CONTENTS

The Arnot power station in the Eastern Transvaal is the first Escom power station to operate on the reheat cycle. When complete the station will consist of six 350 MW units. The first unit reached full load in June and the second in October 1971.

MEMBERS OF THE ELECTRICITY SUPPLY COMMISSION

DR. R. L. STRASZACKER
(*Chairman*)
MR. W. H. ANDRAG
MR. A. J. DU TOIT
MR. D. J. MALAN
MR. E. PAVITT
MR. H. H. L. ABRAHAMSE
MR. K. F. MORRISON

MEMBERS OF THE MANAGEMENT COMMITTEE

MR. H. J. DE VILLIERS	General Manager (*Retired 13th March, 1971*)
MR. JAN H. SMITH	General Manager (*Appointed 14th March, 1971*)
MR. I. D. VAN DER WALT	Assistant General Manager
MR. J. A. BOTHMA	Financial Manager
MR. A. J. LEVY	Commercial Manager
MR. P. J. T. OOSTHUIZEN	Administrative Manager
MR. F. W. STUTTERHEIM	Manager (*Operations*)
MR. H. M. TORR	Economic Consultant
DR. N. TROOST	Manager (*Electrical Engineering*)
MR. J. L. VAN DER WALT	Personnel Manager
MR. N. T. VAN DER WALT	Manager (*Mechanical Engineering*)

MANAGERS OF THE COMMISSION'S UNDERTAKINGS

Rand and Orange Free State	MR. A. W. TOMLIN
Eastern Transvaal	MR. J. S. VAN VELDEN
Natal	MR. H. P. ALEXANDER
Cape Western	MR. G. D. G. DAVIDSON
Border	MR. F. O. PEARCE
Cape Eastern	MR. F. O. PEARCE (*Acting*)
Cape Northern	MR. C. R. BURTON (*Retired 31st May, 1971*) MR. J. L. ROTHMAN (*Appointed 1st June, 1971*)
Orange River	MR. J. L. ROTHMAN (*Transferred to Cape Northern 1st June, 1971*) MR. J. P. RODGER (*Appointed 1st June, 1971*)

SWAWEK

Manager, Electricity Department	MR. T. A. THERON

To the Honourable
THE MINISTER OF ECONOMIC AFFAIRS
HOUSE OF PARLIAMENT
CAPE TOWN

3rd May, 1972

Sir,

As required by Section 19 of the Electricity Act, 1958, the Commission has the honour to present its forty-ninth Annual Report and Accounts covering its work for the financial year ended 31st December, 1971.

PRINCIPAL FEATURES AND EVENTS OF THE YEAR

Total sales of electricity during 1971 amounted to 38 040 million kWh, reflecting an increase of 9,0 per cent over the previous year. This percentage growth rate is lower than that experienced in the years 1969 and 1970; but it exceeds the average growth of 8,4 per cent per annum during the ten-year period 1961 to 1971. The rate of growth in the demand to be met by Escom is higher than the national growth rate, and will continue to be higher in the immediate future years, due to the partial bulk supplies to be furnished by Escom to a number of major municipalities who in the past generated their own electricity requirements. Although these municipalities will continue to generate part of their requirements in their own stations, they will take increasing supplies from Escom in future years.

Possibly the most important development during the past year was the passage of the Electricity Amendment Act of 1971. The act embodies two changes of fundamental importance, affecting respectively the economic management and administration of Escom's interconnected system of power stations and the financing of Escom's capital needs. The act as now amended empowers Escom to group together the generating stations of two or more of its undertakings, so that it is possible to establish, eventually, a national generating undertaking. Secondly Escom is empowered, subject to limitations embodied in the act, to set aside out of revenue, contributions towards a Capital Development Fund.

The proposals to establish a new undertaking called the Central Generating Undertaking were approved in principle by the Minister, and the grant of a permit was approved by the Electricity Control Board authorising the Commission to set up this undertaking with effect from 1 January 1972. On that date therefore the Central Generating Undertaking took over the existing power stations of the Rand and Orange Free State, Eastern Transvaal, Cape Western and Natal Undertakings and certain major transmission circuits. The function of the Central Generating Undertaking is to generate and supply the electricity required by Escom's other undertakings interconnected by the national transmission system. In 1972 these will include all existing Escom undertakings with the exception of the Border and Cape Eastern Undertakings. The planned extensions of Escom's national transmission system will by 1973 also permit the inclusion of the Border Undertaking. The establishment of the Central Generating Undertaking creates a distinction between the generation of electricity as one function, and the distribution and sale of electricity to consumers, as another. All undertakings will share in the economies resulting from the large scale generation of electricity made possible by the establishment of a single generating undertaking.

During 1971 considerable progress was made with the construction of Grootvlei, Hendrina and Arnot power stations, and a total of 1 300 MW of new generating plant was brought in service at these power stations. A further addition to the power resources was achieved by commissioning two of a planned total of four 80 MW units at the Hendrik Verwoerd hydro-power station. This power station, together with the Vanderkloof power station planned for the P.K. le Roux dam, is the first important step in the exploitation of South Africa's potential for the hydro-electric generation of electricity. The tariff of payments by Escom to the Department of Water Affairs in respect of the use of water for hydro-generation of electricity at the Hendrik Verwoerd and P.K. le Roux dams was approved by the Cabinet during 1971 and will result in a substantial contribution towards the cost of the dams. The capacities of the two power stations have been planned to permit the maximum economic exploitation of the available potential for hydro-generation of electricity. The Hendrik Verwoerd power station was formally opened by the State President on 4 March 1972.

Another important development in the field of generation was the commissioning of the first "dry" cooling tower serving the fourth 200 MW set at Grootvlei power station. This is believed to be the largest dry cooling installation in the western world, and its operating characteristics are now being carefully studied. The dry-type cooling tower promises a substantial reduction in the amount of water consumed in the thermal generation of electricity, and Escom looks to this development to overcome the danger that the exploitation of the fuel resources of the coalfields in the Eastern Transvaal may in future be restricted by shortages of water.

The construction of the 400 kV transmission system goes hand in hand with the development of large pithead coal-fired power stations. The first 400 kV line between the Transvaal power stations and the Cape Western Undertaking, which was completed to Muldersvlei in August 1970, is being augmented by a second line which is scheduled for completion as far as Beaufort West towards the end of 1972 and up to the Muldersvlei terminal before the winter of 1973. Despite the limitations imposed by operating with one line only during 1971, some 59 per cent of the electricity needs of the Cape Western Undertaking was transmitted from power stations in the northern provinces and only the remaining 41 per cent was generated in power stations situated in the Western Cape. In 1972 the electricity to be transmitted to the Cape Western Undertaking from power stations in the northern provinces is expected to rise to 70 per cent of the total electricity needs of that undertaking. This will result in a substantial saving in railage charges on coal, which will cover the cost of the transmission system between the Transvaal and the Western Cape. The completion early in 1973, of a branch from this transmission system to serve the East London and Port Elizabeth areas will bring a double benefit: it will contribute to the reduction in costs obtained from greater exploitation of the capacity of the system and will inaugurate in the Eastern Cape, the operating conditions which are already established in the Western Cape.

Effective interconnection between the Natal Undertaking and the northern power stations was achieved in October 1971 by the completion of the first 400 kV

line from Camden power station in the Eastern Transvaal to Chivelston, near Ingagane power station, in Natal. This interconnection together with further development of the transmission network in Natal became necessary in order to meet the increased load of the Natal Undertaking arising *inter alia* from the commencement of production at the Alusaf aluminium works at Richards Bay in July 1971. With a monthly consumption of some 70 million units and a maximum demand of more than 90 MW, the Alusaf works represents the largest single load increase of any individual consumer in the year 1971. The second 400 kV circuit between Camden power station and Chivelston is planned for completion towards the middle of 1972.

Another development of the national transmission system included additional circuits to enable the output of Hendrina and Arnot power stations to be fed into the system. Work is progressing on the ± 533 kV monopolar direct current transmission system between Apollo distribution station near Pretoria and Pafuri on the Moçambique border. This system will enable the Central Generating Undertaking to import power from the Cabora Bassa hydro-electric power station in the Portuguese territory of Moçambique, commencing in 1975.

Financial conditions continued to be difficult during 1971. Escom raised five long-term loans on the local market of a total nominal value of R115 million, including R60 million invested from Escom's Redemption Fund and Reserve Fund. The interest rates applicable to these loans will give a return to investors of 9,25 per cent per annum. Escom also raised some R70 million from overseas sources, and in addition concluded contracts for financial accommodations by way of extended credit facilities. However, in the present circumstances of shortage of long-term capital and high interest rates it is very desirable for Escom to increase the capital flow from internal sources. The Electricity Amendment Act of 1971 is seen, therefore, as a necessary and timely measure. The Amendment Act has authorised Escom to set up a Capital Development Fund, within the limits imposed by the act, and subject to the State President's approval of the amounts which are to be set aside in the Reserve Fund and in the Capital Development Fund. For the financial year 1972 Escom proposes to set aside contributions to the Capital Development Fund of approximately R20,6 million, but the contribution to the Reserve Fund will be lower than in former years by a difference of the order of R8,5 million. The combination of proposals for 1972, based on the 1971 Electricity Amendment Act, will raise the internal generation of capital by some R12 million. The effect on tariffs is offset to some extent by a reduction in the rate of contribution to the Redemption Fund which is possible by reason of the high rate of earnings on current investments.

The overall increase in tariffs associated with this increase in internal generation of capital in the current year is of the order of 3 per cent.

Apart from the burden on tariffs of the present high rates of interest, the upward trend of other costs is also noticeable. There has been a considerable escalation in the cost of plant and equipment due to a world-wide rise in wages and the cost of basic materials. The overall increase in the price of coal is masked by substantial savings in railage of coal to the coastal power stations; but these savings are counterbalanced at this early stage by the capital related charges on the transmission systems. As a result of rising costs Escom was obliged, during 1971, to raise tariffs in certain undertakings. A surcharge of 5 per cent was added in the tariffs of the Rand and Orange Free State and Cape Western Undertakings from the beginning of 1971, and the surcharge on the tariff of Border Undertaking was increased from 5 per cent to 10 per cent from 1 July 1971.

For the year 1972, the following tariff increases were necessary to cover Escom's costs and financial charges, and have been notified to consumers in the respective undertakings:—

Rand and Orange Free State Undertaking:
An increase in the surcharge from the present level of 5 per cent to 12,5 per cent from January 1972.

Eastern Transvaal Undertaking:
A surcharge of 5 per cent on tariffs, from January 1972.

Orange River Undertaking:
A surcharge of 5 per cent on tariffs, from January 1972.

Natal Undertaking:
A surcharge of 5 per cent on tariffs, from July 1972.

Cape Western Undertaking:
An increase in the surcharge from the present level of 5 per cent to 10 per cent from July 1972.

Cape Northern Undertaking:
A decrease in the discount from the present level of 20 per cent to 15 per cent from July 1972.

Investigations into the proposal to establish Escom's first nuclear power station at Koeberg near Cape Town are continuing. While technical progress is being made in many directions, a disappointing feature is the considerable increase in the price of nuclear power station plant.

The Government of Swaziland has submitted preliminary reports on the feasibility of a coal-fired power station in Swaziland, with Escom as the main purchaser of electricity. These reports are being studied in order to determine whether the scheme can be economically viable.

There is continuing development in the sale of electricity to neighbouring territories. Sales to Lesotho and Moçambique are as yet relatively modest but showed further increases. Arrangements have been concluded for a supply of electricity to be furnished to the Swaziland Electricity Board and construction of the transmission line required for this purpose will be started early in 1972. Tentative enquiries have been received for a limited supply of electricity which may be furnished by Escom, for use in Rhodesia in the vicinity of Beit Bridge. This possibility is being investigated.

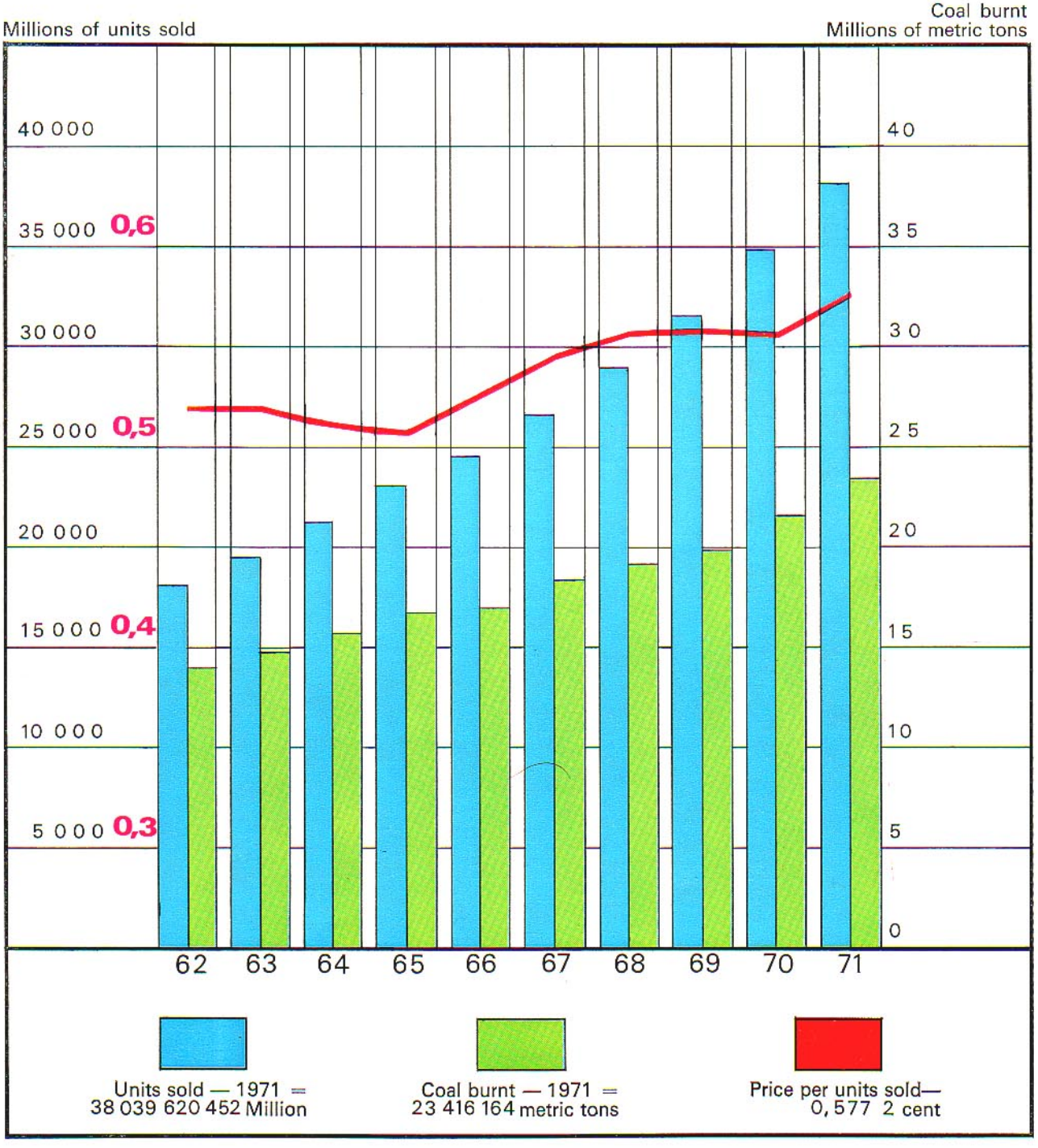
In terms of the Electricity Act, Escom acts as agent for the South West Africa Water and Electricity Corporation (Swawek). It has assisted Swawek in the design and construction of the Van Eck coal-fired

power station in Windhoek, the Ruacana hydro-electric power station on the Angolan border, and certain other works. When complete the Van Eck power station will comprise three 30 MW units which, in the interest of water conservation, will operate on the dry-cooling principle. The first two units are planned to be placed in commercial service during 1972, with the third unit following early in 1973. The design work for Ruacana is in progress and five machines, each of 80 MW capacity are planned to be installed in an underground chamber. The first two units are scheduled for commissioning in 1977. International tenders for the hydraulic turbines, generators and associated equipment for these two machines were received in April 1972 and are being adjudicated. Progress was also made during 1971 with the construction and development of the extensive transmission system required by Swawek.

SALES OF ELECTRICITY

Escom's total sales of electricity during the year 1971 amounted to 38 040 million kWh, which reflected an increase of 9,03 per cent over the corresponding figure for the year 1970. The average revenue per unit sold increased from 0,554 5 cent in 1970 to 0,577 2 cent in 1971. The average cost per unit sold in these years was 0,561 4 cent (1970) and 0,577 4 cent (1971).

The growth of Escom's sales over the ten-year period 1962 to 1971 is shown in the diagram below together with the yearly average price per unit sold and the yearly total quantity of coal burnt. The figures represented are the annual averages and totals for all undertakings. Similar figures for the individual undertakings are given in later sections of this report:



Total sales of electricity for the year 1971 in the main categories of supply with the corresponding figures for the year 1970 and the rate of increase during the year under review, are given below. The final column indicates the average rate of growth over the ten-year period ending in 1971:

TOTAL UNITS SOLD

	1961	1970	1971	Increase %	Average Annual Increase in 10 Years %
Bulk Supplies;					
Municipalities	3 371 128 826	8 108 090 324	9 264 502 567	14,26	10,64
Direct Supplies;					
Traction	1 178 261 737	2 409 721 639	2 616 331 430	8,57	8,30
Mining	8 737 922 874	13 947 871 059	14 227 066 399	2,00	5,00
Industrial	3 446 356 759	9 607 732 985	11 013 786 657	14,63	12,32
Domestic	273 021 833	805 472 702	906 249 053	12,51	12,74
Street Lighting	6 469 793	11 686 376	12 084 746	3,41	6,45
Total	17 013 161 822	34 890 575 085	38 040 020 852	9,03	8,38

The mining industry continues to be Escom's largest consumer, and purchased 37 per cent of all units sold in 1971. Electricity sold for mining purposes in 1971 exceeded the figure for 1970 by only 2 per cent. This is well below the average annual increase of 5 per cent in sales to the mining industry during the ten-year period ending in 1971, but this low rate of growth in 1971 is largely due to a large reduction in the supply of electricity which was taken in the year 1970 for de-watering the Bank compartment of the West Driefontein mine. The gradual lessening of the growth rate of electricity sales to the gold mining industry is to some extent being compensated for by development of other branches of the mining industry. Sales of electricity to different sectors of the mining industry for the period 1966 to 1971 are given in the tables below:—

ELECTRICITY SOLD TO MINING SECTOR

	Units Sold (millions)						
	1965	1966	1967	1968	1969	1970	1971
Gold Mining (Including Uranium)	9 345	9 469	9 946	10 339	10 647	11 504	11 662
Diamond, and other Mines	436	688	759	831	891	1 022	1 101
Platinum	198	243	283	345	609	886	901
Coal Mines	365	412	453	480	495	535	563
Total	10 344	10 812	11 441	11 995	12 642	13 947	14 227

ELECTRICITY SOLD TO GOLD MINING INDUSTRY

	Units Sold (millions)						
	1965	1966	1967	1968	1969	1970	1971
Witwatersrand	2 663	2 528	2 492	2 329	2 186	2 144	1 974
Klerksdorp	1 560	1 702	1 851	1 987	2 178	2 283	2 355
Far West Rand	2 194	2 271	2 410	2 639	2 759	3 439	3 602
Orange Free State	2 533	2 538	2 700	2 804	2 913	3 002	3 095
Eastern Transvaal	395	430	493	580	611	636	636
Totals	9 345	9 469	9 946	10 339	10 647	11 504	11 662

Industrial consumers accounted for 29 per cent of Escom's total sales of electricity in 1971. The increase of 14,63 per cent for the year is higher than the average annual increase of 12,32 per cent for sales in the industrial category during the ten-year period ending in 1971. The supply to Alusaf aluminium works which came into production at Richards Bay during June of 1971 contributed to the high rate of industrial growth reflected in electricity sales for 1971. The increase for industrial consumers excluding Alusaf was 10,85 per cent.

Escom's figures relating to industrial supplies do not present a complete picture since they do not include supplies of electricity furnished to industrial consumers by municipalities or supplies generated by industrial undertakings for their own use. However, Escom's sales figures do give a broad picture of industrial development. Sales by Escom to the main sectors of industry are given in the table below. The iron, steel and base metal industries are Escom's largest consumer group in the industrial sector and the rate of growth in these industries continues to be higher than the average for all industries. In 1971 sales to this consumer group represented 45,7 per cent of Escom's total sales of electricity to the industrial sector.

ELECTRICITY SOLD TO INDUSTRIAL SECTOR

	Units Sold (millions)						
	1965	**1966**	**1967**	**1968**	**1969**	**1970**	**1971**
Building and Cement (Including quarrying)	508	530	562	646	716	782	824
Chemical (Including pharmaceutical)	1 023	1 098	1 214	1 241	1 272	1 376	1 444
Engineering (Including the Motor Industry)	393	415	544	562	535	569	618
Foodstuffs, Consumer Goods and Commercial	751	935	1 022	1 111	1 088	1 407	1 673
Iron, Steel and Base Metals	2 326	2 435	2 680	2 967	3 672	4 114	5 034
Paper and Paper Products	267	416	469	493	542	485	494
Other	395	240	238	419	749	875	927
Total	5 663	6 069	6 729	7 439	8 574	9 608	11 014

Sales of electricity under the heading of 'Bulk Supplies to Municipalities' comprised 24 per cent of Escom's total electricity sales in 1971. Bulk sales of electricity during 1971 showed an increase of 14,26 per cent over the corresponding figure for 1970. This is high in relation to the average annual increase of 10,64 per cent experienced in respect of bulk sales of electricity during the ten-year period ending in 1971. Part of the explanation for the high growth rate for 1971 is to be found in the considerable increase in the partial bulk supply of electricity taken by Cape Town Municipality in 1970. Electricity purchased by Cape Town Municipality totalled 321 million units in 1971, as against 109 million in 1970. If the partial bulk supply to Cape Town is excluded the increase in Escom's sales of electricity in the category of bulk supplies would have been some 11,8 per cent instead of 14,26 per cent. The municipalities of Johannesburg, Pretoria, Port Elizabeth, Bloemfontein and Kroonstad have also contracted to take partial bulk supplies from Escom to meet the growth beyond the output of their own power stations.

Sales of electricity in the category of bulk supplies includes electricity sold to neighbouring territories. The following table shows the increase in these sales during the past two years:—

Electricity Sold to Neighbouring Territories. (kWh).

	1969	**1970**	**1971**
Lesotho	7 275 983	8 824 906	12 259 196
Moçambique	114 600	576 800	786 800

Electricity sold to the South African Railways for traction increased by 8,57 per cent to 2 616 million units in 1971. The percentage increase for 1970 marginally exceeds the average annual increase of 8,30 per cent experienced in these sales during the ten-year period ending in 1971. The important increases in traction supplies took place in the Cape Northern, Eastern Transvaal, Natal and Rand and O.F.S. Undertakings, and resulted not only from further electrification of railway sections, but also from increased demands on existing electrified routes. Details of the development which took place during 1971 in respect of railway electrification are given in a later section of this report dealing with operations in each of the separate undertakings. The 1971 sales of electricity for railway traction in each of the undertakings concerned are compared with the 1970 figures in the table below:

ELECTRICITY SOLD: S.A.R. TRACTION

Undertaking	**Units Sold (millions)**		**Per cent Increase**
	1970	**1971**	
Cape Northern	178,3	203,6	14,19
Cape Western	412,6	420,2	1,84
Eastern Transvaal	270,3	299,2	10,67
Natal	751,5	819,7	9,08
Rand and O.F.S.	796,9	873,7	9,64

The following table relating to the total sales of electricity of each of Escom's undertakings shows a healthy increase in the rate of development in the coastal undertakings. For the Cape Western, Border and Natal Undertakings, the 1971 percentage increases in units sold exceed the corresponding figures for the ten-year period ending 1971 and are also higher than the 1971 percentage increase in total units sold by Escom. In the case of the inland undertakings, Cape Northern, Eastern Transvaal and Rand and O.F.S., the 1971 percentage increases in total units sold are lower than the corresponding average annual percentage growths achieved in the ten-year period ending 1971:

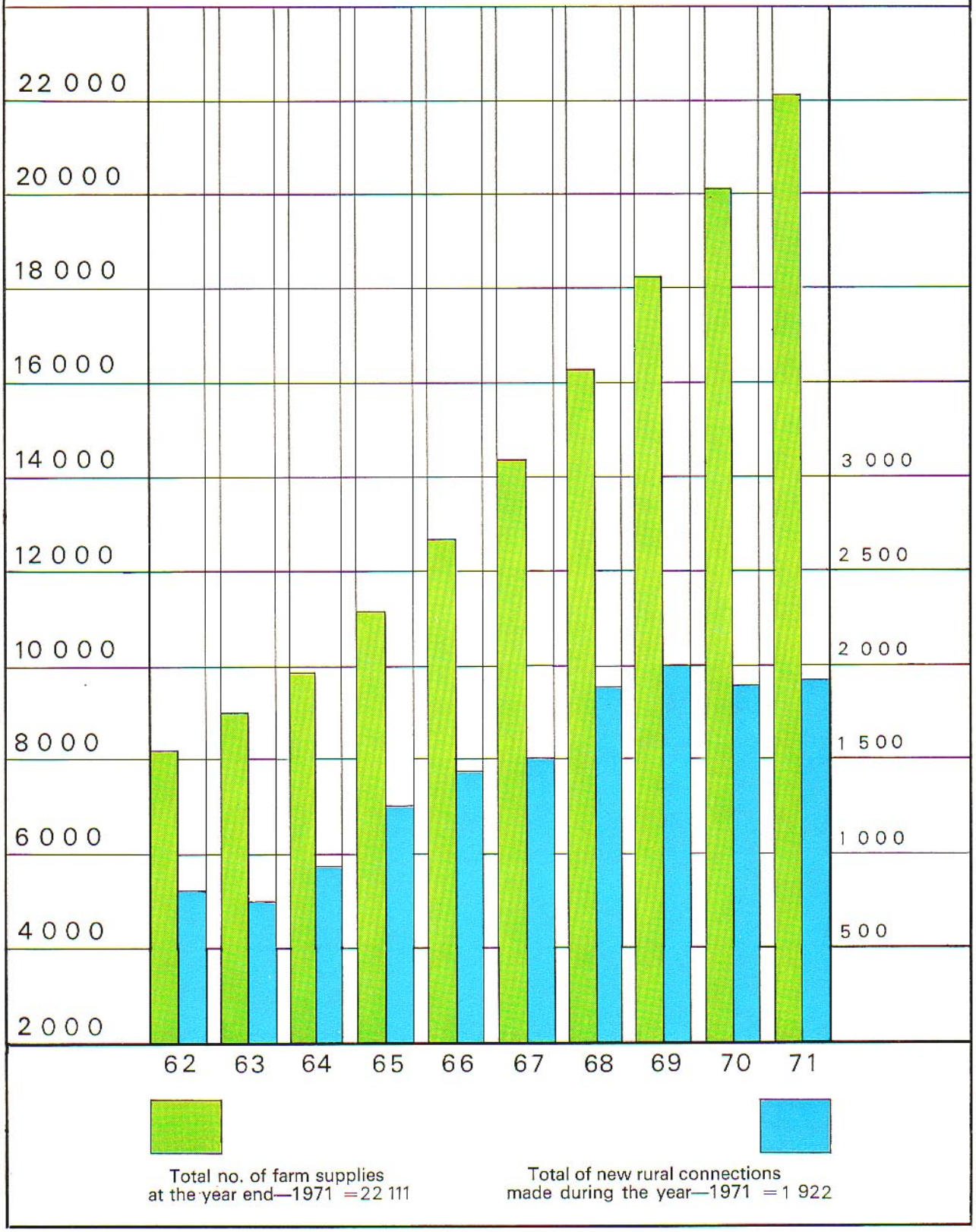
TOTAL SALES OF ELECTRICITY — ESCOM UNDERTAKINGS

Undertaking	UNITS SOLD			Increase	Average Annual Increase in 10 Years
	1961	1970	1971	%	%
Cape Western	860 037 699	2 101 027 765	2 494 472 478	18,73	11,24
Cape Northern	191 307 887	714 894 199	789 677 686	10,46	15,23
Cape Eastern	—	6 117 397	7 105 193	16,15	—
Border	178 813 327	360 352 465	399 915 539	10,98	8,38
Natal	2 181 537 280	5 073 498 149	6 072 318 560	19,69	10,78
Eastern Transvaal	901 470 383	4 294 062 785	4 561 509 149	6,23	17,60
Rand & O.F.S.	12 699 995 246	22 293 351 775	23 619 963 129	5,95	6,40
Orange River	—	47 270 550	95 059 119	101,10	—
Total Escom	17 013 161 822	34 890 575 085	38 040 020 852	9,03	8,38

Continued progress is being made with the expansion of Escom's rural networks, and a total of 1 993 new farm supplies were connected during 1971. As illustrated by the following figures, all of Escom's undertakings contributed to this development.

	Total number of farming supplies at the year end		
	1961	1966	1971
Cape Western	3 907	4 778	5 805
Natal	1 546	2 356	4 060
Rand and O.F.S.	659	2 440	6 719
Cape Northern	579	1 056	1 777
Border	209	365	642
Cape Eastern	—	283	387
Eastern Transvaal	506	1 335	2 717
Orange River	—	—	4
	7 406	12 613	22 111

Supplies to farmers



SYSTEM OPERATION AND GENERATION OF ELECTRICITY

In terms of licences granted by the Electricity Control Board, the power stations of the Rand and Orange Free State Undertaking together with the power stations in the Eastern Transvaal continued to be operated as a single system of pooled power stations in 1971. This northern pool is interconnected with the power stations in the Cape Western and Natal Undertakings and augments power generation in these undertakings. The northern pooled system of power stations also meets the total power needs of the Cape Northern and Orange River Undertakings. During 1971, all of Escom's power station development took place in this northern pool which now includes more than 82 per cent of Escom's generating capacity. The Hendrik Verwoerd power station, where the first two sets were commissioned during 1971, also forms part of the northern pooled system.

Installed Generating Capacity

Major items of power station equipment taken into service during 1971 and under construction or on order as at 31 December 1971 are given in the following table. Principal equipment installed is detailed in "Statement No. 1" on pages 68 to 72 of this Report. Other statistical statements appear on pages 73 to 81.

	Plant taken into service in 1971		Plant under construction or on order	
	Boilers kg/s	Generators MW	Boilers kg/s	Generators MW
Grootvlei Power Station	230,6	200	214,2	200
Hendrina Power Station	428,4	400	1 285,2	1 200
Arnot Power Station	668,0	700	1 336,0	1 400
Hendrik Verwoerd	—	160	—	—
Kriel	—	—	2 640,0	3 000
Vanderkloof	—	—	—	—

The installed generating capacity in Escom's power stations is as follows:—

	Total at the end of 1971 MW
Pooled power stations of the Rand and O.F.S. Undertaking and Eastern Transvaal Undertaking	7 362
Natal Undertaking	1 081
Cape Western Undertaking	450
Border Undertaking	120
	9 013

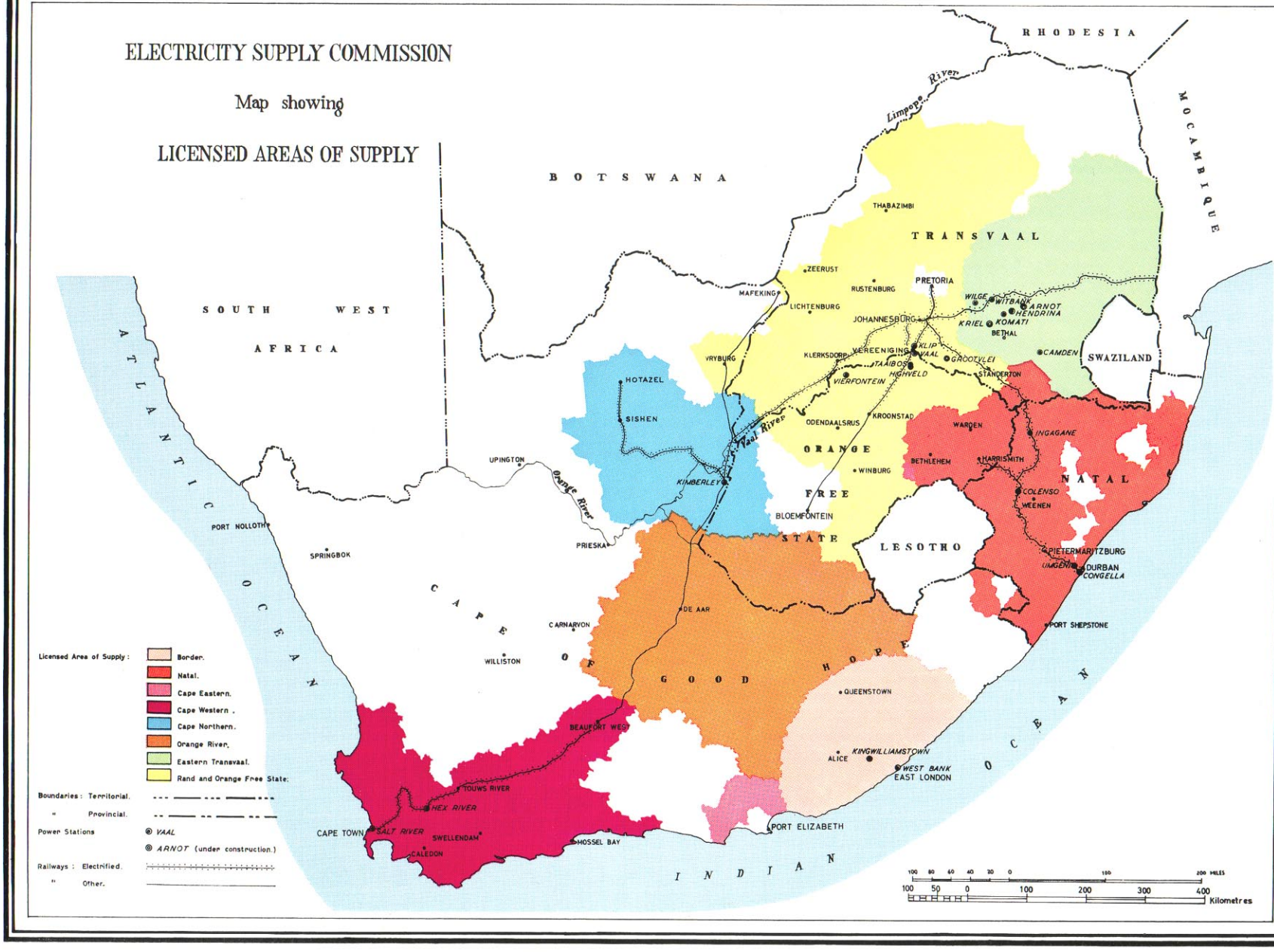
The corresponding total for 1970 was 7 583 MW.

