



The retiring Chairman, Dr. J. T. Hattingh, who has been Chairman of Escom for more than ten years, with the General Manager, Mr. G. R. D. Harding and the Law Adviser and Secretary, Mr. R. H. Gregor, S.C.

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Electricity Supply Commission

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Electricity Supply Commission

Escom Centre,

204, Smit Street,

Johannesburg.

7th June, 1962.

To the Honourable,
The Minister of Economic Affairs,
Cape Town.

Sir,

As required by Section 19 of the Electricity Act, No. 40 of 1958, the Commission has the honour to present its thirty-ninth Annual Report and the Accounts covering its work during the financial year ended at 31st December, 1961.

The Report includes brief comment upon the more important developments which have taken place in the period up to 31st March, 1962.

DECIMAL COINAGE

The Commission reported last year that the change-over to the new decimal coinage was effected throughout Escom's organization on D-day.

This Report therefore employs the new monetary units: *so that figures published in earlier Escom Reports have to be converted before they may be compared with the figures herein.*

ESCOM'S UNDERTAKINGS

The licensed areas of supply of Escom's Undertakings, as at 31st December, 1961, are shown in colour on the map which appears opposite page 8.

The map includes the following extensions which were granted by the Electricity Control Board during 1961:—

Cape Western Undertaking. Escom's application of 27th September, 1960, to include in its Cape Western Licence an area approximately 30 miles on either side of the railway from Touws River to Beaufort West was granted by the Board on 13th March, 1961.

This extension was sought primarily to authorize the supply to the South African Railways for the further electrification of the main line between these points; but the amendment also authorizes Escom to supply other persons in the area.

The initial supplies to traction substations were given in November, 1961, and the conversion of this section of railway to electric traction was accomplished in December. The main line is thus operated by electric locomotives for a distance of 339 miles from Cape Town.

Cape Northern Undertaking. On 11th September, 1961, the Board approved the extension of the area of supply of the Cape Northern Licence to include the towns and surrounding districts of Kuruman, Postmasburg and Griquatown.

Supplies are to be given to the Municipalities of Postmasburg and Kuruman, to manganese and asbestos mines in the area and to the South African Iron, & Steel Industrial Corporation, Limited, for its iron ore quarry at Sishen. The first supplies in the Postmasburg area were commenced in December, 1961.

ORANGE RIVER PROJECT

The co-ordinated scheme to harness the waters of the Orange River, announced by the Minister of Water Affairs, holds promise that Escom may be able to build hydro-electric power stations and develop new networks in the upper reaches of the Orange River and in the Fish River valley.

The greater part of these valleys are outside Escom's present licensed areas: but the proximity of existing Undertakings is shown on the map of the Commission's Undertakings.

The primary objectives of the Orange River Project are conservation and control of water for irrigation and urban industrial use: but Escom has informed the Government of its great interest in the hydro-electric power potential, and has agreed in principle, subject to its being granted the necessary borrowing powers, that it will accept responsibility for financing, construction and operation of the power stations and electrical distribution networks at places where hydro-electric power development is practicable and offers economic advantage. Hydro-electric development will be on the basis that water will not normally be used solely for the generation of electricity; and, on that account, the hydro-electric projects will not be burdened with any portion of the capital costs of dams and canals or any charge for water passing through the turbines. Electricity will thus be a by-product generated by means of the minimum flow in the river or the discharge of water for other uses.

Although the hydro-electric power potential in the early stages of the Orange River Project appears small in relation to the size of sets being installed in Escom's new thermal stations, the economic possibilities at each point will be studied in collaboration with the Department of Water Affairs and in the light of the requirements of potential consumers in the area.

GENERAL REVIEW: YEAR 1961

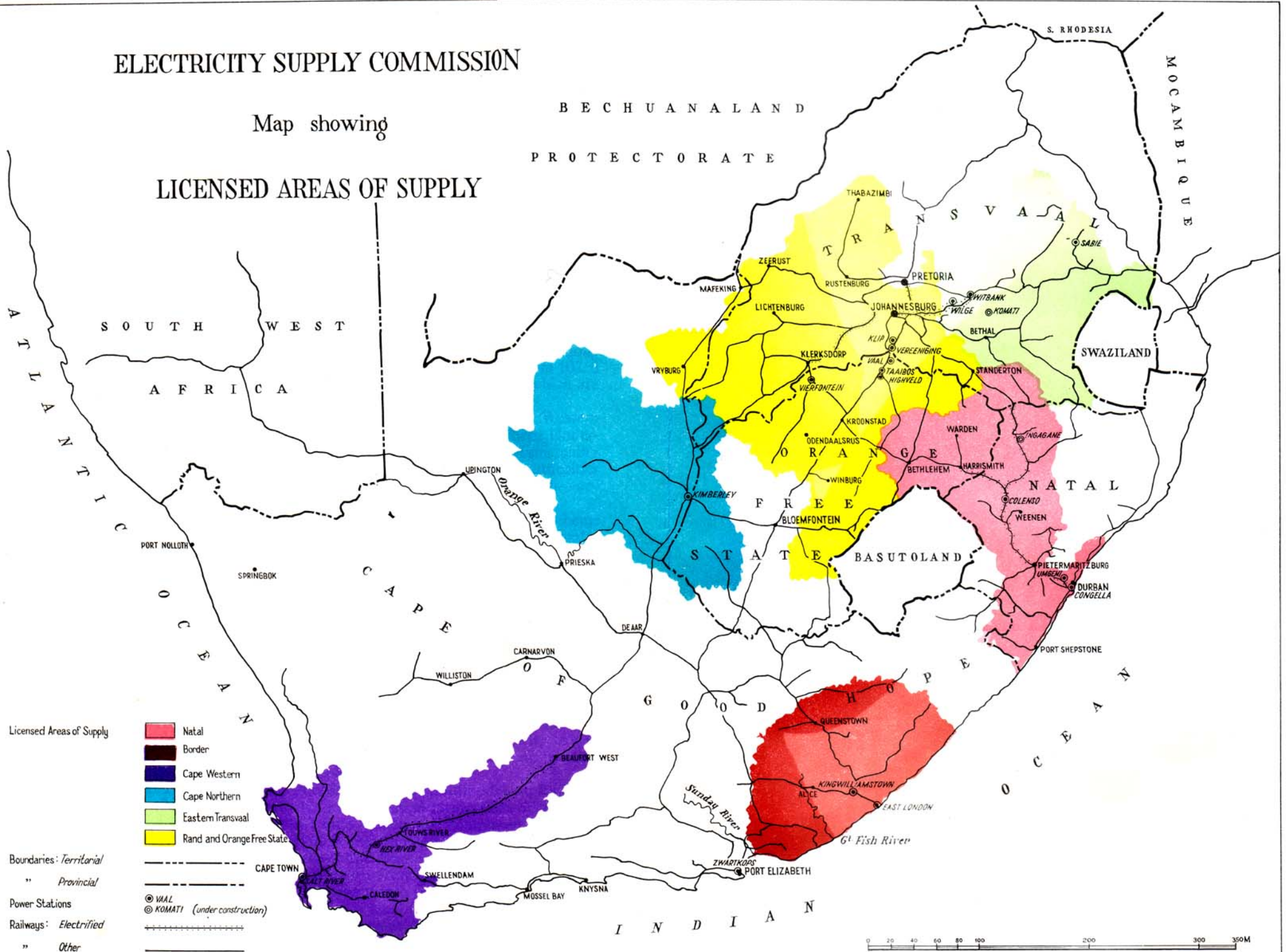
Sales of electricity, air and steam during 1961 reached 17,013 million units. The increase in sales was 5·7 per cent, which is appreciably lower than the previous year's figure of 9·3 per cent, and the average annual increase of 8·6 per cent over the past 10 years. Some explanations for the lower rate of increase are given under the headings of Municipal, Mining and Industrial Supplies.

Total sales (electricity, air and steam units) in 1961 in the main categories, with similar figures for 1960, the rate of increase in 1961 and the average annual rate of increase over the past 10 years are shown in the following table:—

ELECTRICITY SUPPLY COMMISSION

Map showing

LICENSED AREAS OF SUPPLY



	1961	1960	% Increase 1961	Average Annual Increase in 10 years
<i>Bulk Supplies:</i>				
Municipal.....	3,371,128,826	3,245,823,266	3·9	10·4
<i>Direct Supplies:</i>				
Traction.....	1,178,261,737	1,045,184,342	12·7	8·2
Mining.....	8,737,922,874	8,371,892,863	4·4	7·2
Industrial.....	3,446,356,759	3,178,118,186	8·4	11·5
Domestic.....	273,021,833	247,020,667	10·5	7·7
Street Lighting.....	6,469,793	6,089,952	6·2	7·4
	<u>17,013,161,822</u>	<u>16,094,129,276</u>	<u>5·7</u>	<u>8·6</u>

Total Revenue for the year amounted to R88,018,366 which is an increase of 7·5 per cent over the figure for 1960.

Bulk Supplies to Municipalities. Under the arrangement made with the City Council of Cape Town (to take account of the commissioning of the Council's Athlone Power Station), the supply of electricity taken by the Council was reduced from 103·0 million units in 1960 to 54·0 million units in 1961. Other local authorities which are supplied in bulk increased their purchases from Escom by 5·5 per cent.

New supplies were given during 1961 to Stanford Municipality in the Western Cape; Delpoortshoop and Postmasburg Municipalities in the Cape Northern Undertaking; Butterworth Municipality in the Border Undertaking; Harding Municipality in Natal; and, in the Orange Free State, bulk supplies were given to the local authorities of Bultfontein, Dewetsdorp, Edenville, Excelsior, Tweespruit and Wepener. The supply to the Municipality of Thaba 'Nchu was taken on 19th January, 1962.

This step-by-step extension of Escom's networks as and when an economic scheme can be laid before the local authority has now brought electricity to most of the country towns and villages of the Orange Free State. In 1948 when the first transmission line was built to the new gold fields in the Orange Free State, only Parys Municipality on the Transvaal border and the Municipalities of Harrismith and Bethlehem near the Natal border were served by Escom. To-day thirty eight local authorities in the Orange Free State obtain their requirements in bulk from Escom's Undertakings. Thirty-one are supplied from the Rand and Orange Free State Undertaking; six are supplied from the Natal Central Undertaking, and one from the Cape Northern Undertaking. The sum of the maximum demands of these local authorities exceeded 60,000 kW in 1961.

In some cases where the towns are situated at great distances from the main systems, the saving in cost of bulk supply, compared with local generation, was not large at the commencement of the supply: but additional quantities of electricity can be provided from Escom's networks at small incremental cost and preparation has thus been made for future expansion of these municipal undertakings.

Traction Supplies. The large increase in units sold to the South African Railways for traction purposes reflects the full year's working of the electrification of the Welgedag/Witbank and the Oogies/Vandyksdrift lines, which was completed in 1960.

The most important development in 1961 is the completion of the further electrification of the main line between Touws River and Beaufort West. This section is supplied by duplicate 132 kV lines, 230 miles in length, from Hex River Power Station, through twelve traction substations, and was brought into service during November/December, 1961.

In Natal five new mercury-arc rectifier substations at Alcockspruit, Dannhauser, Georgedale, Cliffdale and Dassenhoek were brought into use, while six of the old motor-generator substations were closed down. At the end of the year only three of the old m.g. substations remained in service.

Parliamentary sanction has been granted for the electrification of the section Union/Volksrust; and plans have been drawn up to provide the necessary power supplies in 1963. When the electrification of this remaining section of the Natal main line is completed, the full route of 512 miles between Durban and Pretoria will be operated by electric traction.

Mining Supplies. Mining supplies account for 51·36 per cent of the units sold by Escom in 1961; and the increase in sales of 360 million units represents nearly 40 per cent of the year's increase. However, the rate of growth declined significantly in 1961 and was only 4·4 per cent in comparison with the 10-year average of 7·2 per cent.

This reduction is due in some measure to the "stretch-out" of contracts for the supply of uranium and the rationalization of uranium production, which were referred to in the last Annual Report: but the latest forecasts — which are based upon present conditions of gold price and costs — of the power requirements of existing and projected gold mines indicate that the total demand for gold mining is approaching a peak figure, and is expected to remain static or even to decline after five years.

It should be noted, perhaps, that electricity sales should not be taken as a measure of the activity of the Gold Mining Industry: for during the year 1961 the increase in gold production (fine ounces) and the increase in working revenue of gold producers were of the order of 7·3 per cent.

The amount of power (electricity and compressed air) sold to the mines in the old mining area from Springs to Randfontein shows a small decline, in spite of the increase of 25 million units sold to East Rand Proprietary Mines, Limited. On the other hand, supplies purchased by mines in the new gold fields — Klerksdorp, Far West Rand, Orange Free State and Bethal — increased by 7·6 per cent.

Power supplies in the separate mining areas during the past three years, and the break-down of units sold to gold mines, diamond mines and collieries are shown in the following table:—

	Units sold — millions		
	1959	1960	1961
Witwatersrand*	3,119	3,116	3,089
Klerksdorp.....	987	1,137	1,194
Far West Rand.....	1,243	1,368	1,566
Orange Free State.....	1,887	2,078	2,131
Bethal.....	72	99	147
Gold Mining (including Uranium).....	7,308	7,798	8,127
Diamond and Other Mines.....	269	330	346
Coal Mines.....	225	243	265
	<hr/> 7,802	<hr/> 8,371	<hr/> 8,738

*This expression is used to describe the mines in the old mining area from Springs to Randfontein.

Industrial Supplies. There was some decline in sales of electricity to cement works in 1961, as compared with 1960; but substantial increases were recorded in the supplies to the ammonia and nitrogen plants of African Explosives and Chemical Industries, Limited, and the newsprint mill of S.A. Pulp and Paper Industries, Limited.

Increases were recorded again in the supplies to consumers in the base metal industries: the ferro-manganese project of Ferralloys, Limited, at Cato Ridge in Natal; African Metals Corporation, Limited, and Union Steel Corporation, Limited, at Vereeniging; S.A. Iron and Steel Industrial Corporation Limited ("IsCOR") at Vanderbyl Park. A new supply, for experiment and proving of their process and product, was given to Highveld Development Corporation, Limited, at Witbank.

Consumers engaged in the production of steel and ferro-alloys have given notice of large extensions and new developments now under construction; and commitments have been entered into to supply three new projects which have notified initial demands to a total of 75,000 kW required for the production of ferro-chrome and ferro-manganese. The bulk of these new loads are notified for the years 1963 and 1964.

