47	–	–	0,3
Guinea-Bissau	7	7	–	–	–	0,0
Kenya	575	176	354	–	45	0,8
Liberia	325	244	81	–	–	0,5
Libyan Arab Jamah.	2 000	2 000	–	–	–	2,9
Madagascar	102	57	45	–	–	0,1
Malawi	168	24	145	–	–	0,2
Mali	87	42	45	–	–	0,1
Mauritania	114	114	–	–	–	0,2
Mauritius	279	220	59	–	–	0,4
Morocco	2 236	1 617	619	–	–	3,3
Mozambique	1 623	182	1 441	–	–	2,4
Niger	63	63	–	–	–	0,1
Nigeria	4 040	2 140	1 900	–	–	5,9
Reunion	151	26	125	–	–	0,2
Rwanda	60	4	56	–	–	0,1
Sao Tome-Principe	6	4	2	–	–	0,0
Senegal	207	207	–	–	–	0,3
Seychelles	19	19	–	–	–	0,0
Sierra Leone	110	108	2	–	–	0,2
Somalia	60	60	–	–	–	0,1
South African Customs Union ^c	31 652	28 917	895	1 840	–	46,4
St. Helena & Depend	2	2	–	–	–	0,0
Sudan	450	225	225	–	–	0,7
Togo	34	30	4	–	–	0,0
Tunisia	1 414	1 350	64	–	–	2,1
Uganda	163	7	156	–	–	0,2
United Republic of Tanzania	439	180	259	–	–	0,6
Western Sahara	56	56	–	–	–	0,1
Zaire	2 541	55	2 486	–	–	3,7
Zambia	2 436	191	2 245	–	–	3,6
Zimbabwe	1 966	1 300	666	–	–	2,9
AFRICA	68 238	48 052	18 302	1 840	45	100,0
WORLD	2 563 186	1 663 463	585 250	307 108	7 366	

^aNet installed capacity is measured at the terminals of the station, i.e. after deduction of the power absorbed by the auxiliary installations and the losses in the station transformers, if any.

^bElectricity production refers to gross production, which includes the consumption by station auxiliaries and any losses in the transformers that are considered integral parts of the station. Excluded is electricity produced from pumped storage.

^cBophuthatswana, Botswana, Ciskei, Lesotho, Namibia, South Africa, Swaziland, Transkei, Venda.