Serious problems were experienced with newly commissioned generating plant during 1971. Troubles with turbine blades required the output of all turbo-generators at Hendrina power station to be limited to 75 per cent of rated output and modifications will be necessary before full output can be attained. Three of the four sets at Grootvlei power station developed stator faults and had to be withdrawn from service for extensive repairs. The sets at Camden power station are to be withdrawn from service when circumstances permit to attend to both turbine rotor and generator rotor defects. Vibration troubles were experienced on both sets at Arnot power station, which could not initially be operated at full rated output.

The commissioning of the first two 80 MW sets in the Hendrik Verwoerd hydro-electric power station was an important event. This plant, which can be brought to full load in a matter of minutes, is very suitable for peak load use and also serves as the equivalent of spinning reserve.

System operation

In October 1971 the interconnection of Escom's undertakings was taken a step further when effective interconnection between the Natal system and the northern power stations was established by the 400 kV transmission line from Camden power station to Chivelston distribution station near Ingagane power station. The interconnection of Escom's generating stations led to the establishment of the new Central Generating Undertaking. This new undertaking came into existence on 1 January 1972 to own and operate Escom's interconnected power stations. These now include all Escom power stations with the exception of the West Bank power station in the Border Undertaking. The Border Undertaking will also be connected to Escom's national transmission system during 1973.


ELECTRICITY SUPPLY COMMISSION
Map showing
LICENSED AREAS OF SUPPLY
RHODESIA
MOCAMBIQUE
Limpopo River
BOTSWANA
SOUTH WEST AFRICA
ATLANTIC OCEAN
INDIAN OCEAN
THABAZIMBI
TRANSVAAL
ZEERUST
RUSTENBURG
PRETORIA
MAFEKING
LICHTENBURG
JOHANNESBURG
WILGE
WITBANK
ARNOT
HENDRINA
KRIEL
KOMATI
BETHAL
VEREENIGING
KLIP
VAAL
GROOTVLEI
CAMDEN
SWAZILAND
KLERKSDORP
VRYBURG
TAAIBOS
HIGHVELD
VIERFONTEIN
STANDERTON
HOTAZEL
SISHEN
Vaal River
ODENDAALSRUS
KROONSTAD
WARDEN
INGAGANE
ORANGE
FREE
STATE
WINBURG
BETHLEHEM
HARRISMITH
NATAL
KIMBERLEY
COLENSO
WEENEN
UPINGTON
Orange River
BLOEMFONTEIN
LESOTHO
PIETERMARITZBURG
UMGENI
DURBAN
CONGELLA
PORT NOLLOTH
PRIESKA
SPRINGBOK
CAPE OF GOOD HOPE
DE AAR
CARNARVON
PORT SHEPSTONE
WILLISTON
QUEENSTOWN
BEAUFORT WEST
ALICE
KINGWILLIAMSTOWN
WEST BANK
EAST LONDON
TOUWS RIVER
HEX RIVER
CAPE TOWN
SALT RIVER
SWELLENDAM
CALEDON
MOSSEL BAY
PORT ELIZABETH
Licensed Area of Supply :
Border.
Natal.
Cape Eastern.
Cape Western .
Cape Northern.
Orange River.
Eastern Transvaal.
Rand and Orange Free State.
Boundaries : Territorial.
" Provincial.
Power Stations
VAAL
ARNOT (under construction.)
Railways : Electrified.
" Other.
100 80 60 40 20 0 100 200 MILES
100 50 0 100 200 300 400 Kilometres

Shortages of cement and steel continued in 1971 and caused delays in a number of Escom's construction programmes. Completion of the first 400 kV transmission line between Camden power station in the Eastern Transvaal and Chivelston distribution station in Natal was delayed by six months, to October 1971. Up to this date only limited support to the Natal system could be provided from the northern power stations and serious difficulties were experienced in meeting the winter load on the Natal system. Several major interruptions of supply occurred. To limit the extent and duration of such interruptions, automatic load-shedding equipment was installed in certain vulnerable areas.

Generation of Electricity

A total of 43 473 million units of electricity was generated in Escom's power stations during 1971 and this exceeds the corresponding figure for 1970 by 9,2 per cent.

The figures relating to units generated, sent out, and purchased for all Escom undertakings are as follows:—

	1970	1971
Units Generated	39 796 184 973	43 472 521 686
Units Purchased	7 260 727	12 095 619
Units Sent Out	37 320 784 837	40 739 391 193

As shown in Statement No. 5, electricity was purchased from Port Elizabeth Municipality and from the Department of Water Affairs (at the hydro-electric power station at Paul Sauer dam) for the small and isolated Cape Eastern Undertaking.

The following table accounts for the units sent out from Escom's power stations and fed into the systems of the undertakings dependent upon these power stations:

Undertaking	UNITS SENT OUT	
	1970	1971
Rand and Orange Free State	24 038 301 821	25 499 117 027
Eastern Transvaal	4 408 365 835	4 687 200 086
Natal	5 339 920 912	6 407 615 317
Cape Western	2 321 450 252	2 755 735 000
Border	363 186 420	407 963 700
Cape Northern	796 660 488	879 930 806
Orange River	52 899 109	101 829 257
TOTAL	37 320 784 837	40 739 391 193

Of the units fed into the system of the Cape Western Undertaking in 1971, 59 per cent was imported from the northern power stations by means of the as yet partly completed 400 kV transmission system and the remainder of 41 per cent was sent out from the power stations in the Cape Western Undertaking. Similarly, the import of power by the Natal Undertaking from the power stations in the northern provinces was increased considerably when the 400 kV transmission system was extended to Natal in October 1971. In the last three months of 1971, 31,6 per cent of the units of electricity fed into the Natal system was imported from the northern provinces. The reduction in the quantity of coal which is to be railed to power stations in the coastal undertakings leads to important savings in overall coal costs.

Disregarding the newly established Orange River Undertaking, the largest percentage increases in units sent out by undertakings were in 1971 achieved in the coastal undertakings. These 1971 increases were 20 per cent for the Natal Undertaking, 18,7 per cent for the Cape Western Undertaking and 12,3 per cent for the Border Undertaking. Units sent out in the Rand and Orange Free State Undertaking increased by 6,1 per cent and in the Eastern Transvaal by 6,3 per cent.

The one-hour maximum demands (sent out) for different Escom undertakings for the past five years are given in the table below:

HOURLY MAXIMUM DEMAND (MW SENT OUT) OF ESCOM'S UNDERTAKINGS OVER THE LAST SEVEN YEARS

Undertaking	1965	1966	1967	1968	1969	1970	1971
Rand and Orange Free State	2 573,7	2 644,4	2 863,0	3 114,7	3 277,1	3 624,4	3 878,4
Natal	564,5	613,3	660,0	712,0	794,0	867,0	1 060,0
Eastern Transvaal	290,5	368,4	424,7	485,2	575,5	615,3	680,4
Cape Western	245,0	260,6	276,6	298,6	326,8	389,8	442,8
Cape Northern	69,4	79,2	102,2	117,5	127,3	139,8	157,1
Border	51,5	54,6	58,9	64,9	67,7	70,2	80,3
Orange River	—	—	—	—	7,6	12,4	20,5
Cape Eastern	—	1,1	1,5	1,7	2,0	2,6	4,4

Although the units sent out in the Cape Western Undertaking in 1971 showed an increase of 18,7 per cent over the figure for 1970, the maximum demand increased by only 13,6 per cent. Part of the explanation lies in the partial bulk supply to the municipality of Cape Town which is taken as base load at a high annual load factor. The high increase of 22,3 per cent in the 1971 maximum demand of the Natal Undertaking over the 1970 figure is in part due to the commencement of production at the Alusaf aluminium works in Natal.

There is diversity between the demands of the individual undertakings, and the total demand on the Escom system is lower than the aggregate of the demands on the individual undertakings. This is one of the important advantages that can be exploited as a result of the interconnection of Escom's undertakings.

The hourly maximum demands on the Escom system as a whole are given in the table below for the past three years, together with the load magnitudes of the separate undertakings during this hour of highest load on the total Escom system:—

MAXIMUM DEMAND ON TOTAL ESCOM SYSTEM—MW

Time **Date**	**1969** **09h00** **25/7/69**	**1970** **12h00** **16/7/70**	**1971** **09h00** **17/6/71**
Undertaking load magnitudes at this time—MW (Sent out)			
Rand and Orange Free State	3 277,1	3 624,4	3 878,4
Eastern Transvaal	541,2	598,2	565,8
Natal	747,4	825,3	994,3
Cape Western	315,5	357,5	432,4
Border	59,0	69,0	63,0
Cape Northern	114,5	136,8	144,8
Orange River	—	10,3	18,3
Maximum Demand on Total Escom system	5 054,7	5 621,5	6 097,0

Water Supplies to Escom's Power Stations

The quantities and source of water used in Escom's power stations are shown in the table below. As in 1970, the quantity of water drawn from the Vaal river again decreased in 1971. Although the water drawn from this source in 1971 was 7 per cent less than in 1970, the units generated in power stations dependent on the Vaal river for a water supply increased by 3,7 per cent. The total consumption of water in the northern pooled power stations in 1971 exceeded the figure for 1970 by only 2,9 per cent, although the 1971 output of these power stations, in units of electricity, was 11,1 per cent higher than that in 1970. This economy in the use of water can be attributed mainly to the improved chemical treatment of cooling water which not only reduces the discharge of waste water but also largely eliminates the pollution of rivers and streams.

WATER USED IN ESCOM POWER STATIONS
(Megalitres)

Source	Potable Water		Crude River Water		Water from other Sources including Boreholes, Dams and Sewage		Sea Water Circulated (Estimated)	
	1970	1971	1970	1971	1970	1971	1970	1971
Cape Western								
Cape Town Municipality	289	243						
Worcester Municipality	1 158	635						
Sea Water (estimated)							330 619	238 187
	1 447	878					330 619	238 187
Border								
East London Municipality	105	88						
Sea Water (estimated)							110 900	121 600
	105	88					110 900	121 600
Natal								
Durban Municipality	3 862	4 345						
Sea Water (estimated)							254 110	252 969
Tugela River			2 460	2 791				
Ngagane River			9 560	10 369				
	3 862	4 345	12 020	13 160			254 110	252 969
Rand & O.F.S. and Eastern Transvaal								
Vaal River	877	769	52 121	48 470				
Olifants River			9	—				
Bronkhorstspruit			7 005	6 642				
Komati River			26 536	32 007				
Usutu Complex			22 262	23 940				
Other	59	51			5	7		
	936	820	107 933	111 059	5	7		
Total—All Undertakings	6 350	6 131	119 953	124 219	5	7	695 629	612 756

Coal Supplies

No difficulties were experienced during 1971 in the supply of coal to Escom's thermal power stations. The country-wide transmission system interconnecting these power stations has permitted an increase in the load factors of power stations situated at the pitheads of collieries, and a reduction in the quantities of coal railed to coastal power stations. Apart from the direct saving in railage costs this also leads to a better utilisation of the large new pithead power stations of high thermal efficiency. In 1970 the overall average consumption of coal in Escom's thermal power stations was 0,580 kilogram per kWh and the figure for 1971 has dropped to 0,576 kilogram per kWh. As a result of the increased output in the higher efficiency and lower cost pithead power stations, and the reduction in output from the coastal power stations, the average cost of coal burnt in Escom's power stations was marginally reduced from R2,26 per metric ton in 1970 to R2,25 per metric ton in 1971.

Although annual load factors at the large pithead power stations in the Transvaal have been increased, considerable variations in output still occur due to seasonal variations in load, outage of plant for maintenance and repair, and other reasons. These variations in coal consumption lead to higher coal costs since the collieries must be equipped to meet the highest demand foreseen, and Escom is now giving greater attention to the stockpiling of coal to even out the demands made on the collieries. It is planned to use these stockpiles not only as reserves for use in periods of short supply, but also as a means to make the best use of the output capacity of the associated collieries.

The collieries supplying Escom's larger new stations are among the leaders in the coal industry in pro-

ductivity and size. Productivity improvements have largely followed American practice by employing bigger, faster machines underground and by opencast methods for recovering shallow coal. Usutu colliery is now up to 5 million tons per year and ranks amongst the giants in any country. Technically, ground control problems have been solved and pillar recovery is now established practice on two of the collieries supplying Escom. It has also been decided to proceed with ash filling underground at Springfield colliery primarily with a view to greater recovery of *in situ* coal and indirectly to combat surface despoilment. The 80 metre boom and 65 cubic metre Marion dragline is in operation at Optimum colliery.

At Cornelia colliery which has been supplying coal to power stations since 1914 a new shaft is being sunk to lessen travelling time as the workings are now 6 kilometres from existing shafts.

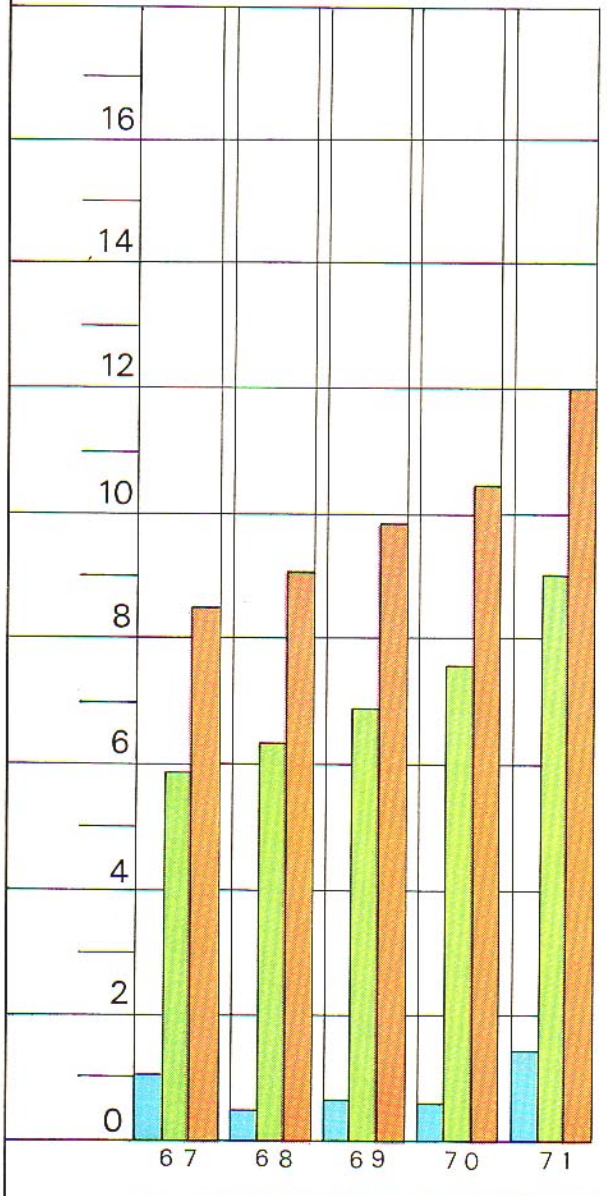
Personnel: Training and Prevention of Accidents

During 1971 Escom considerably extended its facilities for the training of artisans and plant operators, and the field of training at the training centre at Klip power station has been broadened to encompass subjects ranging from the economics of power station operation to cable jointing. The training school for apprentices at Rosherville is being modernised, and permanent buildings are being erected to house the school and boarding facilities.

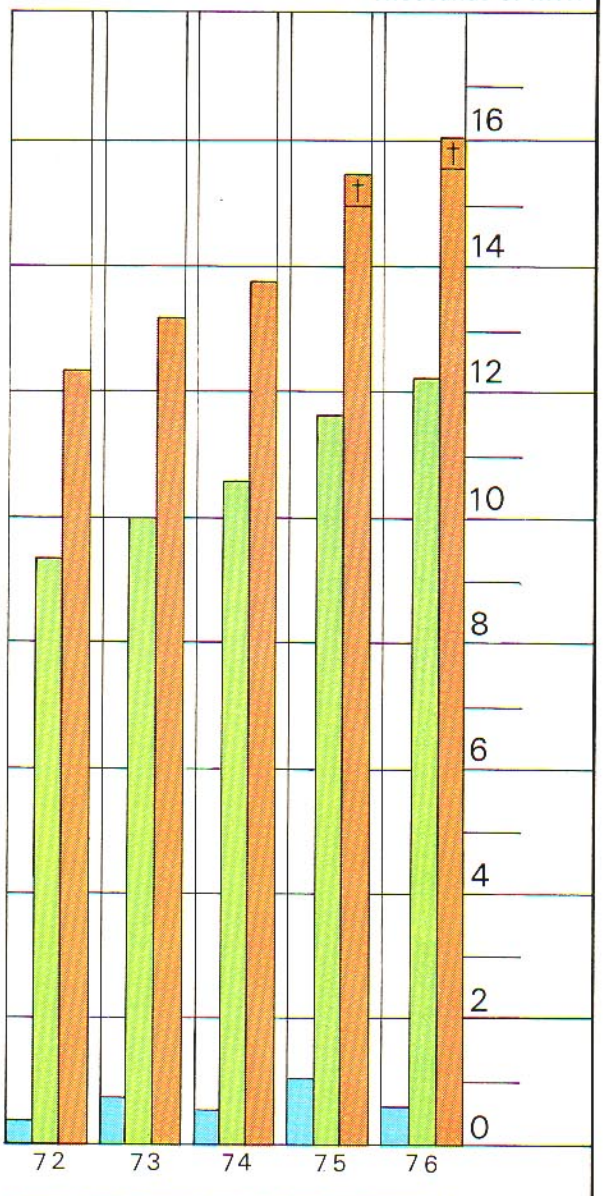
The progress made in Escom's programme for the prevention of accidents is seen in the promising results for the past three years. Escom's rate of lost time injuries per million manhours worked has decreased from 15,8 in 1968, to 11,9 in 1969, 10,4 in 1970, and 8,5 in 1971. The number of lost time injuries was reduced from 613 in 1968 to 505 in 1971, in spite of an increase in manhours of exposure from 38,8 million in 1968 to 58,9 million in 1971. In 1971 awards were made to five power stations, at each of which one million injury-free manhours had been exceeded.

Capacity of the Republic's Power Stations

Expansion over the last five years
Thousands of MW.



Planned expansion over the next five years
Thousands of MW.



67	1,039	5,895	8,529
68	500	6,345	*9,100
69	640	6,985	*9,900
70	598	7,583	*10,500
71	1,430	9,013	*12,000

72	344	9,357	12,400
73	718	10,075	13,200
74	550	10,625	13,800
75	1,050	11,675	†15,500
76	600	12,275	†16,100

Installed by Escom during year

Total MW Installed by Escom

Total MW Installed in Republic

* Estimates based on actual figures up to 1967 given by the Department of Statistics

† Includes 680 MW Imported from Cabora Bassa

DEVELOPMENT OF ESCOM'S POWER STATIONS

Grootvlei Power Station

Grootvlei power station, in the Southern Transvaal between Balfour and Villiers, is laid out for six 200 MW coal-fired units having steam conditions of 103 bar and 538°C.

The first two units went into service in 1969, the third in 1970, and the fourth in May of 1971. This fourth unit incorporates Escom's first dry-cooling tower which is believed to be the largest tower of this type in the western world at present. As there is no direct contact between the atmosphere and the cooling water inside the tower, evaporation losses are eliminated and the water consumption is about a quarter of that of the other units which employ the conventional wet-cooling towers. Experience gained on this prototype tower will materially assist in the planning and design of future power stations.

The fifth unit will go into service in January 1973. The sixth unit has not yet been ordered.

Hendrina Power Station

When complete, this coal-fired power station which is being constructed near Hendrina in the Eastern Transvaal will consist of ten 200 MW units operating under steam conditions of 103 bar and 538°C.

The first two units went into service in 1970 and a further two in May and September 1971. The next four units are planned to be commissioned at yearly intervals thereafter and the last two in 1977 and 1978.

Arnot Power Station

Arnot power station, which is situated on a coalfield near Middelburg in the Eastern Transvaal, is the first of Escom's power stations to operate on the reheat cycle, the steam conditions being 159 bar and 510°C with reheating to 510°C. When complete, the station will consist of six 350 MW units and will thus have a total installed capacity of 2 100 MW.

The first unit reached full load in June and the second in October 1971. The remaining four units are planned to be commissioned at yearly intervals thereafter.

A further feature of this power station is the use of online digital computers to do data logging and performance calculations, and also to monitor start-up procedures.

Kriel Power Station

Design and initial construction work has continued on this, the latest of Escom's coal-fired power stations, located midway between Bethal and Ogies in the Eastern Transvaal. The ultimate capacity of 3 000 MW will be made up of six 500 MW reheat units having steam conditions of 160 bar and 510°C with reheating to 510°C.

Hendrik Verwoerd Power Station

The construction and erection of the Hendrik Verwoerd hydro-electric power station on the Orange River progressed on schedule and the first two 80 MW machines were placed in commercial service at the end of September and end of November 1971, respectively. This is the first large hydro-electric power station built by Escom and no major difficulties were encountered.

Each machine is designed to generate 80 MW at a rated speed of 136,4 rpm and a flow of 200 cubic metres of water per second. The release of water for power generation is determined in collaboration with the Department of Water Affairs.

Planning is in progress to install two more machines of 80 MW capacity each to increase the station capacity to 320 MW.

Vanderkloof Power Station

The design of the Vanderkloof hydro-electric power station to be built at the P.K. le Roux dam on the Orange River, downstream of the Hendrik Verwoerd dam is in an advanced stage. Two machines of 110 MW design capacity each will be installed in an underground power station.

Nuclear Power Station

In its investigations for the first nuclear power station in the Republic, Koeberg "A" at Duinefontein, some 30 km north of Cape Town, Escom decided to consider 3 reactor types which are economically competitive and of adequately proved capability: these are the Boiling Water Reactor (BWR), Pressurised Water Reactor (PWR) and Steam Generating Heavy Water Reactor (SGHWR). The station will have an output of about 500 MW and the project will be handled on mainly a turnkey basis.

The preparation of the enquiry specifications is progressing. Gravity and seismic surveys have been carried out at the site of Koeberg "A" and boreholes sunk, to provide civil engineering and seismological data.

RESEARCH AND DEVELOPMENT

Research and the development of new techniques have been continued in many fields affecting power generation and distribution. Work continued on air pollution and the results of a survey of pollution around Komati power station, undertaken in collaboration with the Council for Scientific and Industrial Research, are being analysed. Because of problems experienced by Escom and other bodies in corrosion of buried pipelines, the electrical resistivity of soils, and the current drainage and voltage levels of pipelines have been measured in various parts of the Republic. Development work on cathodic protection of pipelines is also being undertaken. Research into the prevention of water pollution by power stations, which led to the development of a station water circuit virtually eliminating effluents from new stations, is continuing and it is hoped to decrease the amount of sulphuric acid used for water treatment by recycling ash-water to the cooling water system. Work is proceeding on various aspects of noise and surveys have been made of noise levels inside and around power stations. Research staff have served on various S.A.B.S. committees dealing with noise and its prevention.

Collaborative work with the Atomic Energy Board has been carried out to develop an accurate method for flow measurements in cooling water systems using radio-isotope trace techniques and on a method of determining the abrasive properties of coal by using irradiated grinding elements in a small coal pulveriser.

Basic research work into topics such as pressure surges in pipes, and fracture mechanics, was carried out but the bulk of work was in applied research and in material testing and the determination of reasons for failure of plant or components.

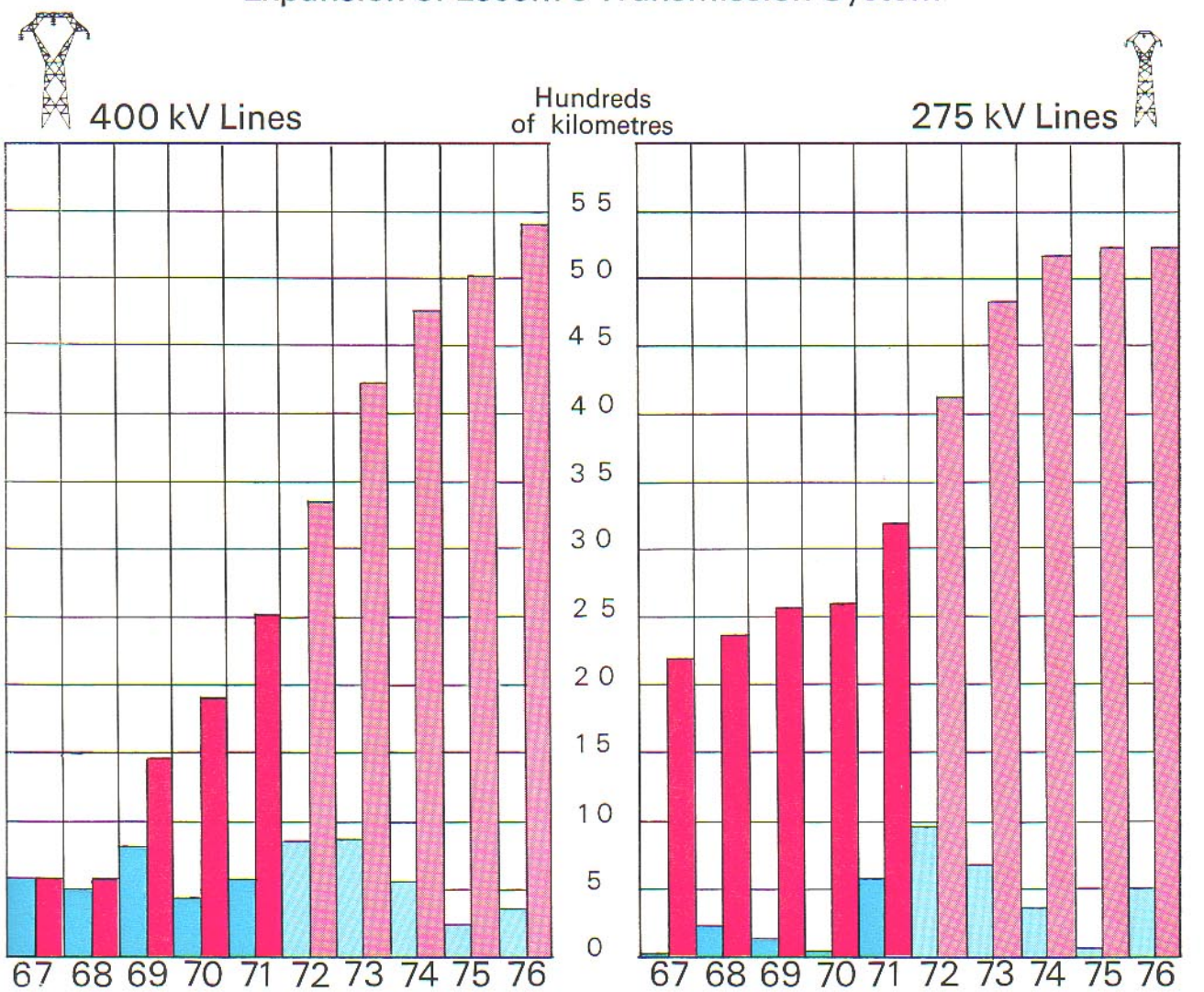
Research is in progress on the development of instruments for special measurements to monitor deterioration and breakdown of high voltage electrical equipment.

Escom personnel have served on various Committees of the South African Bureau of Standards and of the Council for Scientific and Industrial Research, dealing with topics such as insulators, wooden transmission poles, earth leakage circuit breakers, air pollution and noise prevention. Escom is also represented on such international bodies as C.I.G.R.E. and the World Energy Conference. Liaison has been maintained with various national bodies and with utilities in other countries. Various organisations such as the University of Cape Town, Atomic Energy Board, Geological Survey, Bernard Price Institute, Department of Water Affairs, Division of Sea Fisheries, and C.S.I.R. have assisted with site investigations for the proposed nuclear power station at Koeberg. Escom was represented by 5 members at the International Conference for the Peaceful Uses of Atomic Energy held in Geneva in September 1971.

During 1971 Escom submitted fifteen reports to the Administrators of the different provinces on the proposals of various local authorities to enlarge existing electricity undertakings. Up to 31 December 1971 a total of 1 991 such reports on municipal electricity supply schemes had been submitted by Escom. Of these 310 were in respect of new schemes, 1 053 were in respect of extension schemes and 628 were reports on tenders.

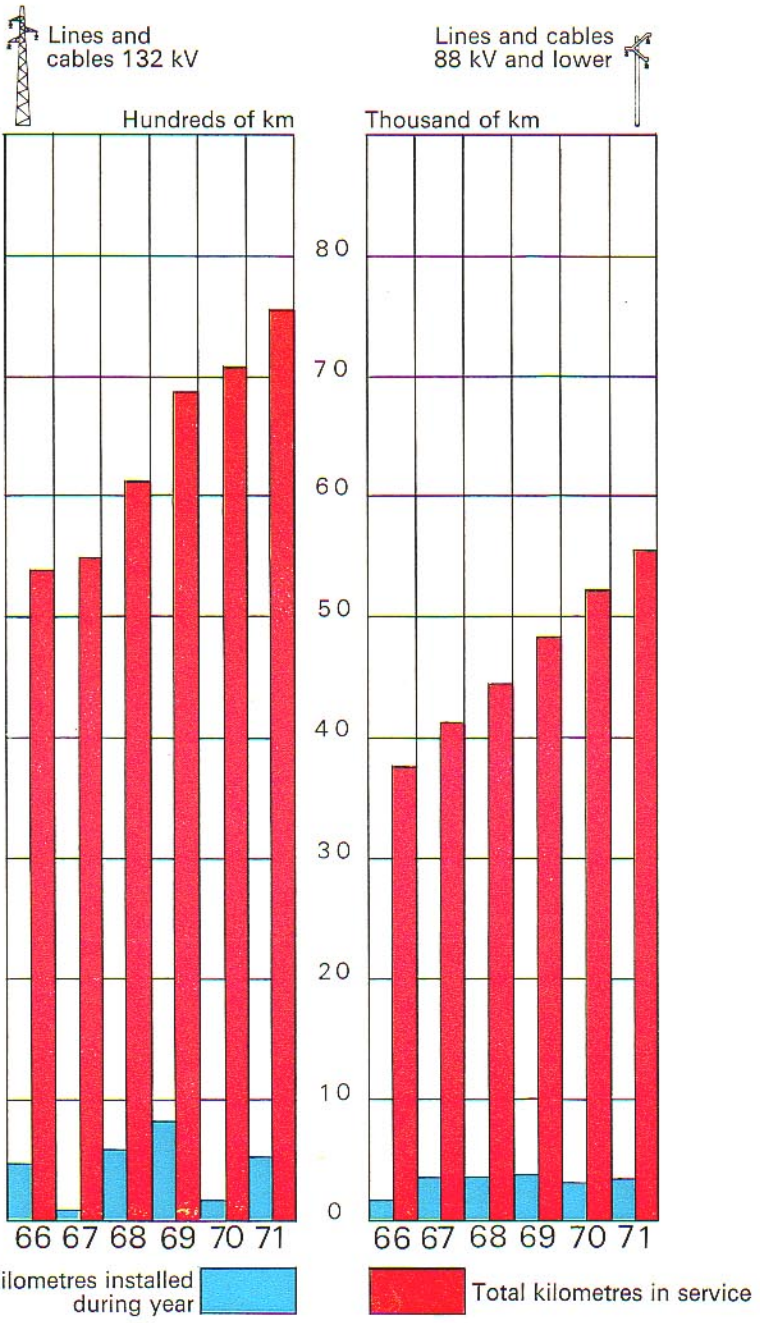
A number of papers by Escom personnel have been published in technical and scientific journals.

Expansion of Escom's Transmission System



400 kV Lines		Year	275 kV Lines	
Installed during year	Total		Installed during year	Total
596,6	596,6	67	0,3	2 194,0
	596,6	68	218,3	2 412,3
879,9	1 476,5	69	139,4	2 551,7
439,3	1 915,8	70	46,8	2 598,5
587,6	2 503,4	71	577,0	3 175,5
862,0	3 365,4	72	960,0	4 135,5
870,0	4 235,4	73	689,0	4 824,5
552,0	4 787,4	74	352,0	5 176,5
248,0	5 035,4	75	70,0	5 246,5
360,0	5 395,4	76	–	5 246,5

Expansion of Escom's Distribution System



Lines and cables 132 kV		Year	Lines and cables 88 kV and lower	
Installed during year	Total		Installed during year	Total
466,1	5 387,4	66	2 704,2	37 592,4
98,4	5 485,8	67	3 665,5	41 257,9
594,5	6 080,3	68	3 670,2	44 928,1
817,7	6 898,0	69	3 993,5	48 921,6
164,9	7 062,9	70	3 396,5	52 318,1
537,9	7 600,8	71	3 532,0	55 850,1

PERSONNEL

The staff employed by Escom as at 31 December numbered 25 050 employees of whom 9 080 were White and 15 970 Non-White. During the year under review Escom achieved greater success in the recruitment of staff to fill existing vacant posts and to cater for growth and for new specialist services. A number of immigrants were recruited and it is hoped that their technical abilities will contribute to the solution of the new problems which lie ahead. Escom wishes to acknowledge the excellent co-operation obtained from the Department of Immigration and its various overseas offices.

During 1971, 21 bursaries were granted for study in Electrical, Mechanical, Civil and Chemical Engineering, Land Surveying, Computor Science and Commerce. This brought the total number of bursars, studying in these fields to 87. The cost to Escom during 1971 was R72 000.

Escom also grants H.J. van der Bijl Scholarships to children of deserving Escom employees for study in fields not necessarily related to Escom's activities. During 1971, fourteen H.J. van der Bijl Scholarships were granted bringing the total number of these scholarships to fifty. The cost to Escom during 1971 was R41 000.

The training of postgraduate engineers is being reorganised to meet the requirements of the South African Council for Professional Engineers. Plans have been formulated for the provision of a more efficient training programme specifically designed to equip young engineers adequately for their final sphere of activity.

The new training centre for apprentices at Rosherville under the control of the Manager (Operations) is well under way, and the Trade Test pass figure has already improved from 16 per cent in 1969 to 55 per cent in 1970 and 61 per cent in 1971. Further improvement is confidently expected.

During 1971, far reaching amendments were made to Escom's Pension and Provident Fund rules. The amendments, which were well received by the Escom personnel concerned, removed anomalies which arose from the existence of different classes of members in Escom's Fund and also from takeovers by Escom of other organisations.

A comprehensive agreement was negotiated with the Trade Unions during 1972 whereby all hourly-paid employees became monthly-paid employees with improved service conditions.

After many years of negotiation, the fourteen autonomous medical aid and medical benefit societies, each with its own set of rules and tariffs, were amalgamated into the Escom Medical Aid Society. This society came into operation on 1 May 1971 and now provides uniform benefits throughout the Republic. The Society has a turnover of approximately R1,4 million per annum.

The balance at 31 December 1971 on loans granted to employees to enable them to acquire homes under Escom's Home Ownership Scheme, in terms of the Electricity Act, was R8 761 116.

The wages of Escom's Non-White employees were increased by 12,5 per cent during 1971. Standard sick leave conditions were introduced for these employees during the year.