OUTPUT AND SALES

The total units generated in all Escom's Undertakings in 1961 was 19,636 million units. Purchases from outside sources were further reduced to 8 million units.

The figures of output and sales for all Undertakings were as follows:—

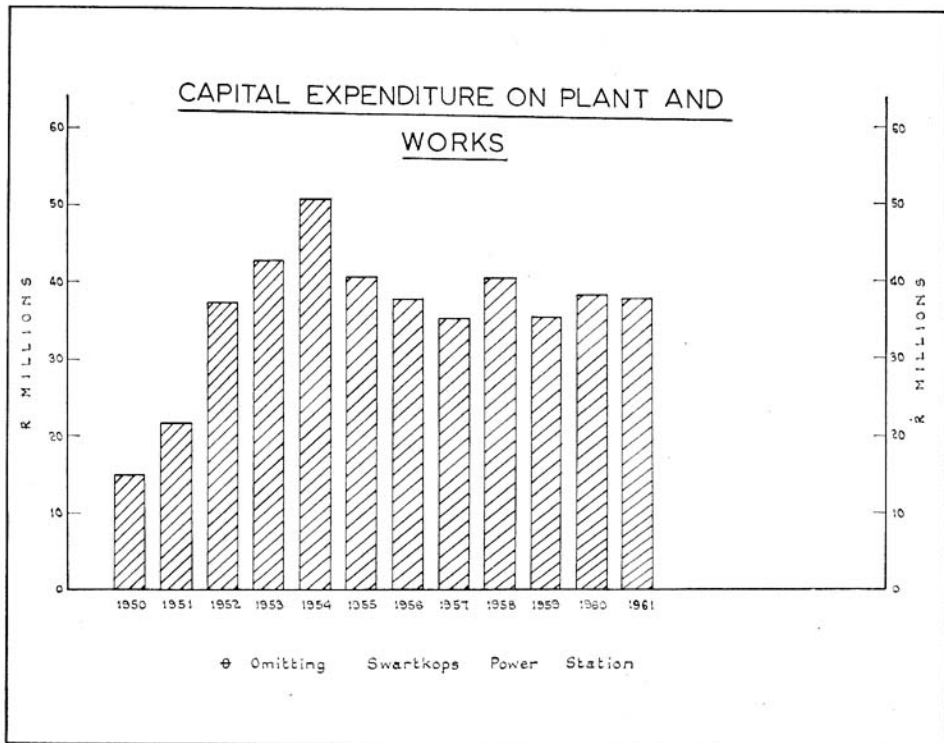
	1961	1960	Increase
Units generated.....	19,636,044,181	18,543,341,972	5·9%
Units purchased.....	8,399,659	15,320,932	—
Units sold.....	17,013,161,822	16,094,129,276	5·7%

Sales of units by individual Undertakings were as follows:—

	1961	1960	Increase
Cape Western.....	860,037,699	871,604,603	-1·3%
Cape Northern.....	191,307,887	185,184,788	3·3%
Border.....	178,813,327	172,281,916	3·8%
Natal Southern.....	1,497,502,802	1,408,995,045	6·3%
Natal Central.....	684,034,478	649,289,819	5·3%
Eastern Transvaal.....	901,470,383	762,016,927	24·2%
Rand and Orange Free State.....	12,699,995,246	12,044,756,178	5·4%
	17,013,161,822	16,094,129,276	5·7%

CAPITAL EXPENDITURE

Escom's expenditure on capital account for each year from 1950 to 1961 inclusive is depicted in the following diagram:—



**1961 LOAN FROM THE INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT**

In response to a request to the International Bank for Reconstruction and Development for a loan the Bank sent a team of experts to South Africa in March, 1961,

to investigate and report to the Bank on the management of Escom and Escom's loan projects. When the examination of the officials of the Bank was completed, Escom was informed in November, 1961, that the Bank approved of Escom's expansion programme and that it was satisfied with Escom's administrative, technical and financial set-up and its management and control of Escom's Undertakings.

The General Manager of Escom, Mr. G. R. D. Harding, was at the same time invited to proceed to Washington to negotiate and finalise a Loan Agreement with the Bank. The General Manager was successful in obtaining a 14 million dollar loan for ten years at an interest rate of $5\frac{3}{4}\%$ per annum from the International Bank for Reconstruction and Development.

PLANT CAPACITY

The plant taken into service in Escom's power stations during the year 1961 and the new plant under construction or on order at 31st December, 1961, is shown in the following table:—

	Plant taken into service: 1961		Plant under construction or on order at 31st December, 1961	
	Boilers lb/hr	Generators kW	Boilers lb/hr	Generators kW
Cape Western Undertaking:				
Hex River Power Station.....	275,000	30,000	275,000	30,000
Border Undertaking:				
West Bank No. 2 Power Station.....				15,000
Natal Undertaking:				
Umgenti Power Station.....	1,300,000	120,000		
Ingagane Power Station.....			1,800,000	200,000
Eastern Transvaal Undertaking:				
Komati Power Station.....	900,000	100,000	5,850,000	650,000
Rand and O.F.S. Undertaking:				
Highveld Power Station.....			1,100,000	120,000
	2,475,000	250,000	9,025,000	1,015,000

Komati Power Station. The first generating set and boiler in the new Komati Power Station, situated 23 miles south of Middelburg, were started up in November, 1961, and were placed on full load in January, 1962. The second set and boiler were placed on load in March, 1962.

These sets each of 100,000 kW capacity, and the corresponding 900,000 lb/hr boilers are the largest units installed in South Africa. The turbine design is for an inlet steam pressure of 1,250 lb/square inch gauge and a temperature of 950°F; and a high thermal efficiency is expected.

Three additional sets of similar size have been ordered and are under construction; while two further sets of 125,000 kW capacity and boilers of 1,125,000 lb/hr steaming capacity have been ordered for commissioning in 1964.

The station has been laid out for a total installed capacity of 1,000,000 kW. The capital cost of the first half of the station is estimated at approximately R92·00 per kW installed: the average for the complete station may be a little lower.

Komati Power Station feeds into the 132 kV system of the Eastern Transvaal Undertaking, and into the Rand and Orange Free State Undertaking through two 275 kV lines from Komati to Nevis Distribution Station.

PRICE OF ELECTRICITY

The price of electricity to consumers in Escom's Undertakings is shown in the following diagram which sets out the average price per unit for each Undertaking for the years 1951-1961. The figures represent the total price paid, including charges made in terms of the adjustment in the tariff to take account of increases or decreases in the cost of coal, and revenue derived from extension charges.

DIAGRAM I

PRICE PER UNIT SOLD : CENTS

- Cape Western Undertaking
- Cape Northern Undertaking
- Border Undertaking
- - - Natal Central Undertaking
- Natal Southern Undertaking
- Eastern Transvaal Undertaking
- Rand & O. F. S. Undertaking

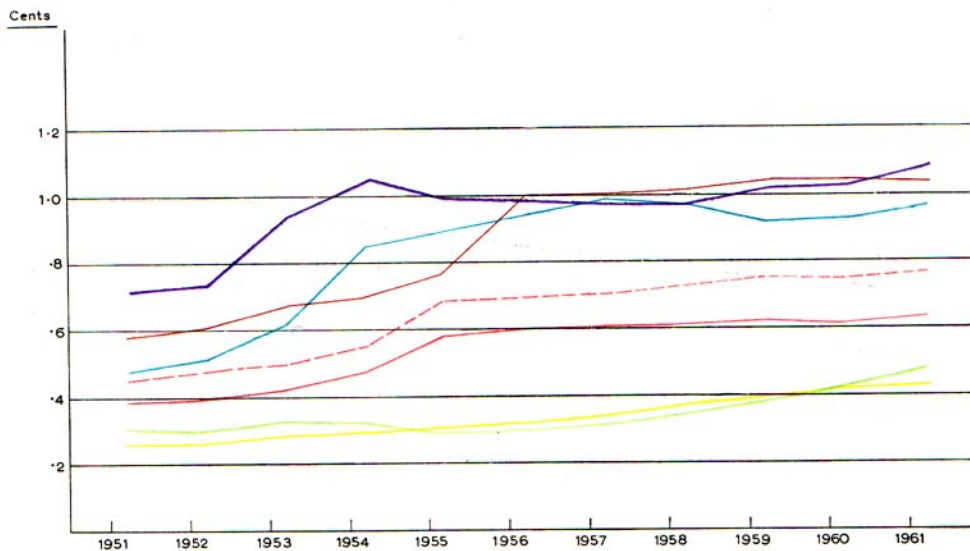
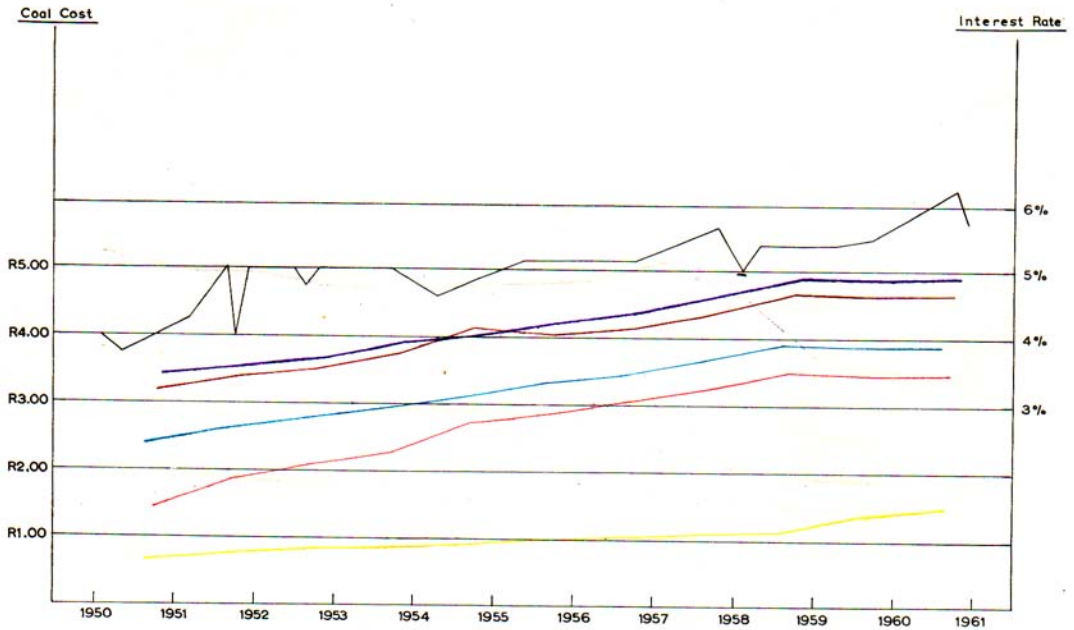


DIAGRAM 2

COAL COST PER TON

INTEREST RATE

- Cape Western Undertaking
- Cape Northern Undertaking
- Border Undertaking
- Natal Undertakings (Pooled Stations)
- Eastern Transvaal Undertaking
- Rand & O. F. S. Undertaking
- Rate of Interest



The sharp increases in price in the early "fifties" were due to the large additions of new plant installed in existing and new power stations and extensions of the transmission systems to meet the rapid expansion of the Commission's Undertakings in the post-war years, (*vide* Escom's Annual Report for 1957): but in the last five years price increases have been moderate in all Undertakings.

During the period 1951-1961 all Undertakings have had to meet upward adjustments of coal prices and railage rates, and these increases were passed on to consumers in the quarterly adjustment of tariff charges.

Another important factor affecting Escom's costs has been the general rise in interest rates. The increase in capital charges applies only to the increment of capital bearing the higher rate: but it is incurred for existing as well as new consumers, for it applies to every outlay of new capital, whether it be required to provide additional supplies to existing consumers or to cater for new consumers.

The rise over the period in these two elements of cost can be seen in diagram 2 showing (i) the average cost per ton of coal burnt in Escom's Undertakings,* including railage on coal; and (ii) the interest rates paid by Escom on loans raised during the years 1951-1961.

The differences in price in the separate Undertakings reflect not only differences in the cost structure, but also differences in the size and nature of the supplies in each Undertaking: and the following examples illustrate the difficulties in cost comparisons of the kind represented in diagram 1:—

(i) The power stations of the Natal Undertakings are operated as pooled stations. The difference between prices in Natal Central Undertaking and Natal Southern Undertaking does not arise in the cost of generating electricity, but is due to a different pattern of consumers and higher costs of distribution in the larger area of the Natal Central Undertaking.

(ii) There was no change in tariffs in the Eastern Transvaal Undertaking in 1961: so that the distinct up-turn in the price curve for 1961 is due mainly to changes in the nature of the supplies furnished from this Undertaking, and particularly to the inclusion of extension charges paid for supplies delivered at distant points in the new areas added to the area of supply.

In order, therefore, to compare similar categories of supply, the following table sets out the prices paid by the main categories of consumers in Escom's Undertakings during the past year:—

Total Sales of the Undertaking	NATURE OF the SUPPLIES GIVEN					Average All Supplies	
	Bulk	Traction	Mining	Industry	Domestic & Lighting		
millions kWh	Price per kWh sold: cents (S.A.)						
ESCOM UNDERTAKINGS							
Cape Western	806	·921	1·011	—	1·164	1·460	1·101
Cape Northern	191	·890	—	1·033	·992	2·648	1·011
Border	178	·969	—	—	1·931	2·097	1·081
Natal Southern	1,497	·622	·620	—	·651	1·726	·651
Natal Central	684	·734	·747	·783	·873	1·878	·789
Eastern Transvaal	901	·532	·572	·598	·415	1·939	·515
Rand & O.F.S.	12,700	·472	·507	·407	·408	·950	·431
	17,013						
Average: All Undertakings		·613	·673	·422	·494	1·484	·510

*Note: Where power stations are operated together as pooled stations, the cost of coal is the average for the pooled stations

The organization of the power supply industry is not the same in all countries, and especially the part played by local authorities in the generation and distribution of electricity differs in each country, and in some cases in different regions of the same country, and there is the difficulty that supply authorities have their own classification of consumers: nevertheless a general picture of the prices paid for electricity in other countries, in comparison with prices in South Africa, is given in the following table:—

Total Sales of the Undertaking	NATURE OF THE SUPPLIES GIVEN					
	Bulk	Trac-tion	Mining	Indus-try	Domestic & Light-ing	Average All Supplies
millions kWh	Price per kWh sold: approx. equivalent cents (S.A.)					