Production of electricity (self-producers and public), GW.h ^b						Trade of electricity, GW.h		Available GW.h	kW.h per capita
Thermal	Hydro	Nuclear	Geothermal	Total	% of Total	Imports	Exports		
13 100	300	–	–	13 400	4,8	120	170	13 350	578
465	1 335	–	–	1 800	0,6	–	–	1 800	195
5	–	–	–	5	0,0	160	–	165	38
125	–	–	–	125	0,0	0	–	125	15
2	52	–	–	54	0,0	75	–	129	26
67	2 325	–	–	2 392	0,9	–	–	2 392	230
28	–	–	–	28	0,0	–	–	28	80
18	74	–	–	92	0,0	–	–	92	34
51	–	–	–	51	0,0	–	–	51	10
12	2	–	–	14	0,0	–	–	14	30
2	233	–	–	235	0,1	53	–	288	157
910	1 290	–	–	2 200	0,8	0	–	2 200	197
172	–	–	–	172	0,1	–	–	172	461
26 500	6 000	–	–	32 500	11,5	–	–	32 500	648
15	2	–	–	17	0,0	–	–	17	41
160	650	–	–	810	0,3	–	–	810	18
201	675	–	–	876	0,3	–	–	876	827
44	–	–	–	44	0,0	–	–	44	56
82	4 676	–	–	4 758	1,7	–	281	4 477	327
333	167	–	–	500	0,2	–	–	500	78
14	–	–	–	14	0,0	–	–	14	15
359	1 911	–	359	2 629	0,9	176	–	2 805	127
506	319	–	–	825	0,3	–	–	825	355
14 260	–	–	–	14 260	5,1	–	–	14 260	3 492
234	270	–	–	504	0,2	–	–	504	46
2	560	–	–	562	0,2	–	–	562	74
42	162	–	–	204	0,1	–	–	204	24
95	25	–	–	120	0,0	–	–	120	64
348	140	–	–	488	0,2	–	–	488	458
6 500	620	–	–	7 120	2,5	–	–	7 120	305
–	304	–	–	304	0,1	330	–	634	44
157	–	–	–	157	0,1	135	–	292	45
7 695	2 210	–	–	9 905	3,5	–	100	9 805	96
152	530	–	–	682	0,2	–	–	682	1 205
4	170	–	–	174	0,1	8	3	179	27
7	8	–	–	15	0,0	–	–	15	144
752	–	–	–	752	0,3	–	–	752	111
67	–	–	–	67	0,0	–	–	67	985
196	–	–	–	196	0,1	–	–	196	51
255	–	–	–	255	0,1	–	–	255	37
144 006	3 028	6 578	–	153 612	54,6	–	300	153 312	4 011
2	–	–	–	2	0,0	–	–	2	286
539	516	–	–	1 055	0,4	–	–	1 055	46
36	4	–	–	40	0,0	238	–	278	88
4 436	113	–	–	4 549	1,6	0	3	4 546	596
11	644	–	–	655	0,2	–	107	548	33
264	610	–	–	874	0,3	–	–	874	36
81	–	–	–	81	0,0	–	–	81	491
139	5 156	–	–	5 295	1,9	3	110	5 188	159
–	9 583	–	–	9 583	3,4	329	329	9 583	1 267
3 644	2 701	–	–	6 344	2,3	2 537	–	8 881	1 004
227 094	47 365	6 578	359	281 396	100,0	4 164	1 403	284 157	480
6 723 717	2 041 456	1 697 261	35 461	10 497 895		245 812	234 888	10 508 819	2 085

Production of electricity (self-producers and public), GW.h ^b						Trade of electricity, GW.h		Available GW.h	kW.h per capita
Thermal	Hydro	Nuclear	Geothermal	Total	% of Total	Imports	Exports		
13 100	300	—	—	13 400	4,8	120	170	13 350	578
465	1 335	—	—	1 800	0,6	—	—	1 800	195
5	—	—	—	5	0,0	160	—	165	38
125	—	—	—	125	0,0	0	—	125	15
2	52	—	—	54	0,0	75	—	129	26
67	2 325	—	—	2 392	0,9	—	—	2 392	230
28	—	—	—	28	0,0	—	—	28	80
18	74	—	—	92	0,0	—	—	92	34
51	—	—	—	51	0,0	—	—	51	10
12	2	—	—	14	0,0	—	—	14	30
2	233	—	—	235	0,1	53	—	288	157
910	1 290	—	—	2 200	0,8	0	—	2 200	197
172	—	—	—	172	0,1	—	—	172	461
26 500	6 000	—	—	32 500	11,5	—	—	32 500	648
15	2	—	—	17	0,0	—	—	17	41
160	650	—	—	810	0,3	—	—	810	18
201	675	—	—	876	0,3	—	—	876	827
44	—	—	—	44	0,0	—	—	44	56
82	4 676	—	—	4 758	1,7	—	281	4 477	327
333	167	—	—	500	0,2	—	—	500	78
14	—	—	—	14	0,0	—	—	14	15
359	1 911	—	359	2 629	0,9	176	—	2 805	127
506	319	—	—	825	0,3	—	—	825	355
14 260	—	—	—	14 260	5,1	—	—	14 260	3 492
234	270	—	—	504	0,2	—	—	504	46
2	560	—	—	562	0,2	—	—	562	74
42	162	—	—	204	0,1	—	—	204	24
95	25	—	—	120	0,0	—	—	120	64
348	140	—	—	488	0,2	—	—	488	458
6 500	620	—	—	7 120	2,5	—	—	7 120	305
—	304	—	—	304	0,1	330	—	634	44
157	—	—	—	157	0,1	135	—	292	45
7 695	2 210	—	—	9 905	3,5	—	100	9 805	96
152	530	—	—	682	0,2	—	—	682	1 205
4	170	—	—	174	0,1	8	3	179	27
7	8	—	—	15	0,0	—	—	15	144
752	—	—	—	752	0,3	—	—	752	111
67	—	—	—	67	0,0	—	—	67	985
196	—	—	—	196	0,1	—	—	196	51
255	—	—	—	255	0,1	—	—	255	37
144 006	3 028	6 578	—	153 612	54,6	—	300	153 312	4 011
2	—	—	—	2	0,0	—	—	2	286
539	516	—	—	1 055	0,4	—	—	1 055	46
36	4	—	—	40	0,0	238	—	278	88
4 436	113	—	—	4 549	1,6	0	3	4 546	596
11	644	—	—	655	0,2	—	107	548	33
264	610	—	—	874	0,3	—	—	874	36
81	—	—	—	81	0,0	—	—	81	491
139	5 156	—	—	5 295	1,9	3	110	5 188	159
—	9 583	—	—	9 583	3,4	329	329	9 583	1 267
3 644	2 701	—	—	6 344	2,3	2 537	—	8 881	1 004
227 094	47 365	6 578	359	281 396	100,0	4 164	1 403	284 157	480
6 723 717	2 041 456	1 697 261	35 461	10 497 895		245 812	234 888	10 508 819	2 085