FINANCIAL

Capital Expenditure

During 1971, expenditure on construction works amounted to R175 million (1970: R164 million), made up of:

Power Station Development	R98 million
Transmission and Distribution Systems and expenditure at undertakings for extensions to supplies	R77 million

The total value of fixed assets earning revenue was increased by R225 million representing construction works completed and placed in commission, and at the year end stood at R1 390 million. The additional items include the part commissioning of Arnot and Hendrina power stations, a further set at Grootvlei power station and further extensions to the 400 kV transmission system to the Cape.

Expenditure on contract works under construction and still to be completed at 31 December 1971 amounted to R215 million, the main concentrations of work in progress being at the Grootvlei, Hendrina, Arnot and Kriel power stations.

The expansion in capital works has brought a proportionate increase in the amount of working capital required, so that the value of stores and materials and movable plant and equipment at the end of 1971 increased by R7 million to R61 million.

Loans and the Capital Market

Long-term loans totalling R185 million were raised during the year as follows:—

Local market—public issues	R95 million
Local market—private placement	R20 million
Foreign market—public issues	R51 million
Foreign market—private placements	R19 million

All the local stocks were issued with yields to redemption of 9,25 per cent reflecting the tight position on the South African capital market. However, during the second half of the year, Escom was able to dispose of considerable amounts from the portfolios of its internal Funds, once again showing that Escom stock continues to be highly marketable paper given reasonable conditions. This demand was, nevertheless, temporarily dampened by the new regulations prescribed by the Minister of Finance in respect of the investments of insurance companies, pension funds and mortgage bond schemes.

Despite the uncertain prevailing foreign currency climate, overseas capital markets improved again during 1971. Besides the DM.100 million 8 per cent bond issue early in the year, Escom raised a European Units of Account 20 million loan with a coupon of $8\frac{1}{4}$ per cent and a Eurodollar 20 million loan with a coupon of $8\frac{1}{2}$ per cent.

In respect of short-term money, Escom's liquidity position improved to such an extent that instead of renewing certain revolving credit drawings, Escom repaid large sums derived from this source. However, foreign short-term interest rates have continued to decline to an extent that this type of financing is at present particularly attractive. After taking repayments into consideration short-term loans and advances increased by R31 million and advantage was also taken of further import financing facilities amounting to R7 million.

Relatively speaking, the international currency realignments did not place additional heavy burdens on Escom, as foreign currency risks are covered, wherever practicable, through forward cover contracts. The most important commitments affected were those related to Escom's three European Units of Account loans which were increased as a result of South Africa's devaluation. As may be seen from details contained in Schedule No. 3 of the accounts the commitments affected in this way are only a small proportion of Escom's total funding commitments and the increase will be spread over a number of years during which further currency realignments can take place.

Provision for Repayment of Loans

Contributions were made to the Redemption Fund for the repayment of local loans, all of which are payable in full at the end of the period of each loan, and these contributions together with interest received on the investments of the Fund, resulted in the amount in the Fund being increased by R37 million to a total of R254 million at the year end.

Overseas loans are repaid by instalments during the life of the loans. Provisions are made by constant recovery from working costs and at the year end an amount of R5 million was standing available out of amounts set aside.

Reserve Fund

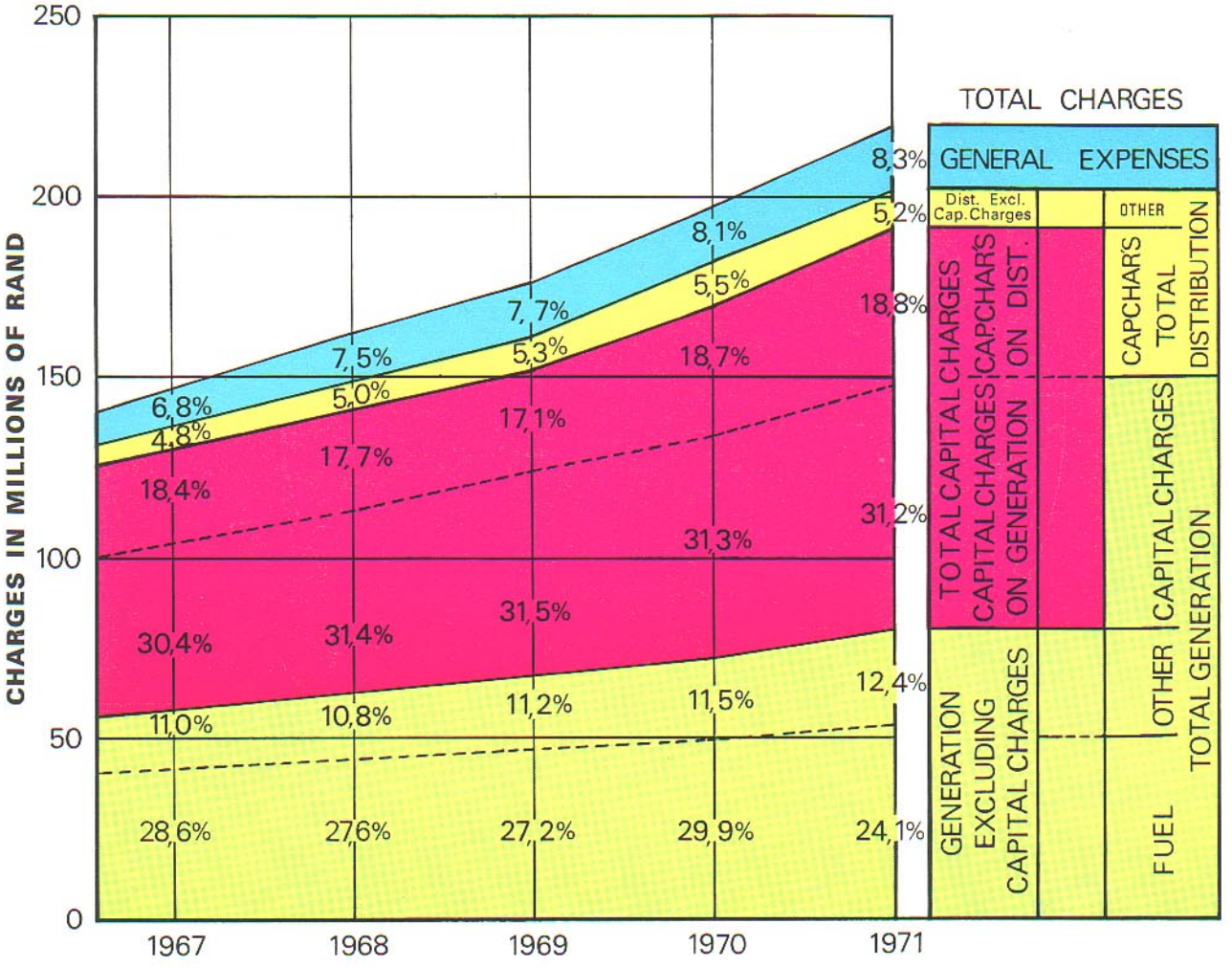
The 1971 contribution to the Reserve Fund was lower than that for the previous year, to comply with the revised limitation introduced by the Electricity Amendment Act that the sum in the Reserve Fund, apart from interest and profits earned shall not exceed $7\frac{1}{2}$ per cent of the aggregate amount of unredeemed loans up to the end of the current financial year. The amount in the Reserve Fund at the end of 1971 stood at R137 million. The total contribution less expenditure on betterment represents 6,96 per cent of the unredeemed loan capital.

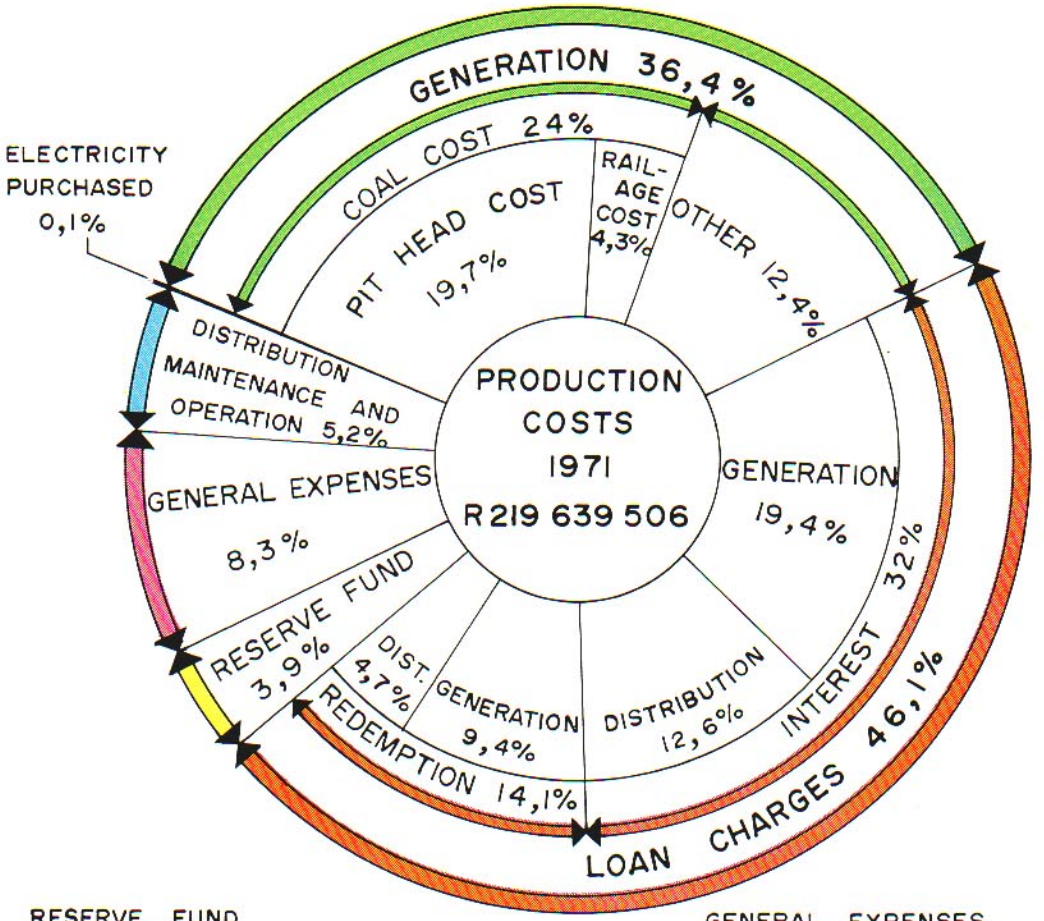
Revenue Account

The total revenue from sales of electricity of R220 million represents an increase of 13,2 per cent above the total revenue of R194 million for 1970. The average price at which electricity was sold was 0,577 2 cent per unit, as compared with 0,554 5 cent for unit in 1970.

The total charges to Revenue Account are reflected in the following diagrams:—

TOTAL CHARGES TO REVENUE ACCOUNT





RESERVE FUND

GENERATION 2,4%
DISTRIBUTION 1,5%

GENERAL EXPENSES

LOCAL ADMINISTRATION 2,4%
GENERAL EXPENSES 3,5%
HEAD OFFICE ADMINISTRATION 1,2%
HEAD OFFICE ENGINEERING 0,9%
RESEARCH EXPENSES 0,3%

STATISTICAL SUMMARY

Revenue, costs, output and sales, and other figures relating to the operation of the Commission's Undertakings during the years 1967 to 1971 are as follows:—

	1967	1968	1969	1970	1971	Increase 1971 over 1970
TOTAL REVENUE	146 783 000	161 475 000	176 106 000	193 475 000	219 585 000	13,5%
TOTAL COSTS	146 928 000	161 993 000	175 374 000	195 866 000	219 640 000	12,1%
Difference between Revenue and Costs	−145 000	−518 000	732 000	−2 391 000	−55 000	
Sales of Electricity	146 135 000	160 757 000	175 338 000	193 475 000	219 585 000	13,5%
Net Costs (less Sundry Revenue)	146 280 000	161 275 000	174 606 000	195 866 000	219 640 000	12,1%
Average Price per Unit Sold	0,5467c	0,5550c	0,5565c	0,5545c	0,5772c	4,094%
Average Cost per Unit Sold	0,5512c	0,5608c	0,5566c	0,5614c	0,5774c	2,850%
Average Net Cost per Unit Sold	0,5488c	0,5583c	0,5542c	0,5545c	0,5772c	4,094%
Cost of Coal Consumed (including railage)	42 053 000	44 604 000	47 453 000	48 807 000	52 705 000	8,0%
Railage on Coal Consumed	10 462 000	10 571 000	10 647 000	9 577 000	9 388 000	−1,973%
Coal Consumed (Metric tons)	18 307 721	19 133 931	19 982 911	21 630 578	23 416 164	8,255%
Units Generated	30 421 691 463	33 061 253 244	35 966 956 724	39 796 184 973	43 472 521 686	9,238%
Units Sent Out	28 370 890 385	30 843 479 863	33 598 182 607	37 320 784 837	40 739 391 193	9,160%
Units Purchased	69 604 511	7 911 573	7 969 311	7 260 727	8 326 899	14,684%
Units Sold	26 657 111 958	28 885 008 545	31 505 591 370	34 890 575 085	38 040 020 852	9,027%

AUDITORS' REPORT AND ACCOUNTS

STATISTICAL AND OTHER STATEMENTS
NATIONAL STATISTICS

THE REPORT OF THE AUDITORS

The Chairman and Members,
Electricity Supply Commission,
Johannesburg.

Johannesburg,
8th May, 1972

Gentlemen,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December, 1971.

Redemption Fund

In the course of our audit we have examined the position of the Redemption Fund established by the Commission in terms of the Schedule to the Electricity Act, 1958, to provide for the redemption of the loans issued by the Commission.

The State President has, in terms of Section 10 (2) of the Act, directed that the provisions relating to the establishment of the Redemption Fund should not apply to each of the loans listed under the heading "Foreign Bond Issues" and "Long Term Direct Foreign Loans" on Schedule No. 3.

The Redemption Fund provisions have not been applied to short term loans included under the heading "Other Borrowings", as these loans were raised under the provisions of paragraph 1 (3) of the Schedule to the Electricity Act, which relates to borrowings in anticipation of the raising of loans.

The Commission has fixed redemption periods not exceeding 25 years from the dates of issue of the respective loans.

In the records of the Commission, the Fund is divided into sections corresponding to its Undertakings but investments are held in a common pool which is invested in the investments prescribed in the Schedule to the Act. In valuing the Fund at 31st December, 1971, we have taken into account the market value of the investments at that date. The value of the Fund at 31st December, 1971, was in excess of the sum required, in terms of the Schedule to the Act, for the redemption of the respective loans.

Foreign Loans

The loan periods of the Foreign Bond Issues and Long Term Direct Foreign Loans are not less than 10 years or more than 15 years. Provision is being made for repayment by setting aside amounts over periods of 15 years except in the cases of the U.S. $15 000 000 and the Units of Account 15 000 000 Loans, where the period is 19 years. The differences, if any, between the amounts set aside and instalments payable are being met from temporary borrowings.

A further exception is the U.S. $20 000 000 Loan listed under "Long Term Direct Foreign Loans" which is repayable by half-yearly instalments over a period of nine years from 1st June, 1968. Contributions in respect of this loan are being charged to Revenue Accounts of Undertakings on a 25-year sinking fund basis, the shortfall being met from local loans raised partly for this purpose.

Reserve Fund and Capital Development Fund

During the year the Electricity Act was amended to provide for the setting up of a capital development fund and reducing the amount permitted to be accumulated in the reserve fund. In fact no amount was set aside to capital development fund during the year and the amount set aside to the reserve was reduced, in part because of the amendment to the Act.

Verification of Landed Properties, Rights and Investments

We have verified the existence of the titles of the landed properties and of the rights and investments as shown in the records of the Commission.

Head Office Administration, Engineering and General Expenses

The net expenditure under this heading, after crediting fees for reporting on power schemes of local authorities and amounts chargeable to Revenue Accounts under other headings, has been allocated to:—

(*a*) Capital and Reserve Fund Expenditure;

(*b*) Revenue Accounts of Undertakings.

The amount allocated to Revenue Accounts of Undertakings has been apportioned by the Commission. We have no reason to disagree with the apportionment so made.

Revenue Accounts

The following is a summary of the operations of the Commission's Undertakings for 1970 and 1971:—

	Surplus + Deficit − 1970	1971	*Accumulated Surplus + Deficit −* at 31/12/1971	*Amounts set aside to Reserve Fund* 1970	1971
Cape Western	+ 156 000	+ 99 000	− 313 000	1 008 000	1 086 000
Cape Northern	− 243 000	− 98 000	+ 563 000	400 000	175 000
Cape Eastern	− 41 000	− 44 000	− 141 000	4 000	—
Border	− 240 000	− 60 000	− 404 000	190 000	110 000
Orange River	− 117 000	120 000	− 291 000	20 000	10 000
Natal	+ 764 000	+ 748 000	+2 512 000	2 200 000	1 300 000
Eastern Transvaal	+ 301 000	−644 000	+2 996 000	2 213 000	1 848 000
Rand and O.F.S.	−2 971 000	+ 64 000	−4 017 000	9 167 000	4 039 000
Total	R2 391 000	−R55 000	+R905 000	R15 202 000	R8 568 000

Operations during the year resulted in surpluses at Cape Western, Natal and Rand and O.F.S. Undertakings and deficits at the other Undertakings.

We have been advised by officials of the Commission of their proposals for dealing with the accumulated surpluses and deficits stated above and have no comments to offer on the proposals.

General

As a result of our audit of the books and accounts of the Commission for the year 1971, and subject to the foregoing remarks, in terms of Section 18 (8) of the Electricity Act, 1958, we report as follows:—

(*a*) We have found the Accounts of the Commission to be in order.

(*b*) The Accounts issued present a true and correct view of the financial position of the Commission and its transactions and of the results of trading.

(*c*) Due provision, in terms of the Act, has been made for the redemption and repayment of moneys borrowed by or advanced to the Commission.

(*d*) As formerly, the Land and Rights, Buildings and Civil Works, and Machinery and Plant are set out in the Balance Sheet on a cost basis.

(*e*) Sums fixed by the Commission have been set aside to the Reserve Fund under Section 13 as prescribed.

(*f*) All our requirements as Auditors have been complied with and carried out.

Yours faithfully,

Halsey, Button & Perry
Alex. Aiken & Carter

Chartered Accountants (S.A.)
Auditors.

Electricity Supply Commission

Established under the Electricity Act, 1922

BALANCE SHEET AT 31st DECEMBER, 1971

1970				
R1 272 122 000	**Borrowings**		R1 471 398 000	
1 130 537 000	Loans outstanding (Schedule No. 3)	R1 300 750 000		
141 585 000	Other borrowings	170 648 000		
9 515 000	Amount due to bankers less cash on current accounts and on hand	—		
16 494 000	Import financing facilities taken up	23 237 000		
115 576 000	Other short term advances	147 411 000		
170 728 000	**Capital Reserve**		173 057 000	
199 499 000	Loans repaid	209 355 000		
8 060 000	Machinery and plant financed out of reserve fund	10 360 000		
207 559 000		219 715 000		
36 831 000	*Less:* Cost of land and rights, buildings and civil works and machinery and plant sold and scrapped	39 107 000		
170 728 000		180 608 000		
—	*Less:* Exchange adjustment of foreign liabilities—Note 2.	7 551 000		
216 409 000	**Redemption Fund** (Account No. 1)		253 854 000	
4 937 000	**Amount Set Aside for Repayment of Overseas Loans**		5 525 000	
123 518 000	**Reserve Fund** (Account No. 2)		137 642 000	
960 000	**Balance on Revenue Accounts** (Accounts Nos. 3 to 10)		905 000	
64 855 000	**Creditors and Provisions**		68 203 000	
45 109 000	Creditors	43 257 000		
16 377 000	Interest accrued on loans	21 490 000		
3 369 000	Sundry provisions	3 456 000		
R1 853 529 000			R2 110 584 000	

1970				
R1 429 862 000	**Capital Expenditure at Cost** (Schedule No. 1)		R1 604 755 000	
13 423 000	Land and rights	R15 401 000		
247 782 000	Buildings and civil works	321 064 000		
904 155 000	Machinery and plant	1 053 630 000		
1 165 360 000	Total in commission	1 390 095 000		
15 500 000	Completed works—proportion not in commission	—		
249 002 000	Works under construction	214 660 000		
53 987 000	**Stores and Movable Plant**		60 861 000	
46 584 000	Stores and materials at cost	51 325 000		
7 403 000	Movable plant and equipment at cost less depreciation	9 536 000		
214 805 000	**Investments of Redemption Fund** (Schedule No. 2)		248 239 000	
	Nominal Value / Market Value			
	1971 R265 602 000 / R212 452 000			
	1970 R232 474 000 / R184 932 000			
122 793 000	**Investments of Reserve Fund** (Schedule No. 4)		134 487 000	
	Nominal Value / Market Value			
	1971 R141 212 000 / R113 598 000			
	1970 R130 175 000 / R105 935 000			
9 170 000	**Sundry Investments**		9 769 000	
1 877 000	Electricity Supply Commission Foreign Loan Bonds including interest accrued	1 006 000		
	Nominal Value / Market Value			
	1971 R1 047 000 / R974 000			
	1970 R1 960 000 / R1 956 000			
1 000	Entire share capital of the Rand Mines Power Supply Company Limited	1 000		
7 292 000	Housing loans to employees secured by first mortgage	8 762 000		
22 912 000	**Debtors and Payments in Advance**		24 969 000	
18 161 000	Debtors	20 628 000		
4 751 000	Payments in advance	4 341 000		
—	**Cash on Deposit, on Current Account, on Hand and at Call less Amounts Due to Bankers**		27 504 000	
R1 853 529 000			R2 110 584 000	

NOTES TO THE BALANCE SHEET AT 31ST DECEMBER, 1971

NOTE 1

(a) Commitments in respect of that portion of contracts and orders placed for fixed assets which has not yet been completed or executed amount to approximately R328 000 000.

(b) The Commission is committed to:—

(1) The payment of approximately R723 800 in respect of loans granted under the Commission's Home Ownership Scheme and not yet paid out.

(2) The payment to the Electricity Supply Commission Pension and Provident Fund, in addition to the normal contributions, of

(i) Two instalments of R50 000 each on the 1st January and 1st July, 1972, being special contributions and

(ii) An annual payment of R191 000 for the period ending 31st December, 1985, being additional contributions.

(3) The purchase from certain stockholders of Electricity Supply Commission Local Registered Stock as follows:—

6¾ per cent 1991 at R97 per cent.

(i) R4 500 000 not later than September 1976, and

(ii) R2 000 000 at the option of the stockholder.

9¼ per cent 1996 at par.

R7 150 000 at the option of the stockholder to be exercised before 31st December, 1975.

NOTE 2

The liabilities in respect of foreign borrowings were increased by R7 551 176 as a result of devaluation and changes in parities of foreign currencies during December, 1971. This amount is made up as follows:—

(a) R6 926 230 in respect of loans repayable over periods up to 1986. The currencies most favourable to the bondholders at 31st December, 1971, were used in those instances where the instalments which fall due in respect of loans raised in European Units of Account are payable in the currency of the bondholders' choice.

(b) R624 946 in respect of sundry import financing facilities taken up.

NOTE 3

The Commission has indemnified the Electricity Supply Commission Pension and Provident Fund against any loss resulting from the negligence, dishonesty or fraud of the Fund's officers or of the Trustees.

Electricity Supply Commission

SCHEDULE No. 1

Capital Expenditure at 31st December, 1971

R'000

	Total	Cape Western	Cape Northern	Cape Eastern	Border	Orange River	Natal	Eastern Transvaal	Rand and O.F.S. Genera-tion	Rand and O.F.S. Distribution	Head Office
Totals at 31st December, 1970	R1 429 862	130 994	23 873	1 147	21 915	26 167	187 991	149 851	617 347	261 775	8 802
Expenditure during 1971	177 169	10 560	2 443	92	2 549	8 665	14 376	12 818	97 965	27 241	460
	1 607 031	141 554	26 316	1 239	24 464	34 832	202 367	162 669	715 312	289 016	9 262
Less Assets decommissioned	2 276	28	2	—	418	—	14	783	206	825	—
Totals at 31st December, 1971	R1 604 755	141 526	26 314	1 239	24 046	34 832	202 353	161 886	715 106	288 191	9 262
Consisting of:—											
Land and Rights	15 401	1 776	432	11	172	168	2 044	1 854	1 606	6 115	1 223
Buildings and Civil Works	321 064	19 520	1 350	61	3 084	6 745	37 701	31 106	196 274	20 386	4 837
Machinery and Plant	1 053 630	109 131	22 195	1 124	18 229	19 535	153 312	113 418	382 492	234 194	—
In Commission	1 390 095	130 427	23 977	1 196	21 485	26 448	193 057	146 378	580 372	260 695	6 060
Works under Construction	214 660	11 099	2 337	43	2 561	8 384	9 296	15 508	134 734	27 496	3 202

Electricity Supply Commission

Schedule of Investments of the Redemption Fund at 31st December, 1971.

Description		Loan No.	Nominal Value R	Book Value R
ESCOM LOCAL REGISTERED STOCKS				
3 per cent	1967/73	13	832 000	796 000
3 per cent	1968/74	14	10 000	8 000
3⅛ per cent	1968/73	15	7 186 000	6 786 000
3½ per cent	1969/74	16	349 000	313 000
3¾ per cent	1969/74	17	118 000	106 000
5 per cent	1971/74	31	3 719 000	3 483 000
5 per cent	1971/75	32	734 000	649 000
4⅝ per cent	1975/80	33	8 934 000	7 757 000
4⅞ per cent	1975/80	34	8 077 000	7 115 000
5⅛ per cent	1976/81	35	3 217 000	2 851 000
5⅛ per cent	1977/82	36	968 000	849 000
5⅛ per cent	1976/82	37	4 133 000	3 617 000
5⅛ per cent	1977/83	38	9 976 000	8 673 000
5⅜ per cent	1978/83	39	3 977 000	3 517 000
5⅝ per cent	1979/84	40	5 118 000	4 609 000
5⅜ per cent	1979/84	42	7 072 000	6 210 000
5⅜ per cent	1979/85	43	6 008 000	5 236 000
5⅜ per cent	1980/85	44	7 220 000	6 263 000
5½ per cent	1980/86	45	4 812 000	4 211 000
5⅞ per cent	1981/86	46	7 442 000	6 745 000
6¼ per cent	1981/86	47	5 891 000	5 546 000
6⅛ per cent	1982/87	49	6 282 000	5 813 000
5¼ per cent	1982/87	50	6 545 000	5 498 000
5 per cent	1983/88	51	10 329 000	8 355 000
5 per cent	1980/83	52	6 390 000	5 480 000
5 per cent	1982/84	53	3 297 000	2 779 000
5½ per cent	1982/84	54	3 259 000	2 882 000
5⅞ per cent	1983/85	55	10 241 000	9 451 000
6½ per cent	1983/85	56	6 564 000	6 300 000
6½ per cent	1989/91	58	9 363 000	8 858 000
6¾ per cent	1991	60	4 980 000	4 844 000
6⅞ per cent	1992	61	5 878 000	5 790 000
6½ per cent	1992	64	3 147 000	2 973 000
6⅞ per cent	1992	65	3 889 000	3 763 000
6½ per cent	1993	70	2 878 000	2 643 000
6⅝ per cent	1993	71	5 585 000	5 378 000
6½ per cent	1993	75	951 000	884 000
6⅞ per cent	1993	76	20 000	17 000
6½ per cent	1994	78	3 905 000	3 662 000
6⅞ per cent	1994	79	11 136 000	10 909 000
6 per cent	1974	80	12 154 000	11 733 000
6½ per cent	1994	81	4 065 000	3 724 000
6⅞ per cent	1994	82	9 326 000	8 935 000
Carried forward			R225 977 000	R206 011 000

Description		Loan No.	Nominal Value	Book Value
Brought forward			R225 977 000	R206 011 000
ESCOM LOCAL REGISTERED STOCKS				
7½ per cent	1995	83	4 000	3 000
7 per cent	1995	84	5 000	4 000
8¾ per cent	1995	85	8 467 000	8 467 000
8½ per cent	1995	86	2 633 000	2 568 000
9¼ per cent	1996	87	2 636 000	2 636 000
8¾ per cent	1996	88	17 000	16 000
9¼ per cent	1996	90	15 000 000	15 000 000
8¾ per cent	1996	91	8 000 000	7 613 000
			262 739 000	242 318 000
REPUBLIC OF SOUTH AFRICA				
5¼ per cent	1979		300 000	285 000
6 per cent	1985		500 000	485 000
MUNICIPAL STOCK				
Bloemfontein				
5⅜ per cent	1975/80		80 000	69 000
Cape Town				
3 per cent	1976	167	200 000	166 000
5⅜ per cent	1980/85	203	300 000	255 000
Durban				
3¼ per cent	1962/72	47	231 000	227 000
3¼ per cent	1965/75	48	90 000	78 000
3¼ per cent	1966/76	49	100 000	85 000
3 per cent	1967/77	50	668 000	538 000
5⅜ per cent	1974/79	68	120 000	107 000
Germiston				
5⅜ per cent	1985	16	20 000	16 000
Johannesburg				
3 per cent	1967/77	21	60 000	48 000
5⅜ per cent	1974/79	36	194 000	173 000
			R265 602 000	R244 850 000
INTEREST ACCRUED				3 389 000
				R248 239 000
MARKET VALUE			R212 452 000	

Electricity Supply Commission

Loans Outstanding at 31st December, 1971.

SCHEDULE No. 3

LOCAL REGISTERED STOCKS

Loan No.					
13	R6 000 000	3 per cent	1967/73		R6 000 000
14	R6 000 000	3 per cent	1968/74		R6 000 000
15	R30 000 000	3⅛ per cent	1968/73		R30 000 000
16	R6 000 000	3½ per cent	1969/74		R6 000 000
17	R6 000 000	3¾ per cent	1969/74		R6 000 000
31	R16 000 000	5 per cent	1971/74		R16 000 000
32	R20 000 000	5 per cent	1971/75		R20 000 000
33	R16 000 000	4⅝ per cent	1975/80		R16 000 000
34	R16 000 000	4⅞ per cent	1975/80		R16 000 000
35	R16 500 000	5⅛ per cent	1976/81		R16 500 000
36	R20 000 000	5¼ per cent	1977/82		R20 000 000
37	R22 000 000	5⅜ per cent	1976/82		R22 000 000
38	R24 000 000	5½ per cent	1977/83		R24 000 000
39	R24 000 000	5⅝ per cent	1978/83		R24 000 000
40	R22 000 000	5⅝ per cent	1979/84		R22 000 000
42	R20 000 000	5⅝ per cent	1979/84		R20 000 000
43	R16 000 000	5⅝ per cent	1979/85		R16 000 000
44	R16 000 000	5¾ per cent	1980/85		R16 000 000
45	R17 000 000	5½ per cent	1980/86		R17 000 000
46	R16 000 000	5⅞ per cent	1981/86		R16 000 000
47	R18 000 000	6¼ per cent	1981/86		R18 000 000
49	R18 000 000	6⅛ per cent	1982/87		R18 000 000
50	R22 000 000	5¼ per cent	1982/87		R22 000 000
51	R29 000 000	5 per cent	1983/88		R29 000 000
52	R40 000 000	5 per cent	1980/83		R40 000 000
53	R20 000 000	5 per cent	1982/84		R20 000 000
54	R20 000 000	5½ per cent	1982/84		R20 000 000
55	R32 000 000	5⅞ per cent	1983/85		R32 000 000
56	R38 000 000	6½ per cent	1983/85		R38 000 000
58	R30 000 000	6½ per cent	1989/91		R30 000 000
60	R35 000 000	6¾ per cent	1991		R35 000 000
61	R35 000 000	6⅞ per cent	1992		R35 000 000
64	R12 000 000	6½ per cent	1992		R12 000 000
65	R37 000 000	6⅞ per cent	1992		R37 000 000
70	R10 000 000	6½ per cent	1993		R10 000 000
71	R70 000 000	6⅝ per cent	1993		R70 000 000
75	R22 000 000	6½ per cent	1993		R22 000 000
76	R48 000 000	6⅞ per cent	1993		R48 000 000
78	R20 000 000	6½ per cent	1994		R20 000 000
79	R30 000 000	6⅝ per cent	1994		R30 000 000
80	R20 000 000	6 per cent	1974		R20 000 000
81	R10 000 000	6½ per cent	1994		R10 000 000
82	R25 000 000	6⅞ per cent	1994		R25 000 000
83	R18 000 000	7½ per cent	1995		R18 000 000
84	R3 000 000	7 per cent	1995		R3 000 000
85	R35 000 000	8¾ per cent	1995		R35 000 000
86	R10 000 000	8½ per cent	1995		R10 000 000
87	R45 000 000	9¼ per cent	1996		R45 000 000
88	R10 000 000	8¾ per cent	1996		R10 000 000
89	R20 000 000	9¼ per cent	1996		(a) R14 300 000
90	R30 000 000	9¼ per cent	1996		(b) R27 053 000
91	R10 000 000	8¾ per cent	1996		(b) R9 135 000
			Carried forward		R1 147 988 000

(a) To be paid in full not later than 3rd January, 1972, in accordance with the prospectus.
(b) To be paid in full not later than 28th April, 1972, in accordance with the prospectus.