Electricity Supply Industry, England and Wales

Total sales by Area Boards and the Central Electricity Generating Board:

96,053	-	·992	1·044		1·428	1·233
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Hydro-Electric Power Commission of Ontario

Total sales in bulk to 382 municipal systems and interconnected utilities, and direct supplies to industrial consumers and rural areas:

Sales by the Commission	34,317	·489		·419		1·468*	·476
Sales by municipal electric systems.....	17,193†	—			·621	·866	·786

*Farms, rural, residential and commercial

†Units re-distributed.

Electricity Supply Commission of Southern Rhodesia

759	—	—	—	—	—	—	1·058
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State Electricity Commissions of Australia

New South Wales....	7,772	1,053	1·181	—	1·000	1·172	1·053
Victoria (1960).....	4,902	1·223	1·135	—	1·462	2·041	1·511
Queensland (Southern Authority)	774	—	—	—	—	—	1·786
Western Australia..	670	—	—	—	—	—	1·972

The striking feature that emerges from the foregoing comparisons is that electricity is being supplied from the large thermal power stations situated on the Transvaal, Orange Free State and Natal coal fields at prices comparable to the price of electricity produced in the large hydro-electric systems of Ontario; and appreciably below the price of electricity in England and Wales, where coal costs in the year referred to amounted to an average of R7·68 per ton.

This cheap supply of power, which has been, and is still a factor in the economics of the gold mining industry, may become an even more important factor in the development of base metal production in South Africa.

Even in the smaller Undertakings in the Western Cape and Border, where the power stations are situated at distances of 750 — 1,050 miles from the coal fields, prices are low in comparison with Undertakings of the same size and similar supplies.

Railage charges on Coal. The prices per ton of coal shown in diagram 2 reflect the fact that most pit-head power stations are located on coal deposits of low calorific value, while coal of high calorific content is purchased when it has to be transported long distances: but the large part of the differences represent the charge for railage.

Escom is able to mitigate these costs when expansion of the Undertaking calls for new plant to be installed, by purchasing plant of improved thermal efficiency; and, when it is cheaper to transmit electricity than to transport coal, by adopting the cheaper method of transfer as, for example, in the provision of a bulk supply to the Cape Northern Undertaking from the Rand and O.F.S. Undertaking, and in the location of the new Ingagane Power Station on the coal field at Newcastle. It will be appreciated, however, that wherever coal is the source of power, the cost of transmitting power from the coal source to the place where it is used, has to be met: it ceases to appear as a "coal cost" but it becomes a part of the "cost of transmission."

PROGRESS WITH THE SUPPLY OF ELECTRICITY TO RURAL CONSUMERS 1961

General. The extension of electricity supply in rural areas is accepted as a special task of Escom and still receives special attention in all departments of its organisation. Recent calculations have shown that in the four years up to the end of 1963 Escom will spend about R10·2 million on rural schemes. This figure does not include expenditure which will be required to enlarge power stations and strengthen distribution systems in order to supply the increasing needs of the rural areas.

The number of farms connected annually is still increasing and statistics show that 734 farms were connected in 1961 in the Republic. The previous year 623 were connected. Villages and other rural consumers also receive attention.

The Managers of all the Undertakings are working on extensions of existing schemes and investigating new rural schemes. In numerous cases offers have to be repeated several times before a sufficient number of consumers accept the scheme and Escom cannot reduce its terms because they represent cost price.

During the past two years much work was done in collaboration with manufacturers to develop a suitable ampere-demand meter. Large numbers of meters were ordered and the new type of meter has already been commissioned in the Eastern Transvaal and Rand and Orange Free State Undertakings which has enabled Escom to introduce the new rural tariffs based on this metering. Equivalent tariffs will also be introduced in all the other undertakings as soon as a suitable number of meters has been installed. The development of the existing undertakings is reviewed in detail in the following pages.

Cape Western Undertaking. In 1961 an additional 144 farms were connected and bulk supplies made available to ten of the owners. The farms are distributed over the whole undertaking. No big farm schemes were undertaken but a total of 125 miles of farm lines was added to existing schemes in the form of small extensions to individual or groups of applicants who had accepted the tariffs.

During the year a total of 570 applications for farm supplies was received. Tariffs were offered to a large number of applicants and 144 owners did not see their way clear to accept the terms. Estimates for some of the schemes have recently been completed and prices are being submitted to the farmers.

Tariffs were accepted by a group of farmers between Moorreesburg and Riebeck West where 19 farms will be connected early in 1962. A notable feature during 1961

was the applications received from farmers in the irrigation areas. As soon as oil-engines are no longer serviceable Escom is asked to supply electricity.

One consumer (David Graaf Foods Ltd.) in the district of Prince Alfred Hamlet who had eight supply points in 1955 now has 23 points consuming a total of 370 horsepower.

In the twenty villages like Velddrif, Laaiplek, Langebaan, Darling, Elgin etc. where Escom has reticulation systems 198 new consumers were connected in 1961.

Cape Northern Undertaking. The distribution system in the Vaalharts settlement was extended and an additional 215 small holdings were connected. Plans have been approved for the next group of 100 small holdings which will be connected in 1962. At Pokwani station in the settlement six consumers were connected and in the towns Hartswater and Jan Kemp which are also situated in the settlement, thirty and thirteen additional consumers were connected respectively.

The reticulation system in Taung which was started in 1960 was completed in 1961 and 16 consumers were connected in the year under review.

In the Windsorton district power lines were erected to nine farms where electricity is now used. Four farmers along the Harts River, two in the Boshof district and six near Ulco station have also been connected with the reticulation systems. A total of 239 farms and small holdings were connected during 1961 in this Undertaking.

Electricity was made available to the Railway Administration for lighting purposes at the following stations:— Wintersrush, Borrelskop, Silverstreams and Ulco.

A bulk supply was made available to the Town Council of Delporthshoop which undertook reticulation to consumers in the town. A similar supply was also made available to the Department of Defence at its site at Ganspan.

Border Undertaking. The rural scheme between Blaney and Berlin has been extended to connect an additional six farms, consequently 15 farmers are now supplied from this scheme. A group of three farms west of Bedford were supplied with electricity and a total of 30 farms in this Undertaking were connected to the networks in 1961.

Work is in progress on an extension which will supply rural consumers in the Fort Grey area near East London. The Department of Bantu Education has asked that power lines be constructed to two of its institutions in the Transkei namely Blytheswood and Teko. These two institutions and the Municipality of Idutywa will be connected in 1962.

An 11kV transmission line was constructed between Grahamstown and Alicedale and it is expected that a supply to Alicedale will be made available early in 1962. Negotiations are in progress with farmers along the route of the transmission line. One farmer has already agreed to take a supply.

In the villages of Middledrift, Keiskama Hoek and Seymour twelve additional domestic consumers decided to take electricity and all have already been connected to Escom's reticulation system.

Natal Southern Undertaking. In this Undertaking 54 farms and 25 other rural consumers were connected. Most of the new consumers are being served from existing networks by extensions which could be made without new schemes having to be established. The new schemes established serve five farms at Umlaas Road, nine consumers at Umtentwini and 11 at Donnybrook. An additional 12 consumers were connected up in the latter village.

Bigger supplies were provided for five farms and three other rural consumers which required more electricity. Two clothing factories at Hammarsdale were connected up in the industrial area for border industries.

Two schemes for 29 farms near Port Shepstone and 10 farms at Driefontein on the Natal North Coast were not accepted because the terms were unacceptable. A further 131 applicants scattered over the whole Undertaking have not yet decided whether they will accept the terms offered. In all 134 persons, most of whom are farmers, did not see their way clear in the year under review to accept Escom's terms.

84 Applicants who signed agreements are waiting to be connected and will be supplied in 1962.

If the negotiations in progress with town councils can be concluded successfully, electricity will be taken to Zululand and brought within reach of a large number of farmers near Empangeni and Eshowe.

Natal Central Undertaking. In the area served by this Undertaking 43 farms and 20 other rural consumers were connected during the past year. Thirteen of these farms are near Greytown, four at Glencoe, three at Newcastle, four at Ennersdale, four at Howick and five at Winterton. The others are scattered over the Undertaking.

Farm schemes have been planned for 13 farms in the district of Bethlehem and 24 farms in the Harburg-Glenside area near Dalton. The schemes were not accepted because the farmers concerned considered the terms too high. In all 120 rural applicants declined Escom's terms in the Natal Central Undertaking. A further 78 applicants have not yet replied to Escom's offers. Of the potential consumers who accepted the terms, 39 had to be held over for connecting up in 1962.

The existing reticulation system at Dalton was taken over and a further 80 consumers connected in 1961.

Negotiations are being carried on with the residents of the village of Arlington in the Orange Free State which may lead to the extension of the system to the village and a number of farms.

Eastern Transvaal Undertaking. Around Nelspruit a farm scheme has been established which is not yet completed and which will ultimately supply approximately fifty farms and a saw mill. Electricity is purchased by Escom from the Municipality of Nelspruit and supplied to the farmers. In the last quarter of 1961 ten farms were connected to the scheme.

Work is in progress on a big farm scheme in the district of Ermelo. Thirteen farms have already been connected and it is expected that another 50 will be supplied in 1962. South of Middelburg a small scheme for seven farms and a brickyard has been completed.

In the district of Bronkhorstspuit a farm scheme has been established for 13 farms all of which now use electricity. After the work was completed, the labour gang was transferred to Belfast where work is being done on a farm scheme for 7 farms, three of which have already been connected.

In the Groblersdal area existing farm schemes were extended to include an additional 33 farms and other consumers. The 21-kV transmission line along the Olifants River was extended to the Arabie Bantu School and the native hospital of the D.R. Church at Goedvertrouwen, both of which receive bulk supplies. Three farmers were connected to this extension which also serves a 75-kVA pumping plant for the irrigation scheme of the Bantu School. A branch line supplies the Nebo Bantu Commissioner's headquarters and a hospital for blind people. These consumers are some 37 miles north-east of Groblersdal.

The Elands River farm scheme northwest of Marble Hall was extended to the Toitskraal area where 14 new consumers were connected. The scheme is planned for a total of approximately 80 farms, most of which will be connected in 1962.

During the past year rural schemes were investigated for groups of farmers near Dullstroom, Bronkhorstspuit and Morgenzenon and in the vicinity of Sabie. The one scheme at Sabie entails the construction of a 21-kV power line between the Power Station at Sabie and the town of Graskop where approximately 70 residents have accepted Escom's prices. A reticulation system will be erected in Graskop in 1962. The second scheme near Sabie is planned to supply power to the fruit packing shed at Kiepersol, about 50 farms and two camps in the Kruger National Park.

Investigations are in progress to see whether the system can be extended from Breyten to Lake Chrissie to supply approximately 40 potential consumers in the latter village and 15 farms.

An application was received from the holiday resort at the Loskop Dam. A scheme is being planned to make a bulk supply available at the dam and connect approximately 30 farmers along the proposed transmission line between Groblersdal and the dam.

In 1961 109 farms were connected to existing or new rural schemes in the area served by the Eastern Transvaal Undertaking.

Rand and Orange Free State Undertaking. The rural scheme in the Muldersdrift/Boschkop area north of Roodepoort where more than 400 stands are supplied, was completed during the year; 60 of these consumers were connected in 1961.

Around Jacksonsdrif between Johannesburg and Vereeniging the network was extended to connect an additional 22 consumers. The Witkoppen scheme north of Johannesburg was also extended to supply 13 additional consumers.

An 11-kV transmission line was constructed between Welverdiend and Rysmierbult to supply a farm scheme. Work is in progress on this scheme and five farms are using electricity. The farm scheme at Parys was extended and an additional 10 farms were connected. Plans were approved for the extension of the farm scheme between Alberton and Heidelberg to an additional 20 farms.

Good progress has been made with the construction of a reticulation system for consumers in the vicinity of Halfway House between Johannesburg and Pretoria; 125 stands were connected and plans approved for connecting an additional 80 stands during 1962.

At Brentwood Park north of Benoni 307 peri-urban consumers were connected during the year under review. A large number of consumers were supplied in the peri-urban areas around Johannesburg and the towns of Klip River, Rothdene and Henley-on-Klip. The number of new consumers who was supplied with electricity in the abovementioned areas in 1961 exceeds 700.

In the Orange Free State terms were offered to approximately 25 farmers near Edenville. The scheme was not accepted because the terms were considered too high. Ultimately only four farms were supplied with electricity.

Escom's terms were accepted by approximately 110 farmers in the district of Viljoenskroon. In order to undertake such a big scheme an additional labour gang had to be recruited. Difficulties were encountered to find skilled line workers for the gang and consequently the scheme could not be started in 1961.

A number of farms along the Schoonspruit between Ventersdorp and Klerksdorp will be connected in 1962. The scheme has been fully planned and the owners concerned accepted Escom's terms.

Terms were offered to approximately 80 potential consumers in the vicinity of Baragwanath. There are indications that a sufficient number of the applicants will accept the terms and that the scheme will materialise. The same applies to approximately 60 plots near Randfontein known as the West Rand Agricultural Holdings.

A rural scheme is planned for approximately 100 farms in the Grootvlei area between Heidelberg and Balfour. Replies are awaited to Escom's offer which set out the terms.

Applications were received from a few farmers and from farmers' associations on behalf of groups of farmers which could not be attended to owing to the amount of work on hand. The outstanding applications will be attended to as soon as possible.