WORLD: Selected electricity supply statistics

Table 42

Source: United Nations Energy Statistics Yearbook – 1987

Area	Net installed capacity of generating plant, self-producers and public, MW ^a					
	Total	Thermal	Hydro	Nuclear	Geothermal	Ranking
World	2 563 186	1 663 463	585 250	307 108	7 366	
Africa	68 238	48 052	18 302	1 840	45	6
Asia	495 841	344 432	109 270	40 992	1 147	3
Europe	633 585	356 113	161 485	114 697	1 290	2
North America	886 547	614 137	154 418	113 504	4 488	1
Oceania	42 879	30 486	11 997	–	396	7
South America	103 830	35 072	67 083	1 675	–	5
USSR	332 266	235 171	62 695	34 400	–	4
Country^c						
Argentina	16 593	8 984	6 591	1 018	–	24
Australia	33 849	26 570	7 029	–	250	12
Austria	16 045	5 470	10 575	–	–	26
Belgium	14 058	7 225	1 328	5 500	5	29
Brazil	47 244	6 481	40 106	657	–	10
Bulgaria	10 743	6 508	1 975	2 260	–	33
Canada	100 600	31 852	56 848	11 900	–	3
China	92 000	64 000	28 000	–	–	5
Czechoslovakia	21 017	14 607	2 890	3 520	–	19
Finland	11 661	6 725	2 586	2 350	–	32
France incl. Monaco	97 600	24 100	24 100	49 400	–	4
German Dem. Rep.	23 525	19 851	1 844	1 830	–	18
Germany, Fed. Rep.	84 110	57 700	6 760	19 650	–	6
Greece	10 198	8 059	2 137	–	2	35
India	58 433	40 100	17 003	1 330	–	8
Indonesia	10 430	8 800	1 600	–	30	34
Iran (Islamic Rep. of)	13 404	11 600	1 804	–	–	30
Italy and San Marino	56 403	36 745	17 879	1 273	506	9
Japan	176 419	112 890	34 650	28 665	214	2
Korea, Republic of	20 982	13 030	2 236	5 716	–	20
Mexico	26 788	18 358	7 780	–	650	16
Netherlands	17 386	16 866	2	508	10	22
Norway, Svbd, J. Myn	25 646	252	25 394	–	–	17
Poland	30 110	28 134	1 976	–	–	15
Romania	20 200	15 560	4 640	–	–	21
South African Customs Union ^d	31 652	28 917	895	1 840	–	14
Spain	36 044	15 112	14 453	6 479	–	11
Sweden	33 455	7 250	16 700	9 500	5	13
Switzerland, Lichtenstein	15 250	790	11 510	2 950	–	27
S. Arabia, pt. Ntrl. Zn.	14 970	14 970	–	–	–	28
Turkey	12 493	7 474	5 004	–	15	31
United Kingdom	64 772	56 178	1 409	7 184	1	7
United States	743 377	550 873	87 192	101 604	3 708	1
Venezuela	17 092	11 592	5 500	–	–	23
Yugoslavia	16 150	7 900	7 000	650	600	25

^a Net installed capacity is measured at the terminals of the station, i.e. after deduction of the power absorbed by the auxiliary installations and the losses in the station transformers, if any.