			Brought forward				R1 147 988 000
FOREIGN BOND ISSUES							R124 697 000
S.F.	50 000 000	(R8 274 721)	5 per cent	1965/74		R2 482 000	
D.M.	50 000 000	(R8 921 403)	6½ per cent	1971/80		R8 029 000	
U.S.	$15 000 000	(R10 775 862)	7 per cent	1968/77		R6 466 000	
Units of account	15 000 000	(R12 776 708)	7 per cent	1969/78		R10 008 000	
D.M.	100 000 000	(R18 033 777)	6½ per cent	1974/83		R18 034 000	
D.M.	100 000 000	(R19 582 885)	8½ per cent	1976/85		R19 583 000	
Units of account	12 000 000	(R10 221 366)	9¼ per cent	1971/80		R9 199 000	
D.M.	100 000 000	(R19 556 077)	8 per cent	1977/86		R19 556 000	
Units of account	20 000 000	(R17 035 611)	8¼ per cent	1972/86		R17 036 000	
U.S.	$20 000 000	(R14 303 594)	8½ per cent	1974/86		R14 304 000	
LONG TERM DIRECT FOREIGN LOANS							R28 065 000
U.S.	$20 000 000	(R14 356 822)	6¼ per cent	1968/76		R8 913 000	
D.M.	10 000 000	(R2 054 443)	8 per cent	1977/86		R2 054 000	
D.M.	20 000 000	(R3 643 743)	8½ per cent	1977/86		R3 645 000	
D.M.	20 000 000	(R4 016 436)	8½ per cent	1977/86		R4 016 000	
D.M.	40 000 000	(R9 437 168)	8½ per cent	1976/83		R9 437 000	
							R1 300 750 000

Electricity Supply Commission

Schedule of Investments of the Reserve Fund at 31st December, 1971

Description	Loan No.	Nominal Value	Book Value
ESCOM LOCAL REGISTERED STOCKS			
3 per cent 1968/74	14	R13 000	R12 000
3⅛ per cent 1968/73	15	2 200 000	2 071 000
5 per cent 1971/75	32	186 000	177 000
4⅝ per cent 1975/80	33	500 000	434 000
4⅞ per cent 1975/80	34	1 380 000	1 216 000
5⅛ per cent 1976/81	35	1 500 000	1 331 000
5⅛ per cent 1977/82	36	516 000	454 000
5⅛ per cent 1976/82	37	1 500 000	1 316 000
5⅛ per cent 1977/83	38	2 280 000	1 983 000
5⅜ per cent 1978/83	39	2 000 000	1 771 000
5⅝ per cent 1979/84	40	1 420 000	1 279 000
5⅝ per cent 1979/84	42	1 400 000	1 230 000
5⅝ per cent 1979/85	43	200 000	175 000
5⅝ per cent 1980/85	44	1 000 000	868 000
5½ per cent 1980/86	45	1 800 000	1 575 000
5⅞ per cent 1981/86	46	2 582 000	2 341 000
6¼ per cent 1981/86	47	2 650 000	2 498 000
6⅛ per cent 1982/87	49	2 000 000	1 854 000
5¼ per cent 1982/87	50	3 500 000	2 942 000
5 per cent 1983/88	51	5 055 000	4 095 000
5 per cent 1980/83	52	4 000 000	3 435 000
5 per cent 1982/84	53	2 400 000	2 033 000
5½ per cent 1982/84	54	2 182 000	1 936 000
5⅞ per cent 1983/85	55	3 700 000	3 418 000
6½ per cent 1983/85	56	2 600 000	2 512 000
6½ per cent 1989/91	58	4 200 000	3 984 000
6¾ per cent 1991	60	4 500 000	4 387 000
6⅞ per cent 1992	61	5 000 000	4 930 000
6⅞ per cent 1992	65	9 000 000	8 841 000
6⅞ per cent 1993	71	7 235 000	6 968 000
6½ per cent 1993	75	1 665 000	1 537 000
6⅞ per cent 1993	76	8 779 000	8 463 000
6½ per cent 1994	78	2 002 000	1 878 000
6⅞ per cent 1994	79	6 998 000	6 856 000
6 per cent 1974	80	2 000 000	1 939 000
6½ per cent 1994	81	2 000 000	1 833 000
6⅞ per cent 1994	82	3 500 000	3 354 000
7½ per cent 1995	83	3 395 000	3 395 000
7 per cent 1995	84	2 007 000	1 898 000
8¾ per cent 1995	85	9 108 000	9 108 000
8½ per cent 1995	86	1 925 000	1 877 000
9¼ per cent 1996	87	9 000 000	9 000 000
Carried forward		R130 878 000	R123 204 000

Description	Loan No.	Nominal Value	Book Value
Brought forward		R130 878 000	R123 204 000
REPUBLIC OF SOUTH AFRICA			
5¼ per cent 1979		700 000	665 000
MUNICIPAL STOCK			
Bloemfontein			
5⅜ per cent 1975/80		100 000	87 000
Cape Town			
5 per cent 1975	185	94 000	84 000
5⅜ per cent 1980/85	203	600 000	510 000
5½ per cent 1981/86	208	850 000	716 000
5½ per cent 1983/88	219	610 000	506 000
5½ per cent 1980	227	100 000	89 000
6½ per cent 1981	240	210 000	199 000
Durban			
3¾ per cent 1964/74	41	1 000	1 000
3¾ per cent 1962/72	47	4 000	4 000
3 per cent 1967/77	50	1 000	1 000
5⅜ per cent 1974/79	68	600 000	534 000
5⅜ per cent 1976/80	70	800 000	703 000
6 per cent 1972/77	74	334 000	315 000
5 per cent 1984	84	500 000	406 000
5½ per cent 1982	87	450 000	391 000
6 per cent 1980	88	500 000	459 000
6 per cent 1981	91	1 000 000	912 000
6½ per cent 1981	93	1 000 000	946 000
East London			
3¾ per cent 1964/74	6	1 000	1 000
Germiston			
5⅜ per cent 1985	16	150 000	123 000
Johannesburg			
5⅜ per cent 1974/79	36	120 000	107 000
5½ per cent 1975	38	10 000	9 000
Pietermaritzburg			
5 per cent 1972/74	74	24 000	22 000
Port Elizabeth			
5 per cent 1969/74	25	26 000	24 000
Pretoria			
5 per cent 1961/81	7	246 000	209 000
5⅛ per cent 1975	37	52 000	48 000
5⅜ per cent 1975/78	44	100 000	91 000
5⅜ per cent 1975/78	47	100 000	90 000
6¼ per cent 1977/82	49	200 000	185 000
5½ per cent 1980/83	56	200 000	172 000
6½ per cent 1981/84	59	200 000	187 000
Witbank			
3½ per cent 1948/72	29	1 000	1 000
RAND WATER BOARD			
6½ per cent 1984	33	250 000	234 000
7 per cent 1987	35	200 000	195 000
		R141 212 000	R132 430 000
INTEREST ACCRUED			2 057 000
			R134 487 000
Market Value		R113 598 000	

Electricity Supply Commission

ACCOUNT No. 1

Redemption Fund Account for the Year Ended 31st December, 1971

1970			
R29 500 000	**Repayment of Local Registered Stock**		R5 000 000
—	6 per cent 1971 (Loan No. 63)	R5 000 000	
5 000 000	3¼ per cent 1965/70 (Loan No. 12)	—	
8 500 000	5 per cent 1968/70 (Loan No. 27)	—	
16 000 000	5 per cent 1967/70 (Loan No. 29)	—	
216 409 000	**Balance as per Balance Sheet**		253 854 000
21 079 000	Cape Western Undertaking	25 835 000	
5 481 000	Cape Northern Undertaking	6 452 000	
98 000	Cape Eastern Undertaking	129 000	
4 815 000	Border Undertaking	5 956 000	
119 000	Orange River Undertaking	360 000	
34 114 000	Natal Undertaking	40 821 000	
25 268 000	Eastern Transvaal Undertaking	31 316 000	
116 976 000	Rand and Orange Free State Undertaking	134 214 000	
2 735 000	Head Office	2 958 000	
5 724 000	Undertaking which has been sold	5 813 000	
R245 909 000			R258 854 000

NOTE: The book values of all investments were adjusted to market value on 1st January, 1968, to facilitate the pooling of investments previously allocated to the separate sections of the fund.

The book values are adjusted at the end of each year having regard to the par values and periods to maturity.

1970			
R213 621 000	**Balance at Beginning of Year**		R216 409 000
20 901 000	Cape Western Undertaking	R21 079 000	
5 470 000	Cape Northern Undertaking	5 481 000	
77 000	Cape Eastern Undertaking	98 000	
4 771 000	Border Undertaking	4 815 000	
14 000	Orange River Undertaking	119 000	
33 851 000	Natal Undertaking	34 114 000	
22 741 000	Eastern Transvaal Undertaking	25 268 000	
117 654 000	Rand and Orange Free State Undertaking	116 976 000	
2 554 000	Head Office	2 735 000	
5 588 000	Undertaking which has been sold	5 724 000	
17 440 000	**Amounts Contributed during the Year as per Revenue Accounts**		25 485 000
2 373 000	Cape Western Undertaking	3 134 000	
439 000	Cape Northern Undertaking	569 000	
16 000	Cape Eastern Undertaking	23 000	
388 000	Border Undertaking	512 000	
100 000	Orange River Undertaking	226 000	
3 156 000	Natal Undertaking	4 142 000	
1 770 000	Eastern Transvaal Undertaking	3 631 000	
9 198 000	Rand and Orange Free State Undertaking	13 248 000	
92 000	**Other Contributions**		92 000
643 000	**Proceeds of Sales of Fixed Property**		1 439 000
13 240 000	**Interest Earned on Investments**		14 147 000
873 000	**Adjustment of Values of Investments at 31st December, 1971** (See Note)		1 282 000
R245 909 000			R258 854 000

We hereby certify that we are satisfied as to the correctness of the accounts and books of the Redemption Fund and as to the maintenance of the fund at the amount required by the Schedule to the Electricity Act 1958, subject to the remarks contained in our report dated 8th May, 1972.

HALSEY, BUTTON & PERRY
ALEX. AIKEN & CARTER
Chartered Accountants (S.A.)
Auditors.

Electricity Supply Commission

Reserve Fund Account for the Year Ended 31st December, 1971

1970			
R3 769 000	**Expenditure During the Year on Replacements and Betterment**		R3 762 000
42 000	Cape Western Undertaking	—	
—	Cape Northern Undertaking	—	
—	Cape Eastern Undertaking	—	
19 000	Border Undertaking	R19 000	
467 000	Natal Undertaking	192 000	
1 145 000	Eastern Transvaal Undertaking	1 450 000	
2 096 000	Rand and Orange Free State Undertaking	2 101 000	
123 518 000	**Balance as per Balance Sheet**		137 642 000
10 317 000	Cape Western Undertaking	12 190 000	
3 668 000	Cape Northern Undertaking	4 123 000	
16 000	Cape Eastern Undertaking	18 000	
1 494 000	Border Undertaking	1 699 000	
25 000	Orange River Undertaking	38 000	
17 595 000	Natal Undertaking	20 049 000	
12 382 000	Eastern Transvaal Undertaking	13 690 000	
78 021 000	Rand and Orange Free State Undertaking	85 835 000	
R127 287 000			R141 404 000

NOTE: The book values of all investments were adjusted to market value on 1st January, 1968, to facilitate the pooling of investments previously allocated to the separate sections of the fund.

The book values are adjusted at the end of each year having regard to the par values and periods to maturity.

1970			
R104 386 000	**Balance at Beginning of Year**		R123 518 000
8 704 000	Cape Western Undertaking	R10 317 000	
3 040 000	Cape Northern Undertaking	3 668 000	
11 000	Cape Eastern Undertaking	16 000	
1 231 000	Border Undertaking	1 494 000	
4 000	Orange River Undertaking	25 000	
14 760 000	Natal Undertaking	17 595 000	
10 543 000	Eastern Transvaal Undertaking	12 382 000	
66 093 000	Rand and Orange Free State Undertaking	78 021 000	
15 202 000	**Amounts set aside during the year as per revenue accounts**		8 568 000
1 008 000	Cape Western Undertaking	1 086 000	
400 000	Cape Northern Undertaking	175 000	
4 000	Cape Eastern Undertaking	—	
190 000	Border Undertaking	110 000	
20 000	Orange River Undertaking	10 000	
2 200 000	Natal Undertaking	1 300 000	
2 213 000	Eastern Transvaal Undertaking	1 848 000	
9 167 000	Rand and Orange Free State Undertaking	4 039 000	
7 375 000	**Interest Earned on Investments**		8 914 000
324 000	**Adjustment of Values of Investments at 31st December, 1971** (See Note)		404 000
R127 287 000			R141 404 000

Electricity Supply Commission

Consolidated Revenue Account for the Year Ended 31st December, 1971

1970				1970			
R71 484 000	**Cost of Electricity**		R79 945 000	R193 475 000	**Sales of Electricity**		R219 584 000
	Generation						
	Operation—						
49 440 000	Fuel	R53 587 000		18 223 000	Traction Supplies	R19 962 000	
2 032 000	Water and stores	2 747 000		48 659 000	Bulk Supplies	56 879 000	
7 666 000	Salaries and wages	9 252 000		62 774 000	Mining Supplies	67 097 000	
604 000	Other Expenses	742 000		52 826 000	Industrial Supplies	63 149 000	
	Maintenance—			10 993 000	Domestic and Lighting Supplies	12 497 000	
3 278 000	Stores	3 840 000					
7 300 000	Salaries and Wages	8 546 000					
1 075 000	Other Expenses	1 149 000					
71 395 000		79 863 000					
89 000	Electricity Purchased	82 000					
10 594 000	**Distribution**		11 492 000		Deficit for the Year		55 000
	Operation and Maintenance—						
1 803 000	Stores	1 883 000					
7 297 000	Salaries and Wages	8 034 000					
1 494 000	Other Expenses	1 575 000					
15 448 000	**General Expenses**		18 440 000				
4 556 000	Local Administration and Technical Management	5 261 000					
6 466 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	7 793 000					
2 119 000	Head Office Administration	2 613 000					
2 307 000	Head Office Engineering Expenses (Including Research Expenses of R731 000)	2 773 000					
98 340 000	**Capital Charges**		109 762 000				
59 484 000	Interest	70 266 000					
17 440 000	Redemption Fund	25 485 000					
6 214 000	Instalments and Provision for Repayment of Overseas Loans	5 443 000					
15 202 000	Reserve Fund	8 568 000					
R195 866 000			R219 639 000			R219 639 000	R195 866 000
R2 391 000	Deficit for the year		R55 000				
960 000	Accumulated surplus as shown in Balance Sheet		905 000		Accumulated surplus brought forward	R960 000	R3 351 000
R3 351 000			R960 000			R960 000	R3 351 000

NOTE: Sundry Revenue for the year 1971 has been deducted from appropriate items of expenditure in all Revenue Accounts and for comparative purposes the figures for the year 1970 have been adjusted accordingly.

Electricity Supply Commission

Cape Western Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970		
R8 983 000	**Cost of Electricity**		R10 847 000	R22 759 000	**Sales of Electricity**	R26 973 000
1 747 000	Proportion of pooled generation costs	R3 777 000		4 354 000	Traction Supplies	R4 641 000
343 000	Transmission costs payable to Other Undertakings	1 191 000		4 542 000	Bulk Supplies	6 345 000
6 893 000	Local Generation	5 879 000		9 610 000	Industrial Supplies	11 250 000
				4 253 000	Domestic and Lighting Supplies	4 737 000
	Operation—					
5 239 000	Fuel	4 171 000				
94 000	Water and Stores	84 000				
695 000	Salaries and Wages	709 000				
15 000	Other Expenses	18 000				
	Maintenance—					
79 000	Stores	76 000				
687 000	Salaries and Wages	698 000				
84 000	Other Expenses	123 000				
1 710 000	**Distribution**		1 934 000			
	Operation and Maintenance—					
184 000	Stores	212 000				
1 264 000	Salaries and Wages	1 383 000				
262 000	Other Expenses	339 000				
2 460 000	**General Expenses**		2 854 000			
825 000	Local Administration and Technical Management	924 000				
	Other Expenses (including Maintenance of Quarters, Stores Expenses, Rates,					
1 115 000	Insurance, Pension Fund Contributions, etc.) less rents received	1 272 000				
249 000	Head Office Administration Expenses	319 000				
271 000	Head Office Engineering Expenses	339 000				
9 450 000	**Capital Charges**		11 239 000			
5 894 000	Interest	7 018 000				
2 373 000	Redemption Fund	3 135 000				
175 000	Instalments and Provision for Repayment of Overseas Loans	—				
1 008 000	Reserve Fund	1 086 000				
R22 603 000			R26 874 000			
156 000	Surplus for the year		99 000			
R22 759 000			R26 973 000	R26 973 000		R22 759 000
R568 000	Accumulated deficit brought forward		R412 000		Surplus for the year	R99 000 / R156 000
					Accumulated deficit as shown in Balance Sheet	313 000 / 412 000
R568 000			R412 000	R412 000		R568 000

Electricity Supply Commission

Cape Northern Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970			
R3 433 000	**Cost of Electricity**		R3 848 000
2 976 000	Proportion of Pooled Generation Costs	R3 370 000	
457 000	Transmission costs payable to Other Undertakings	478 000	
424 000	**Distribution**		448 000
	Operation and Maintenance—		
42 000	Stores	40 000	
307 000	Salaries and Wages	328 000	
75 000	Other Expenses	80 000	
442 000	**General Expenses**		545 000
167 000	Local Administration and Technical Management	228 000	
128 000	General Expenses (including Stores Expenses, Rates, Insurances, Pension Fund Contributions, etc.) less rents received	143 000	
70 000	Head Office Administration Expenses	84 000	
77 000	Head Office Engineering Expenses	90 000	
2 336 000	**Capital Charges**		2 358 000
1 497 000	Interest	1 614 000	
439 000	Redemption Fund	569 000	
400 000	Reserve Fund	175 000	
R6 635 000			R7 199 000
R243 000	Deficit for the year		R98 000
661 000	Accumulated surplus as shown in Balance Sheet		563 000
R904 000			R661 000

1970			
R6 392 000	**Sales of Electricity**		R7 101 000
1 633 000	Traction Supplies	R1 754 000	
1 163 000	Bulk Supplies	1 270 000	
2 476 000	Mining Supplies	2 808 000	
824 000	Industrial Supplies	938 000	
296 000	Domestic and Lighting Supplies	331 000	
243 000	Deficit for the year		98 000
R6 635 000			R7 199 000
R904 000	Accumulated surplus brought forward		R661 000
			R661 000

Electricity Supply Commission

Cape Eastern Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970			
R70 000	**Electricity Purchased**		R77 000	R191 000	**Sales of Electricity**		R222 000
40 000	**Distribution**		44 000				
	Operation and Maintenance—						
3 000	Stores	R7 000		28 000	Bulk Supplies	R30 000	
28 000	Salaries and Wages	22 000		91 000	Industrial Supplies	114 000	
9 000	Other Expenses	15 000		72 000	Domestic Supplies	78 000	
19 000	**General Expenses**		19 000				
4 000	Local Administration and Technical Management	5 000					
	Other Expenses (including Maintenance of Quarters, Stores Expenses, Rates,						
10 000	Insurance, Pension Fund Contributions, etc.) less rents received	8 000					
2 000	Head Office Administration Expenses	3 000					
3 000	Head Office Engineering Expenses	3 000					
103 000	**Capital Charges**		126 000				
83 000	Interest	102 000					
16 000	Redemption Fund	24 000					
4 000	Reserve Fund	—					
R232 000			R266 000				R266 000
R41 000	Deficit for the year		R44 000		Accumulated deficit as shown in Balance Sheet		R141 000
56 000	Accumulated deficit brought forward		97 000				
R97 000			R141 000				R141 000

1970	
41 000	
R97 000	
R97 000	

Electricity Supply Commission

Border Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970			
R1 968 000	**Generation**		R2 144 000		**Sales of Electricity**		R4 845 000	R4 325 000
	Operation—							
1 278 000	Fuel	R1 489 000			Bulk Supplies	R4 054 000		3 296 000
23 000	Water and Stores	25 000			Industrial Supplies	400 000		521 000
281 000	Salaries and Wages	309 000			Domestic and Lighting Supplies	391 000		508 000
1 000	Other Expenses	1 000						
	Maintenance—							
59 000	Stores	73 000						
228 000	Salaries and Wages	239 000						
98 000	Other Expenses	8 000						
279 000	**Distribution**		299 000		Deficit for the year		60 000	240 000
	Operation and Maintenance—							
38 000	Stores	31 000						
201 000	Salaries and Wages	225 000						
40 000	Other Expenses	43 000						
465 000	**General Expenses**		512 000					
185 000	Local Administration and Technical Management	216 000						
181 000	Other Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	177 000						
48 000	Head Office Administration Expenses	58 000						
51 000	Head Office Engineering Expenses	61 000						
1 853 000	**Capital Charges**		1 950 000					
1 275 000	Interest	1 328 000						
388 000	Redemption Fund	512 000						
190 000	Reserve Fund	110 000						
R4 565 000			R4 905 000				R4 905 000	R4 565 000
R240 000	Deficit for the year		R60 000					
104 000	Accumulated deficit brought forward		344 000		Accumulated deficit as shown in Balance Sheet		R404 000	R344 000
R344 000			R404 000				R404 000	R344 000

Electricity Supply Commission

Orange River Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970			
	Cost of Electricity				**Sales of Electricity**		
R218 000	Proportion of Pooled Generation Costs		R391 000	R938 000			R521 000
29 000	**Distribution**		54 000		Bulk Supplies	R492 000	417 000
	Operation and Maintenance—				Industrial Supplies	446 000	104 000
1 000	Stores	R8 000					
22 000	Salaries and Wages	36 000					
6 000	Other Expenses	10 000					
57 000	**General Expenses**		140 000		Deficit for the year	120 000	117 000
40 000	Local Administration and Technical Management	71 000					
16 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	46 000					
—	Head Office Administration Expenses	11 000					
1 000	Head Office Engineering Expenses	12 000					
505 000	**Capital Charges**		1 094 000				
385 000	Interest	961 000					
100 000	Redemption Fund	226 000					
20 000	Reserve Fund	10 000					
505 000		1 197 000					
—	*Less:* Amount Charged to Pooled Costs	103 000					
R809 000			1 679 000				
171 000	Transmission Costs Recovered from Other Undertakings		621 000				
R638 000			R1 058 000	R1 058 000			R638 000
R117 000	Deficit for the year		R120 000				
54 000	Accumulated deficit brought forward		171 000		Accumulated deficit as shown in Balance Sheet	R291 000	R171 000
R171 000			R291 000	R291 000			R171 000

Electricity Supply Commission

Natal Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970			
R15 755 000	**Cost of Electricity**		R20 432 000
406 000	Proportion of Pooled Generation Costs	R2 939 000	
30 000	Transmission Costs Payable to Other Undertakings	14 000	
2 000	Electricity Supplied by Other Undertakings	65 000	
15 317 000	Local Generation	17 414 000	
	Operation—		
11 065 000	Fuel	12 642 000	
338 000	Stores	385 000	
1 521 000	Salaries and Wages	1 663 000	
124 000	Other Expenses	198 000	
	Maintenance—		
615 000	Stores	546 000	
1 333 000	Salaries and Wages	1 436 000	
321 000	Other Expenses	544 000	
1 978 000	**Distribution**		2 081 000
	Operation and Maintenance—		
252 000	Stores	303 000	
1 227 000	Salaries and Wages	1 357 000	
499 000	Other Expenses	421 000	
2 816 000	**General Expenses**		3 316 000
963 000	Local Administration and Technical Management	1 138 000	
1 035 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	1 149 000	
392 000	Head Office Administration Expenses	499 000	
426 000	Head Office Engineering Expenses	530 000	
14 426 000	**Capital Charges**		15 367 000
8 610 000	Interest	9 776 000	
3 156 000	Redemption Fund	4 141 000	
460 000	Instalments and Provision for Repayment of Overseas Loans	150 000	
2 200 000	Reserve Fund	1 300 000	
R34 975 000			R41 196 000
764 000	Surplus for the year		748 000
R35 739 000			R41 944 000
R1 764 000	Accumulated surplus as shown in Balance Sheet		R2 512 000
R1 764 000			R2 512 000

1970			
R35 739 000	**Sales of Electricity**		R41 944 000
5 859 000	Traction Supplies	R6 365 000	
20 179 000	Bulk Supplies	22 354 000	
1 259 000	Mining Supplies	1 307 000	
6 992 000	Industrial Supplies	10 251 000	
1 450 000	Domestic and Lighting Supplies	1 667 000	
			R41 944 000
R764 000	Surplus for the year	R748 000	
1 000 000	Accumulated surplus brought forward	1 764 000	
R1 764 000		R2 512 000	

Electricity Supply Commission

Eastern Transvaal Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970			
R14 846 000	**Cost of Electricity**		R16 336 000	**Sales of Electricity**		R23 700 000	R22 295 000
14 530 000	Proportion of Pooled Generation Costs	R15 981 000		Traction Supplies	R2 068 000		1 964 000
316 000	Electricity supplied by Other Undertakings	355 000		Bulk Supplies	1 623 000		1 399 000
				Mining Supplies	7 350 000		7 133 000
1 183 000	**Distribution**		1 260 000	Industrial Supplies	12 067 000		11 195 000
	Operation and Maintenance—			Domestic and Lighting Supplies	592 000		604 000
352 000	Stores	192 000					
730 000	Salaries and Wages	896 000					
101 000	Other Expenses	172 000					
1 165 000	**General Expenses**		1 403 000	Deficit for the year		644 000	
484 000	Local Administration and Technical Management	556 000					
726 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	854 000					
349 000	Head Office Administration Expenses	399 000					
380 000	Head Office Engineering Expenses	423 000					
1 939 000		2 232 000					
774 000	*Less:* Charged to Pooled Costs	829 000					
4 800 000	**Capital Charges**		5 345 000				
7 857 000	Interest	8 357 000					
1 770 000	Redemption Fund	3 631 000					
662 000	Instalment and Provision for Repayment of Overseas Loans	597 000					
2 213 000	Reserve Fund	1 848 000					
12 502 000		14 433 000					
7 702 000	*Less:* Charged to Pooled Costs	9 088 000					
21 994 000							
301 000	Surplus for the year		24 344 000				
R22 295 000			R24 344 000			R24 344 000	R22 295 000
	Deficit for the year		644 000	Accumulated surplus for the year brought forward		R3 640 000	R3 339 000
R3 640 000	Accumulated surplus as shown in Balance Sheet		R2 996 000	Surplus for the year			301 000
R3 640 000			R3 640 000			R3 640 000	R3 640 000

Electricity Supply Commission

Rand and Orange Free State Undertaking

Revenue Account for the Year Ended 31st December, 1971

1970				1970			
R80 908 000	**Cost of Electricity**		R88 968 000		**Sales of Electricity**		R113 861 000	R101 253 000
	Proportion of Pooled Generation Costs							
4 292 000	**Distribution**		4 310 000		Traction Supplies	R5 134 000		4 412 000
	Operation and Maintenance—				Bulk Supplies	20 712 000		17 637 000
931 000	Stores	R1 090 000			Mining Supplies	55 632 000		51 907 000
3 519 000	Salaries and Wages	3 787 000			Industrial Supplies	27 682 000		23 488 000
474 000	Other Expenses	495 000			Domestic and Lighting Supplies	4 701 000		3 809 000
4 924 000		5 372 000						
632 000	*Less:* Charged to Other Undertakings	1 062 000			**Electricity Supplied to Other Undertakings**		420 000	318 000
2 602 000	**General Expenses**		3 056 000		Eastern Transvaal Undertaking	355 000		316 000
1 888 000	Local Administration and Technical Management	2 123 000			Natal Undertaking	65 000		2 000
3 254 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	4 144 000						
1 009 000	Head Office Administration Expenses	1 240 000			Deficit for the year			2 971 000
1 098 000	Head Office Engineering Expenses	1 315 000						
7 249 000		8 822 000						
4 647 000	*Less:* Charged to Pooled Costs	5 766 000						
16 740 000	**Capital Charges**		17 883 000					
33 883 000	Interest	41 110 000						
9 198 000	Redemption Fund	13 247 000						
4 917 000	Instalments and Provision for Repayment of Overseas Loans	4 696 000						
9 167 000	Reserve Fund	4 039 000						
57 165 000		63 092 000						
40 425 000	*Less:* Charged to Pooled Costs	45 209 000						
			114 217 000					
	Surplus for the year		64 000					
R104 542 000			R114 281 000				R114 281 000	R104 542 000
R2 971 000	Deficit for the year				Surplus for the year		R64 000	
1 110 000	Accumulated deficit brought forward		R4 081 000		Accumulated deficit as shown in Balance Sheet		4 017 000	R4 081 000
R4 081 000			R4 081 000				R4 081 000	R4 081 000

Electricity Supply Commission

Rand and Orange Free State and Eastern Transvaal Undertakings

Statement of Pooled Costs and Allocation for the Year Ended 31st December, 1971

1970			
R47 212 000	**Generation**		R54 426 000
	Operation—		
31 859 000	Fuel	R35 285 000	
1 577 000	Water and Stores	2 253 000	
5 168 000	Salaries and Wages	6 571 000	
465 000	Other Expenses	525 000	
	Maintenance—		
2 525 000	Stores	3 145 000	
5 048 000	Salaries and Wages	6 173 000	
570 000	Other Expenses	474 000	
19 000	**Electricity Purchased**		5 000
1 619 000	**Interconnector**		2 337 000
5 421 000	**General Expenses**		6 595 000
1 067 000	Local Administration and Technical Management	1 220 000	
2 651 000	General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) less rents received	3 328 000	
1 703 000	Head Office Administration and Engineering Expenses	2 047 000	
46 509 000	**Capital Charges**		52 063 000
26 673 000	Interest	32 076 000	
6 536 000	Redemption Fund	10 864 000	
5 360 000	Instalments and Provision for Repayment of Overseas Loans	5 288 000	
7 940 000	Reserve Fund	3 835 000	
R100 780 000			R115 426 000

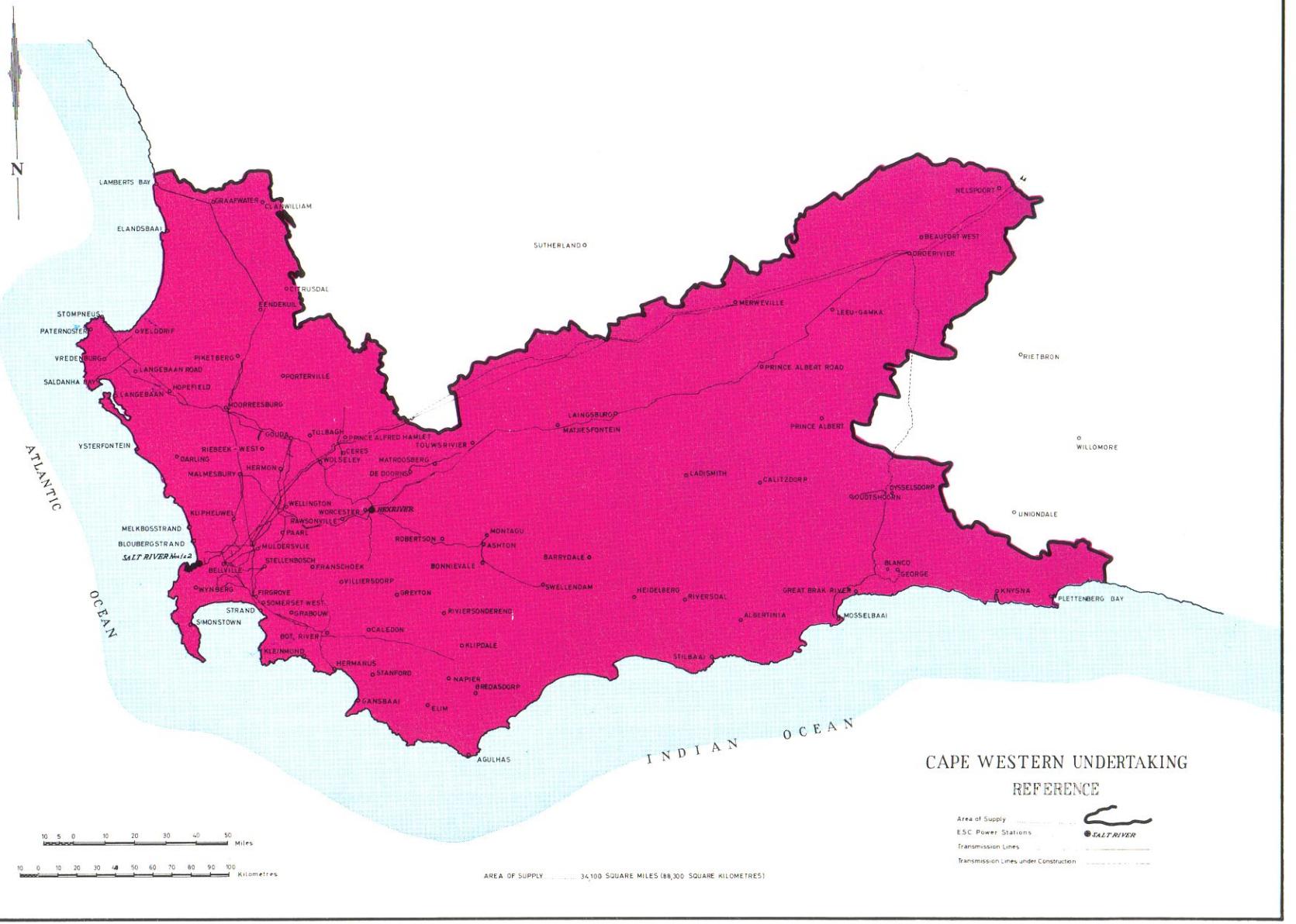
1970			
R100 780 000	**Allocation**		R115 426 000
80 908 000	Rand and Orange Free State Undertaking	R88 968 000	
14 525 000	Eastern Transvaal Undertaking	15 981 000	
2 976 000	Cape Northern Undertaking	3 370 000	
1 747 000	Cape Western Undertaking	3 777 000	
218 000	Orange River Undertaking	391 000	
406 000	Natal Undertaking	2 939 000	
R100 780 000			R115 426 000

ESCOM'S UNDERTAKINGS

The development and operation of Escom's seperate Undertakings are reviewed in detail in the following pages.

General Note:

"Working Costs" include interest charges and Redemption Fund contributions on loan capital and amounts set aside to Reserve Fund.