DEVELOPMENT OF TRANSMISSION SYSTEMS

The development of the major transmission systems in the various Undertakings is indicated by the following lists of transmission lines built during 1961 and the lines under construction or projected at the year end:—

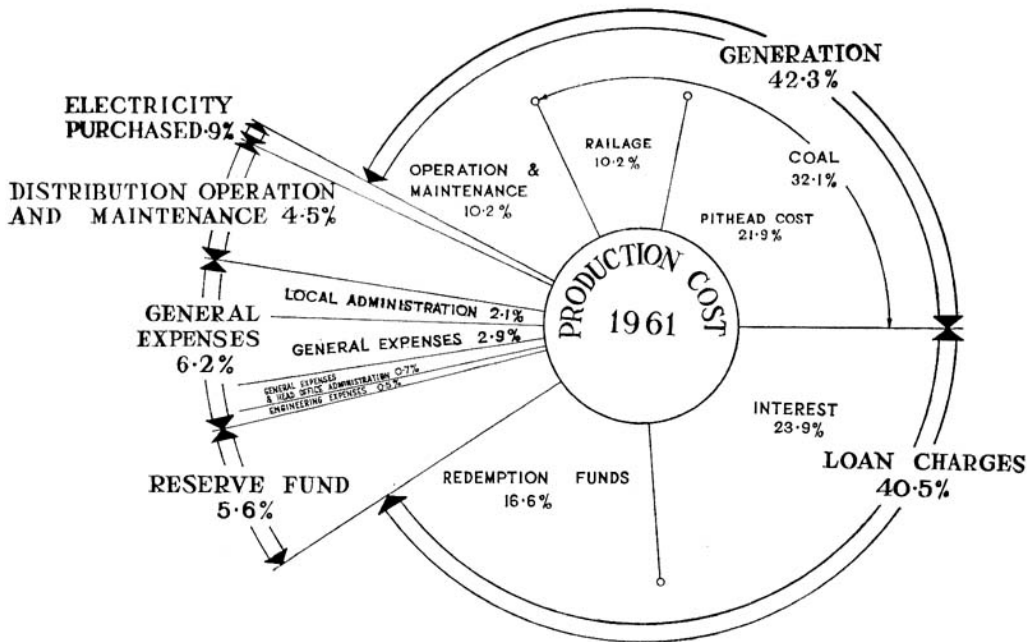
Completed in 1961		kV	Total Circuit miles
E.T. U.	Machadodorp Distribution Station — Lydenburg — Penge Sub-Station.....	132	102
N.U.	S.A. Railways supply Tees and Loops.....	88	5
C.N. U.	Kimberley Distribution Station — Ulco Sub-Station.....	132	51
	Kimberley Distribution Station — N.T.P. (De Beers) Sub-Station.....	66	4
	Silverstreams Sub-Station — Manganore Sub-Station — Sishen Sub-Station.....	132	57
B.U.	Gately Sub-Station — North Coast Tee point.....	66	6
C.N. U.	Hex River Power Station — Beaufort West Sub-Station (Double circuit).....	132	440
R. & O.F.S.	Komati Power Station — Nevis Distribution Station No. 1.....	275	64
	Loops to Western Deep Levels Sub-Stations	132	17
	Winburg Sub-Station — Excelsior Sub-Station — Tweespruit Sub-Station — Driedorp Sub-Station.....	88	81
	Esselen Distribution Station — North Rand Distribution Station No. 3.....	88	12
	Other System Extension.....	88	14
	Struben Distribution Station — Valley Distribution Station Network.....	42	15
	West Wits. Area system Extensions.....	42	7
	Free State Goldfields Area Extension.....	42	14
Under Construction 1.1.62			
E.T. U.	Leeuwkloof Tee point — Marathon Distribution Station.....	275	61
	Marathon Distribution Station — Acornhoek Distribution Station site.....	275	60
	Acornhoek Distribution Station site — Foskopor Distribution Station.....	132	41
	Marathon Distribution Station — Noordkaap Sub-Station — Chrysotile Sub-Station.....	66	65
	Kudu Distribution Station — Rockdale Distribution Station.....	132	24
N.U.	Ingagane Power Station — Georgedale Distribution Station.....	275	320
	Further S.A. Railways supply Tees and Loops.....	88	15
	Cato Ridge Sub-Station — Northdene Tee off (Double Circuit).....	88	33
	Tees to Umgeni and Duff's Road S.A. Railways Sub-Station.....	132	10
	Turn-in lines to Georgedale Distribution Station.....	132	19
	Turn-in lines to Ingagane Power Station...	88	5
	Volkstrust Sub-Station to Platrand S.A.R. Sub-Station	88	29

C.N. U.	Sishen Sub-Station — Asbes Sub-Station — Riries Sub-Station — Hotazel Sub-Station	66	55
C.W. U.	Ysterplaat — Muldersvlei Sub-Station ...	132	20
	Muldersvlei Sub-Station — Windmill Sub-Station.....	132	18
	Muldersvlei Sub-Station — Firgrove Sub-Station (Double Circuit).....	132	32
	Windmill Sub-Station — Paarl Sub-Station (Part Double Circuit).....	66	9
	Ashton Sub-Station — Bonnievale Sub-Station.....	66	10
R. & O.F.S. U.	Komati Power Station — Nevis Distribution Station No. 2.....	275	64
	Nevis Distribution Station — Snowdon Distribution Station Nos. 1 & 2.....	275	70
	Snowdon Distribution Station — Highveld Power Station Nos. 1 & 2.....	275	74
	Highveld Power Station — Scafell Distribution Station Nos. 1 & 2.....	275	42
	Scafell Distribution Station loop-ins and rearrangement.....	132	4
	Vierfontein Distribution Station — Grootkop Distribution Station No. 2 Turn-in..	132	5
	Snowdon Distribution Station loop-ins and rearrangement.....	88	75
	Watershed Distribution Station — Sannieshof Sub-Station.....	88	40
	Klip Power Station — E.R.P.M. Distribution Station No. 2.....	88	12
	Central area system Extension.....	88	7
	Wolmaransstad Sub-Station — Bloemhof Sub-Station.....	88	43
	Other system Extension.....	42	8
Projected 1.1.62		kV	Miles
E.T. U.	Wilge Power Station — Transalloys Distribution Station.....	132	16
	Komati Power Station — Leeuwkloof Tee point.....	275	50
	Rockdale Distribution Station — Middelburg Sub-Station — Olifantsrivier Sub-Station.....	88	34
	Rockdale Distribution Station — Machadodorp Distribution Station.....	132	55
	Machadodorp Distribution Station — Marathon Distribution Station.....	132	59
	Marathon Distribution Station — Komati-poort Sub-Station.....	132	82
N.U.	Volksrust Sub-Station — Platrand S.A.R. Sub-Station.....	88	33
	Newcastle Sub-Station — Volksrust Sub-Station 2nd line.....	88	35
	Duff's Road Sub-Station — Mandini Sub-Station.....	132	54
	Mandini Sub-Station — Eshowe Sub-Station — Empangeni Sub-Station.....	88	63

	Cato Ridge Sub-Station — Marian Hill Sub-Station.....	88	—
C.N. U.	Everest Distribution Station — Kimberley Distribution Station.....	275	148
	Silverstreams Distribution Station — Asbes Sub-Station.....	66	64
B.U.	Conversion King William's Town Sub-Station — Alice Sub-Station.....	66	33
C.W. U.	Windmill Sub-Station — Hex River Power Station.....	132	36
	Koperfontein Sub-Station — Vredenburg Sub-Station.....	66	45
R. & O.F.S. U.	Scaffell Distribution Station — Vander Bijl Sub-Station.....	132	34
	Scaffell Distribution Station — Technime-tals Sub-Station.....	132	48
	Union Distribution Station rearrangement	88	10
	Struben Distribution Station — Stepdown Distribution-Station.....	132	12
	Sannieshof Sub-Station — Vryburg Sub-Station.....	88	165

COSTS AND TARIFFS

The more important elements in Escom's cost structure are shown in the following diagram of Production Costs for the year 1961:—



The following changes in tariffs were made during the financial year 1961:—

Cape Western Undertaking. The amendments to the schedule of Standard Prices, applied for on 27th September, 1960, as reported in the last Annual Report, were approved by the Electricity Control Board on 13th March, 1961, and, excepting the new ampere-demand tariff which will be introduced when the ampere-demand meters are installed, were introduced on 1st June, 1961.

Cape Northern Undertaking. Due to the rapid expansion that has been achieved in this Undertaking, the year's accounts reflected a surplus of R134,538 and an accumulated surplus of R303,878. The expectation of further expansion made it possible to reduce tariffs for the financial year 1962, and this was done by introducing a discount of 5 per cent on standard tariffs, with effect from January, 1962.

Natal Central Undertaking. The report on operation of the Natal Central Undertaking, published on page 39, draws attention to the deficit of R157,705 on the year's working, which raised the accumulated deficit on the Undertaking to R460,150 at the year end.

In order that the financial position of the Undertaking be stabilized, the surcharge on standard tariffs was increased from 5 per cent to 10 per cent surcharge, with effect from March, 1962.

STATISTICAL SUMMARY

Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's undertakings during the year 1961, with the comparative figures for 1960, are as follows:—

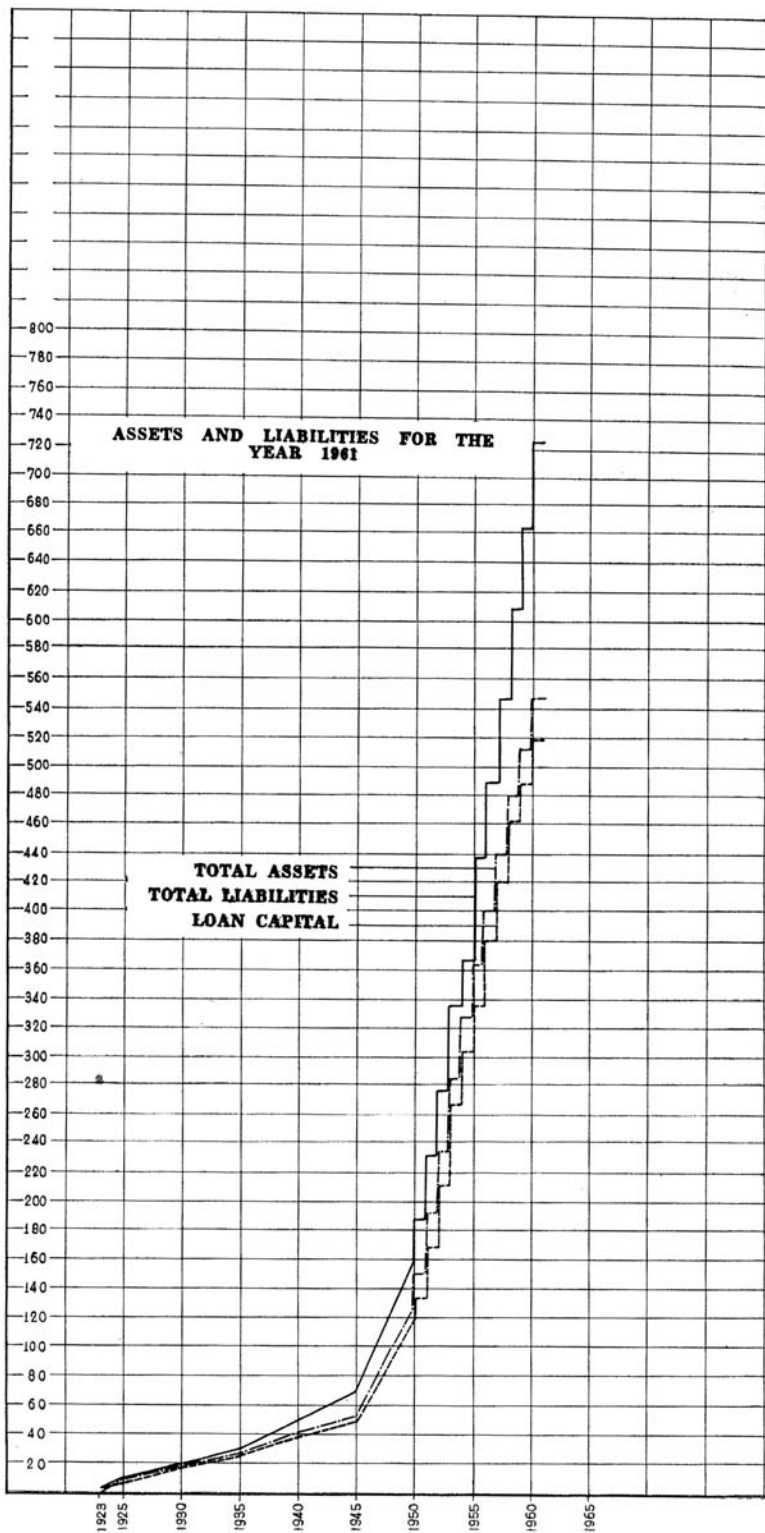
	1961	1960	Increase
Total Revenue	R88,018,366	R81,835,764	7·555%
Total Production Costs (including interest, redemption and reserve fund charges)	R86,061,388	R80,735,496	6·597%
Difference between Revenue and Production Costs	R1,956,978	R1,100,268	R856,710
Average Price per Unit Sold	0·5167c	0·5079c	1·739%
Average Revenue per Unit Sold (including sundry revenue)	0·5174c	0·5085c	1·745%
Average Cost per Unit Sold	0·5059c	0·5016c	0·838%
Units Generated	19,636,044,181	18,543,341,972	5·893%
Units Sent Out	18,344,697,967	17,361,049,153	5·666%
Units Purchased	8,399,659	15,320,932	—
Units Sold	17,013,161,822	16,094,129,276	5·710%
Total Cost of Coal Consumed (including railage)	R27,712,566	R25,372,518	9·223%
Railage on Coal Consumed	R8,849,261	R8,912,074	-0·705%
Coal Consumed (in tons of 2,000 lbs.)	14,544,837	13,792,816	5·452%

FINANCIAL

Loan Capital. During 1961 two local loans totalling R34,000,000 were raised as follows:—

Date Issued	Amount	Interest	Issue Price	Redeemable
18th April.....	R16,000,000	5 $\frac{7}{8}$ %	R100·00 %	30/6/81—86
12th October.....	18,000,000	6 $\frac{1}{4}$ %	R100·00 %	30/9/81—86
	<u>R34,000,000</u>			

These loans were full subscribed, but at the year end the amount received on account of the loan issued on the 12th October was R16,817,390. The balance of



R1,182,610 payable not later than the 31st January, 1962, in terms of the prospectus, has since been received. At the year end the loans raised locally as Local Registered Stock totalled R487,000,000, of which R6,000,000 had been repaid.

At these amounts increased the Commission's loan capital at the date of the Balance Sheet to R518,373,200.

On the 1st December, 1961, an agreement was signed for a further loan of \$14,000,000 (R10,000,000) by the International Bank for Reconstruction and Development to be taken up not later than the 30th June, 1963. The loan bears interest at $5\frac{3}{4}\%$ per annum, and is redeemable over $8\frac{1}{2}$ years by half yearly instalments, from the 1st December, 1963.

Redemption Fund. The amount in the Redemption Fund at the 31st December, 1961, totalled R135,400,461 which in the aggregate after taking into account the depreciation on the market value of investments, exceeded the amounts required for the redemption of the loans in accordance with the provisions of the Act.

The amount in the Redemption Fund includes the proceeds from the sales of assets and profits on realisation of investments.

Reserve Fund. The amount in the Reserve Fund at the 31st December, 1961, was R29,903,360.