^b Electricity production refers to gross production, which includes the consumption by station auxiliaries and any losses in the transformers that are considered integral parts of the station.

^c Countries with installed capacity of 10 000 MW and greater.

^d Bophuthatswana, Botswana, Ciskei, Lesotho, Namibia, South Africa, Swaziland, Transkei, Venda.

Area	Production of electricity (self-producers and public), GW.h ^b					Trade of electricity, GW.h		GW.h available	kW.h per capita
	Total	Thermal	Hydro	Nuclear	Geothermal	Imports	Exports		
World	10 497 895	6 723 717	2 041 456	1 697 261	35 461	245 812	234 888	10 508 819	2 085
Africa	281 396	227 094	47 365	6 578	359	4 164	1 403	284 157	480
Asia	2 034 571	1 403 797	356 248	268 126	6 400	1 216	3 062	2 032 725	688
Europe	2 620 577	1 427 274	490 834	695 606	6 863	172 178	140 824	2 651 931	5 362
North America	3 341 495	2 190 118	598 957	532 531	19 889	50 949	54 576	3 337 868	8 111
Oceania	164 071	127 877	34 244	–	1 950	–	–	164 071	6 462
South America	390 861	89 442	293 983	7 436	–	17 005	23	407 843	1 461
USSR	1 664 924	1 258 115	219 825	186 984	–	300	35 000	1 630 224	5 792
Argentina	52 165	23 791	21 909	6 465	–	180	7	52 338	1 681
Australia	132 172	117 926	13 406	–	840	–	–	132 172	8 177
Austria	50 220	14 640	35 580	–	–	3 997	9 606	44 611	5 952
Belgium	62 375	19 925	477	41 967	6	5 660	7 778	60 257	6 075
Brazil	202 287	15 770	185 546	971	–	16 813	10	219 090	1 549
Bulgaria	43 470	28 497	2 538	12 435	–	5 326	952	47 844	5 324
Canada	496 335	102 752	316 322	77 261	–	3 471	47 427	452 379	17 486
China	497 267	397 260	100 007	–	–	0	–	497 267	465
Czechoslovakia	85 825	58 707	4 904	22 214	–	11 931	8 510	89 246	5 734
Finland	53 464	20 024	13 794	19 646	–	6 104	507	59 061	11 961
France incl. Monaco	356 200	37 000	67 900	251 300	–	8 700	38 400	326 500	5 870
German Dem. Rep.	114 180	101 244	1 726	11 210	–	7 451	3 664	117 967	7 089
Germany, Fed. Rep.	415 812	265 033	18 932	131 847	–	22 177	18 370	419 619	6 900
Greece	30 087	27 305	2 779	–	3	977	362	30 702	3 072
India	217 500	154 182	57 918	5 400	–	16	30	217 486	271
Indonesia	34 810	27 310	7 290	–	210	–	–	34 810	202
Iran (Islamic Rep. of)	37 910	31 510	6 400	–	–	–	–	37 910	739
Italy and San Marino	198 292	155 627	39 505	174	2 986	24 818	1 672	221 438	3 867
Japan	698 970	423 490	84 070	189 810	1 600	–	–	698 970	5 733
Korea, Republic of	80 250	35 592	5 344	39 314	–	–	–	80 250	1 905
Mexico	104 791	82 024	18 435	–	4 332	117	2 042	102 866	1 239
Netherlands	68 411	64 852	1	3 556	2	3 644	21	72 034	4 935
Norway, Svbd, J. Myn	103 810	514	103 296	–	–	2 932	3 311	103 431	24 756
Poland	145 832	141 779	4 053	–	–	10 422	8 703	147 551	3 909
Romania	73 090	60 500	12 590	–	–	3 100	0	76 190	3 322
South African Customs Union ^d	153 612	144 006	3 028	6 578	–	–	300	153 312	4 011
Spain	133 168	63 908	27 999	41 261	–	3 171	4 704	131 635	3 383
Sweden	146 625	6 810	72 233	67 576	6	2 169	6 185	142 609	17 079
Switzerland, Lichtenstein	56 976	958	34 317	21 701	–	10 859	20 314	47 521	7 275
S. Arabia, pt. Ntrl. Zn.	37 100	37 100	–	–	–	–	–	37 100	2 953
Turkey	45 353	25 677	19 618	–	58	572	0	45 925	856
United Kingdom	300 247	240 974	4 035	55 238	–	11 672	37	311 882	5 477
United States	2 685 627	1 961 145	254 695	455 270	14 517	46 826	4 995	2 727 458	11 204
Venezuela	54 704	30 604	24 100	–	–	0	0	54 704	2 994
Yugoslavia	80 792	46 616	26 253	4 495	3 428	2 583	2 208	81 167	3 465