N
LAMBERTS BAY
GRAAFWATER
CLANWILLIAM
ELANDSBAAI
SUTHERLAND
NELSPOORT
BEAUFORT WEST
ORODERIVIER
MERWEVILLE
LEEU-GAMKA
OTTRUSDAL
KENDERKUIL
STOMPNEUS
PATERNOSTER
VELDDRIF
VREDENBURG
PIKETBERG
LANGEBAAN ROAD
SALDANHA BAY
HOPEFIELD
LANGEBAAN
PORTERVILLE
DOORREESBURG
PRINCE ALBERT ROAD
RIETBRON
LAINGSBURG
MATJIESFONTEIN
PRINCE ALBERT
GOUDA
TULBAGH
PRINCE ALFRED HAMLET
YSTERFONTEIN
RIEBEEK - WEST
CERES
WOLSELEY
TOUWSRIVIER
MATROOSBERG
DE DOORNS
WILLOMORE
DARLING
HERMON
MALMESBURY
LADISMITH
CALITZDORP
OUDTSHOORN
OSSELSDORP
WELLINGTON
WORCESTER
HEXRIVER
KLIPHEUWEL
RAWSONVILLE
UNIONDALE
MELKBOSSTRAND
PAARL
MONTAGU
ROBERTSON
ASHTON
BLOUBERGSTRAND
MULDERSVLIE
SALT RIVER No. 1 & 2
STELLENBOSCH
FRANSCHOEK
BARRYDALE
BLANCO
GEORGE
BELLVILLE
BONNIEVALE
VILLIERSDORP
SWELLENDAM
HEIDELBERG
RIVERSDAL
GREAT BRAK RIVER
KNYSNA
WYNBERG
FIRGROVE
GREYTON
PLETTENBERG BAY
SOMERSET WEST
STRAND
RIVIERSONDEREND
MOSSELBAAI
GRABOUW
SIMONSTOWN
CALEDON
ALBERTINIA
BOT. RIVER
KLIPDALE
KLEINMOND
STILBAAI
HERMANUS
STANFORD
NAPIER
BREDASDORP
GANSBAAI
ELIM
AGULHAS
ATLANTIC
OCEAN
INDIAN OCEAN
10 5 0 10 20 30 40 50 Miles
10 0 10 20 30 40 50 60 70 80 90 100 Kilometres
AREA OF SUPPLY ..... 34,100 SQUARE MILES (88,300 SQUARE KILOMETRES)
CAPE WESTERN UNDERTAKING
REFERENCE
Area of Supply
ESC Power Stations
SALT RIVER
Transmission Lines
Transmission Lines under Construction

CAPE WESTERN UNDERTAKING

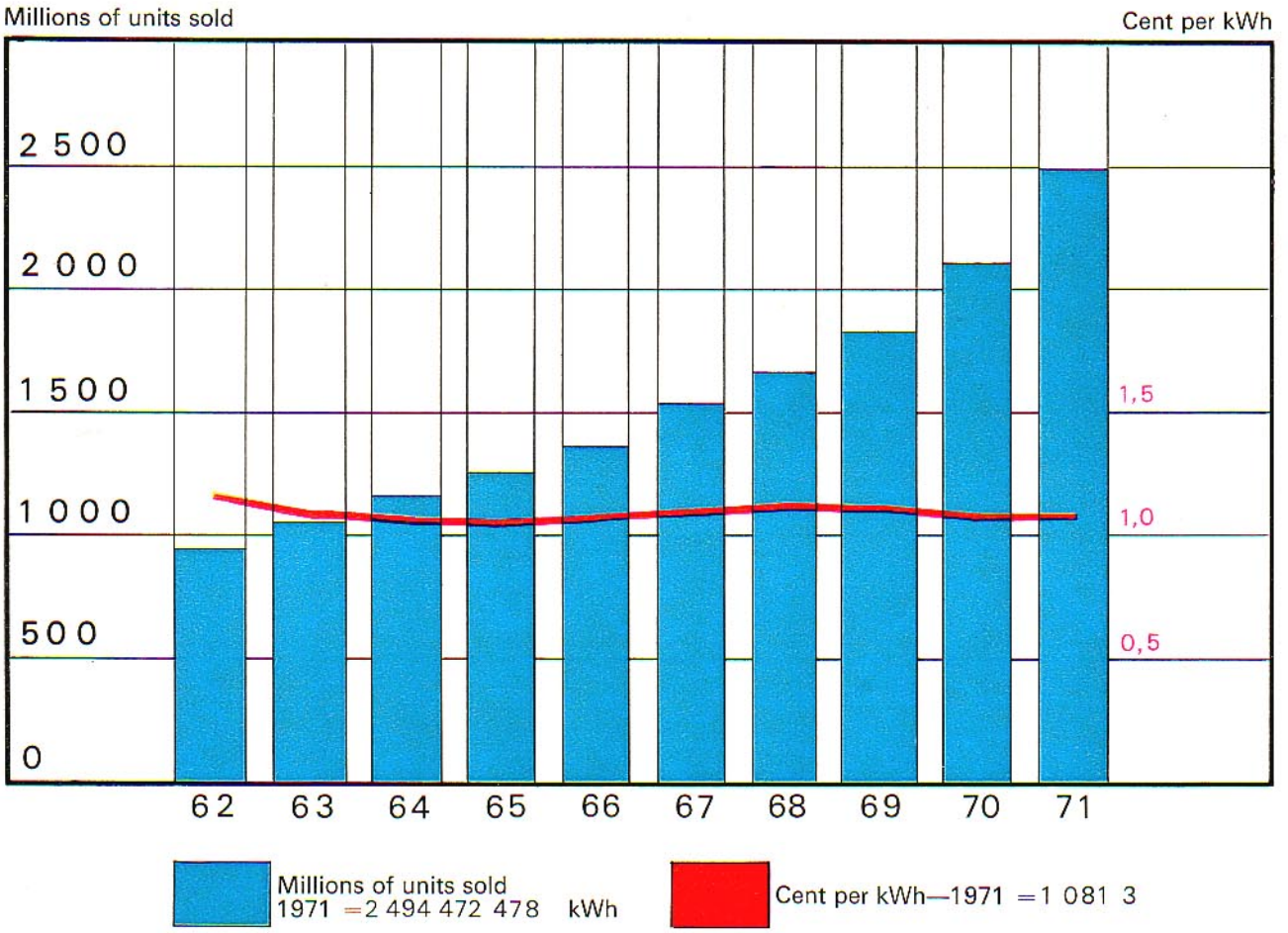
The licensed area of supply of the undertaking is represented on the map on page 84.

During 1971, 1 625 million units of electricity were imported from Escom's power stations in the northern provinces by means of the 400 kV transmission system and 1 131 million units were sent out from the undertaking's Salt River and Hex River power stations.

Sales of electricity

As shown in the table on page 87 the total units sold in 1971 exceeded the corresponding total for 1970 by 18,7 per cent. This very high percentage growth is largely due to a considerable increase in the sale of electricity to the municipality of Cape Town. The partial bulk supply of electricity taken by the municipality to augment generation in the municipal power stations has increased from the level of 8 MW taken in February 1970 to some 53 MW taken in July 1971. If the supply to Cape Town Municipality is excluded the remaining sales of electricity by the Cape Western Undertaking in 1971 nevertheless exceed the similar figure for the year 1970 by 9,1 per cent.

The following graph indicates the increase in sales of electricity over the period 1962 to 1971, the red line indicating the average price per unit sold:—



Development of the Undertaking

The first 400 kV line to Muldersvlei was in operation for the whole year. Apart from a few minor teething troubles which caused some outages initially, the line has given satisfactory service and is currently supplying about 270 megawatts of power to the Cape Western Undertaking.

Due to general manpower shortage and the necessity to complete other more urgent projects the second line from the north to Droërivier (near Beaufort West) was not completed in 1971. It is now expected that this line will be complete by the end of 1972 and that the 400 kV system will be duplicated as far as Muldersvlei before the winter of 1973.

Plans to extend the 400 kV system from Muldersvlei to Acacia (near Cape Town) are under way. This extension is required to meet the anticipated load growth in that area in the next decade and to form a link with the planned Koeberg nuclear power station.

Progress was made during 1971 with the 132 kV and 66 kV networks which are to link the towns of Oudtshoorn, George, Mossel Bay and Knysna and it is planned to energise this system during 1972. Terms have also been accepted for electricity supplies to the towns of Albertinia, Riversdale, Heidelberg and Stilbaai. It is hoped to commence work on the system extensions for these supplies during 1973.

The 66 kV system extension to serve Eendekuil, Graafwater and Clanwilliam was completed during 1971 and all consumers in these areas have been connected. In addition applications for supplies were received from the towns of Vredendal, Klawer and Van Rhynsdorp, and also from the villages and farmers in the vicinity. These are at present being investigated.

During 1971 the Construction Department of the Cape Western Undertaking continued work on five 220 kV substations being constructed in South West Africa for the S.W.A. Water and Electricity Corporation (Pty.) Limited. Satisfactory progress is being made.

Development of rural electrification

The total number of farming supplies furnished by the undertaking increased from 5 527 at the end of 1970 to 5 805 at the end of 1971. Apart from numerous extensions in areas already reticulated, the scheme between Villiersdorp and Greyton was completed to furnish 46 new connections in this area. A group of farmers at Versfeldberg near Piketberg have accepted Escom's quoted conditions of supply and work on this scheme will be completed during 1972. A line of 39 km will be built during 1972 from Leeu Gamka to serve the Post Office microwave station near Honingklip and this will permit supplies to be furnished to farmers requiring electricity for irrigation in this area.

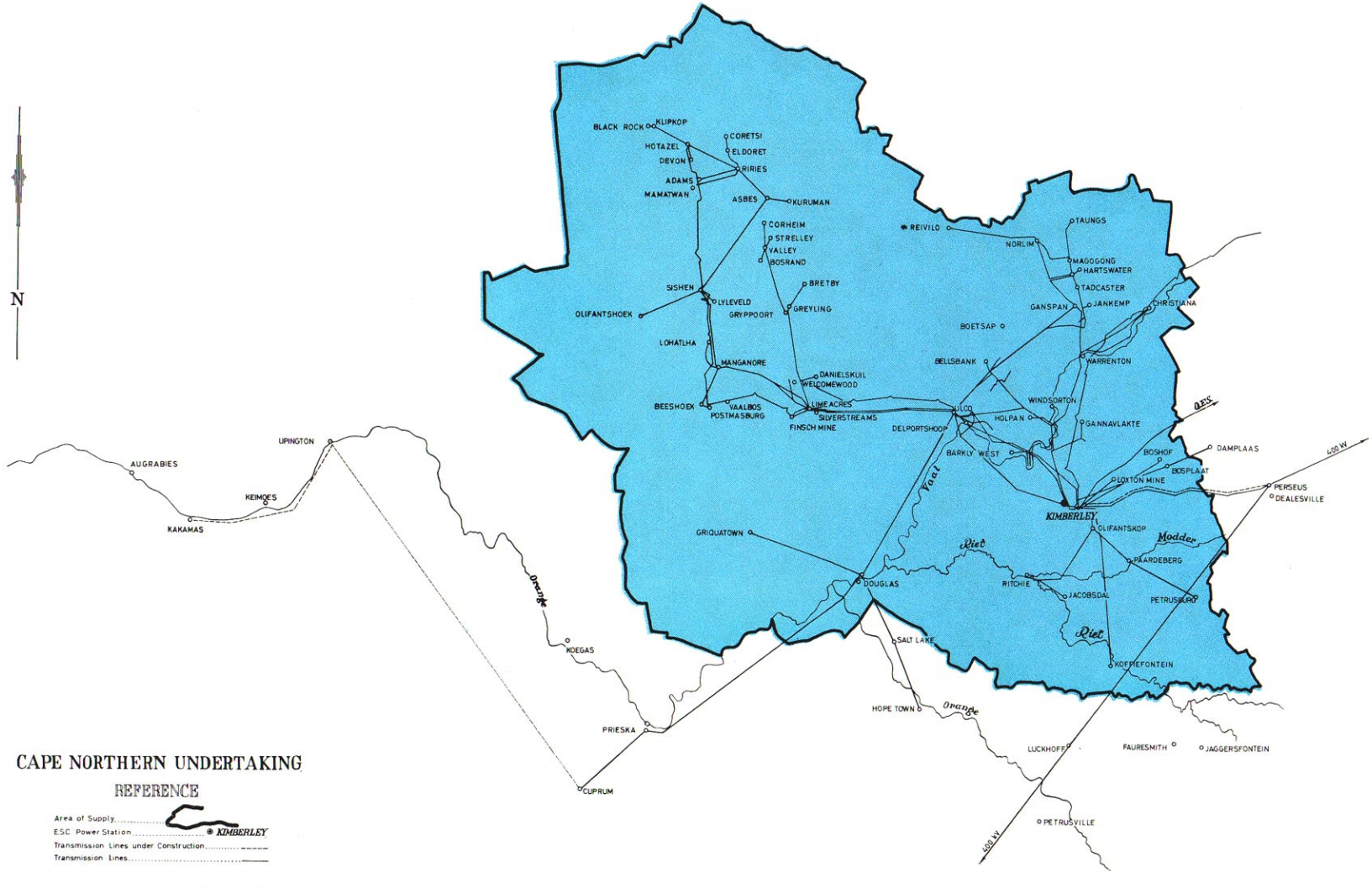
Financial

Details of the units sold to the different classes of consumers, the total revenue derived therefrom, and the working costs are shown in the table on page 87. The average price per unit sold during 1971 is slightly less than the figure for 1970. The decrease from 1,083 2 cent per unit sold in 1970 to 1,081 3 cent per unit sold arises from the large increase in the number of units sold to bulk consumers. Total sales revenue for the year amounted to R26 973 000 and exceeded the corresponding figure for 1970 by 18,5 per cent.

CAPE WESTERN UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		%Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	6	6	19,64	16,85	412 648 552	420 210 776	+ 3,94	− 1,83	4 353 957	4 641 207	1,055 1	1,104 5
Bulk	35	40	25,02	31,59	525 697 093	788 135 682	+36,51	+49,92	4 541 721	6 344 566	0,863 9	0,805 0
Mining	—		—		—		—	—	—		—	
Industrial	6 960	7 015	41,50	38,87	871 972 822	969 688 681	−12,37	+11,21	9 609 868	11 250 234	1,102 1	1,160 2
Domestic	45 211	52 231	13,46	12,34	282 715 927	307 730 990	− 9,22	+ 8,85	4 067 065	4 522 605	1,438 6	1,469 7
Street Lighting	42	44	0,38	0,35	7 993 371	8 706 349	− 7,94	+ 8,92	186 574	214 174	2,334 1	2,460 0
Total	52 254	59 336	100,00	100,00	2 101 027 765	2 494 472 478	−15,17	+18,73	22 759 185	26 972 786	1 083 2	1,081 3

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	22 759 185	26 972 786	
Working Costs	22 602 483	26 874 099	
Surplus	156 702	98 687	312 985
Deficit	—	—	
Capital Expenditure	8 971 275	10 532 370	



CAPE NORTHERN UNDERTAKING

REFERENCE

Area of Supply.....

E.S.C. Power Station..... ⊛ KIMBERLEY

Transmission Lines under Construction.....

Transmission Lines.....

10 0 10 20 30 40 50 60 70 80 90 100 Kilometres

10 5 0 10 20 30 40 50 Miles

AREA OF SUPPLY.....23,200 SQUARE MILES (60,100 SQUARE KILOMETRES)

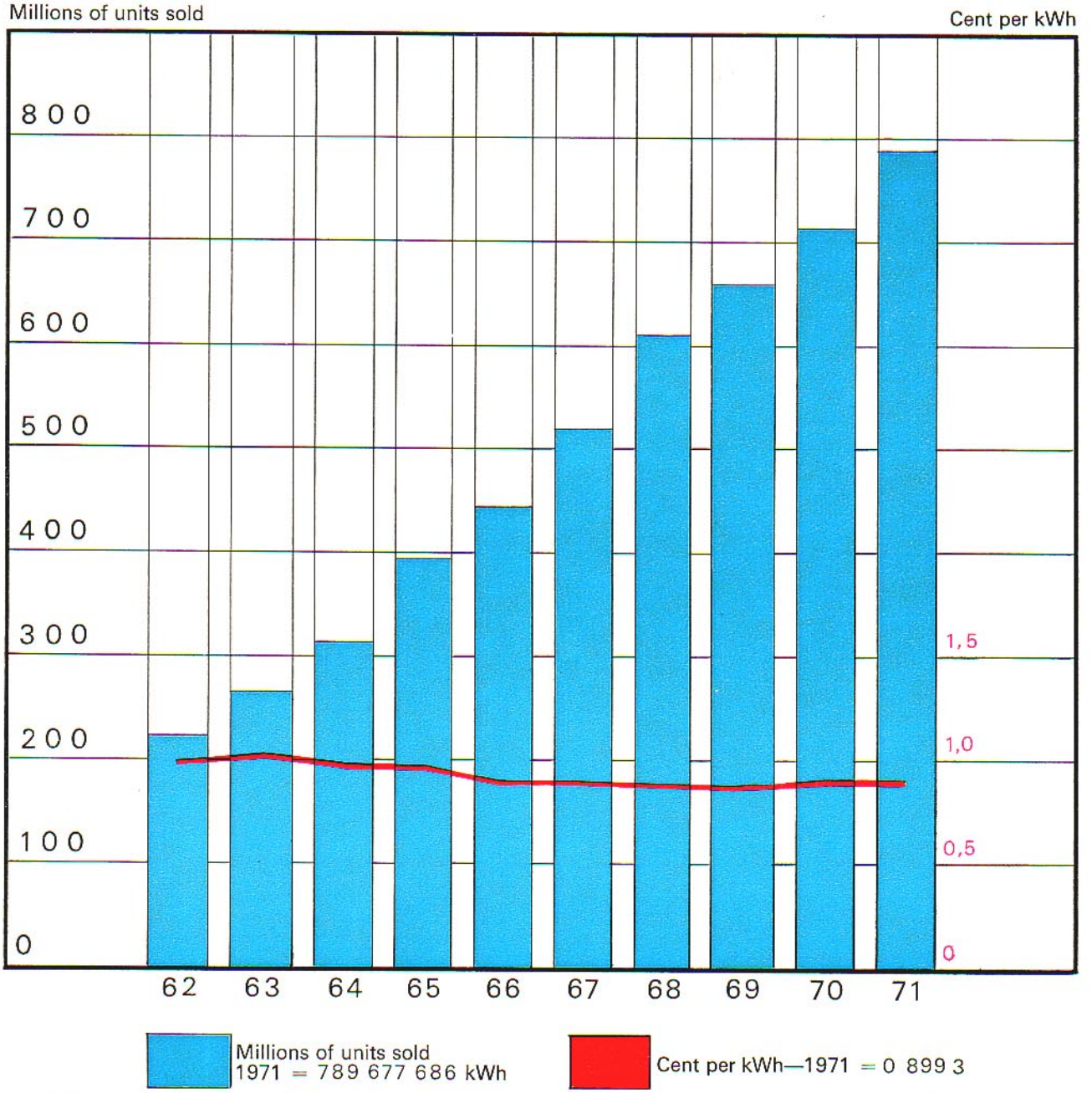
CAPE NORTHERN UNDERTAKING

The licensed area of supply of the Cape Northern Undertaking is shown on the map on page 88.

Sales of electricity

The table on page 91 compares the electricity sales for 1971 with those of the previous year. During the year under review sales increased by 10,5 per cent to 790 million units. The mining industry continues to represent the undertaking's largest consumer group. The Prieska copper mine is a new development in this field. The 14,2 per cent increase in electricity supplied to the South African Railways for traction also contributed to the growth in units sold during 1971. Sales in this category increased from 178 million kWh in 1970 to 204 million kWh in 1971.

The following graph indcates the increase in sales over the period 1962 to 1971 and the change in the average price per unit sold:—



Development of the undertaking

Work on Cuprum substation (near Prieska) was commenced during 1971 and is due to be completed by April 1972. This substation is being established as the permanent supply point to the new Prieska copper mine. A start is to be made in 1972 on the construction of a 220 kV transmission line from Hydra distribution station (near De Aar) to Cuprum substation to reinforce the network in the copper mining area.

The doubling of the 275 kV transmission line between Perseus distribution station (near Dealesville) and Kimberley distribution station, which was delayed in favour of more urgent work elsewhere in the Republic, is now due for completion by December 1972.

Three 132 kV traction substations on the Klerksdorp-Kimberley line are being planned for completion early in 1973, and the South African Railways have given notice that a further sixteen substations on the line to Sishen will possibly also be required.

Plans are well advanced for a major extension to Sishen substation to make provision for a trebling of the Iscor load by early 1974.

One hundred and eighty kilometres of 132 kV transmission line from Hotazel to Pomfret asbestos mine north-west of Vryburg is in the planning stage, with a completion date of August 1974.

A start has been made with the construction of the 22 kV transmission extension to supply the Post Office microwave station at Bergdam in the Modder River area and also with twenty kilometres of 11 kV line to supply the S.A.B.C. F.M. station south-west of Prieska. From Klipkop substation four kilometres of 22 kV line was built to supply the new Wessels mine of S.A. Manganese Limited, and sixteen kilometres of 22 kV line was completed from Gryppoort substation to supply the mines of Klipfontein and Noordhoek.

Permanent supplies have been made available to the pump stations of the Department of Water Affairs at Manzi, Kneukel and Aqua on the Vaal-Gamagara water scheme between Delportshope and Postmasburg.

Terms will be quoted shortly for possible supplies to the towns of Keimoes and Kakamas south-west of Upington.

Development of rural electrification

The undertaking continued to develop rural supplies in areas where the potential for farmers to use electricity permits acceptable financial terms to be offered. A feature of the new work was the increasing use of electricity for water pumping and spray irrigation. In the Erwe and Buckland areas south of Douglas, 40 km of line was built to furnish seventy-six farm supplies. North of Douglas nine farm supplies with a total pumping load of 300 h.p. were given. In the Modderriet area 6 km of line was built to connect thirteen new farm supplies.

There were similar extensions in the vicinity of Barkly West, Delportshope, and in the Vaalharts irrigation area.

Work has been put in hand to supply rural consumers in the Salt Lake area and in the area of the Rietrivier irrigation scheme. Future schemes are under investigation on the Modder River east of Perdeberg, and in the Plaasburg area and also on the Vaal River north of Douglas.

Financial

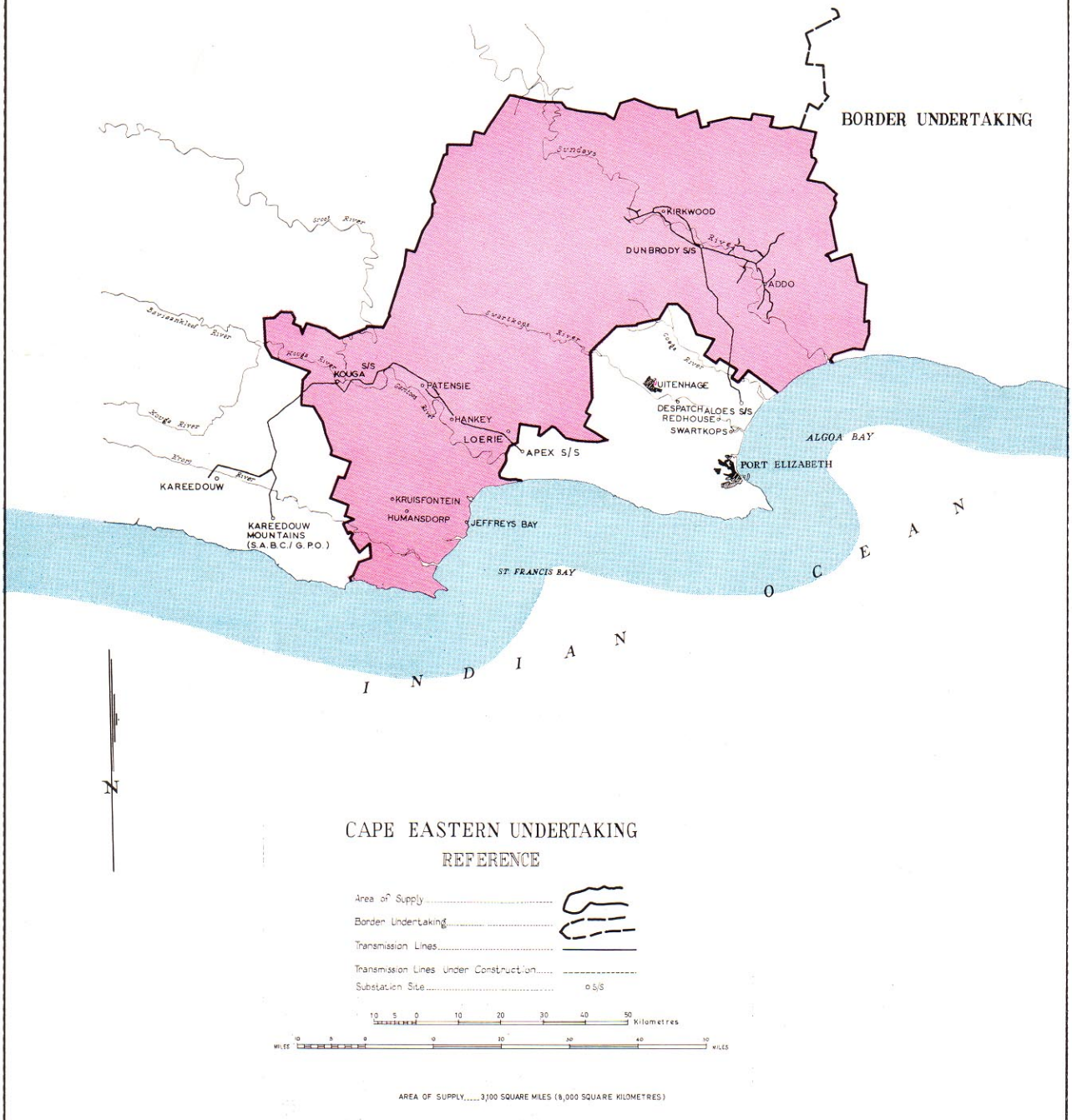
Details of the number of units sold to consumers in different categories, revenue received, and operating cost are shown for the years 1970 and 1971 in the table on page 91.

The average price per unit sold increased marginally from 0,894 1 cent/kWh in 1970 to 0,899 3 cent/kWh in 1971.

CAPE NORTHERN UNDERTAKING

Class	CONSUMER Number		SALES Proportion %		SALES kWh		SALES %Change		REVENUE FROM SALES Rand		AVERAGE PRICE PER kWh SOLD Cents	
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	3	3	24,94	25,78	178 304 112	203 606 016	− 0,67	+14,19	1 633 316	1 753 827	0,916 0	0,861 4
Bulk.....	15	15	22,32	21,68	159 586 700	171 190 300	+12,06	+ 7,27	1 162 348	1 270 361	0,728 3	0,742 1
Mining	77	78	36,99	37,05	264 407 352	292 559 567	+ 9,21	+10,65	2 476 250	2 807 770	0,936 5	0,959 7
Industrial	472	563	13,11	12,73	93 722 966	100 494 987	+20,51	+ 7,23	824 169	937 954	0,879 4	0,933 3
Domestic	2 630	2 924	2,61	2,73	18 646 737	21 547 900	+17,49	+15,56	290 654	324 466	1,558 7	1,505 8
Street Lighting.	9	13	0,03	0,03	226 332	278 916	+16,07	+23,23	5 163	7 159	2 281 2	2,566 7
Total	3 206	3 596	100,00	100,00	714 894 199	789 677 686	+ 8,67	+10,46	6 391 900	7 101 537	0,894 1	0,899 3

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	6 391 900	7 101 537	
Working Costs.....	6 635 157	7 199 249	
Surplus	—	—	562 933
Deficit	243 257	97 712	
Capital Expenditure	2 359 476	2 441 198	


BORDER UNDERTAKING
Sundays
Scott River
KIRKWOOD
DUNBRODY S/S
ADDO
Swartkops River
Kouga River
KOUGA S/S
PATENSIE
Gamtoos River
HANKEY
LOERIE
APEX S/S
UITENHAGE
Coega River
DESPATCH
REDHOUSE
ALOES S/S
SWARTKOPS
ALGOA BAY
PORT ELIZABETH
KAREEDOUW
KAREEDOUW MOUNTAINS (S.A.B.C./G.P.O.)
KRUISFONTEIN
HUMANSDORP
JEFFREYS BAY
ST. FRANCIS BAY
INDIAN OCEAN
N
CAPE EASTERN UNDERTAKING
REFERENCE
Area of Supply
Border Undertaking
Transmission Lines
Transmission Lines Under Construction
Substation Site
o S/S
10 5 0 10 20 30 40 50 Kilometres
10 5 0 10 20 30 40 50 MILES
AREA OF SUPPLY.....3,100 SQUARE MILES (8,000 SQUARE KILOMETRES)

CAPE EASTERN UNDERTAKING

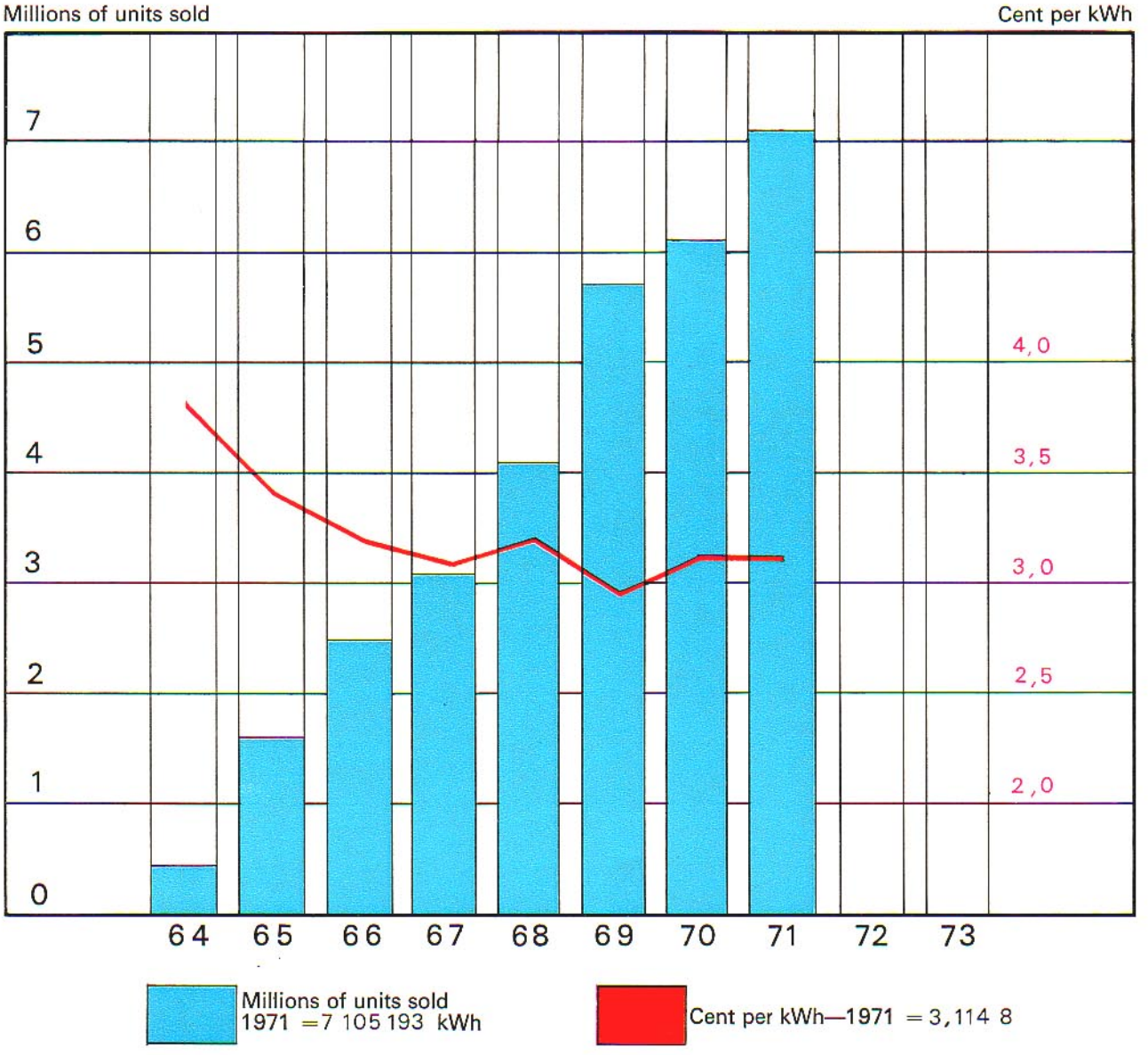
The licensed area of supply of this small undertaking is shown on the map on page 92.

For consumers in the Gamtoos Valley, Escom purchases power from the hydro-electric power station of the Department of Water Affairs at the Paul Sauer dam. Electricity is, however, not continuously available from this source as its generation is dependent upon the release of water for irrigation. When the hydro-electric power station is not operating Escom purchases a supply of electricity for the Gamtoos Valley from the Port Elizabeth Municipality at Summit substation. When the output from the hydro-electric power station exceeds the demand of Escom's network in this valley, the surplus power is taken by the Port Elizabeth Municipality.

Electricity for the network in the Sundays River Valley is purchased from the Port Elizabeth Municipality at Aloes substation.

Sales of Electricity

The graph below indicates the increase in the sales of electricity in the undertaking since it came into operation in 1964. The red line on the graph indicates the average price per unit sold. The sales of electricity indicated in this graph exclude the occasional supplies taken by the Port Elizabeth Municipality at Summit substation, when the hydro-electric power generated at the Paul Sauer dam exceeds the needs of Escom's network in the Gamtoos Valley:—



In 1971, 7,105 million units of electricity were sold to consumers in the licensed area of the Cape Eastern Undertaking, and this shows an increase of 16,15 per cent over the corresponding figure for 1970. Development in this area was, in 1970, restricted by a severe drought and floods which occurred in 1971 caused extensive damage to property.

Development of the undertaking

The hydro-electric power station at the Paul Sauer dam was brought into operation on 7 January 1971. The low level of the dam, however, permitted only intermittent operation up to the time of the floods in the Gamtoos Valley in August 1971. Since then it has been possible to operate the hydro-electric power station for most of the time, and power generated beyond the needs of the Gamtoos Valley was exported to Port Elizabeth.

The devastating floods which occurred in August caused considerable damage to Escom's lines and equipment in the Sundays River Valley, and extensive repairs were necessary. Although the floods also caused much damage to property in the Gamtoos River Valley, Escom's lines and installations fortunately were affected to a lesser extent as they are mainly on higher ground.

A 22 kV line to supply Kareedouw was completed in October 1971, and a supply was furnished in November 1971 to the Kareedouw creosote works. Work on the reticulation of the Kareedouw village will commence early in 1972. Development of other existing networks also continued during the year and the total number of consumers connected increased from 543 in 1970 to 584 in 1971.

Development of rural electrification

The whole system of the Cape Eastern Undertaking is effectively a rural network. Due to the drought of 1970 and the floods in 1971 there has been a setback in agricultural development and the total number of farming supplies increased only from 378 in 1970 to 387 in 1971.

Financial

The table on page 95 gives details of the units sold to the various classes of consumers, the total income received and the total operating cost. In this table, the units taken by Port Elizabeth Municipality from surplus generation in the hydro-electric power station at the Paul Sauer dam are not included as sales by the Cape Eastern Undertaking.

The operating costs of the undertaking are influenced to a considerable extent by the output of the Paul Sauer power station, as regular sustained operation of this power station lessens the need to purchase supplementary power for the Gamtoos Valley.

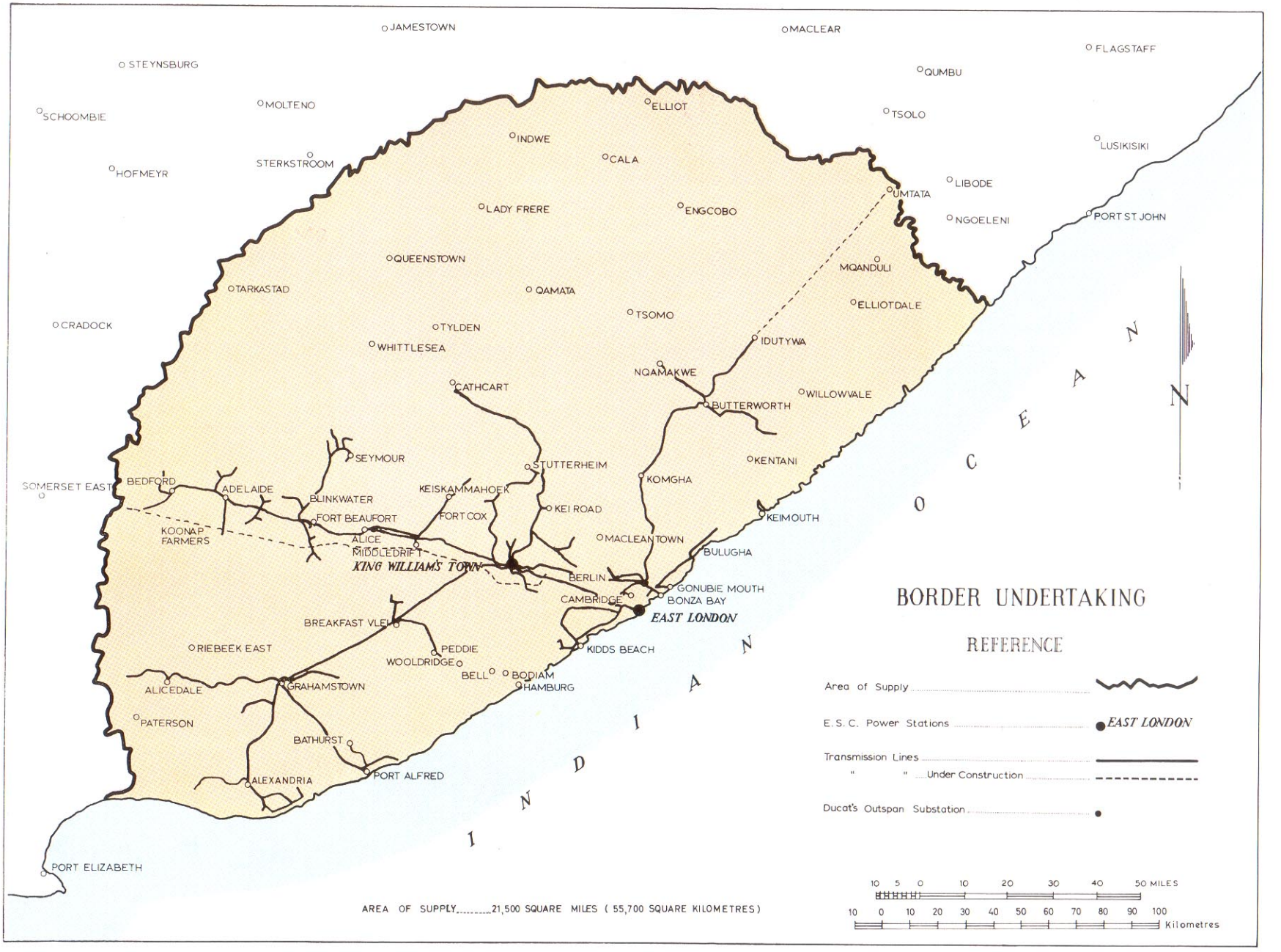
The average price per unit sold dropped slightly from 3,128 1 cents per kWh sold in 1970 to 3,114 8 cents per kWh sold in 1971.