Capital Expenditure. Expenditure on Capital Account during the year amounted to R38,093,943 which increased the total capital expenditure at the 31st December, 1961, to R529,565,151.

Expenditure on Capital Account will amount to approximately R690,000,000 on completion of all the works under construction and projected works, to which the Commission is committed.

Investments. The book value of securities, representing investment in Government, Municipal and Electricity Supply Commission stocks held by the Commission on behalf of the various funds at 31st December, 1961, was R163,866,815, the nominal value being R165,246,497. The market value of these investments at that date was R148,355,258.

Assets and Liabilities. The Commission's total assets at the 31st December, 1961, amounted to R725,886,116 and its total liabilities to R547,278,869, the difference being R178,607,247 which is represented by the amounts in the redemption and reserve funds, loans repaid, and balance on revenue account.

STAFF

Home Ownership Scheme. The balance at 31st December, 1961, on loans granted to employees to enable them to acquire homes under the Commission's Home Ownership Scheme in terms of the Electricity Act, was R2,607,476.

Personnel. The employees employed by the Commission at the 31st December, 1961, numbered 15,441 made up as follows:—

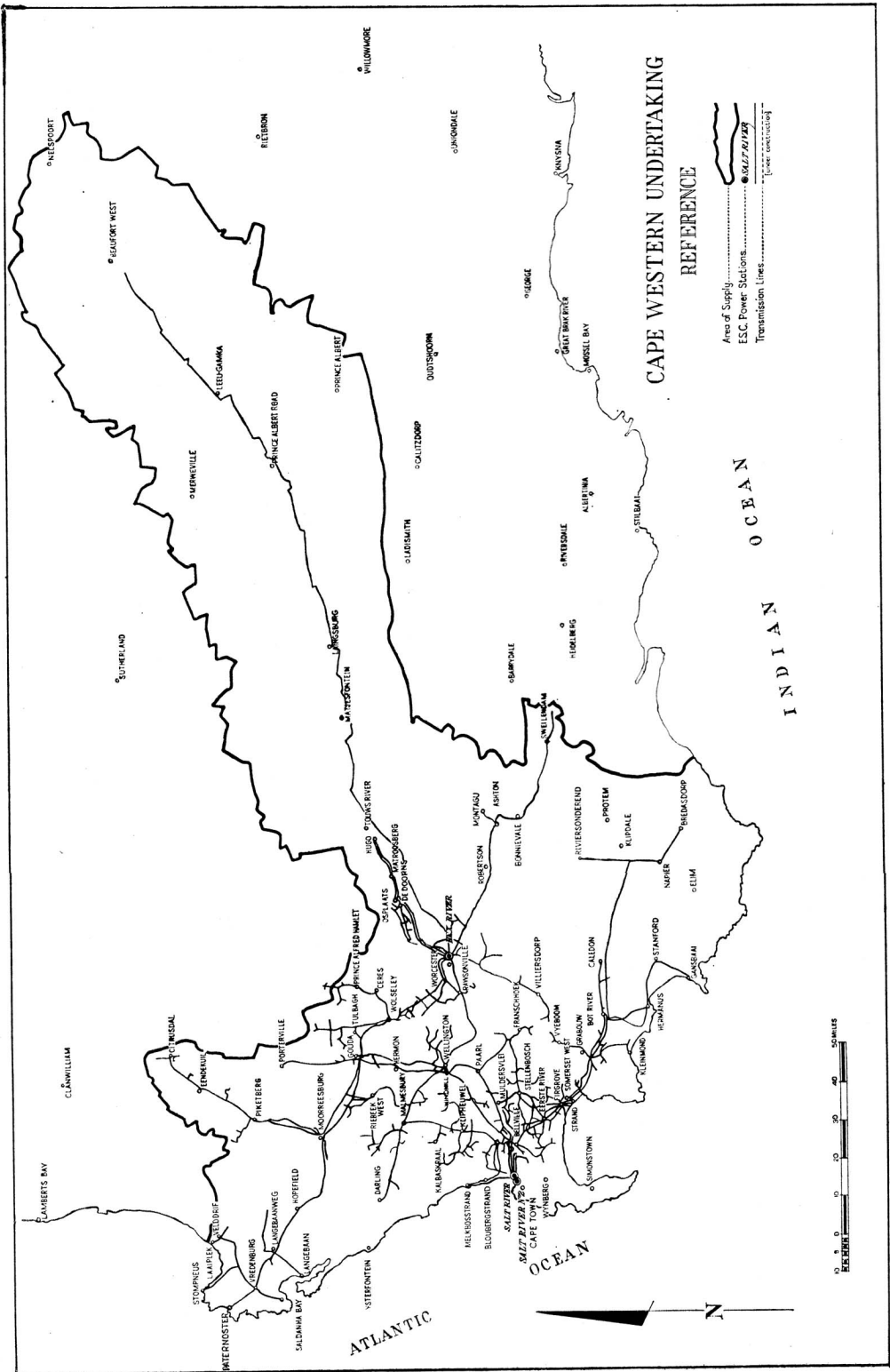
	1961	1960	Increase	
Europeans.....	5,626	5,413	213	3·9%
Non-Europeans.....	9,815	9,241	574	6·2%
	<u>15,441</u>	<u>14,654</u>	<u>787</u>	<u>5·4%</u>

The Commission desires to express to all employees its appreciation of their loyal and conscientious service.

ESCOM'S UNDERTAKINGS

The operation and development of Escom's separate 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.



CAPE WESTERN UNDERTAKING

Output and Sales. The supply taken by the Cape Town City Council totalled 54,085,100 units for the year which was within the tolerance allowed on the agreed quota; but was a marked reduction compared with the quota of 103 million for the year 1960 (103,063,040 units were actually taken). In consequence, the total units sold on the Cape Western Undertaking was 1·34 per cent less for 1961 than for 1960. Excluding the Cape Town City Council supply, the units sold were 4·88 per cent greater for 1961 than for 1960. This is a modest increase compared with the average of 7 per cent for the previous 4 years: but, with the System Maximum Demand of 166,500 kW in 1961 (excluding the Cape Town City Council supply) there was some improvement in load factor for 1961, and there was a marked increase in electricity consumption during the last two months of the year. The revival towards the end of the year is attributed to pumping for agricultural purposes necessitated by a period of drought.

Power Station Operation and Maintenance. Salt River No. 2 Station was operated as the base-load station, regulation of the system being effected at Hex River Power Station. Salt River No. 1 was used at peak periods or during abnormal system conditions.

There was one interruption to supply due to faulting of power station equipment namely when at 5·24 p.m. on Monday, 27th February, a bus-section switch was closed on the 3·3 kV main station board at Hex River Power Station, and a flashover on the busbars deprived the station of all 3·3 kV auxiliary supply. Load had to be shed in the Elsies River and Worcester areas; but all circuits were restored to normal by 5·55 p.m.

Hex River Power Station: Extensions. One new 30,000 kW turbo generator (No. 4) and one 275,000 lb/hr boiler (No. 5) were commissioned towards the end of June, 1961; but due to initial troubles it was not possible to run the new plant continuously until later in the year. In consequence the station efficiency does not show the improvement which is expected in future.

Progress with the erection of No. 5 turbo generator and No. 6 boiler has been maintained, and it is expected that the target date for commissioning in mid-1963 will be realised.

Coal. Supplies of coal to the Salt River and Hex River Power Stations have been regular and adequate. An appreciable drop in the calorific value of the coal supplied to Salt River was noticed, the grading, however, being much the same.

Major transmission system. The most important development in 1961 was the completion and commissioning in November of the duplicate 132 kV line, 230 miles in length, from Hex River Power Station to Beaufort West, and the twelve associated substations for railway electrification. Electric running on the Touws River-Beaufort West section of the railways commenced during the same month.

The internal 132 kV system from Salt River to Muldersvlei, thence to Firgrove in the South-East, and to Windmill (Wellington) in the North-West, received a good deal of attention during the year.

After much difficulty, a site at Ysterplaat for the overhead line/underground cable terminal was obtained.

Work on the substations at Windmill and Muldersvlei progressed as material became available.

Specifications for the Muldersvlei-Windmill and the Muldersvlei-Ysterplaat overhead lines and the Salt River-Ysterplaat 132 kV underground cable were completed during the year, and orders were placed for the equipment. Structures for the Firgrove-Muldersvlei section were delivered early in the year and construction commenced in March. At the end of the year practically all towers had been erected, but conductor stringing was in abeyance pending the arrival of stringing equipment.

Distribution Systems. Electricity demand in Goodwood, Parow, Bellville and environs increased by 2·5 per cent during the year to a total of 37 MVA. This demand was met without difficulty.

CAPE WESTERN UNDERTAKING

CONSUMERS			SALES			Average Price per Unit Sold	
Class	Number	Units	Decrease/ Increase	Revenue from Sales	Average Price per Unit Sold		
					1961	1960	
Traction	2	214,505,743	Per cent +6.077	R. 2,169,098	C. 1.0112	C. 0.9601	
Bulk	31	261,814,115	-12.531	2,412,203	0.9213	0.8727	
Industrial	2,767	241,874,658	+2.882	2,816,645	1.1645	1.1120	
Domestic and Lighting	29,413	141,843,183	+4.868	2,070,842	1.4600	1.4209	
	32,213	860,037,699	-1.327	9,468,788	1.1010	1.0424	
Total Revenue				1960	Accumulated to 31.12.61		
Working Costs				R. 9,502,608	R.		
Surplus				9,161,714	9,116,802		
Deficit				340,894	9,107,098		
Capital Expenditure				5,588,234	9,111		
					61,919,956		
Salt River Power Station No. 1			Salt River Power Station No. 2			Hex River Power Station	
1961			1961			1961	
1960			1960			1960	
Units Sent Out	17,393,180	21,832,520	685,241,210	706,323,920	228,896,030	210,890,860	
Maximum half-hour Demand kW S.O.	46,314	36,735	120,395	126,251	69,100	57,500	
Station Peak kW	56,000	42,600	132,000	135,000	—	59,200	
Load Factor %	4.3	6.8	65.2	63.9	37.9	41.9	
Thermal Efficiency % S.O.	13.1	13.7	27.1	26.8	23.2	22.8	
FUEL:							
Coal Consumed—tons	17,587	14,766	375,078	391,781	144,934	137,229	
Average per unit sent out—lb	2.258	2.129	1.091	1.092	1.266	1.301	
Calorific Value B.Th.U./lb	11,570	11,670	11,570	11,670	11,600	11,510	
Total Cost	R1,905,992*	R1,966,074*	R4.83*	R4.83*	R691,236	R642,202	
Cost per ton	R4.85	R4.83*	R4.83*	R4.83*	R4.76	R4.68	

*For Salt River Power Stations Nos. 1 and 2.

Some 15 miles of overhead line and 7 miles of underground cable were laid in these urban areas during 1961.

There was a nett increase of 4,065 kVA of transformer capacity installed for consumers, the total capacity now being 73,135 kVA.

During 1961 the rural system was extended by some 133 miles of high voltage lines and 25 miles of low voltage lines. 686 new connections were made, which included 143 farms and 9 large users. The number of new rural connections during 1961 is the largest so far achieved in any one year on the Undertaking.

Financial. Capital expenditure on the Undertaking increased by R1,904,728 during 1961, bringing the total to date to R58,236,450.

The revenue for 1961 was R9,502,608, and the total working costs R9,161,714, giving a surplus of R340,894 on the year's working. The Revenue Account for the Undertaking therefore shows a nett accumulated deficit of R9,111 at 31st December, 1961.

CAPE NORTHERN UNDERTAKING

Sales. The units sold in 1961 reached a total of 191·3 million units, an increase of 3·3 per cent over the sales of the previous year.

De Beers Consolidated Mines Limited increased their consumption by 6·3 per cent; but lime and cement works took smaller supplies.

Bulk supplies increased to all municipalities. The Kimberley City Council increased its purchases by 7·4 per cent, maintaining a rate of growth which has been steady for the last four years.

The increase at Warrenton was 29·8 per cent, and the newly formed Municipality of Hartswater, which now includes Pokwani, took an additional 39·3 per cent.

Postmasburg Municipality and five mines in the vicinity were given a bulk supply in the middle of December.

The small diamond mines in the Frank Smith's Mine and Bellsbank areas continued to develop, and increased their purchases by 15·4 per cent.

The number of consumers on the Vaalharts plowholders scheme increased by 223 to 550 and consumed over 1·2 million units.

Interconnection with the Pooled Power Stations. During 1961 the import from the Rand and O.F.S. Undertaking was increased from 129 to 147 million units, while the units sent out from the Central Power Station, Kimberley, decreased from 62 to 50 million units.

The maximum demand of the Cape Northern Undertaking network was 39·5 MW, of which 19 MW was supplied by the local power station.

Development of the Transmission and Distribution Systems. A major 132 kV transmission line from Kimberley to Manganore via Ulco and Silverstreams, previously utilized at 66 kV to Silverstreams, was energised at 132 kV in December, 1961, to supply Postmasburg Municipality and five mines in that area. This line was extended to Sishen and in February 1962, a supply was given to Iscor's iron ore quarry, which is being developed to increase its output from 1½ to 5 million tons of iron ore per annum during the next five years. The increased output is required for their steel works at Vanderbyl Park.

From the Sishen 132/66/11 kV substation a 66 kV line has been erected to a 66/11 kV substation at Asbes, and 11 kV lines are now being erected to supply the Kuruman Municipality and asbestos mines in that area.

CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1961	1960
Bulk	7	70,146,662	—8·015	R. 624,186	c. 0·8898	c. 0·8765
Mining	22	74,014,089	+1·101	764,571	1·0330	1·0107
Industrial	115	42,464,491	—2·645	421,279	0·9921	0·9252
Domestic & Lighting... ..	1,224	4,682,645	+37·051	124,016	2·6484	2·6619
	1,368	191,307,887	+3·306	1,934,052	1·0110	0·9740

	1961	1960	Accumulated to 31.12.61
	R.	R.	R.
Total Revenue	1,937,443	1,805,230	
Working Costs	1,802,905	1,741,944	
Surplus	134,538	63,286	303,883
Capital Expenditure	989,436	513,934	8,598,733
CENTRAL POWER STATION—			
Units Sent Out	50,087,415	62,220,933	
Maximum half-hour } Demand kW S.O. }	19,044	21,345	
Station Peak kW	21,100	23,800	
Load Factor %	30·0	33·2	
Thermal Efficiency % S.O.	11·1	12·1	
FUEL:			
Coal consumed—tons	67,842	78,543	
Average per unit sent out—lb....	2·710	2·525	
Calorific Value B.Th.U./lb.	11,350	11,200	
Total Cost	R254,414	R296,998	
Cost per ton	R3·75	R3·78	

The 66 kV line will be extended to Riries for additional asbestos mines and to Hotazel for consumers on the new manganese fields. When this line is commissioned towards the end of 1962, power will be transmitted some 206 miles from Kimberley.