Conversion factors and equivalents

Heat/energy

1 kW.h	= 3 412,14 Btu = 3,6 MJ = 859,845 kcals
1 therm	= 29,307 1 kW.h = 100 000 Btu = 105,506 MJ = 25,199 6 Mcals
1 GJ	= 277,778 kW.h = 9,478 17 therms = 238,846 Mcals
1 CHU ^a	= 1,8 Btu = 1 900,4 J (approx)
1 Q	= 10 ¹⁸ Btu
1 quad	= 10 ¹⁵ Btu

Calorific value, mass basis

1 Btu/lb	= 2,326 kJ/kg
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Pressure

1 lb/in ²	= 6,894 76 kPa (or kN/m ²) = 0,070 31 kg/cm ² = 0,068 947 6 bar
1 bar	= 100 kPa = 10 ⁵ N/m ² = 14,503 68 lb/in ²

Other

1 cu sec	= 0,028 317 m ³ /s
1 mile	= 1,609 344 km
1 lb	= 0,453 592 37 kg
1 gal (imp)	= 4,546 09 litres (1 litre = 1 dm ³ = 1 000 cm ³)
1 gal (US)	= 3,785 412 litres
1 ton (long)	= 1,016 05 tons (metric ton)
1 ton (short)	= 0,907 185 tons (metric ton)
1 hp (UK)	= 745,700 W (or J/s)
1 hp (metric)	= 735,499 W (or J/s)

Approximate equivalents

1 ft ³ natural gas	approximately equals	1,000 Btu
1 ton gas/diesel oil	approximately equals	431 therms
1 ton crude oil	approximately equals	7,35 barrels or 432 therms
1 ton fuel oil	approximately equals	6,55 barrels or 406 therms
1 ton power station oil	approximately equals	406 therms
1 ton power station coal ^b	approximately equals	231 therms
1 ton industrial coal	approximately equals	261 therms

Power station equivalents

475 tons of coal or 160 tons of oil will produce about 1 GW.h in a typical modern power station. One ton of natural uranium, when used in a Magnox reactor, will supply about 30 GW.h.

a Centigrade heat unit.

b For South African power stations:

Tutuka: 1 ton approx. equals 200 therms or 21,12 GJ

Lethabo: 1 ton approx. equals 147 therms or 15,48 GJ

GENERAL

Symbols and abbreviations used

– = not applicable/not available

kW = kilowatt

MW = megawatt (1 000 kW)

kW.h = kilowatt hour (unit)

MW.h = megawatt hour (1 000 units)

GW.h = gigawatt hour (1 000 000 units)

The figures in the tables have, where necessary, been rounded off to the nearest final digit shown. There may, therefore, be slight discrepancies between the sums of the constituent items and the totals shown.

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