CAPE EASTERN UNDERTAKING

Class	CONSUMER Number 1970	CONSUMER Number 1971	SALES Proportion % 1970	SALES Proportion % 1971	SALES kWh 1970	SALES kWh 1971	SALES %Change 70/69	SALES %Change 71/70	REVENUE FROM SALES Rand 1970	REVENUE FROM SALES Rand 1971	AVERAGE PRICE PER kWh SOLD Cents 1970	AVERAGE PRICE PER kWh SOLD Cents 1971
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Bulk	1	1	21,40	21,67	1 309 380	1 539 720	— 2,79	+17,59	27 651	29 479	2,111 8	1,914 6
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Industrial	109	111	45,93	46,38	2 809 613	3 295 634	+ 6,95	+17,30	91 469	113 940	3,255 6	3,457 3
Domestic	431	470	32,32	31,62	1 976 780	2 246 331	+ 14,66	+13,64	71 127	76 680	3,598 1	3,413 6
Street Lighting	2	2	0,35	0,33	21 624	23 508	+ 2,80	— 8,71	1 111	1 210	5 137 8	5,147 2
Total	543	584	100,00	100,00	6 117 397	7 105 193	+ 6,96	+16,15	191 358	221 309	3,128 1	3,114 8

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	191 299	221 309	
Working Costs	232 168	266 208	
Surplus	—	—	
Deficit	40 869	44 899	141 465
Capital Expenditure	—45 335	91 762	

Note:- Above units sold by Cape Eastern Undertaking do not include units taken by Port Elizabeth Municipality at Summit substation from the hydro-electric power station at the Department of Water Affairs.

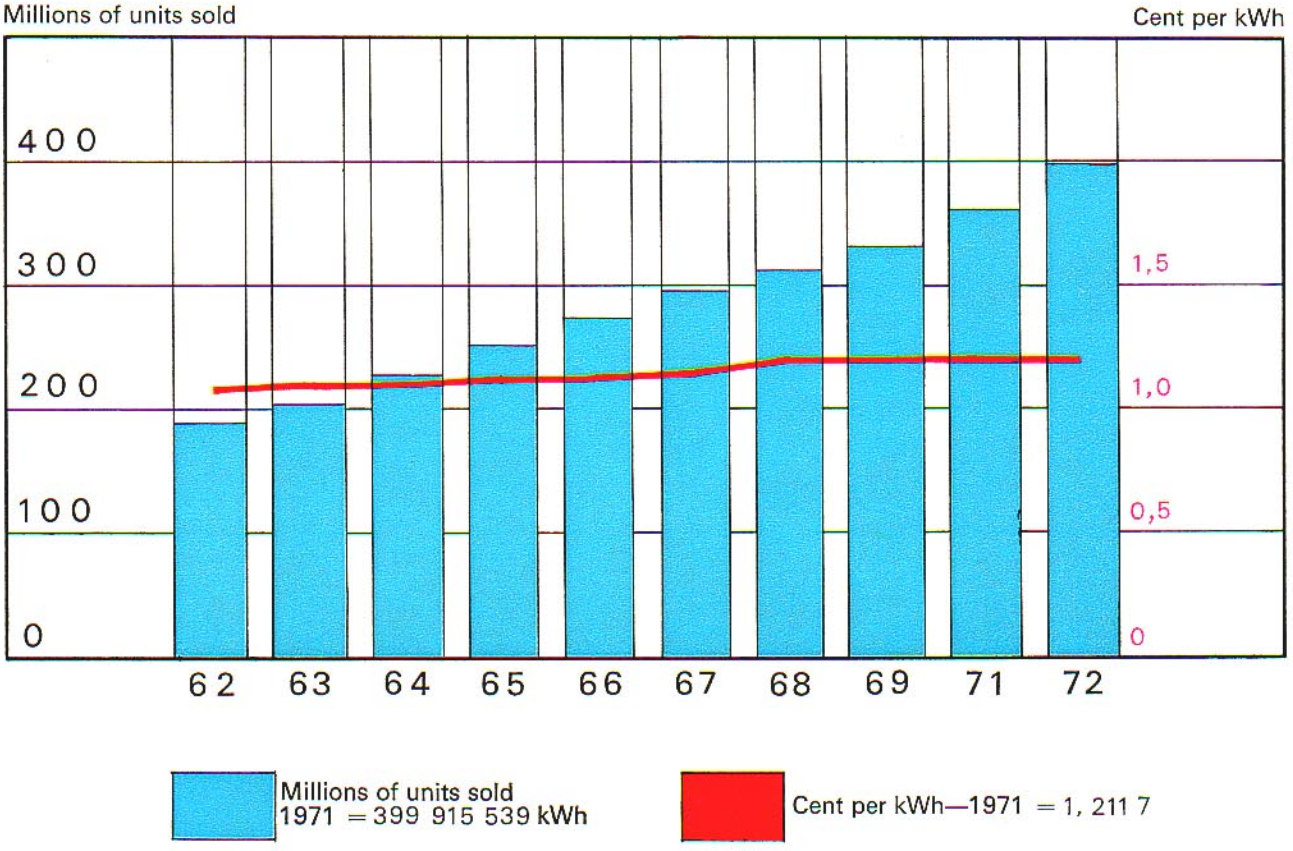

JAMESTOWN
MACLEAR
FLAGSTAFF
STEYNSBURG
QUMBU
SCHOOMBIE
MOLTENO
ELLIOT
TSOLO
INDWE
CALA
LUSIKISIKI
HOFMEYR
STERKSTROOM
LIBODE
UMTATA
LADY FRERE
ENGCOBO
NGOELENI
PORT ST JOHN
QUEENSTOWN
MQANDULI
TARKASTAD
QAMATA
ELLIOTDALE
TSOMO
CRADOCK
TYLDEN
IDUTYWA
WHITTLESEA
NQAMAKWE
CATHCART
WILLOWVALE
BUTTERWORTH
SEYMOUR
STUTTERHEIM
KENTANI
SOMERSET EAST
BEDFORD
ADELAIDE
KOMGHA
BLINKWATER
KEISKAMMAHOEK
KEI ROAD
KEIMOUTH
FORT BEAUFORT
FORT COX
KOONAP FARMERS
ALICE
MACLEANTOWN
MIDDLEDRIFT
BULUGHA
KING WILLIAM'S TOWN
BERLIN
GONUBIE MOUTH
CAMBRIDGE
BONZA BAY
EAST LONDON
BREAKFAST VLEI
RIEBEEK EAST
KIDDS BEACH
PEDDIE
WOOLDRIDGE
BELL
BODIAM
HAMBURG
ALICEDALE
GRAHAMSTOWN
PATERSON
BATHURST
ALEXANDRIA
PORT ALFRED
PORT ELIZABETH
O C E A N
I N D I A N
BORDER UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
EAST LONDON
Transmission Lines
" " Under Construction
Ducat's Outspan Substation
10 5 0 10 20 30 40 50 MILES
10 0 10 20 30 40 50 60 70 80 90 100 Kilometres
AREA OF SUPPLY.....21,500 SQUARE MILES (55,700 SQUARE KILOMETRES)

BORDER UNDERTAKING

The licensed area of supply of the Border Undertaking is shown on the map on page 96. Power for this undertaking is generated at West Bank power station. It is planned to augment the power resources of this undertaking in 1973 by an interconnection with Escom's main 400 kV network.

Sales of Electricity

As shown in the table on page 99, the total units of electricity sold in the Border Undertaking in 1971 exceeded the corresponding total for 1970 by 10,98 per cent. This growth rate experienced during 1971 is significantly higher than the average annual increase of 8,38 per cent during the ten-year period ended in 1971. Industrial development in the Berlin and King William's Town areas contributed to this improvement. The graph below indicates the increase in sales of electricity over the period 1962 to 1971, and the change during this period in the average price per unit sold:—



Development of the undertaking

Construction has commenced on Poseidon distribution station near Cookhouse. This station will be fed by means of a 400 kV line from Hydra distribution station (near De Aar), and 220 kV system extensions from Poseidon will provide power to the Border Undertaking and to Port Elizabeth early in 1973.

In order to give an increased supply to the Good Hope Textile Corporation near King William's Town, a 66/11 kV substation is being erected near the factory, and the initial supply from this substation will be given early in 1972.

The increasing load potential in the Transkei has made it necessary to reconsider the original plan to build a 66 kV line from Ducats substation to Butterworth. It is now proposed to build a line from Pembroke (near Berlin) to Butterworth, and to make it of 132 kV construction, to be operated initially at 66 kV. Erection of the line is due to commence early in 1972 and the line and 66/11 kV substation at Butterworth (to be named Lamplough) are due for completion towards the end of 1972.

The Umtata Municipality has accepted Escom's offer of a supply of electricity and the Pembroke-Butterworth line will be extended to Umtata. Supply is to be available early in 1973.

The rapid development taking place in the North Coast area has made it necessary to plan for the installation of a 66 kV ring system, with 66/11 kV stepdown substations at Beacon Bay (to be named Royston) and Gonubie (to be named Greenacres). The ring will be fed from the proposed new Aloe Glen 66 kV switching station near Ducats substation. Work on this project will be commenced towards the end of 1972.

The reticulation system in King William's Town was purchased from Escom by the municipality, with effect from 1 January 1971, and supply is now being

purchased in bulk by the municipality. In order to complete the supply arrangements it will be necessary to erect new 11 kV switchgear in the 66 kV switchyard and this will be done during 1972.

Work is in hand on the supplies to the Water Affairs Department pumping stations at Laing dam, Zwelitsha and Berlin Flats.

A supply was given to Bathurst, the reticulation of this town being carried out by Escom.

The erection of the new office block in East London is proceeding in accordance with the programme and Escom's office will be transferred to the new building towards the middle of 1972.

Development of rural electrification

A total of seventy-one new farming supplies were given during 1971, bringing the total of such connections to 642. Most of the new connections were made as extensions to existing schemes or in areas near to existing networks. Where long transmission distances were involved the terms offered have been considered by farmers to be uneconomic.

In the Boknes area south-east of Alexandria, 49 km of line was built to connect up seventeen farmers. In the Zuney Valley a further 10 km of line was built to give supply to five additional farmers. Negotiations for supply have been concluded with twenty-two farmers situated at various points near to existing lines and these supplies will be given in 1972. A number of new rural schemes are under investigation.

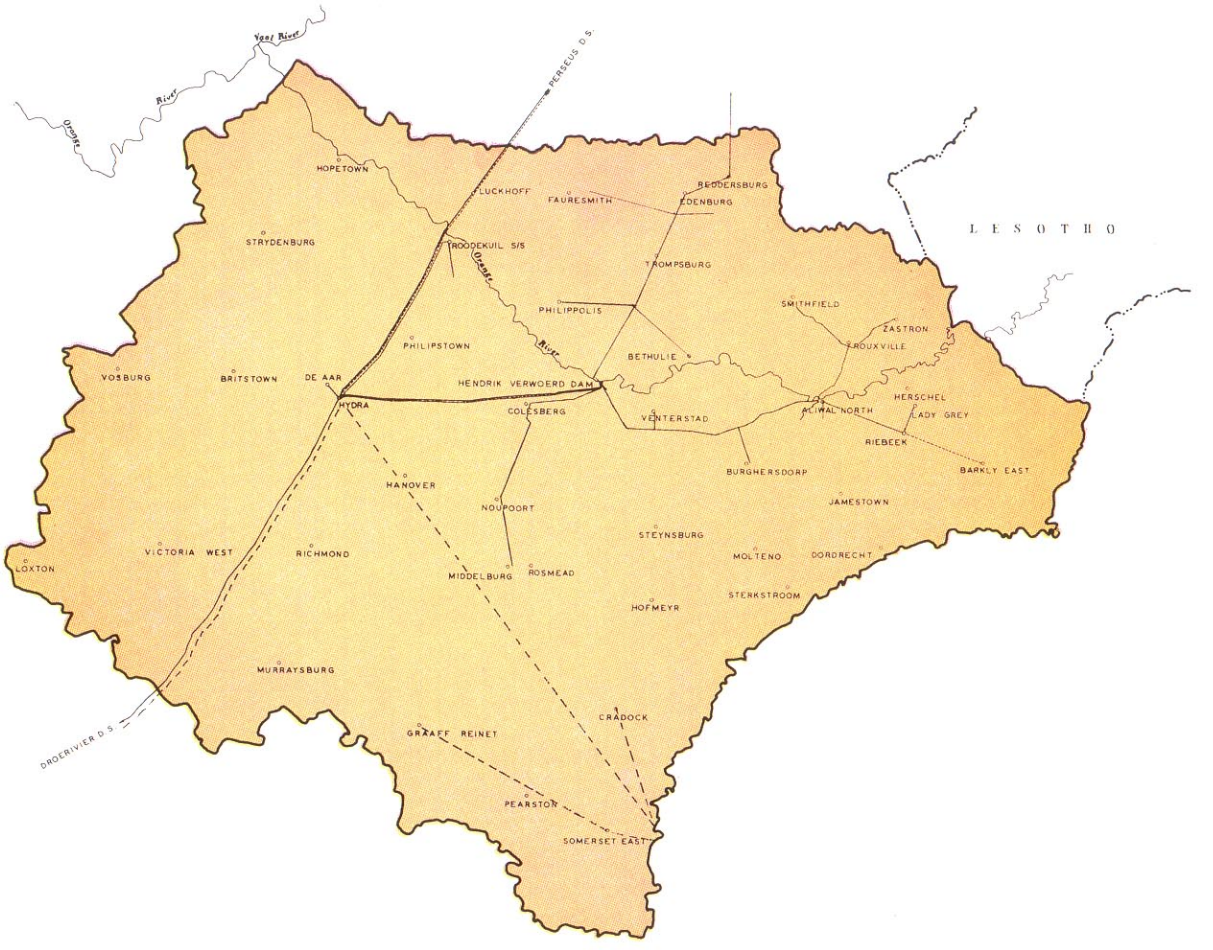
Financial

Details of revenue and cost are given in the table on page 99. The average price per unit sold increased from 1,200 2 cent per kWh in 1970, to 1,211 7 cent per kWh in 1971. This change was influenced by the increase of the surcharge on tariffs, from 5 per cent to 10 per cent, introduced on 1 July 1971, and by the fact that the municipality of King William's Town, which was previously reticulated by Escom, now takes a bulk supply of electricity.

BORDER UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		% Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Bulk	14	16	85,49	91,34	308 077 044	365 264 691	+ 8,69	+18,56	3 296 129	4 054 331	1,069 9	1,110 0
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Industrial	462	358	6,82	3,96	24 575 789	15 817 784	− 8,24	−35,64	520 872	400 683	2,119 5	2,533 1
Domestic	4 413	2 771	7,51	4,65	27 053 698	18 597 961	+13,99	−31,26	489 516	380 682	1,809 4	2,046 9
Street Lighting	9	8	0,18	0,05	645 934	235 103	+ 3,17	−63,60	18 497	10 084	2,863 6	4,289 2
Total	4 898	3 153	100,00	100,00	360 352 465	399 915 539	+ 9,03	+10,98	4 325 014	4 845 780	1,200 2	1,211 7

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	4 325 014	4 845 781	
Working Costs	4 564 640	4 905 352	
Surplus	—		
Deficit	239 626	59 571	403 671
Capital Expenditure	759 756	2 130 844	



ORANGE RIVER UNDERTAKING

REFERENCE

AREA OF SUPPLY.....

TRANSMISSION LINES.....

TRANSMISSION LINES UNDER CONSTRUCTION.....

AREA OF SUPPLY..... 53,900 SQUARE MILES (139,300 SQUARE KILOMETRES)

Kilometres

MILES

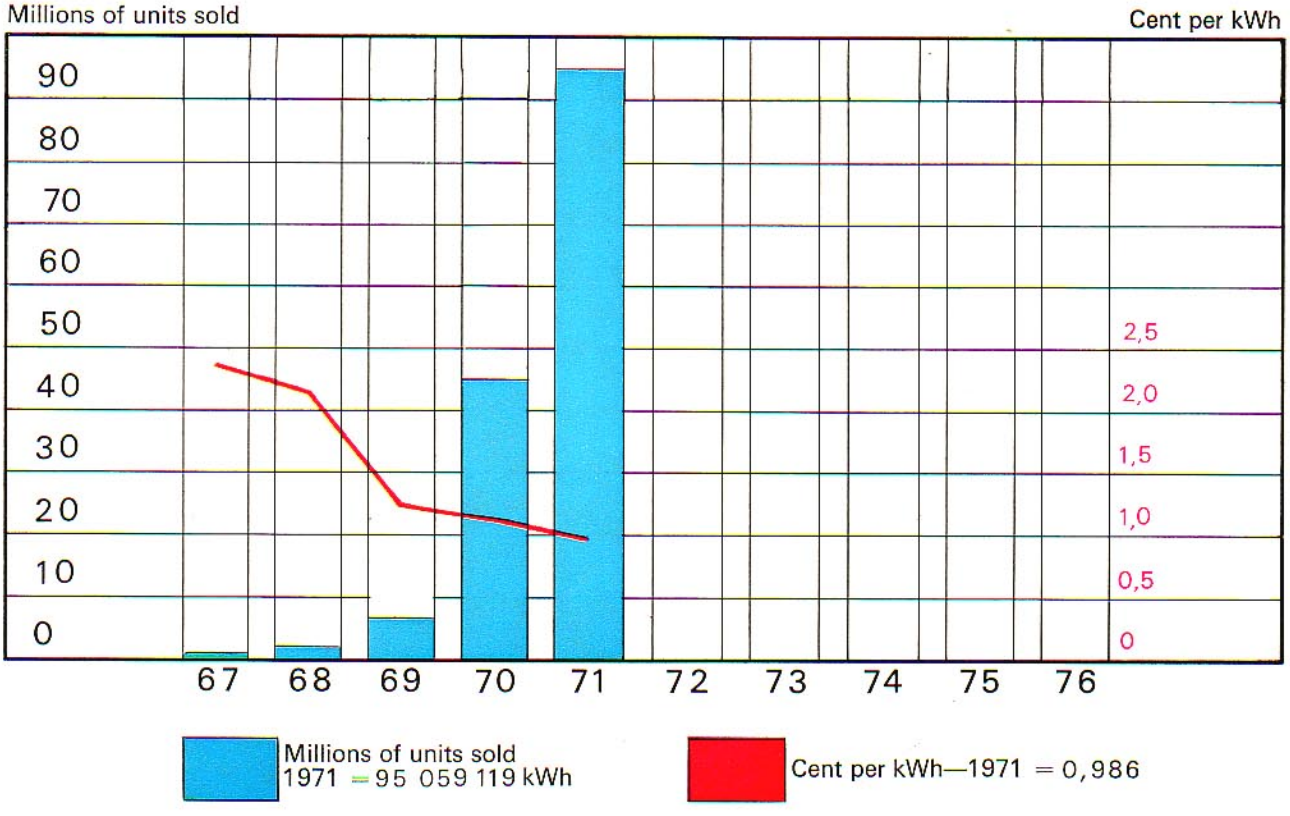
ORANGE RIVER UNDERTAKING

The licensed area of supply of the Orange River Undertaking is shown on the map on the opposite page. The undertaking was first established in 1967.

Sales of Electricity

The undertaking shows the high growth rate characteristic of newly established undertakings during the initial development stages. The number of units of electricity sold in 1971 totalled 95 million which is more than double the figure for 1970.

Sales of electricity since the undertaking went into operation are shown on the following graph which also indicates the change, during this period, in the average price per unit sold:—



Development of the Undertaking

An important development during 1971 was the takeover, by Escom, of the network of the Suid-Vrystaatse Elektrisiteit-voorsiening Utiliteits-maatskappy (S.E.V.U.M.). This network was originally supplied from Bloemfontein and serves the towns of Reddersburg, Edenburg, Trompsburg, Springfontein, Philippolis and Bethulie. The system is now supplied from Escom's Ruigtevallei distribution station near the Hendrik Verwoerd dam, and the towns take individual bulk supplies from Escom.

A 132 kV line was erected from Hydra distribution station (near De Aar) to the 132/22 kV Roodekuil substation and energised in November. The line will be used to give a construction supply to the Water Affairs Department via Roodekuil substation for the building of the P.K. le Roux dam. When generation starts at the dam, the line will feed power back to Hydra.

A 22 kV line from Roodekuil to Petrusville was completed and a supply furnished to Petrusville in December 1971.

Supplies were made available to Jagersfontein and Fauresmith in September 1971 and the line to Lady Grey was also completed and a supply to this town was given towards the end of the year. Work was commenced on the line to Barkly East which is due to be completed in the second quarter of 1972. Planning has started on the 22 kV line from Hydra to Phillipstown and this line should be completed towards the end of 1972.

A supply was provided to a Post Office repeater station at Bergfontein and two further repeater stations at Hertzberg and Vlugkop will be supplied in 1972.

Power for construction purposes was made available to the contractors engaged on the inlet section of the Orange-Fish tunnel and work has started to provide power at Teebus to the contractors working on the outlet section of the tunnel.

Terms have been quoted to Graaff-Reinet, Cradock and Somerset East Municipalities on the basis of a 132 kV supply from Poseidon distribution station (near Cookhouse) in 1973.

Development of Rural Electrification

This new undertaking has as yet not been in a position to commence rural electrification schemes as the initial work concentrated on the development of the system to supply electricity to towns and other major users. A start was, however, made in 1971. A total of four farm supplies were given including a 100 kVA supply to a farmer near Aliwal North and a 25 kVA supply to another near Trompsburg.

A number of possible rural schemes are now being investigated.

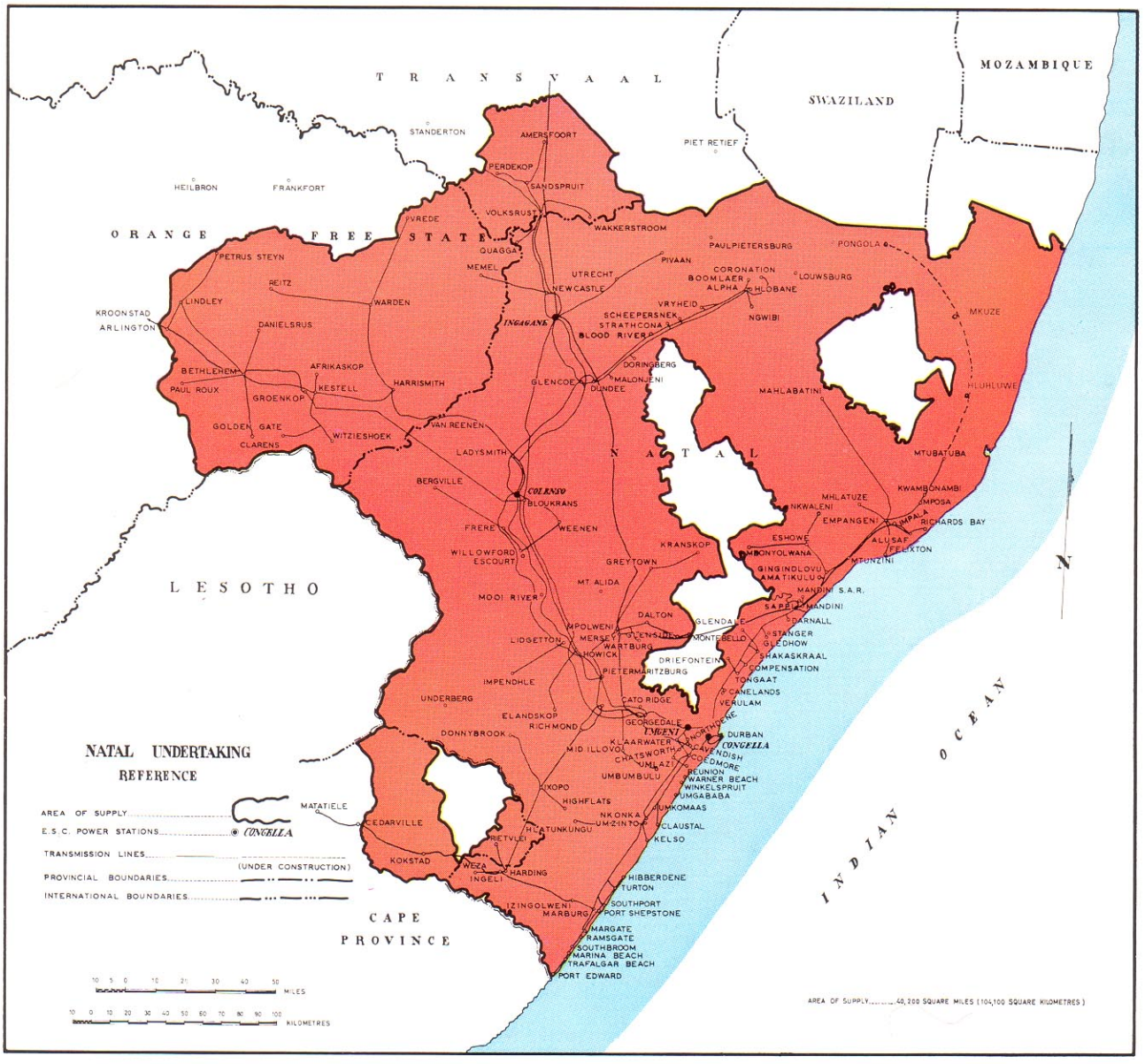
Financial

Details of revenue and cost are given in the table on page 103. For the year 1971 the average price per unit sold was 0,986 4 cent per kWh, which shows a decrease of more than 10 per cent, in relation to the figure of 1,101 3 cent per kWh in 1970.

ORANGE RIVER UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		%Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Bulk	10	20	82,50	51,58	38 999 900	49 034 810	−420,09	+ 25,73	416 387	491 436	1,067 7	1,002 2
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Industrial	4	14	17,50	48,42	8 270 650	46 024 305	+1614,64	+456,48	104 202	446 258	1,259 9	0,969 6
Domestic	—	1	—	0,01	—	4	—		—	5	—	
Street Lighting	—	—	—	—	—	—	—	—	—	—	—	—
Total	14	35	100,00	100,00	47 270 550	95 059 119	+101,29	+101,10	520 589	937 699	1,101 3	0,986 4

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	520 589	937 699	
Working Costs	637 693	1 057 741	
Surplus	—	—	—
Deficit	117 104	120 042	290 908
Capital Expenditure	10 544 636	8 666 079	


TRANSVAAL
MOZAMBIQUE
SWAZILAND
STANDERTON
AMERSFOORT
PIET RETIEF
HEILBRON
FRANKFORT
PERDEKOP
SANDSPRUIT
VOLKSRUST
WAKKERSTROOM
ORANGE FREE STATE
PVREDE
QUAGGA
PAULPIETERSBURG
PONGOLA
PETRUS STEYN
MEMEL
PIVAAN
UTRECHT
CORONATION
BOOMLAER
ALPHA
HLOBANE
LOUWSBURG
REITZ
NEWCASTLE
LINDLEY
WARDEN
VRYHEID
NGWIBI
MKUZE
KROONSTAD
ARLINGTON
INGAGANE
SCHEEPERSNEK
STRATHCONA
BLOOD RIVER
DANIELSRUS
DORINGBERG
BETHLEHEM
AFRIKASKOP
PAUL ROUX
KESTELL
HARRISMITH
GLENCOE
MALONJENI
DUNDEE
MAHLABATINI
HLUHLUWE
GROENKOP
GOLDEN GATE
VAN REENEN
WITZIESHOEK
CLARENS
LADYSMITH
NATAL
MTUBATUBA
BERGVILLE
COLENSO
BLOUKRANS
MHLATUZE
KWAMBONAMBI
NKWALENI
IMPOSA
EMPANGENI
IMPALA
RICHARDS BAY
FRERE
WEENEN
ESHOWE
ALUSAF
FELIXTON
KRANSKOP
WILLOWFORD
ESCOURT
BONTOLWANA
GINGINDLOVU
AMATIKULU
MTUNZINI
GREYTOWN
MT ALIDA
MANDINI S.A.R.
LESOTHO
MOOI RIVER
SAPPI
MANDINI
DALTON
GLENDALE
DARNALL
MPOLWENI
MERSEY
LENSIDE
MONTEBELLO
STANGER
LIDGETTON
WARTBURG
GLEDHOW
HOWICK
SHAKASKRAAL
DRIEFONTEIN
COMPENSATION
PIETERMARITZBURG
TONGAAT
IMPENDHLE
CANELANDS
UNDERBERG
CATO RIDGE
VERULAM
ELANDSKOP
GEORGEDALE
TWENTY
NORTHDENE
DURBAN
RICHMOND
DONNYBROOK
KLAARWATER
CONGELLA
MID ILLOVO
CHATSWORTH
CAVENDISH
UMLAZI
REDMORE
UMBUMBULU
REUNION
WARNER BEACH
IXOPO
WINKELSPRUIT
UMGABABA
HIGHFLATS
UMKOMAAS
NKONKA
UMZINTO
CLAUSTAL
MATATIELE
CEDARVILLE
HEATUNKUNGU
KELSO
RETVLEI
KOKSTAD
WEZA
INGELI
HARDING
HIBBERDENE
TURTON
IZINGOLWENI
MARBURG
SOUTHPORT
PORT SHEPSTONE
CAPE PROVINCE
MARGATE
RAMSGATE
SOUTHBROOM
MARINA BEACH
TRAFALGAR BEACH
PORT EDWARD
INDIAN OCEAN
N
NATAL UNDERTAKING
REFERENCE
AREA OF SUPPLY
E.S.C. POWER STATIONS
CONGELLA
TRANSMISSION LINES
(UNDER CONSTRUCTION)
PROVINCIAL BOUNDARIES
INTERNATIONAL BOUNDARIES
10 5 0 10 20 30 40 50 MILES
10 0 10 20 30 40 50 60 70 80 90 100 KILOMETRES
AREA OF SUPPLY..... 40,200 SQUARE MILES (104,100 SQUARE KILOMETRES)

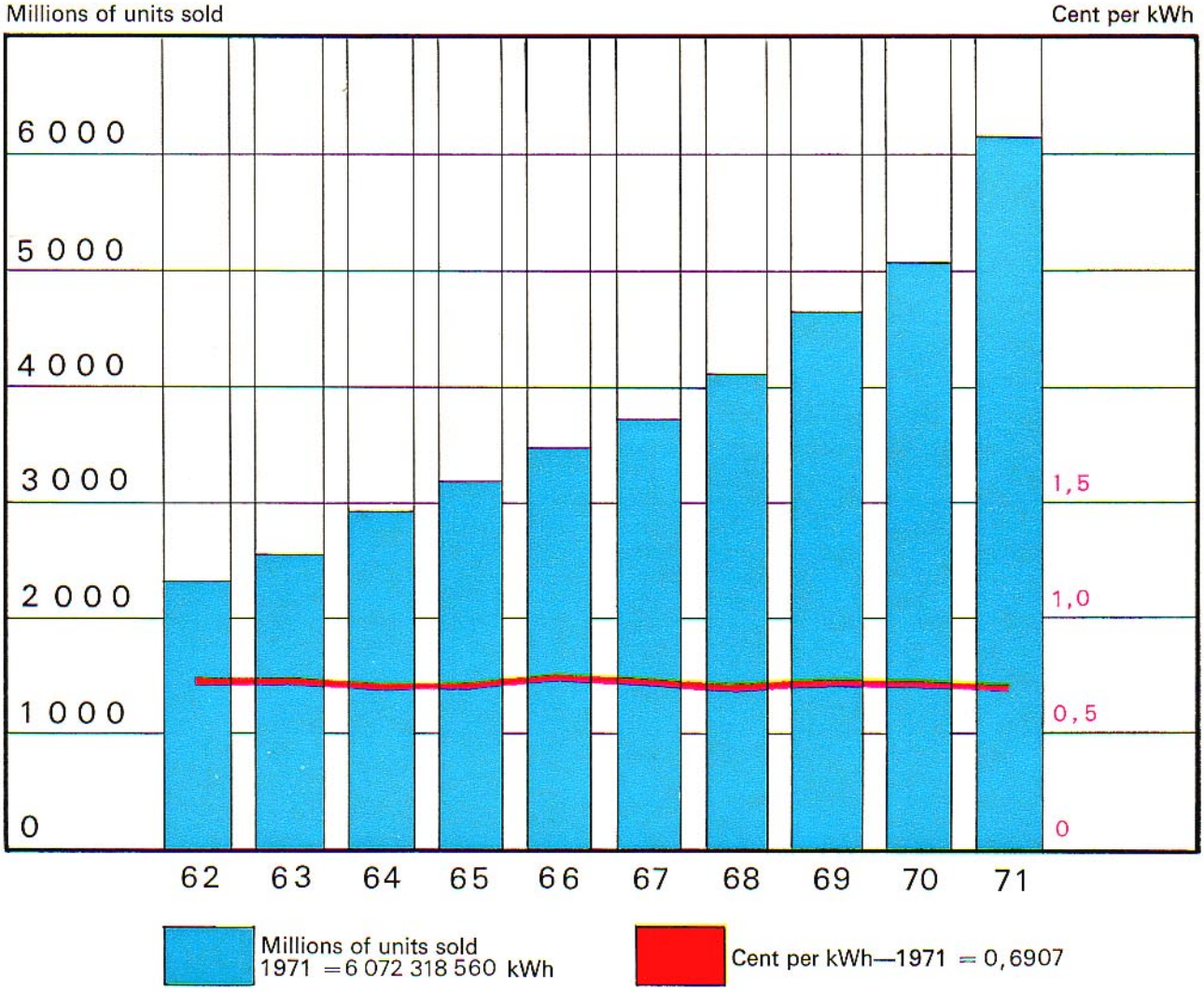
NATAL UNDERTAKING

The licensed area of supply of the Natal Undertaking, which combines the areas of supply of the Natal Central Licence and the Natal Southern Licence, was unchanged during the year and is as shown on the map on page 104. An application has been made to the Electricity Control Board for an amendment to the Natal Southern Licence to include the whole of the magisterial district of Matatiele.