The notifications for supply between Postmasburg and Hotazel have been increased considerably in order to meet export contracts for iron ore and an ever increasing demand for Cape blue asbestos.

Rural Development. A report on the development of rural supplies on this Undertaking is given on page 15.

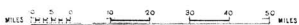
Financial. There was no change in tariffs during 1961; but the continued expansion of the Undertaking resulted in a surplus of R134,538 on the year's working. In view of the accumulated surplus of R303,782, at 31st December, 1961, and the expectation of further development, a reduction in tariffs was possible, and this has been effected by a discount of 5% on tariff charges as from January, 1962.

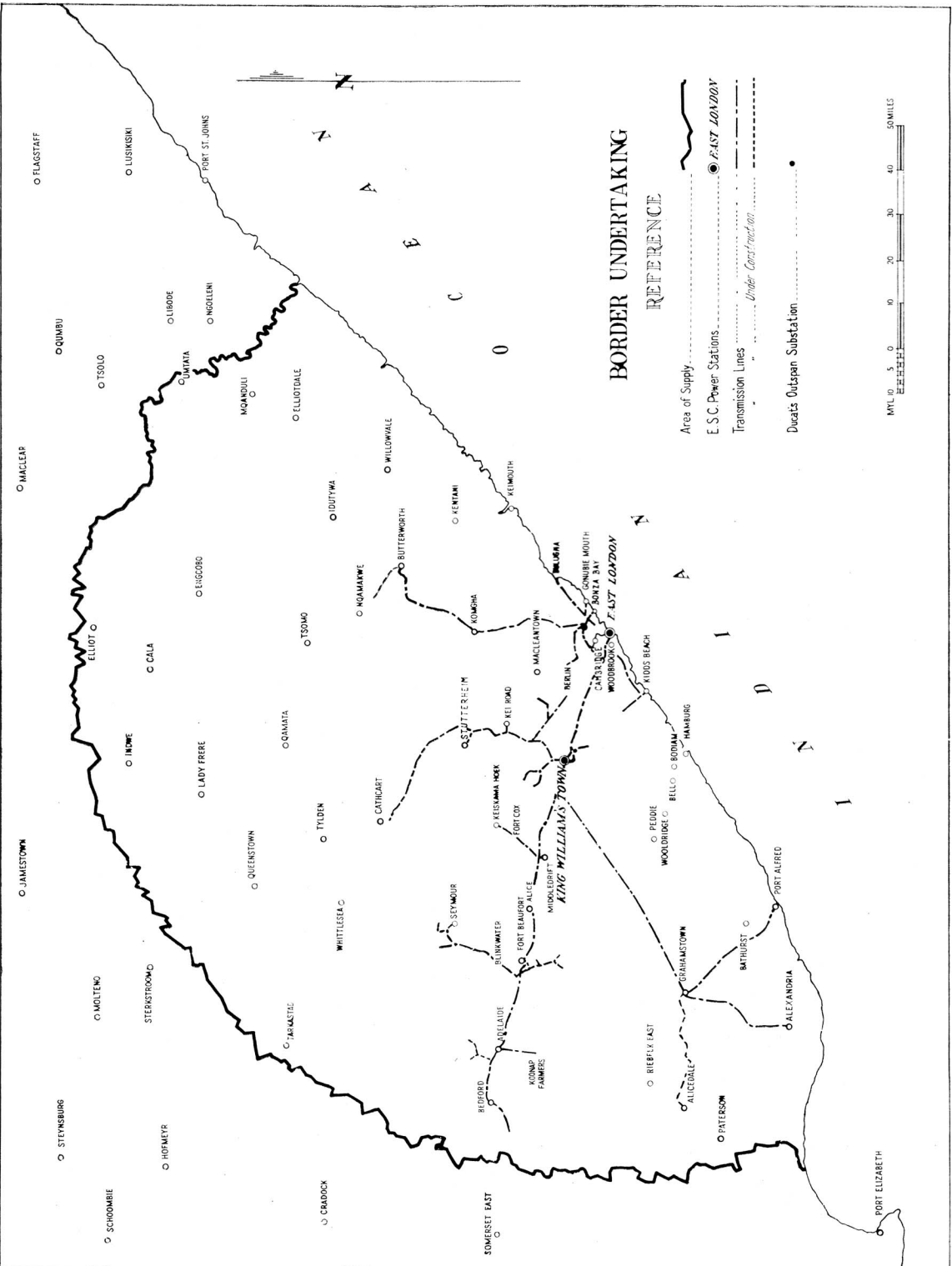


CAPE NORTHERN UNDERTAKING

REFERENCE

- Area of Supply: ————
- E.S.C. Power Station: @KIMBERLEY
- Transmission lines: - - - - -
- Transmission lines under construction: ·····





BORDER UNDERTAKING

REFERENCE

- Area of Supply [solid line]
- E. S. C. Power Stations ● [circle with dot]
- Transmission Lines [dashed line]
- Ducats Outspan Substation [circle with dot]



BORDER UNDERTAKING

CONSUMERS		SALES			Average Price per Unit Sold	
Class	Number	Units	Increase %	Revenue from Sales R.	1961	1960
Bulk	12	160,003,683	3·102	1,549,803	c. 0·9686	c. 0·9819
Industrial	289	7,257,299	12·303	140,155	1·9312	1·9908
Domestic and Lighting	2,735	11,552,345	8·674	242,300	2·0974	2·0638
	3,036	178,813,327	3·791	1,932,258	1·0806	1·0865
		1961		1960	Accumulated to 31.12.61	
Total Revenue		R. 1,934,014		R. 1,873,890	R.	
Working Costs		1,925,499		1,831,042		
Surplus		8,515		42,848		
Deficit						
Capital Expenditure		305,684		410,992	142,558 10,651,666	

	East London West Bank No. 1 and No. 2		King William's Town		King William's Town	
	1961	1960	1961 Steam	1960 Steam	1961 Oil	1960 Oil
Units Sent Out	184,217,340	176,545,660	76,170	—	6,125	2,765
Maximum half-hour Demand kW S.O. }	36,950	36,680	2,700	—	980	1,000
Station Peak kW	39,700	40,600	—	—	—	—
Load Factor %	56·9	54·8	—	—	—	—
Thermal Efficiency % S.O.	21·0	21·5	8·9	—	—	—
FUEL:						
Coal Consumed—tons	129,365	122,520	121	—	—	—
Average per Unit Sent Out—lb.	1,404	1,388	3,177	—	—	—
Calorific Value B.Th.U./lb	11,850	11,440	12,040	—	—	—
Total Cost	R593,342	R564,268	R554	—	—	—
Cost per Ton	R4·59	R4·61	R4·58	—	—	—
Fuel Oil consumed—lb.	—	—	—	—	3,951	1,577
Fuel Oil per unit S.O.—lb.	—	—	—	—	0·641	0·570

BORDER UNDERTAKING

Output and Sales. The units sold by the Undertaking totalled 178,813,327, an increase of 3·79 per cent over the figure for the previous year.

The consumption of East London Municipality increased by 2·09 per cent to 144,552,550 units; but the maximum demand for this consumer was only 29,760 kVA as compared with 30,750 kVA in 1960.

Sales to all other consumers increased by 11·62 per cent to a total of 34,260,777 units.

The system maximum demand increased from 36,680 kW in 1960 to 36,950 kW in 1961.

143 new consumers were connected during the year bringing the total number at the end of the year to 3,036.

West Bank Power Stations. No new items of major plant were commissioned during the year. The third 15 MW turbo-alternator in West Bank 2 Power Station is on order, and due for commissioning in early 1963.

Coal supplies were generally of satisfactory quality, and regular deliveries were maintained.

The efficiency of the combined Stations fell from 21·5 per cent in 1960 to 21·0 per cent in 1961, due mainly to the greater use of the older plant in West Bank 1 Station.

King William's Town Power Station. The standby steam plant was used on two occasions during the year to enable essential work to be carried out on the East London/King William's Town 66 kV Interconnector.

The 1,000 kW Diesel set was run regularly on trial.

Development of the Undertaking. The erection of a 22 kV line to Butterworth was completed early in the year. The stepdown substations at Komgha and Butterworth were completed, but delivery of the necessary transformers to operate the line at the higher voltage was delayed. At the request of the Butterworth Municipality, a temporary supply at 11 kV was given in November, 1961. The change-over to 22 kV operation took place in February, 1962.

The duplication of the first six miles of the East London/King William's Town 66kV interconnector and the installation of a link station at the junction of the North Coast spur line was completed in July, 1961.

An 11kV line was erected from Grahamstown to Alicedale and installation of the terminal equipment was proceeding.

Terms for supply to the Blythwood Bantu Training Institution, the Teko Bantu Trade School and to the Municipality of Idutywa were accepted and survey of the line routes was proceeding.

A separate report covering rural development on the Undertaking appears on page 16.

Financial. There was no change in the tariffs in force on the Undertaking.

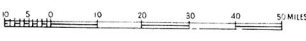
The Revenue Account showed a surplus of R8,515 for the year, the total revenue being R1,934,014, an increase of 3·2% over the figure for 1960. The accumulated deficit was reduced to R142,557.



NATAL UNDERTAKINGS
REFERENCE

- Areas of Supply [wavy line symbol]
- E.S.C. Power Stations [solid circle symbol]
- Diesel Stand-by Stations [circle with dot symbol]
- Transmission Lines [dashed line symbol]
- Provincial Boundaries [long dashed line symbol]
- Railways [solid line with cross-ticks symbol]
- E.S.C. Power Station (Under Construction) [solid circle symbol]

The Natal Central Licence includes the areas of jurisdiction of the Local Authorities of Perdekop, Wakkerstroom and Amersfoort.



NATAL SOUTHERN UNDERTAKING

CONSUMERS		SALES				Revenue from Sales	Average Price per Unit Sold		
		Number	Units	Increase %	1961		1960	1961	1960
								c	
Traction	...	1	118,280,133	12.925	R. 733,119	0.6198	c. 0.6084		
Bulk (Local Authorities)	...	4	1,143,496,690	5.335	7,108,088	0.6216	0.5979		
Industrial	...	349	201,396,457	8.680	1,311,743	0.6513	0.6430		
Domestic and Lighting	...	6,548	34,329,522	2.889	592,716	1.7265	1.6418		
		6,902	1,497,502,802	6.282	9,745,666	0.6508	0.6293		
Total Revenue					1960	Accumulated to 31.12.61			
Working Costs	...		R. 9,751,938		R. 8,873,376		R. —		
Surplus	...		9,617,460		9,024,624		—		
Deficit	...		134,478		—		183,698		
Capital Expenditure	...		3,524,578		151,248		52,872,355		
					5,719,168				
CONGELLA POWER STATION Nos. 1 and 2		UMGENI POWER STATION		PORT SHEPSTONE POWER STATION					
		1961	1960	1961	1960	1961	1960		
Units Sent Out	...	660,922,410	733,171,700	831,518,200	633,427,900	39,936	29,222		
Maximum half-hour Demand kW S.O.	...	136,824	157,934	168,000	118,800	1,860	2,592		
Station Peak kW	...	155,000	174,000	179,500	125,000	2,000	2,660		
Load Factor %	...	55.1	52.8	56.5	60.7				
Thermal Efficiency %	...	19.7	20.7	23.5	23.9				
FUEL:									
Coal Consumed — tons	...	509,555	533,201	519,941	412,023				
Average per unit sent out — lb.	...	1.542	1.455	1.251	1.301				
Calorific Value B.Th.U./lb.	...	11,210	11,310	11,600	10,980				
Total Cost	...	R1,909,072	R2,022,834	R2,084,811	R1,666,076				
Cost per ton	...	R3.75	R3.79	R4.01	R4.04				
Fuel Oil Consumed — lb.	...					24,800	17,402		
Fuel Oil per unit S.O. lb.	...					0.62	0.596		

NATAL SOUTHERN UNDERTAKING

Operation of the Pooled Power Stations. In terms of the Natal Licences, Congella and Umgeni Power Stations, together with Colenso Power Station of the Natal Central Undertaking, were operated as pooled stations.

The simultaneous maximum demand on the stations rose to 390,060 kW, while the output increased by 5.25 per cent.

The units supplied from the pooled stations to each Undertaking were as follows:

	1961	1960	Increase
Natal Southern Undertaking.....	1,498,930,610	1,420,299,600	5.54%
Natal Central Undertaking.....	751,050,300	717,409,120	4.69%
	2,249,980,910	2,137,708,720	5.25%

Sales of Electricity. Total sales by the Natal Southern Undertaking were 1,497.5 million units. There were increases of 12.9 per cent in units sold to the South African Railways for traction purposes, and 8.7 per cent in sales to industrial consumers; and an over-all increase of 6.28 per cent, in comparison with 1960.

The supply to Durban Corporation rose to 1,134 million units, the annual increase being 5.2 per cent.

Umgeni Power Station. The five 260,000 lb/hr boilers, comprising the "B" Extensions to this station, were steamed during 1961. The first of the 60,000 kW turbo generators (No. 5) was commissioned in March, while the second was synchronized on load on 30th November, 1961.

Although the new plant was not free from all "teething" troubles, the output from Umgeni Power Station was raised from 633 million units to 831 million units, accompanied by consequential adjustment of load on Congella and Colenso Power Stations.

Distribution System. The commissioning of five new traction substations, of which Cliffdale, Dassenhoek and Geogedale are in the Natal Southern Undertaking, is reported on page 9.

The extensions to Coedmore Substation to provide an additional 132 kV point of supply to Durban Corporation were completed and supply was given in December.

During April one of the two 2,500 kVA units at Margate Substation was replaced by a 7,500 kVA unit, and a second similar unit will be installed early in 1962.

The extension of the Canelands/Compensation 33 kV line to Shakas Kraal for the new 33 kV point of supply to the Borough of Stanger was completed in July, 1961.

At Richmond the 1,000 kVA 88/11 kV transformers were replaced by 2,500 kVA units to cater for increased load due to the addition of Harding and Weza. The regulator capacity at this substation was also increased to 2,500 kVA, and the 500 kVA step-up transformers for the Ixopo 33 kV line were replaced by 1,500 kVA units. On completion of the Ixopo/Harding/Weza 33 kV line and the 33/11 kV substations at Harding and Weza, supplies were made available to the town of Harding in October, and to Weza Saw Mill in November.

During September contractors moved on to the site at Geogedale and civil works for this major substation were commenced. Further work was done in preparation for the construction of the 275 kV lines between Ingagane Power Station and Geogedale. During the year an investigation was made into the possibilities of supply in Zululand; and in March, 1962, approval was given to a scheme to supply the Municipalities of Eshowe and Empangeni and the South African Pulp and Paper Industries, Limited at Mandini.

Rural Development. A report on rural development in this Undertaking is given on page 16.

Financial. As a result of the surcharge of 5 per cent on tariff charges, introduced from February, 1961, a surplus of R134,478 was realized on the year's working. The accumulated surplus at 31st December, 1961, was R183,698.

NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price Per Unit Sold	
Class	Number	Units	Increase		1961	1960
			%	R.	c.	c.
Traction	1	284,177,201	3·465	2,124,068	0·7474	0·7361
Bulk	17	276,888,457	2·623	2,032,785	0·7342	0·7030
Mining	15	49,521,509	27·383	387,603	0·7827	0·7951
Industrial	592	52,612,296	14·405	459,286	0·8730	0·8692
Domestic and Lighting ...	5,413	20,835,015	4·422	391,293	1·8781	1·7926
	6,038	684,034,478	5·351	5,395,035	0·7887	0·7678

	1961	1960	Accumulated to 31.12.61
	R.	R.	R.
Total Revenue... ..	5,412,289	4,999,856	
Working Costs	5,569,994	5,216,922	
Deficit	157,705	217,066	460,150
Capital Expenditure	4,974,872	2,242,800	31,328,719

	COLENSO POWER STATION Nos. 1 and 2	
	1961	1960
Units Sent Out	757,540,300	771,109,120
Maximum half-hour Demand kW S.O.	131,890	137,940
Station Peak kW	149,000	151,000
Load Factor %	65·6	63·6
Thermal Efficiency % Sent Out	18·4	18·9
FUEL:		
Coal consumed — tons	630,407	626,648
Average per unit sent out/lb.	1·664	1·625
Calorific Value B.Th.U/lb.	11,150	11,080
Total Cost	R1,961,578	R1,954,054
Cost per ton... ..	R3·11	R3·12

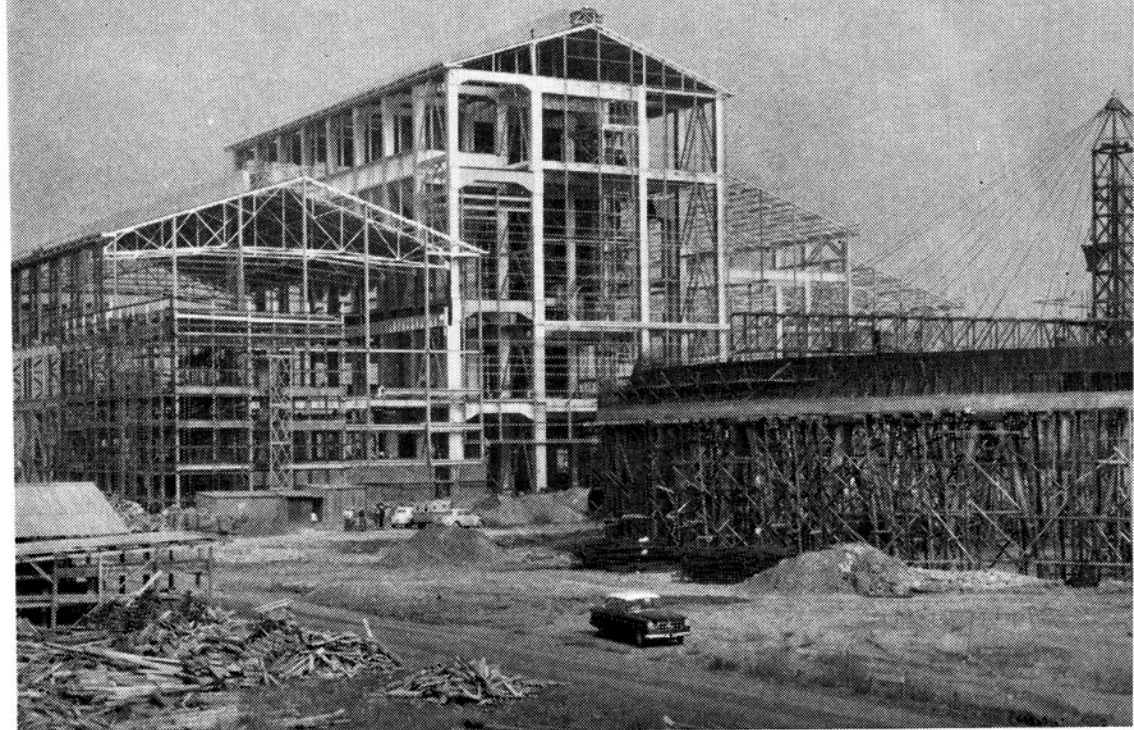
Operation of the Pooled Power Stations. In accordance with the Licence, Colenso Power Station was operated with Congella and Umgeni Power Stations of the Natal Southern Undertaking, as pooled power stations. The statistics of load and output from the pooled stations, and the units taken by each Undertaking are given on page 37.

Due to the additional plant installed at Umgeni Power Station, loading was eased on Colenso Power Station during the year, and the output fell from 771 million units to 757 million units.

Sales of Electricity. Sales of the Natal Central Undertaking show increases for all categories of consumers. Total sales for 1961 amounted to 684 million units, which was an increase of 5·35 per cent over the previous year.

Ingagane Power Station. Further progress was made in the construction of Ingagane Power Station, for which 2 x 100,000 kW sets and equivalent boilers have been ordered. The first set is due for commissioning for the winter of 1963, and the second unit for the winter of 1964.

Distribution System. During the year two new mercury-arc-rectifier substations of the South African Railways at Alcockspruit and Dannhauser were connected to



Good progress has been made with the construction of the Ingagane Power Station where the first 100,000 kW set is due for commissioning for the winter of 1963.

the system, and six of the old motor-generator substations at Estcourt, Glencoe, New Leigh, Colenso, Wesselsnek and Pietermaritzburg were closed down.

The construction of a new 2,500 kVA substation at Volksrust was started during the year, and all major civil works were completed by the year-end.

At Newcastle increased loading necessitated replacement of the existing transformer and feeder regulator with a 2,500 kVA unit.

At Ladysmith the installation of two additional 2,500 kVA transformers was in progress, and is expected to be completed early in 1962.

At Harrismith, the 6·6/33 kV step-up transformers for the Warden, Reitz and Vrede supplies were replaced by 2,500 kVA units, to cater for the general increase in load in the area.

At Mason's Mill Substation the civil works for the installation of the first three-phase 60 MVA 132/88 kV auto-transformer to replace the single phase 45 MVA transformer bank was commenced. This unit is scheduled for delivery early in 1962.

At the year-end survey work was in hand for the construction of an 88 kV line between Volksrust and Platrand for supplies to the traction substations to be supplied by the Natal Central Undertaking for the Volksrust — Union electrification.

Rural Development. A report on rural development in this Undertaking is given on page 17.

Financial. Notwithstanding the surcharge of 5 per cent on tariff charges, which was introduced in 1961, the year's accounts showed a deficit of R157,705, which increased the accumulated deficit at 31st December, 1961, to R460,150. It was considered necessary to make a further adjustment of tariffs, and the surcharge was raised from 5 per cent to 10 per cent with effect from March, 1962.

EASTERN TRANSVAAL UNDERTAKING

Sales of Electricity. The expansion of this Undertaking in recent years is reflected in a further large increase in sales to all classes of consumers: total sales of 901·4 million units being an increase of 24·1 per cent over the units sold in 1960.

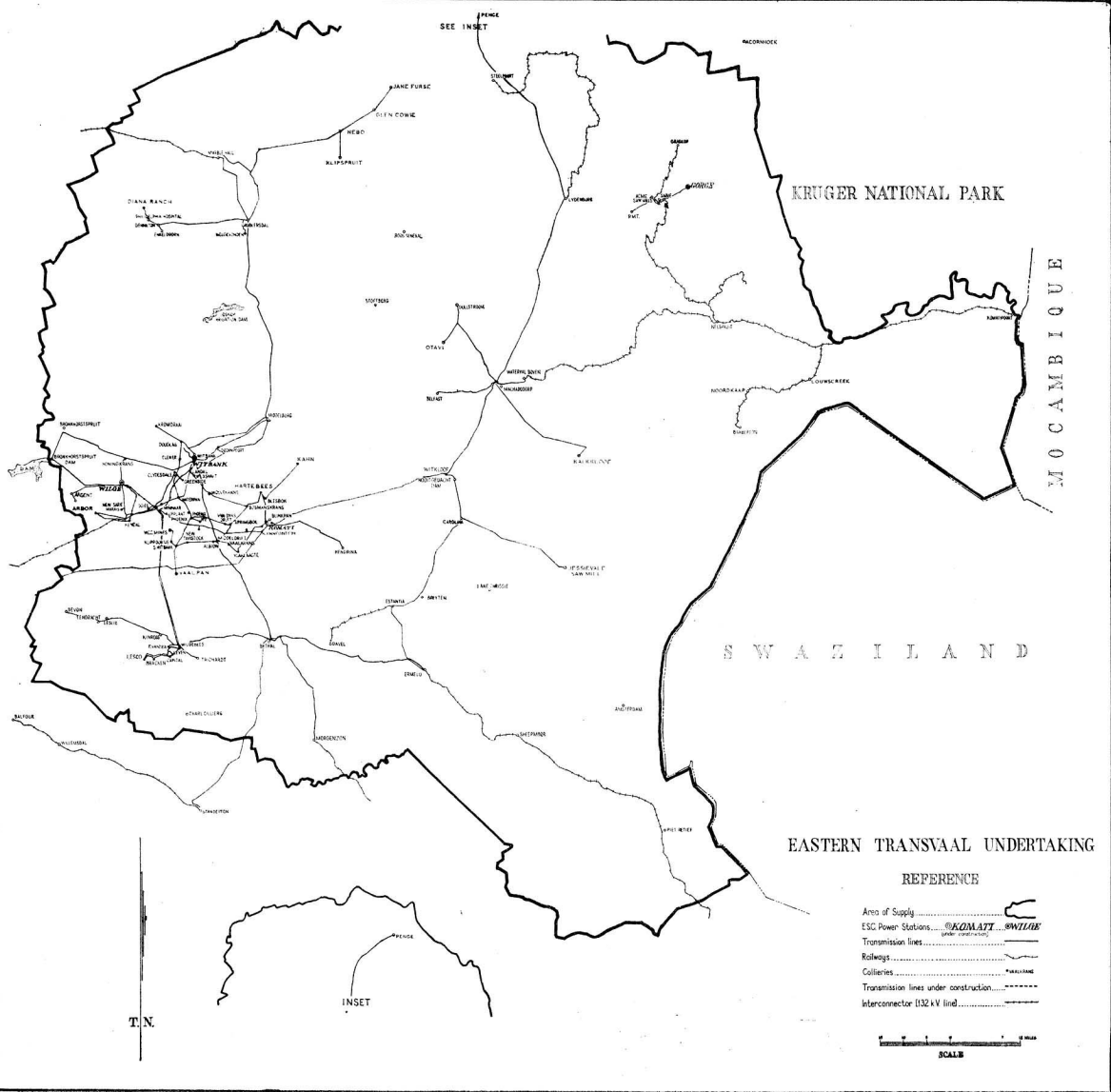
The increase in traction supplies represents a full year's working of the Welgedacht/Witbank main line and the Oogies/Vandyksdrif branch line, for which a total of 43·9 million units were provided at the five traction substations supplied by the Undertaking.

The new gold mines in the Bethal area took an additional 46·8 million units during the year; and new supplies provided for asbestos mines amounted to 12·4 million units.

Collieries in the Witbank area purchased a total of 144·8 million units, which was an increase of 3·6 per cent over the total for 1960.

The large increase in sales under the heading "Domestic and Lighting" reflects Escom's taking over the reticulation in Evander Township, the establishment of new reticulation schemes in Dullstroom and Hendrina, and general extension of rural networks.

Witbank Power Station. The output from Witbank Power Station decreased slightly as compared with the previous year.



SEE INSET

KRUGER NATIONAL PARK

MOZAMBIQUE

SWAZILAND

EASTERN TRANSVAAL UNDERTAKING

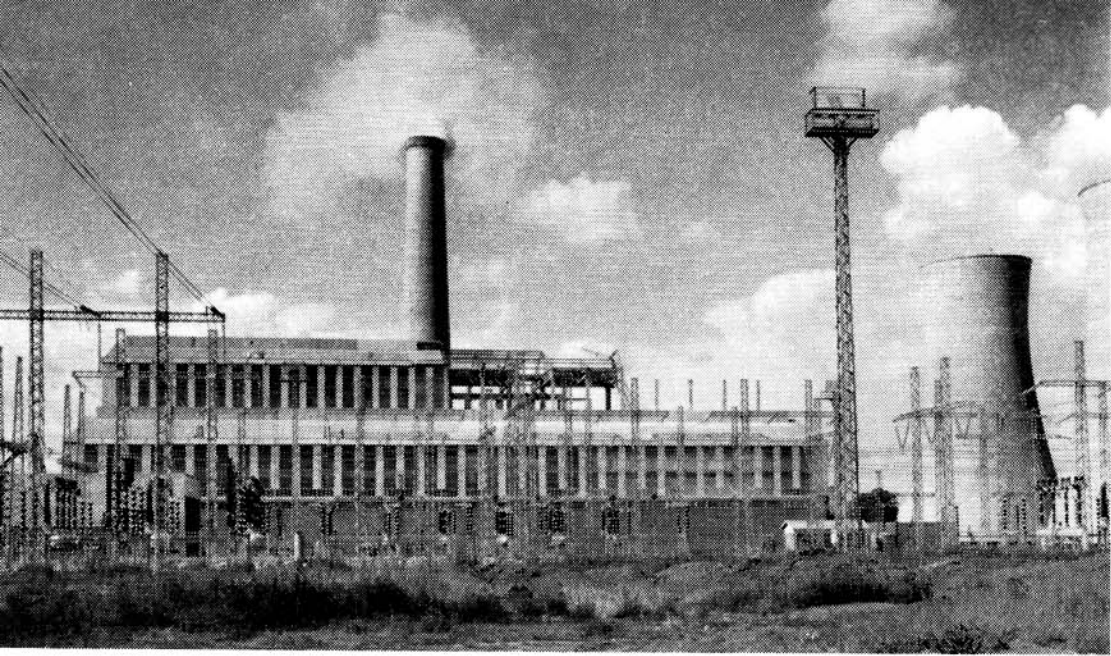
REFERENCE

- Area of Supply
- ESC Power Stations
- Transmission Lines
- Railways
- Collieries
- Transmission lines under construction
- Interconnector (132 kV line)



T.N.