The undertaking has four power stations, Congella, and Umgeni power stations near Durban, Colenso in the Natal Midlands and Ingagane in Northern Natal. The limited interconnection between these power stations and the power stations in the northern provinces, via a 132 kV line between Taaibos and Colenso power stations, was reinforced in October 1971 by the commissioning of the first of two 400 kV lines between Camden and Ingagane power stations. This reinforcement was urgently needed in order to meet the growth of load in the Natal Undertaking.

Sales of Electricity

The graph below indicates the increase in sales of electricity over the period 1962 to 1971, and the change, during this period, in the average price per unit sold:—



Total sales of electricity in the undertaking increased from 5 073,5 million units in 1970 to 6 072,3 million units in 1971. The commissioning of the Alusaf aluminium smelter at Richards Bay in June 1971 contributed largely to the high increase of 19,7 per cent in the number of units sold, but when the Alusaf consumption is disregarded, the remaining electricity sales in 1971 nevertheless exceed the corresponding figure for 1970 by 9,9 per cent. Bulk supplies to municipalities showed an increase of 10,4 per cent. The Durban Corporation purchased 78,1 per cent of these units, its consumption rising by 9,6 per cent over the 1970 figure. Sales to the South African Railways, for traction purposes, rose by 9,1 per cent to 819,7 million units.

Development of the Undertaking

The first 275 kV line between Mersey substation near Pietermaritzburg and Impala substation near

Richards Bay together with the first 132 kV line between Impala and Alusaf substations were commissioned early in May to provide a supply for the aluminium smelter at Richards Bay. Construction of these lines was severely hampered by lack of steel and a high percentage of both Escom's and the contractor's resources had to be diverted to this project to complete it in a reasonable time.

Unfortunately both the 275/132 kV stepdown transformers at Impala failed within a few days of being energised due to internal flashovers. Temporary by-pass arrangements were made and supplies to the smelter were resumed after an interruption of a few days. The transformers were repaired on site after replacement parts had been flown out from England and the system was restored to normal during July.

Construction of the second 132 kV line between Impala and Alusaf was completed during October 1971. The second 275 kV line between Mersey and Impala was completed and put in service during March 1972, thus providing a duplicate supply to the Alusaf works.

With all efforts being concentrated on the lines to Alusaf, work on the first 400 kV line interconnecting Camden power station in the Eastern Transvaal with Chivelston 400/275 kV substation near Newcastle in Natal was delayed and the line was only commissioned in October. The power stations in Natal were consequently required to operate at maximum capacity throughout the winter months in order to meet the load without any major assistance from the Transvaal stations. Except for a few breakdowns, supplies were maintained throughout this difficult period. Construction of the second Camden/Chivelston 400 kV line is in progress and is expected to be complete by July 1972.

To enable local generation to be reduced at Congella and Colenso power stations in favour of the more economical power available from the Camden/Chivelston 400 kV interconnector, the capacities of the interconnections between these stations and the rest of the system are being increased. At Congella an additional 45 MVA 88/33 kV transformer was installed. At Bloukrans substation near Colenso a 180 MVA transformer is being installed to couple the 275 kV and 132 kV networks in this area and a second 132 kV line between Bloukrans and Colenso power station was completed during July. The work at Bloukrans substation is expected to be complete early in 1972.

A new 400/132 kV substation called Incandu is to be established near Newcastle during 1973 to provide supplies for the third Iscor works and Newcastle Municipality. Planning has reached an advanced stage and work on site should commence early in 1972.

Planning of the system to supply power for the Tugela-Vaal water pumping project has also reached an advanced stage and work will commence during 1972. This project involves the construction of a 275 kV line from Bloukrans substation (near Colenso) to Tugela substation (near Bergville), a 275/132 kV substation at Tugela, a 132 kV line from Tugela to Jagersrust pumping station and a 132/11 kV substation at Jagersrust.

A supply was made available in October to Amatikulu traction substation, this being the first of the traction substations associated with the electrification of the Mandini/Empangeni railway line. Supplies to three further stations at Hudley, Port Durnford and Empangeni will be given by mid-1972.

The railway line between Vryheid and Mahlabatini on the Vryheid/Empangeni route is expected to be electrified late in 1972 or early 1973. To provide power for the traction substations a 275/88 kV substation is to be established at Bloedrivier near Vryheid and an 88 kV line is to be built between Bloedrivier and Mahlabatini. Plans for this project are well advanced and construction will commence in 1972.

Bloedrivier substation will also provide the source from which supplies to the traction substations associated with the electrification of the Vryheid/Broodsnyersplaas railway line will be given. Plans for this project are still in the preliminary stages.

Work has commenced on the main 132/11 kV substation at Sithebe near Mandini, Zululand, which is being established to supply an industrial township sponsored by the Bantu Investment Corporation and it is anticipated that this project will be completed towards the end of 1972. A limited supply of up to 600 kVA was made available from the existing rural network in the area in October.

Work is proceeding on the construction of a 132 kV line from Impala substation (Richards Bay) to Pongola from which supplies will be given to Mtubatuba, Hluhluwe, Pongola and ultimately Mkuze. The line and the associated substations are expected to be completed by mid-1972.

Development of Rural Electrification

A high rate of progress has been maintained in respect of rural development which has taken place over a wide area in Natal. A total of 353 new farm supplies were made available during the year, and in addition 276 other rural consumers were connected. This involved the building of 340 km of transmission line.

The existing system in Central Natal was extended into the heart of the Drakensberg where the Champagne Castle Hotel and numerous farmers en route have been connected.

Considerable progress has been made to provide supplies to farms in the Mtubatuba/Kwambonambi area where approximately 156 km of 22 kV line has been completed and eighty-two farms are awaiting connection. These connections will be made in 1972 after completion of the 132 kV line from Impala substation to Mtubatuba. The 132 kV line is to be extended by 153 km from Mtubatuba to Pongola and a further 226 km of 22 kV line will be erected to supply the Pongola mill and 99 farms in this area. These supplies are also scheduled to be connected during 1972.

Terms have been quoted for a number of other rural schemes with 481 quotations awaiting replies at the year-end.

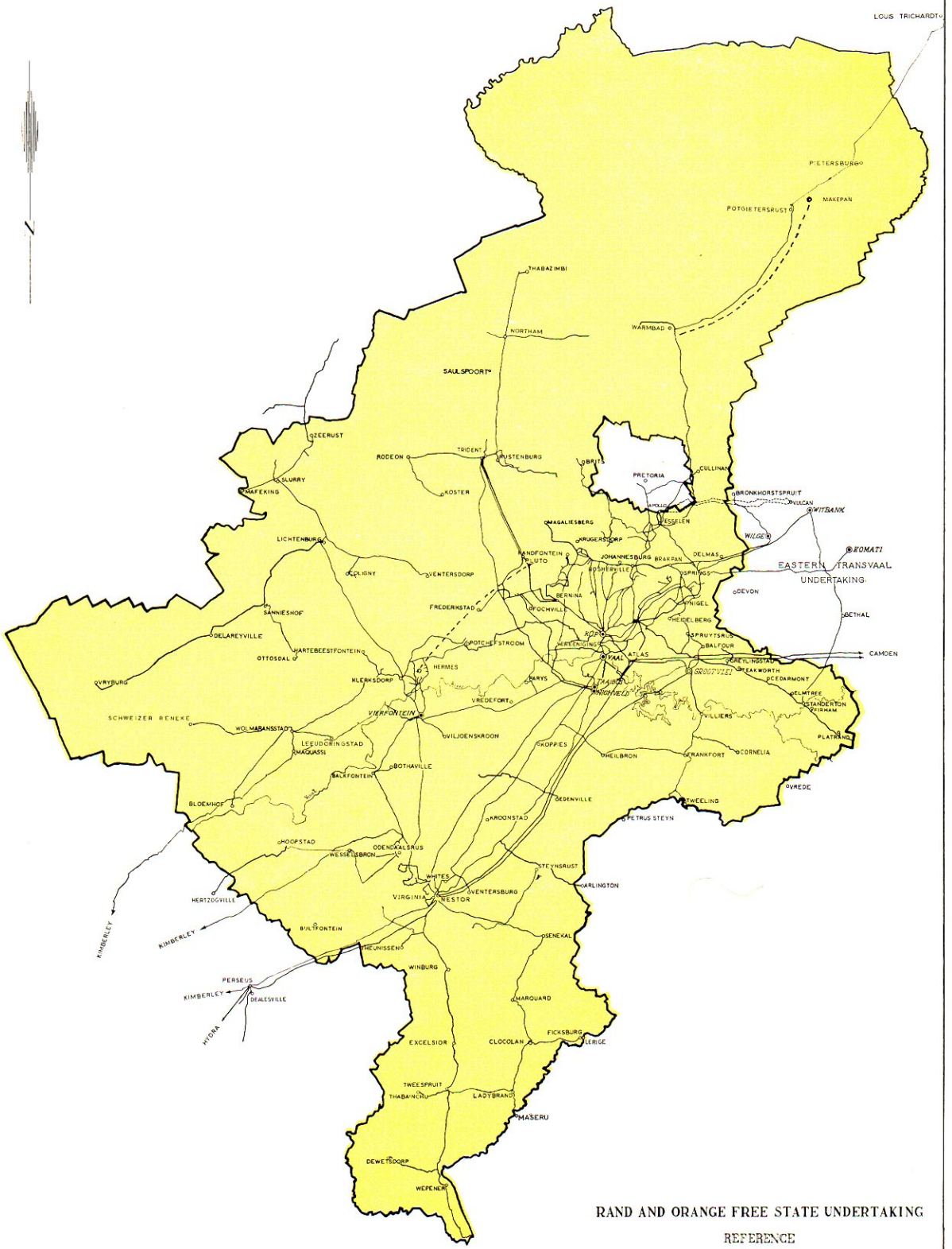
Financial

Details of units sold to the various classes of consumers, the total revenue and the operating costs for 1971 are given in the table on page 107. The revenue from electricity sales increased by 17,4 per cent to R41 943 million and the average price per unit sold decreased from 0,704 4 cent per kWh in 1970 to 0,690 7 cent per kWh in 1971.

NATAL UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		% Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	13	13	14,81	13,50	751 538 499	819 663 695	+12,52	+ 9,06	5 858 647	6 364 437	0,779 6	0,776 5
Bulk	28	29	63,09	58,17	3 201 063 980	3 532 529 278	+ 7,55	+10,35	20 178 869	22 353 724	0,630 4	0,632 8
Mining	32	32	3,03	2,66	153 865 475	161 514 728	+15,48	+ 4,97	1 258 653	1 306 600	0,818 0	0,809 0
Industrial	3 688	4 032	17,19	23,83	871 982 629	1 446 713 524	+12,77	+ 65,91	6 992 291	10 251 381	0,801 9	0,708 6
Domestic	14 823	16 270	1,84	1,81	93 099 657	109 815 114	+ 10,83	+17,95	1 413 083	1 626 609	1,517 8	1,481 2
Street Lighting	67	68	0,04	0,03	1 947 909	2 082 221	+ 5,25	+ 6,90	37 297	41 127	1,914 7	1,975 2
Total	18 651	20 444	100,00	100,00	5 073 498 149	6 072 318 560	+ 9,42	+19,69	35 738 840	41 943 878	0,704 4	0,690 7

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	35 738 840	41 943 878	
Working Costs	34 975 393	41 195 675	
Surplus	763 447	748 203	2 512 050
Deficit	—	—	
Capital Expenditure	14 695 025	14 361 896	


LOUIS TRICHARDT
PIETERSBURG
MAKEPAN
POTGIETERSRUST
THABAZIMBI
NORTHAM
WARMBAD
SAULSPOORT
ZEERUST
RODEON
TRIDENT
RUSTENBURG
BRITS
PRETORIA
CULLINAN
SLURRY
MAFEKING
KOSTER
BRONKHORSTSPRUIT
VULCAN
WITBANK
MAGALIESBERG
KRUGERSDORP
WILGE
KOMATI
LICHTENBURG
RANDFONTEIN
JOHANNESBURG
BRAKPAN
DELMAS
EASTERN TRANSVAAL UNDERTAKING
OLIGNY
VENTERSDORP
BOKSBURG
SPRINGS
DEVON
BERNINA
NIGEL
SANNIESHOF
FREDERIKSTAD
OCHVILLE
HEIDELBERG
BETHAL
DELAREYVILLE
POTCHEFSTROOM
KLIPRIVIER
SPRUYTSRUS
BALFOUR
CAMDEN
OTTOSDAL
WARTEBEESTFONTEIN
HERMES
ATLAS
GREYLINGSTAD
VYBURG
KLERKSDORP
PARYS
VAAL
GROOTVLEI
LAKWORTH
CEDARMONT
VREDEFORT
HENNENMAN
ELMTREE
STANDERTON
VIRGINIA
SCHWEIZER RENEKE
VILLIERS
WOLMARANSSTAD
VIERFONTEIN
VILJOENSKROON
PLATRAND
LEEUDORINGSTAD
MAQUASSI
KOPPIES
HEILBRON
FRANKFORT
CORNELIA
BOTHAVILLE
BALKFONTEIN
BLOEMHOF
HENNENMAN
TWEELING
VREDE
PETRUS STEYN
ODENDAALSRUS
WESSELSBRON
STEYNSRUST
WHITES
HERTZOGVILLE
VENTERSBURG
NESTOR
KIMBERLEY
BULTFONTEIN
HEUNINGSEN
SENEKAL
WINBURG
PERSEUS
KIMBERLEY
DEALESVILLE
MARQUARD
HIGRA
EXCELSIOR
CLOCOLAN
FICKSBURG
LERIGE
TWEESPRUIT
THABANCHU
LADYBRAND
MASERU
DEWETSDORP
WEPENER
RAND AND ORANGE FREE STATE UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
ELIP
GROOTVLEI (under construction)
Transmission Lines
Transmission Lines under construction
AREA OF SUPPLY 73,200 SQUARE MILES (189,600 SQUARE KILOMETRES)
MILES
Kilometres

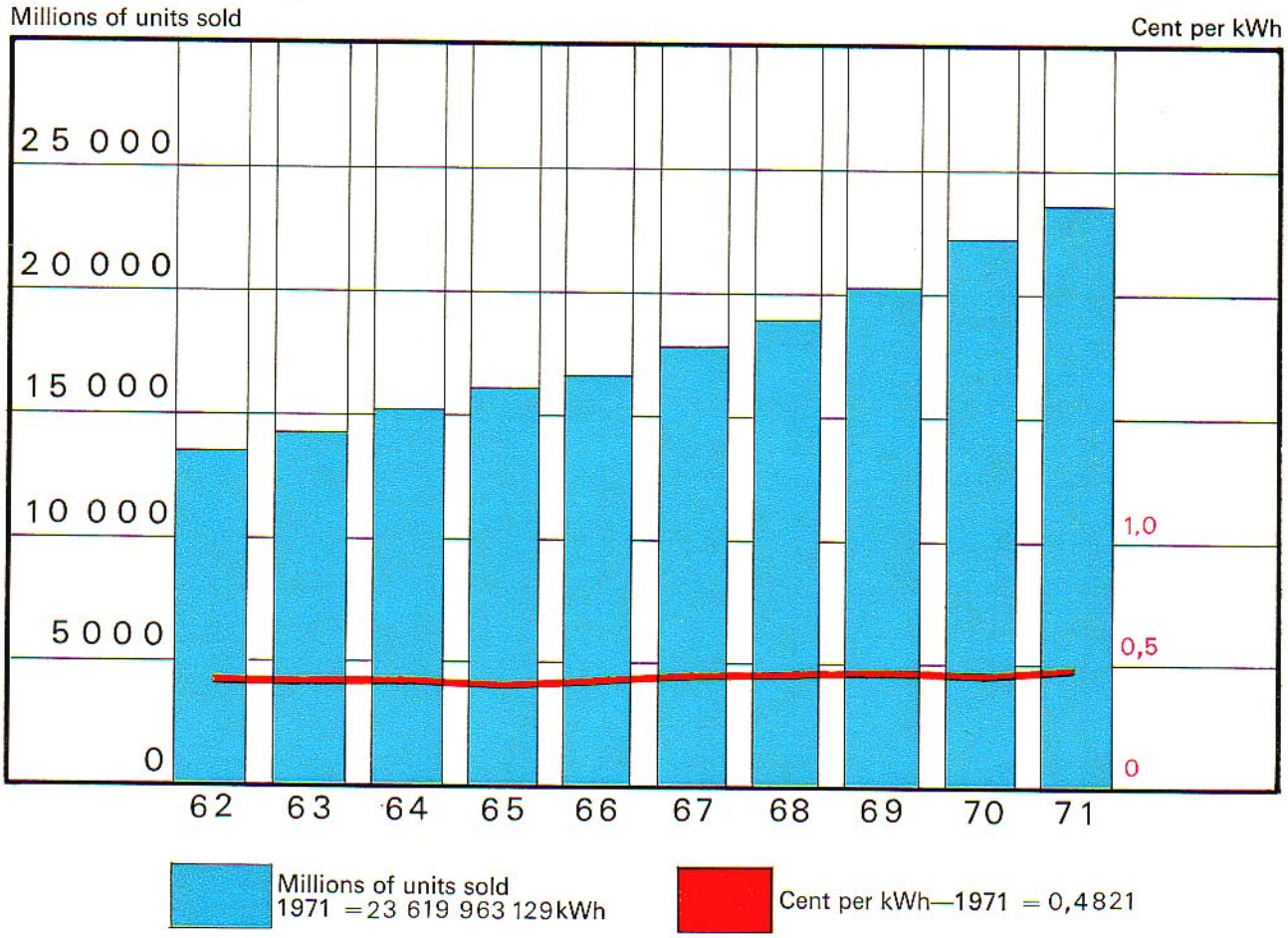
RAND AND ORANGE FREE STATE UNDERTAKING

The licensed area of supply of the Rand and Orange Free State Undertaking is as shown on the map on page 108.

Sales of Electricity

The high rate of growth in respect of units of electricity sold, achieved in 1970, was not sustained during the year 1971. The number of units sold in 1970 showed an increase of 10,26 per cent over the figure for 1969. The 23 620 million units of electricity sold in the Rand and Orange Free State Undertaking in 1971 exceeds the corresponding figure for 1970 by 5,95 per cent only. As will be noted from the table on page 111, the explanation lies largely in a considerable drop in the percentage growth of units sold for mining purposes in 1971. The decrease in the amount of electricity used by the West Driefontein mine for the de-watering of the Bank compartment, and the decrease in the rate of development in the platinum mining sector, were factors which contributed to this trend.

The graph below indicates the increase in sales of electricity over the period 1962 to 1971 and the change, during this period, in the average price per unit sold:—



Development of the Undertaking

Important transmission system extensions were required in 1971 to connect newly commissioned generating plant with the national transmission system. Further delays in transmission line construction occurred due to shortages of steel, cement, and labour, and other factors. These delays in transmission line construction led to consequential delays in the commissioning of major distribution stations and to some restriction in the allocation of output to newly completed power station plant. It was thus not until 23 July that the 400 kV transmission line from Hendrina power station could be brought into service. This enabled the full potential output of Hendrina power station to be fed into the system of the Rand and Orange Free State Undertaking via the 275 kV transmission lines from Apollo. The second 400 kV line between Hendrina and Apollo is scheduled for completion before the winter of 1972.

Apollo distribution station will become one of the major power intake points for the undertaking, drawing power at 400 kV from the Eastern Transvaal power station complex and ultimately also from Cabora Bassa. The 275 kV system from Apollo will *inter alia* serve the Pretoria City Council and the Johannesburg City Council (northern point of supply).

Apollo will also be the point of supply for the new 400 kV system to the Western Transvaal, via Pluto distribution station in the Rustenburg vicinity to Hermes distribution station near Stilfontein. Progress was made during 1971 with the development of Apollo distribution station and its associated transmission systems.

After some years of relatively little growth there was, during 1971, considerable development in supplies furnished to the South African Railways for railway traction in the licensed area of the undertaking. The railway electrification system between Kroonstad and Harrismith became operative in 1971, and four of the traction substations commissioned are in the undertaking's area. Traction supplies were also made available on the Pretoria North-De Wildt electrification project. Initial supplies planned for the reinforcement of the Klerksdorp-Kimberley traction system are scheduled for late 1972, for completion of the project during 1973.

Development of the Bantu Investment Corporation's Babalegi industrial township near Hammanskraal is continuing and the 66/11 kV substation for the permanent supply to this new industrial township was commissioned in November 1971. At the end of 1971 some twenty-six consumers had been connected in this township.

The new 275/88 kV Trident distribution station was commissioned in September 1971 to cater for notified load increases in the Rustenburg and Northam areas but due to the deterioration in the platinum market the load increase in this area is as yet lower than that originally expected. Certain system developments planned mainly to supply new demands of the platinum and cement industries have therefore been deferred until greater clarity emerges in their load growth pattern.

A supply of electricity was made available to the Zeerust Chrome Mine Limited in September 1971, by means of some 70 km of 88 kV line from Zeerust. Work is in progress on a further section of line to supply Marble Lime and Associated Industries Limited at Gopani, about 44 km north-west of Zeerust.

Extension of the 132 kV system northwards from Louis Trichardt to Messina is in hand, together with reinforcement of the southern section of this system. This development has led to the possibility that a limited supply may be furnished to the Rhodesian Electricity Supply Commission at Beit Bridge. This is at present under investigation.

Amongst the important new supplies to be made available during 1972 are the partial bulk supplies to be furnished to the municipalities of Johannesburg, Pretoria and Bloemfontein. Work is in progress on the system extensions required for these new supplies.

Development of Rural Electrification

The Rand and Orange Free State Undertaking continued to experience great pressure for the provision of electricity to farmers, and in spite of a general shortage of trained staff for this work the number of farming supplies increased by 857 from 5 862 in 1970 to 6 719 in 1971. Rural work in 1971 included considerable new development in areas not previously served. New schemes under construction during the year included schemes in the following areas: Rayton scheme extensions (Cullinan area), East of Nigel, Skikfontein/Goedehoop (between Heidelberg and Vereeniging), Thabazimbi South, Hennenman, De Pan (to the north of Carletonville), area west of Maanhaarrand (Magaliesburg vicinity), Schoonspruit scheme extensions (north and north-east of Klerksdorp), and Sannieshof.

Throughout the undertaking's area negotiations are in progress for possible new schemes, and a number of new schemes have been accepted on which work will commence during 1972.

Financial

Details of units sold to the various classes of consumers, the total revenue and the operating costs for 1971 are given in the table on page 111, The average price per unit sold increased from 0,454 2 cent per kWh in 1970 to 0,482 1 cent per kWh in 1971. This includes the effect of the surcharge of 5 per cent on tariff charges instituted as from the beginning of 1971.

RAND AND ORANGE FREE STATE UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		%Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	2	2	3,57	3,70	796 894 561	873 682 739	+ 0,57	+ 9,64	4 412 020	5 134 115	0,553 7	0,587 6
Bulk	137	141	16,23	17,15	3 617 274 060	4 051 254 402	+11,27	+12,00	17 569 285	20 632 462	0,485 7	0,509 3
Foreign (Lesotho)	2	2	0,04	0,05	8 824 906	12 259 196	−21,29	−38,92	67 248	79 530	0,762 0	0,648 7
Mining	101	105	54,48	52,23	12 148 655 026	12 337 353 415	+10,25	+ 1,55	51 906 645	55 632 556	0,427 3	0,450 9
Industrial	2 236	2 243	24,13	25,13	5 379 006 557	5 937 037 796	+10,67	+10,37	23 488 346	27 681 789	0,436 7	0,466 3
Domestic	25 421	28 167	1,54	1,73	342 593 545	408 263 602	+19,10	+19,17	3 806 901	4 698 410	1 111 2	1,150 8
Street Lighting	7	7	0,01	0,01	103 120	111 979	−17,04	+ 8,59	2 170	2 281	2,104 3	2,037 0
Total	27 906	30 667	100,00	100,00	22 293 351 775	23 619 963 129	+10,26	+ 5,95	101 252 615	113 861 143	0,454 2	0,482 1

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	101 570 383	114 280 608	
Working Costs	104 542 127	114 216 373	
Surplus	—	64 235	
Deficit	2 971 744	—	4 017 290
Capital Expenditure	116 534 920	124 174 757	

EASTERN TRANSVAAL UNDERTAKING

REFERENCE

Area of Supply

E.S.C. Power Stations ◉ WILGE ◎ ARNOT (Under Construction)

Transmission lines

Transmission lines under construction ---------

10 0 10 20 30 40 50 60 70 80 90 100 Kilometres

MILES 10 5 0 10 20 30 40 50 MILES

SCALE

AREA OF SUPPLY.....35,700 SQUARE MILES (92,500 SQUARE KILOMETRES)

EASTERN TRANSVAAL UNDERTAKING

The licensed area of supply of the Eastern Transvaal Undertaking is shown on the map on page 112.

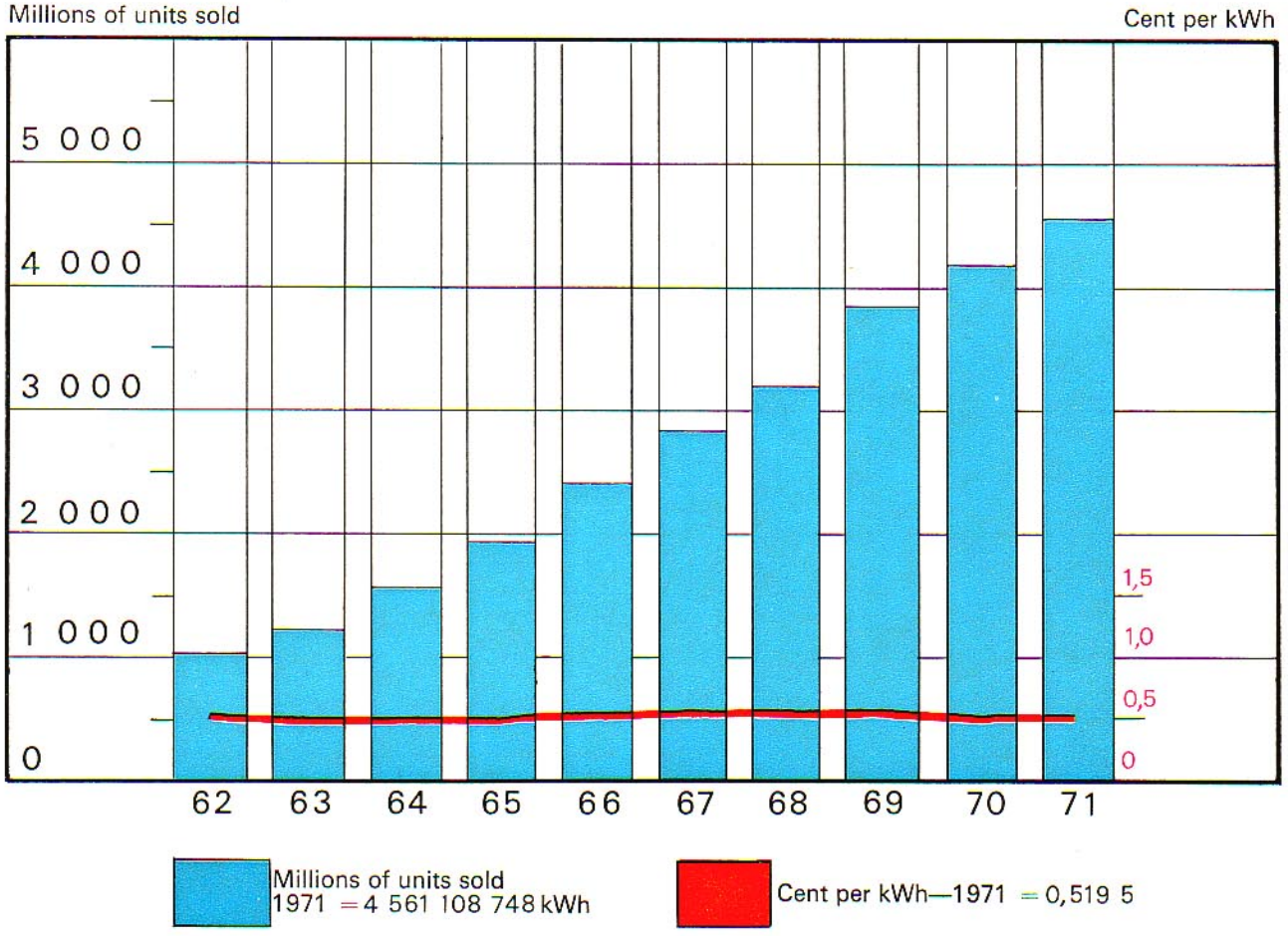
Sales of Electricity

There was, during 1971, a considerable drop in the high growth rates experienced by this undertaking in past years. A total of 4 562 million units were sold during 1971, and this exceeds the corresponding figure for 1970 by 6,23 per cent only. The average annual increase over the ten-year period ended in 1971 was 17,60 per cent. A number of factors contributed to the decreased percentage growth in 1971.

A large steelworks which was being developed in 1969 and 1970 came into full production in 1971 with little further increase during that year. Production at another steelworks was temporarily reduced.

Several large industries are planning extensions to their factories and an increase in the rate of growth of units sold should again be noticeable by the end of 1972, although the very high growth rates of the late nineteen-sixties may possibly not again be equalled.

The graph below indicates the increase in sales of electricity over the period 1962 to 1971 and the change in the average price per unit sold.



Development of the Undertaking

The first 400 kV transmission line between Hendrina power station and Vulcan distribution station near Witbank was completed during July and work on the second line is well advanced. Construction of the distribution station is progressing and expected to be completed during the second half of 1972.

132 kV lines between Vulcan and H.S.V. distribution stations and to the new distribution stations at Ferrometals and Rand Carbide were completed in November while construction of these distribution stations is also well in hand and should be completed early in 1972.

Prairie distribution station supplying power to Feralloys near Machadodorp was energised at 132 kV in April and work on the 275 kV installation at this station is in progress.

Survey work on the lines to Moçambique and Swaziland (275 kV and 132 kV respectively) is complete and construction of the lines will commence shortly.

A 132 kV transmission line from Wintershoek to Kafferskraal is nearing completion and the intermediate station at Bosloop was commissioned in December. This network will supply power for the water pumping stations associated with the Eastern Transvaal power station complex.

An 88 kV line between Groblersdal and Marble

Hall was commissioned in October to meet the increased demand in the Marble Hall area. This reinforcement of the system became necessary mainly as a result of the increased practice of spray irrigation in the Groblersdal/Marble Hall areas.

A 132 kV line from Selati to Gravelotte is being built to augment supplies to Consolidated Murchison and Tzaneen Municipality. Extensions at Gravelotte for conversion from 66 kV to 132 kV will follow.

Additional traction substations between Nelspruit and Komatipoort have been approved and these, together with 275/132 kV transformers at Komatipoort are to be put in hand in the near future. Further extensive S.A.R. electrification on the eastern main line and on the line to Natal is being investigated.

During 1971 the urban reticulation scheme of Evander was taken over by the Transvaal Board for the Development of Peri-Urban Areas, and the Board now takes a bulk supply from Escom for the Evander area.

Development of Rural Electrification

A total of three hundred and six new farming supplies were connected during 1971, bringing the total of such supplies to 2 717. Most of the new connections were made from extensions to existing schemes and approximately 475 km of circuit extensions were built during 1971 to furnish these new farm supplies.

The following schemes were completed during 1971: Kendal, Bosoord (south of Lydenburg), Mapochs, Bracken and Komatipoort. Schemes are at present under construction in the following areas: Middelburg, Burgersfort (north-west of Lydenburg), and Marlin Granite (north of Belfast). A number of further schemes are under negotiation.

Financial

Details of units sold to the various classes of consumers and the total revenue and total operating costs for the year 1971 are given in the table on page 115. The average price per unit sold in 1971 was 0,519 6 cent/kWh, which shows little change from the corresponding figure of 0,519 2 cent per kWh in 1970.

EASTERN TRANSVAAL UNDERTAKING

CONSUMER			SALES						REVENUE FROM SALES		AVERAGE PRICE PER kWh SOLD	
Class	Number		Proportion %		kWh		% Change		Rand	Rand	Cents	Cents
	1970	1971	1970	1971	1970	1971	70/69	71/70	1970	1971	1970	1971
Traction	7	7	6,30	6,55	270 335 915	299 168 204	+ 0,04	+ 10,67	1 964 443	2 068 338	0,726 7	0,691 4
Bulk	22	23	5,74	6,41	246 680 461	292 507 688	+ 18,12	+ 18,58	1 390 470	1 614 497	0,563 7	0,552 0
Foreign L.M.	1	1	0,01	0,02	576 800	786 800	+ 403,32	+ 36,41	8 658	9 228	1,501 0	1,172 9
Mining	84	82	32,16	31,48	1 380 943 206	1 435 638 689	− 10,71	+ 3,96	7 132 506	7 349 732	0,516 5	0,511 9
Industrial	2 405	2 591	54,85	54,70	2 355 391 959	2 494 713 946	+ 14,31	+ 5,92	11 194 870	12 066 901	0,475 3	0,483 7
Domestic	5 067	3 685	0,92	0,83	39 386 358	38 047 151	− 7,52	− 3,40	581 524	569 616	1 476 5	1,497 1
Street Lighting	23	23	0,02	0,01	748 086	646 670	− 13,89	− 13,56	22 427	22 176	2 997 9	3,429 3
Total	7 609	6 412	100,00	100,00	4 294 062 785	4 561 509 148	− 12,28	+ 6,22	22 294 898	23 700 488	0,519 2	0,519 6

	1970	1971	Accumulated to 31/12/71
	R	R	R
Total Revenue	22 294 898	23 700 488	
Working Costs	21 993 642	24 344 274	
Surplus	301 256	—	2 996 044
Deficit	—	643 786	
Capital Expenditure	3 751 839	12 035 255	

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1971

Undertaking and Area (sq. km)	Electric Power Station	Type	STATION CAPACITY		BOILERS		MAIN GENERATORS		HOUSE SETS	
			Boilers kg/s	Generators MW	No.	Continuous Maximum Rating Each kg/s	No.	Normal Rating Each MW	No.	Normal Rating Each MW
Border (55 700 sq. km.)	King William's Town	Steam	1,3 4,5	3,0	1 3	1,3 1,5	2	1,5		
	Total		5,8	3,0	4		2			
	West Bank No. 1...	Steam	16,3 27,7	1,5 8,0 22,5	6 4	2,7 6,9	1 2 3	1,5 4,0 7,5		
	Total		44,0	32,0	10		6			
	West Bank No. 2...	Steam	85,7 52,9	45,0 40,0	4 2	21,4 26,5	3 2	15,0 20,0		
	Total 1 & 2		138,6 182,6	85,0 117,0	6 16		5 11			
Border	Total		188,4	120,0	20		13			
Cape Eastern (8 000 sq. km.)	No Generating Plant									
Cape Western (88 300 sq. km.)	Salt River No. 1 ...	Steam	15,1 75,6	30,0 60,0 0,3	2 6	7,6 12,6	3 3	10,0 20,0	1	0,3
	Total		90,7	90,3	8		6		1	
	Salt River No. 2 ...	Steam	327,6	120,0 120,0	10	32,8	4 2	30,0 60,0		
	Total 1 & 2		327,6 418,3	240,0 330,3	10 18		6 12		1	
	Hex River.....	Steam	100,8 69,3	60,0 60,0	4 2	25,2 34,6	3 2	20,0 30,0		
			170,1	120,0	6		5			
Cape Western	Total		588,4	450,3	24		17		1	0,3

Undertaking and Area (sq. km)	Electric Power Station	Type	STATION CAPACITY		BOILERS		MAIN GENERATORS		HOUSE SETS	
			Boilers kg/s	Generators MW	No.	Continuous Maximum Rating Each kg/s	No.	Normal Rating Each MW	No.	Normal Rating Each MW
Natal (104 100 sq. km.)	Colenso Nos. 1 & 2	Steam	60,5		8	7,6				
			40,3	60,0	4	10,1	5	12,0		
			113,4	75,0	5	22,7	3	25,0		
			50,4	30,0	2	25,2	1	30,0		
	Total		264,6	165,0	19		9			
	Ingagane	Steam	567,0	500,0	5	113,4	5	100,0		
	Congella Nos. 1 & 2	Steam		36,0			3	12,0		
			22,8	20,0	3	7,6	1	20,0		
			50,4		4	12,6				
			201,6	120,0	8	25,2	3	40,0		
	Total		274,8	176,0	15		7			
	Umgeni	Steam	181,4	120,0	8	22,7	4	30,0		
			163,8	120,0	5	32,8	2	60,0		
	Total		345,2	240,0	13		6			
Natal	Total		1 451,6	1 081,0	52		27			
Orange River (139 300 sq. km.) Orange River	No Generating Plant									
Cape Northern (60 100 sq. km.) Cape Northern	No Generating Plant									
Eastern Transvaal (92 500 sq. km.)	Komati	Steam	567,0	500,0	5	113,4	5	100,0		
			567,0	500,0	4	141,7	4	125,0		
Eastern Transvaal	Total		1 134,0	1 000,0	9		9			

Undertaking and Area (sq. km)	Electric Power Station	Type	STATION CAPACITY		BOILERS		MAIN GENERATORS		HOUSE SETS	
			Boilers kg/s	Generators MW	No.	Continuous Maximum Rating Each kg/s	No.	Normal Rating Each MW	No.	Normal Rating Each MW
Rand & O.F.S. (189 600 sq. km.)	Arnot	Steam	668,0	700,0	2	334,1	2	350,0		
	Camden	Steam	1 814,4	1 600,0	8	226,8	8	200,0		
	Grootvlei	Steam	896,0	800,0	1 3	230,6 221,8	4	200,0		
	H. Verwoerd	Hydro	—	160,0	—	—	2	80,0		
	Hendrina	Steam	856,8	800,0	4	214,2	4	200,0		
	Highveld	Steam	554,4	480,0	8	69,3	8	60,0		
	Klip	Steam	567,0	396,0 28,0	25	22,7	12	33,0	4	7,0
	Total		567,0	424,0	25		12		4	
	Taaibos	Steam	584,6	480,0	8	73,1	8	60,0		
	Vaal	Steam	430,9	297,0 21,0	18	23,9	9	33,0	3	7,0
	Total		430,9	318,0	18		9		3	
	Vierfontein	Steam	502,7	360,0	19	26,5	12	30,0		
	Wilge	Steam	63,0 201,6 73,1	 60,0 180,0	4 4 1	15,7 50,4 73,1	 2 3	 30,0 60,0		
	Total		337,7	240,0	9		5			
Rand & O.F.S.	Total		7 212,5	6 362,0	105		74		7	
E.T.U. + R. & O.F.S.U.	Total		8 346,5	7 362,0	114		83		7	
	Total all Escom	Hydro Steam Steam	— 10 574,9 —	160,0 8 804,0 49,3	— 210 —		2 138 —		 8	
			10 574,9	9 013,3	210		140		8	

TRANSMISSION LINES AND CABLES: CIRCUIT KILOMETRES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1971

(a) TRANSMISSION LINES

Undertaking	400 kV	275 kV	132 kV	88 kV	66 kV	42 kV	33 kV	22 kV 21 kV	11 kV	6,6 kV	3,3 kV	2,0 kV 2,1 kV 2,2 kV	380/220 V	Total
Border					278,59		57,47	424,17	1 141,76		5,72		136,83	2 044,54
Cape Eastern								204,27	207,90				9,81	421,98
Cape Northern		94,59	1 398,77	—	593,86			807,18	1 318,76				86,57	4 299,73
Cape Western	648,21	—	958,69		1 452,81		159,70	754,03	4 856,59	507,96			2 138,34	11 476,33
Eastern Transvaal	97,00	422,84	1 150,56	869,97	261,14			3 156,33	3 327,19	78,37	13,52	72,38	314,84	9 768,14
Natal	115,09	1 011,42	872,70	2 128,39			757,66	129,92	6 156,71	38,05		1,53	737,74	11 949,21
Orange River	282,57		384,57		547,23			284,13	47,07					1 545,57
Rand & O.F.S.	1 360,52	1 646,59	2 820,00	5 361,60	84,90	2 347,98		1 062,46	7 869,72	524,69			1 194,44	24 272,90
Totals A	2 503,39	3 175,44	7 585,29	8 359,96	3 218,53	2 347,98	974,83	6 822,49	24 925,70	1 149,07	19,24	77,91	4 618,57	65 778,40
	2 503,39	3 175,44	7 585,29	14 901,30				37 612,98						

(b) UNDERGROUND CABLES

Border								0,02	26,17		2,52		22,13	50,84
Cape Eastern													0,06	0,06
Cape Northern									3,20				29,44	32,64
Cape Western			15,54		38,68		115,61	4,40	515,95	15,39	4,51		632,62	1 342,70
Eastern Transvaal								40,77	38,06	2,85	1,67	0,18	120,00	203,53
Natal				1,89			10,87	0,43	234,41	14,63	0,47	0,02	130,82	393,54
Orange River				—			—		—			—		—
Rand & O.F.S.				11,88		110,93	0,33	162,11	212,74	551,09	0,23	1,65	277,07	1 328,03
Totals B	—	—	15,54	13,77	38,68	110,93	126,81	207,73	1 030,53	583,96	9,40	1,85	1 212,14	3 351,34
	—	—	15,54	290,19				3 045,61						

(c) TOAL LINES AND CABLES

A + B = C	1971	2 503,39	3 175,44	7 600,83	8 373,73	3 257,21	2 458,91	1 305,91	7 033,85	25 748,33	1 733,03	28,64	79,76	5 830,71	69 129,74
		2 503,39	3 175,44	7 600,83	15 191,49				40 658,59						
D	1970	1 915,80	2 598,47	7 062,89	14 341,79				37 976,26						63 895,21
C — D — E	Additions 1971	587,59	576,97	537,94	849,70				2 682,33						5 234,53

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1971

Undertaking	Number		M.V.A.	
	1970	1971	1970	1971
Border	882	927	174,400	172,525
Cape Eastern	408	429	11,490	12,055
Cape Northern	1 967	2 165	911 095	998,825
Cape Western	7 166	7 439	2 971,508	3 095,025
Eastern Transvaal	3 569	3 941	3 062,960	3 309,355
Natal	5 405	5 900	4 161,483	6 093,384
Orange River	33	54	571,125	606,280
Rand & Orange Free State	10 829	11 722	19 926,310	21 541,336
Compressor Stations Rand	24	24	145,030	145,030
Pooled Power Stations	973	738	11 071,620	11 837,046
Totals	31 256	33 339	43 007,021	47 810,861

UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST FORTY-FOUR YEARS
(MILLION UNITS)

Year	Border	Cape Eastern	Cape Northern	Cape Western	Eastern Transvaal	Klip	Natal Central	Natal Southern	Natal U.	Orange River	Rand & O.F.S.	Sabie	Vaal	Total
1928				31,0	464,3		114,2	15,6				2,8		**627,9**
1929				47,9	543,1		123,9	78,9				3,2		**797,0**
1930				49,8	619,0		117,1	99,2				4,6		**889,6**
1931				52,1	603,4		101,1	103,9				6,6		**867,1**
1932				64,3	610,3		100,3	109,8				6,1		**890,7**
1933				100,7	639,4		109,2	118,5				6,3		**974,1**
1934				73,6	648,2		124,9	131,1				7,3		**985,2**
1935				80,0	727,9		154,3	149,9				7,2		**1 119,2**
1936				85,8	696,4	557,0	171,5	170,5				6,9		**1 688,0**
1937				94,0	684,5	1 349,9	210,6	189,4				7,2		**2 535,6**
1938				98,8	768,1	1 666,9	234,9	209,5				7,2		**2 985,5**
1939				106,5	767,7	2 193,2	266,2	233,7				6,4		**3 573,7**
1940				119,8	853,3	2 566,5	281,1	242,7				6,7		**4 070,2**
1941				136,2	862,6	2 675,9	302,4	270,3				6,6		**4 254,0**
1942				151,8	873,4	2 707,8	307,7	273,7				6,3		**4 320,8**
1943				145,7	849,1	2 669,1	312,4	293,4				5,9		**4 275,6**
1944				158,7	889,2	2 703,6	336,0	321,6				6,7		**4 415,8**
1945				165,9	830,7	2 643,0	333,2	348,8				6,6	377,9	**4 706,1**
1946				184,6	896,9	2 614,3	347,0	369,7				7,4	582,5	**5 002,4**
1947	56,2			198,6	887,7	2 547,2	346,0	402,6				7,6	668,6	**5 114,5**
1948	69,2			222,4	633,2	1 207,4	367,9	448,7			2 185,7	7,3	435,1	**5 576,9**
1949	68,7			249,5	358,2		371,8	513,0			4 653,9	7,0		**6 222,2**
1950	79,9		53,9	271,9	378,5		406,5	561,8			5 151,8	6,3		**6 910,6**
1951	88,1		58,5	303,5	386,8		433,4	617,0			5 563,2	6,1		**7 456,5**
1952	97,7		61,3	341,2	425,0		454,0	655,6			6 039,6	6,1		**8 080,6**
1953	107,8		67,1	375,5	409,9		492,3	713,2			6 559,9	6,4		**8 732,2**
1954	118,2		70,7	436,2	270,5		532,5	777,7			7 465,2	5,6		**9 676,6**
1955	130,8		73,2	527,1	394,6		546,4	870,8			8 416,3	5,7		**10 964,0**
1956	139,1		78,7	585,1	505,9		595,4	957,7			9 151,6	6,0		**12 019,5**
1957	143,1		86,1	698,6	536,6		621,7	1 018,7			9 652,5	5,9		**12 763,1**
1958	152,9		115,2	826,0	584,1		616,1	1 104,1			10 200,6	3,0		**13 602,2**
1959	165,0		171,4	861,8	633,3		629,4	1 228,6			11 034,8			**14 724,5**
1960	172,3		185,2	871,6	762,0		649,3	1 409,0			12 044,8			**16 094,1**
1961	178,8		191,3	860,0	901,5		684,0	1 497,5			12 700,0			**17 013,2**
1962	188,6		224,9	945,0	1 012,2		731,0	1 589,5			13 429,8			**18 121,0**
1963	204,9		264,9	1 051,4	1 212,1		779,0	1 764,6			14 223,1			**19 500,0**
1964	228,8	0,4	311,4	1 163,9	1 553,6		—	—	2 922,1		15 067,3			**21 247,5**
1965	250,5	1,6	393,2	1 267,4	1 936,8		—	—	3 182,5		16 111,3			**23 143,3**
1966	272,4	2,5	442,4	1 367,0	2 408,2		—	—	3 498,5		16 563,4			**24 554,3**
1967	294,2	3,2	519,9	1 533,1	2 829,6		—	—	3 720,6	1,1	17 755,4			**26 657,1**
1968	310,5	4,1	609,6	1 666,2	3 191,4				4 121,5	2,4	18 979,3			**28 885,0**
1969	330,5	5,7	657,9	1 824,3	3 824,4		—	—	4 636,7	8,0	20 218,1			**31 505,6**
1970	360,4	6,1	714,9	2 101,0	4 294,1				5 073,5	47,3	22 293,4			**34 890,6**
1971	399,9	7,1	789,7	2 494,5	4 561,5				6 072,3	95,0	23 620,0			**38 040,0**

Notes: (1) Klip & Vaal are now included in Rand & O.F.S. Undertaking.
(2) Sabie Undertaking Incorporated in Eastern Transvaal Undertaking since 1st July, 1958, in terms of the Amended Licence. De—commissioned November, 1964.
(3) Natal Central and Southern one Undertaking as from 1st April, 1964.

UNITS SOLD AND NUMBER OF CONSUMERS, 1971

STATEMENT No. 3

Undertakings	TRACTION			BULK			MINING		
	Units	Per cent Traction	No. Cons.	Units	Per cent Bulk	No. Cons.	Units	Per cent Mining	No. Cons.
Border	—	—	—	365 264 691	3,94	16	—	—	—
Cape Eastern	—	—	—	1 539 720	0,02	1	—	—	—
Cape Northern	203 606 016	7,79	3	171 190 300	1,85	15	292 559 567	2,06	78
Cape Western	420 210 776	16,06	6	788 135 682	8,51	40	—	—	—
Eastern Transvaal	299 168 204	11,43	7	293 294 488	3,16	25	1 435 638 689	10,09	82
Natal	819 663 695	31,33	13	3 532 529 278	38,13	29	161 514 728	1,14	32
Orange River	—	—	—	49 034 810	0,53	20	—	—	—
Rand & O.F.S.	873 682 739	33,39	2	4 063 513 598	43,86	143	12 337 353 415	86,71	105
Total Electricity	2 616 331 430	100,00	31	9 264 502 567	100,00	289	14 227 066 399	100,00	297
Per cent of Total		6,88			24,35			37,40	

Cape	590 612 334		8	1 406 943 404		81	277 609 297		71
Lesotho				12 259 196		2			
Natal	721 770 795		11	3 441 127 168		20	161 514 728		32
O.F.S.	139 681 688		2	465 238 317		64	3 198 332 892		22
Moçambique				786 800		1			
Transvaal	1 164 266 613		10	3 938 147 682		121	10 589 609 482		172
Total	2 616 331 430		31	9 264 502 567		289	14 227 066 399		297

INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number of Consumers
Units	Per cent Ind.	No. Cons.	Units	Per cent Dom & SL	No. Cons.	Units	Per cent Total Units Sold	
15 817 784	0,14	358	18 833 064	2,05	2 779	399 915 539	1,05	3 153
3 295 634	0,03	111	2 269 839	0,25	472	7 105 193	0,02	584
100 494 987	0,91	563	21 826 816	2,38	2 937	789 677 686	2,08	3 596
969 688 681	8,80	7 015	316 437 339	34,46	52 275	2 494 472 478	6,56	59 336
2 494 713 946	22,65	2 591	38 693 821	4,21	3 708	4 561 509 148	11,99	6 413
1 446 713 524	13,14	4 032	111 897 335	12,18	16 338	6 072 318 560	15,96	20 444
46 024 305	0,42	14	4	—	1	95 059 119	0,25	35
5 937 037 796	53,91	2 243	408 375 581	44,47	28 174	23 619 963 129	62,09	30 667
11 013 786 657	100,00	16 927	918 333 799	100,00	106 684	38 040 020 852	100,00	124 228
	28,96			2,41			100,00	

1 126 819 200		8 038	358 065 839		58 259	3 760 050 074		66 457
						12 259 196		2
1 437 363 405		3 614	103 897 950		14 686	5 865 674 046		18 363
518 640 139		428	30 948 697		2 871	4 352 841 733		3 387
						786 800		1
7 930 963 913		4 847	425 421 313		30 868	24 048 409 003		36 018
11 013 786 657		16 927	918 333 799		106 684	38 040 020 852		124 228

THERMAL POWER STATION OPERATING STATISTICS YEAR 1971

STATEMENT No. 4

Undertaking and Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS ½ Hour (or Hour) sent out kW	MAXIMUM DEMANDS 2 Min. Peak kW	Stn. L.F. % S.O.	OVERALL THERMAL EFFICIENCY % Gen.	OVERALL THERMAL EFFICIENCY % Sent Out
Border Undertaking							
King William's Town							
West Bank Nos. 1 & 2	427 896 000	407 963 700	80 270	85 800	58,0	24,5	23,4
Total	427 896 000	407 963 700	80 270	85 800	58,0	24,5	23,4
Cape Western Undertaking							
Hex River	161 708 600	149 075 340	108 300	120 000	15,7	25,0	23,1
Salt River No. 1	2 994 370	1 948 200	50 600	57 000	0,4	8,9	5,8
Salt River No. 2	1 032 602 800	980 069 800	229 000	250 000	48,9	27,3	25,9
Total	1 197 305 770	1 131 093 340					
Natal Undertaking							
Colenso Nos. 1 & 2	599 631 300	560 172 200	160 000	169 000	39,9	19,1	17,9
Congella Nos. 1 & 2	700 775 100	642 491 470	168 260	185 000	43,6	20,8	19,0
Ingagane	3 397 528 500	3 204 509 900	490 000	525 000	74,7	32,4	30,6
Umgeni	1 182 473 700	1 107 736 300	228 400	246 000	55,4	24,1	22,6
Total	5 880 408 600	5 514 909 870					
Eastern Transvaal Undertaking							
Komati	6 764 353 894	6 278 083 641	857 468		83,6	31,4	29,1
Total	6 764 353 894	6 278 083 641					
Rand & O.F.S. Undertaking							
Arnot	1 197 822 987	1 084 121 208	627 678		32,3	36,3	32,9
Camden	10 205 699 010	9 721 840 766	1 347 706	—	82,3	33,2	31,6
Grootvlei	3 208 046 705	3 050 542 772	685 471		50,8	34,6	32,9
Hendrina	2 523 250 262	2 380 585 086	552 037	—	49,2	30,3	28,5
Highveld	2 408 667 198	2 236 155 780	452 843	—	56,4	29,4	27,3
Klip	1 669 108 537	1 534 211 729	392 972	—	44,6	20,9	19,2
Taaibos	2 565 909 552	2 363 812 491	448 557	—	60,2	27,5	25,3
Vaal	1 989 316 915	1 856 828 454	297 734	—	71,2	21,8	20,4
Vierfontein	1 860 528 492	1 719 026 416	328 380	—	59,8	23,2	21,4
Wilge	1 480 452 941	1 366 656 417	319 806	—	71,0	26,0	24,0
Total	29 108 802 599	27 313 781 119					
Total E.T.U. + R. & O.F.S.U.	35 873 156 493	33 591 864 760					
Total B.U. + C.W.U. + N.U.	7 505 610 370	7 053 966 910					
Grand Total	43 378 766 863	40 645 831 670					

Coal Burnt Metric Ton	KG OF COAL Per Unit Generated	KG OF COAL Per Unit Sent Out	Calorific Value of Coal Mj per kg as Received (Wtd. Ave.)	MJ PER UNIT Generated	MJ PER UNIT Sent Out	COAL COST Total Rand	COAL COST Per Metric Ton Rand	COAL COST Per Unit Generated cent	COAL COST Per Unit Sent Out cent
229 622	0,537	0,563	27,36	14,69	15,40	1 488 858	6,31	0,347 9	0,364 9
229 622	0,537	0,563	27,36			1 488 858	6,31	0,347 9	0,364 9
89 852	0,555	0,603	25,91	14,38	15,62	660 671	7,35	0,408 6	0,443 2
4 515	1,634	2,511	26,68	43,59	66,99				
509 996	0,494	0,520	26,68	13,17	13,87	3 605 559	7,01	0,348 2	0,367 2
604 363	0,505	0,534	26,57			4 266 230	7,06	0,356 3	0,377 2
433 463	0,723	0,774	26,05	18,83	20,16	1 954 841	4,51	0,326 0	0,349 0
487 969	0,696	0,759	24,89	17,33	18,90	2 657 299	5,44	0,379 2	0,413 6
1 489 053	0,438	0,465	25,33	11,10	11,77	4 090 679	2,75	0,120 4	0,127 7
656 054	0,555	0,592	26,91	14,93	15,94	3 830 394	5,84	0,323 9	0,345 8
3 066 539	0,521	0,556	25,67			12 533 213	4,08	0,213 1	0,227 3
3 089 397	0,457	0,492	25,14	11,49	12,37	4 245 547	1,37	0,062 8	0,067 6
3 089 397	0,457	0,492	25,14			4 245 547	1,37	0,062 8	0,067 6
522 819	0,436	0,481	22,70	9,90	10,92	874 456	1,67	0,073 0	0,080 7
4 726 810	0,463	0,486	23,44	10,85	11,39	8 011 263	1,69	0,078 5	0,082 4
1 598 106	0,498	0,524	20,91	10,41	10,96	2 932 170	1,83	0,091 4	0,096 1
1 247 152	0,494	0,524	24,07	11,89	12,61	2 139 088	1,72	0,084 8	0,089 9
1 347 578	0,559	0,603	21,87	12,23	13,19	2 948 143	2,19	0,122 4	0,131 8
1 352 723	0,810	0,882	21,28	16,78	18,28	3 876 221	2,86	0,232 2	0,252 7
1 575 139	0,614	0,666	21,36	13,12	14,23	3 029 819	1,92	0,118 1	0,128 2
1 703 017	0,856	0,917	19,27	16,50	17,67	2 248 527	1,32	0,113 0	0,121 1
1 432 468	0,770	0,833	20,18	15,54	16,81	2 656 980	1,85	0,142 8	0,154 6
920 431	0,622	0,673	22 26	13,85	14,98	1 454 159	1,58	0,098 2	0,106 4
16 426 243	0,564	0,601	22,21			30 170 826	1,84	0,103 6	0,110 5
19 515 640	0,544	0,581	22,75			34 416 373	1,76	0,095 9	0,102 5
3 900 524	0,520	0,553	25,91			18 288 301	4,69	0,243 7	0,259 3
23 416 164	0,540	0,576	23,30			52 704 674	2,25	0,121 5	0,129 7

1,2 HYDRO ELECTRIC

Power Station	Units Generated	Units Sent Out	Maximum Demand—kW		Stn. Load Factor Sent Out
			½ Hour Sent Out	2 Minutes Generated	
H. Verwoerd	93 754 823	93 559 523	150 567		23,1
Totals	93 754 823	93 559 523			

(3) GENERATION SUMMARY

		Units Generated	Units Sent Out	Coal Burnt Metric Ton
Electricity Total Units	Steam	43 378 766 863	40 645 831 670	23 416 164
	Hydro	93 754 823	93 559 523	—
	Diesel	—	—	—
Grand Total 1971		43 472 521 686	40 739 391 193	23 416 164
Total for 1970		39 796 184 973	37 320 784 837	21 630 578
Change on 1970 (Units or Tons)		3 676 336 713	3 418 606 356	1 785 586
Per cent		9,24	9,16	8,25

STATEMENT No. 5

POWER PURCHASED FROM OUTSIDE SOURCES IN 1971

Undertaking	Purchased From	Maximum Demands	Units
Cape Eastern	Port Elizabeth Municipality (1) Aloes	1 560 kVA	5 058 867
	(2) Summit	780 kVA	1 375 320
	Water Affairs (Paul Sauer Dam) (Kouga)	—	1 886 712
Eastern Transvaal	Transvaal Sugar Corporation	—	6 009
Total Units Purchased			8 326 899
Total Units Sold			38 040 020 852
Purchased as % of Sales			0,022%

STATEMENT No. 6

FOREIGN SUPPLIES 1971

Undertaking	Sold to	Maximum Demand	Units
Eastern Transvaal	Ressano Garcia (Sonefe) Moçambique	192 kVA	786 800
Rand & O.F.S.	Lesotho	—	12 259 196
Total			13 045 996

COAL USED AT COMMISSION'S POWER STATIONS
AVERAGE COST PER METRIC TON

Power Station		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
		R	R	R	R	R	R	R	R	R	R	R
Brakpan	1	1,95	2,01	2,03	—	—	—	—	—	—	—	—
Colenso	2	3,43	3,70	3,84	3,71	4,16	4,31	4,30	4,20	4,39	4,39	4,51
Congella	3	4,13	4,31	3,96	3,58	3,77	3,92	4,01	4,19	5,24	5,26	5,44
Hex River	4	5,25	5,43	5,74	5,70	5,88	6,14	6,38	6,22	6,36	6,43	7,35
Highveld	5	1,76	1,69	1,71	1,83	1,79	1,81	1,95	2,07	2,23	2,23	2,19
Ingagane	6	—	—	2,50	2,49	2,71	2,78	2,78	2,77	2,53	2,51	2,75
Kimberley Central	7	4,13	4,30	4,54	4,52	4,49	4,67	—	—	—	—	—
Klip	8	2,36	2,35	2,25	2,23	2,39	2,74	2,91	3,12	2,93	2,74	2,86
King William's Town	9	5,05	—	5,05	—	—	5,02	—	—	—	—	—
Komati	10	1,31	1,42	1,69	1,48	1,29	1,37	1,27	1,40	1,41	1,33	1,37
Rosherville	11	2,09	2,30	2,35	2,37	2,41	2,74	—	—	—	—	—
Salt River	12	5,35	5,54	5,91	5,86	5,97	6,23	6,56	6,48	6,64	6,61	7,01
Taaibos	13	2,18	1,93	1,87	1,74	1,72	1,82	1,96	2,05	2,11	2,04	1,92
Umgeni	14	4,42	4,72	4,82	4,76	5,00	5,31	5,61	5,58	5,45	5,57	5,84
Vaal	15	1,03	1,05	1,14	1,15	1,15	1,20	1,28	1,27	1,22	1,17	1,32
Vereeniging	16	1,06	1,12	1,18	1,16	1,17	1,46	1,42	1,45	1,01	—	—
Vierfontein	17	1,72	1,61	1,58	1,57	1,70	1,85	1,82	1,87	1,72	1,76	1,85
West Bank	18	5,03	5,26	5,53	5,52	5,62	5,75	5,85	5,84	6,04	6,13	6,31
Wilge	19	1,04	1,07	1,05	1,06	1,09	1,20	1,44	1,47	1,36	1,38	1,58
Witbank	20	1,16	1,26	1,27	1,28	1,40	1,51	1,50	1,55	1,76	1,57	—
Camden	21	—	—	—	—	—	—	2,00	1,55	1,79	1,82	1,69
Grootvlei	22	—	—	—	—	—	—	—	—	1,84	1,67	1,83
Hendrina	23	—	—	—	—	—	—	—	—	—	1,95	1,72
Arnot	24	—	—	—	—	—	—	—	—	—	—	1,67

ESCOM AND REPUBLIC

Calendar Year	Census year for National Statistics	Escom				Units Generated Millions of kWh (gross)			Units Sold or Used Millions of kWh		
		Total Staff	Capital Expenditure at Cost Thousands of Rand	Installed Capacity MW	Coal burnt Thousands of Metric Tons	Escom — V.F.P.	Republic of S.A.	g/h %	Escom	Escom + V.F.P.	Republic of S.A.
a	b	c	d	e	f	g	h	i	j	k	l
1925	1925–26		1 879	1,3			1 761		0,1		1 517
1926	1926–27		4 181	61,3			1 889		161,7		1 694
1927	1927–28		12 973	121,3			2 110		551,0		1 807
1928	1928–29		14 582	175,6	1 755,3	1 422,2	2 300	61,8	627,9	1 411,4	2 008
1929	1929–30	633	15 310	194,6	1 892,5	1 516,7	2 454	61,8	797,0	1 560,5	2 127
1930	NA	688	15 429	215,6	1 965,3	1 766,3	NA		889,6	1 632,4	NA
1931	NA	664	15 863	215,6	2 029,5	1 857,4	NA		867,1	1 689,5	NA
1932	NA	645	16 095	227,6	2 166,4	2 028,7	NA		890,7	1 814,2	NA
1933	1932–33	678	16 547	247,6	2 306,1	2 246,4	2 947	76,2	974,1	1 929,0	2 462
1934	1933–34	706	18 273	287,6	2 568,5	2 525,9	3 309	76,3	985,2	2 140,3	2 854
1935	1934–35	778	22 468	307,6	2 859,7	2 848,4	3 773	75,5	1 119,2	2 414,9	3 246
1936	1935–36	862	26 591	486,8	3 251,6	3 406,7	4 603	74,0	1 688,0	2 820,6	3 768
1937	1936–37	1 024	30 050	519,8	3 487,4	3 980,6	5 336	74,6	2 535,6	3 288,5	4 361
1938	1937–38	1 097	34 297	623,3	3 788,8	4 452,8	5 933	75,1	2 985,4	3 639,7	4 898
1939	1938–39	1 100	36 645	737,6	4 000,0	4 740,7	6 574	72,1	3 573,7	4 095,6	5 453
1940	1939–40	1 189	38 662	770,6	4 196,6	5 098,3	7 168	71,1	4 070,2	4 516,9	6 122
1941	1940–41	NA	40 808	771,3	4 448,6	5 444,9	7 592	71,7	4 254,0	4 833,5	6 505
1942	1941–42	NA	43 763	770,5	4 637,4	5 538,9	7 799	71,0	4 320,8	4 920,0	6 768
1943	1942–43	1 238	46 574	795,4	4 515,6	5 404,0	7 700	70,2	4 275,6	4 795,8	6 638
1944	1943–44	1 328	48 036	796,8	4 684,9	5 597,8	8 043	69,6	4 415,8	4 970,5	6 920
1945	1944–45	1 531	49 913	862,8	4 816,4	5 748,7	8 329	69,0	4 706,1	5 101,1	7 142
1946	1945–46	1 836	52 852	975,7	4 827,9	5 895,6	8 557	68,9	5 002,4	5 218,8	7 338
1947	1946–47	2 169	57 650	1 033,1	5 443,4	6 035,9	8 788	68,7	5 114,5	5 341,7	7 494
1948	1947–48	2 692	90 816	1 385,0	5 557,4	6 553,5	9 481	69,1	5 576,9	5 787,0	8 089
1949	1948–49	8 764	100 234	1 411,9	5 774,8	7 075,3	10 013	70,7	6 222,2		8 829
1950	1949–50	9 352	115 129	1 439,8	6 323,4	7 773,6	11 187	69,5	6 910,6		9 750
1951	1950–51	10 336	137 283	1 520,5	6 663,1	8 326,6	11 895	70,0	7 456,5		10 474
1952	1951–52	10 889	176 559	1 624,5	7 113,3	8 778,0	12 517	70,1	8 080,6		11 234
1953	1952–53	11 518	218 739	1 806,0	7 393,8	9 442,0	13 744	68,7	8 732,2		11 806
1954	1953–54	12 317	270 621	2 051,0	8 025,0	10 651,9	15 184	70,2	9 676,6		12 820
1955	1954–55	12 490	304 342	2 377,7	8 999,7	12 214,5	17 172	71,1	10 964,0		14 310
1956	1955–56	12 977	342 068	2 734,8	9 688,6	13 578,4	18 535	73,3	12 019,5		15 781
1957	1957–58	13 421	377 265	2 826,7	10 220,5	14 638,8	20 133	72,7	12 763,1		17 321
1958	1958–59	14 312	417 701	3 036,5	10 784,1	15 582,6	21 165	73,6	13 602,2		18 132
1959	1959–60	13 947	453 130	3 289,4	11 548,7	16 926,5	22 561	75,0	14 724,5		19 334
1960	1960–61	14 654	491 471	3 408,9	12 512,6	18 543,3	24 365	76,1	16 094,1		20 968
1961	1961–62	15 441	529 565	3 558,9	13 194,8	19 575,4	25 699	76,2	17 013,2		22 066
1962	1962–63	16 467	581 579	3 758,9	13 955,5	20 805,5	26 969	77,1	18 121,0		23 706
1963	1963–64	16 804	637 076	4 175,9	14 721,1	22 312,4	29 399	75,9	19 500,0		25 257
1964	1964	17 172	679 193	4 499,6	15 654,7	24 355,3	32 020	76,1	21 247,5		NA
1965	1965	17 851	741 109	4 624,7	16 726,8	26 440,4	34 490	76,7	32 143,3		29 144
1966	1966	18 579	840 782	4 806,3	16 982,6	27 395,5	36 481	75,1	24 554,3		NA
1967	1967	19 817	950 863	5 845,3	18 307,7	30 421,7	39 636	76,7	26 657,1		34 037
1968	1968	20 893	1 114 390	6 344,6	19 123,9	33 061,2	42 971	76,9	28 885,0		NA
1969	1969	21 644	1 271 785	6 982,6	19 982,9	35 967,0	46 146	77,9	31 505,6		NA
1970	1970	22 696	1 429 862	7 583,3	21 630,6	39 796,2	50 791	78,4	34 890,6		NA
1971	1971	25 050	1 604 755	9013,3	23 416,2	43 472,5	54 998	79,0	38 040,0		NA

FOOTNOTES

(i) The definition of census year changed as from 1932-33 and again as from 1957-58.

(ii) The national statistics shown in columns (h) and (i) are compiled by the Department of Statistics. The particulars shown in column (h) in respect of the years 1964, 1966 and 1968 to 1971 are estimates of the total electricity generated, calculated by Escom, based on the results of a sample survey conducted by the Department of Statistics.

STATEMENT SHOWING THE PRICE OR RENT OF LAND OR INTERESTS IN OR OVER LAND OR OTHER PROPERTY ACQUIRED OR HIRED BY THE COMMISSION DURING THE YEAR 1971.

(See previous Annual Report for Rights or Interests in or over land acquired prior to 1970.)

Cape Western Undertaking

Immovable property acquired for considerations amounting to	R43 390,00
Servitudes acquired—capitalised payments amounting to	R19 696,26

Cape Northern Undertaking

Immovable property acquired for considerations amounting to	R18 236,05
Servitudes acquired—capitalised payments amounting to	R26 282,96

Cape Eastern Undertaking

Immovable property acquired for considerations amounting to	R11 250,00
Servitudes acquired—capitalised payments amounting to	R552,23

Natal Undertaking

Immovable property acquired for considerations amounting to	R56 250,00
Servitudes acquired—capitalised payments amounting to	R114 280,00

Eastern Transvaal Undertaking

Immovable property acquired for considerations amounting to	R188 715,00
Servitudes acquired—capitalisation payments	R64 048,69

Border Undertaking

Immovable property acquired for considerations amounting to	NIL
Servitudes acquired—capitalised payments amounting to	R19 007,42

Orange River Undertaking

Immovable property acquired for considerations amounting to	R41 002,05
Servitudes acquired for capitalised payments amounting to	R28 448,49

Rand and Orange Free State Undertaking

Immovable property acquired for considerations amounting to	R704 561,00
Servitudes acquired for capitalised payments amounting to	R521 553,86