INSET



The Komati Power Station where the first 100,000 kW set was placed on full load in January 1962 and a second similar set in March 1962.

Komati Power Station. A report on the new Komati Power Station appears on page 12. The small output shown in the 1961 Revenue Account reflects the units put into the system in the course of proving the new plant.

Transmission and Distribution System. Geluk Distribution Station, which is fed by 88 kV line from Grootpan via Kromklip and Vandyksdrif traction substations and is equipped with 2 x 15 MVA 88/21 kV transformers was completed in all respects. The establishment of Geluk has improved considerably the 21 kV network in the area and has provided duplicate supplies to several important consumers, including Blinkpan Colliery which will be the main source of coal supply to Komati Power Station.

The establishment of a temporary 88/132 kV step-up substation in the vicinity of Kudu made it possible to provide 132 kV supplies to Kudu Distribution Station for Komati Power Station, Witkloof Distribution Station for Nooitgedacht Dam and Carolina and Machadodorp Distribution Station.

Supply to Cape Asbestos S.A. (Pty) Limited at Penge was commenced in July, 1961. The supply to this consumer is taken from Machadodorp substation at 132 kV over a line 101.5 miles in length.

On-load tap changing transformers at Witkloof, Machadodorp and Penge have provided satisfactory voltage regulation.

In the Machadodorp area supplies were furnished over 21 kV and 11 kV lines to Kalkfontein Asbestos mine, Otavi Mining Company and Dullstroom.

The supply to Hendrina is taken from Geluk Distribution Station; and Jessievale Saw Mills is supplied by 25.7 miles of 21 kV line from Carolina.

Work is in hand for increased supplies to Rand Carbide, Limited, and Ferrometals; and for a new ferro-chrome project of R.M.B. Alloys, Limited, near Middelburg.

Negotiations have been concluded for supply to Fosfaat-Ontginningskorporasie (Edms) Bpk ("Foskor") at Phalaborwa. It is expected that, with load growth, the supply in this area will involve the construction of a major transmission line at 275 kV.

Rural Development. A report on rural development in the Undertaking is given on page 17.

Financial. There was no change in tariffs in 1961: but, as a result of the substantial increases in sales, total revenue for the year increased by 31.2 per cent to R4,654,089. Part of the increase reflects revenue from extension charges for supplies delivered at distant points in the new areas added to the Undertaking.

A surplus of R202,749 was recorded on the year's accounts.



RAND AND ORANGE FREE STATE UNDERTAKING—(Cont.)

	Vaal Power Station		Wilge Power Station	
	1961	1960	1961	1960
Electricity Units Sent Out	2,010,671,661	1,952,318,714	1,670,185,225	1,506,961,586
Maximum				
hour Demand kW S.O.	286,709	284,502	222,778	222,986
Load Factor %	80.1	78.1	85.6	76.9
Thermal Efficiency % S.O.	21.4	21.5	26.0	25.8
FUEL:				
Coal consumed — tons	1,878,785	1,801,471	1,129,021	1,018,571
Average per unit sent out lb.	1.869	1.845	1.352	1.352
Calorific Value B.Th.U./lb.	8,520	8,590	9,690	9,790
Total Cost	R1,744,063	R1,423,970	R1,065,987	R920,932
Cost per ton	R0.93	R0.79	R0.94	R0.90

	Vereeniging Power Station		Vierfontein Power Station	
	1961	1960	1961	1960
Electricity Units Sent Out	822,744,486	851,308,852	1,701,917,721	1,604,320,573
Maximum				
hour Demand kW S.O.	138,183	137,410	312,054	343,484
Load Factor %	68.0	70.5	62.3	53.2
Thermal Efficiency % S.O.	15.5	15.3	22.8	23.0
FUEL:				
Coal consumed — tons	1,009,788	1,038,478	1,398,265	1,320,098
Average per unit sent out — lb.	2.455	2.440	1.643	1.658
Calorific Value B.Th.U./lb.	8,980	9,160	9,110	8,930
Total Cost	R965,970	R902,714	R2,176,834	R1,992,312
Cost per ton	R0.96	R0.87	R1.56	R1.50

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Brakpan Power Station		Higveld Power Station		Klip Power Station	
	1961	1960	1961	1960	1961	1960
Electricity Units Sent Out	68,286,940	38,285,725	2,336,086,952	1,708,421,085	2,480,048,757	2,467,413,347
Maximum hour	38,868	27,036	338,611	283,613	391,854	351,873
Demand kW S.O. }	20.1	16.1	78.8	68.6	72.2	79.8
Load Factor %	12.6	12.4	28.4	29.0	20.3	20.5
Thermal Efficiency % S.O. }						
FUEL:						
Coal consumed — tons	94,747	53,142	1,603,654	1,147,373	2,044,566	2,011,934
Average per unit sent out—lb.	2.775	2.776	1.373	1.343	1.649	1.631
Calorific Value B.Th.U./lb.	9,780	9,890	8,740	8,770	10,190	10,220
Total Cost	R170,069	R94,618	R2,558,359	R1,665,706	R4,384,065	R4,203,594
Cost per ton	R1.77	R1.70	R1.60	R1.45	R2.14	R2.09

	Rosherville Power Station		Taaibos Power Station	
	1961	1960	1961	1960
Electricity Units Sent Out...	44,922,733	26,533,646	2,926,253,217	3,011,801,952
Maximum hour	37,935	32,898	440,316	447,384
Demand kW S.O. }	13.5	—	75.9	76.6
Load Factor %	9.7	9.5	26.6	26.1
Thermal Efficiency % S.O. }				
FUEL:				
Coal consumed — tons	80,950	48,422	2,107,975	2,184,064
Average per unit sent out lb.	3.604	3.650	1.441	1.450
Calorific Value B.Th.U./lb.	9,770	9,880	8,900	9,020
Total Cost	R336,221	R286,154	R4,170,735	R3,995,508
Cost per ton	R1.90	R1.86	R1.98	R1.83

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Brakpan Power Station		Rosherville Power Station	
	1961	1960	1961	1960
Compressed air units sent out				
Steam Units Sent Out	948,838	1,610,470	70,267,800	78,511,200
FUEL:				
Coal consumed—tons	1,473	2,394	96,382	105,667
Average per unit sent out—lb.	3.105	2.973	2.743	2.692
Calorific Value B.Th.U./lb.	9,780	9,890	9,770	9,880
	Canada Dam Compressor Station		Robinson Compressor Station	
	1961	1960	1961	1960
Compressed Air Units sent out				
Electric Input—kWh exc. Trans. Losses	21,438,500	20,366,300	39,209,100	33,122,500
Air Units sent out/kWh per cent	26,501,451	25,111,280	49,542,918	42,118,744
	80.90	81.10	79.14	78.64

RAND AND ORANGE FREE STATE UNDERTAKING

Sales of Electricity. The total sales by the Undertaking (electricity, compressed air and steam) during the year amounted to 12,700 million units, which was an increase of 5·4 per cent over the corresponding figure for 1960.

No new traction substations were commissioned during the year: so that the increase of 14·4 per cent in the supplies taken by the South African Railways for traction purposes reflects full working of the sections recently converted to electric traction. Large increases were recorded at the new substations at Dryden and Eloff, which feed the Welgedacht/Witbank line.

Sanction has been given for the electrification of the section of the Natal main line between Volksrust and Union Junction. The portion which is within the area of supply of this Undertaking, i.e. from Union Junction to Platrand, will be fed by means of duplicate 88 kV lines to be erected from Snowden Distribution Station, now in course of construction. Nine new traction substations are to be built in this section; and plans have been drawn up to furnish these supplies in 1963.

The new substation for the supply to Roodepoort Municipality at 33 kV was brought into commission in March, 1961: and new supplies were commenced to the following local authorities in the Orange Free State: Bultfontein, Dewetsdorp, Edenville, Excelsior, Ladybrand, Thaba 'Nchu (taken in January, 1962), Tweespruit and Wepener. An additional point of supply to Welkom Municipality was given in June, 1961.

Total sales to mining consumers rose to 8,421·9 million units: but the annual increase declined to 3·6 per cent compared with the increase of 7·1 per cent in 1960. Comment upon the mining load, and comparative figures showing the units purchased in the various mining areas, are given on page 10.

At the date of establishing the Rand and Orange Free State Undertaking in 1948 power supplies to industrial consumers (omitting traction supplies) were less than 600 million units annually, and accounted for only 12·7 per cent of the Undertaking's sales. During the year 1961 sales of electricity and compressed air to industrial consumers amounted to 2,453 million units, and represented 19·3 per cent of total sales. Over this period the proportion of units sold for mining purposes has declined from 77·8 per cent to 64·0 per cent.

The nature of the industries supplied by the Undertaking is shown in the following main categories of industrial activities:—

	millions kWh
Building and Cement (including Quarrying).....	251·8
Chemical and pharmaceutical.....	419·0
Foodstuffs, consumer goods and commercial.....	396·7
General Engineering.....	147·1
Paper production.....	159·0
Steel and base metals.....	1,043·7

The large increase of 20·3 per cent in sales which are grouped under the heading "Domestic and Lighting" reflects the expansion of the Undertaking's reticulation systems in rural and peri-urban areas. A report on rural schemes is given on page 18.

Operation of the Pooled Power Stations. The electric power stations (a total of eleven stations) of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking are, in terms of the licences, operated as a single system of pooled power stations.

The total output, i.e. units sent out from the pooled stations, amounted to 14,795 million units in 1961. The maximum simultaneous demand on the system, recorded in June was 2,158,985 kW: while the monthly load factor was 81·8 per cent.

The supplies taken by the separate Undertakings were as follows:—

	Maximum demand in the year	Total Units (millions kWh)
Rand and Orange Free State Undertaking.....	2,016,051 kW	13,751·0
Eastern Transvaal Undertaking.....	144,308 kW	891·8
Cape Northern Undertaking.....	25,242 kW	152·1

The cost of generation per unit sent out from the pooled power stations during the year was ·3050c, the average cost of coal having been R1·51 per ton of coal burnt.

Transmission and Distribution System. Good progress was made during the year in the construction of the 275 kV transmission lines between Komati Power Station and Highveld Power Station (*vide* Annual Report for 1959 at page 15). These large transmission lines, which will connect Komati Power Station with Taaibos and Highveld Stations, and also Klip, Vereeniging, and Vaal Stations, through Snowden Distribution Station, will provide a 275 kV “backbone” to the Rand and Orange Free State system and will add considerable flexibility in the operation of the pooled power stations.

The first 275 kV line from Komati to Nevis Distribution Station and Nevis Distribution Station were commissioned in January, 1962; the second line was completed in March, 1962. Efforts have been concentrated on the first of the two lines Nevis/Snowden/Highveld; and at the date of closing the report the target date for completion of this line was 31st May, 1962.

The commencement of supplies to eight Municipalities in the Orange Free State is recorded above. The provision of these bulk supplies involved building 178 miles of 88 kV transmission lines, together with approximately 67 miles of 11 kV lines and the necessary consumers’ substations.

At the year end good progress had been made in the construction of the 88 kV line from Wolmaransstad to Bloemhof, and the 88 kV line Watershed/Sannieshof/Delareyville/Vryburg.

Financial. Notwithstanding the general reduction in tariffs of 2 per cent, introduced from January, 1961, the year’s revenue rose to R54,825,985, which was an increase of 6·2 per cent over the figure for 1960. Part of the increase represents the adjustment for the cost of coal, which rose from R1·42 in 1960 to R1·51 in 1961.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES 1961

Reports submitted during the year by the Commission to the Administrators of the various Provinces on the proposals of local authorities to establish electricity undertakings or to enlarge existing undertakings were as follows:

TRANSVAAL:

New Schemes

Ottosdal (2)

Peri-urban Areas Health Board (3)

Extensions

Fochville

Stilfontein

Vanderbijl Park

Ventersdorp

CAPE:

Petrusville

Douglas

Garies

Richmond

Vanrhynsdorp

Vredendal

NATAL:

Vryheid

Up to the 31st December 1961 a total of 1777 reports on municipal supply schemes had been submitted by the Commission. Of these 287 were in respect of new schemes, 862 were in respect of extension schemes and 628 were reports on tenders.

ANNEXURES

The Commission submits for the year 1961 with this Report:—

ANNEXURE A — AUDITORS' REPORT AND ACCOUNTS.

The Report of the Auditors

Balance Sheet

Schedule No. 1—Expenditure on Capital Account.

Schedule No. 2—Investments of the Redemption Fund.

Schedule No. 3—Loan Capital.

Account No. 1—Redemption Fund Account.

Account No. 2—Reserve Fund Account.

Revenue Accounts in respect of:

Account No. 3—Cape Western Undertaking.

Account No. 4—Cape Northern Undertaking.

Account No. 5—Border Undertaking.

Account No. 6—Natal Southern Undertaking.

Account No. 7—Natal Central Undertaking.

Statement of Pooled Costs and Allocation for Natal Southern and Natal Central Undertakings.

Account No. 8—Eastern Transvaal Undertaking.

Account No. 9—Rand and Orange Free State Undertaking.

Statement of Pooled Costs and Allocation for Rand and Orange Free State and Eastern Transvaal Undertakings.

ANNEXURE B—STATISTICAL AND OTHER STATEMENTS

Statement No. 1—Summary of principal plant and equipment installed at the Commission's several undertakings as at 31st December, 1961.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1961.

Statement No. 3—Units sold to all consumers during the past thirty-seven years.

Statement No. 4—Units sold and number of consumers, 1961.

Statement No. 5—Power Station Statistics, 1961.

Statement No. 6—Power purchased, 1961.

Statement No. 7—Water consumed by power stations, 1961.

Statement No. 8—Showing the price or rent of land or rights or interests in or over land or other property acquired or hired by the Commission during the year 1961.

Statement No. 9—Coal used at the Commission's steamraising power stations.

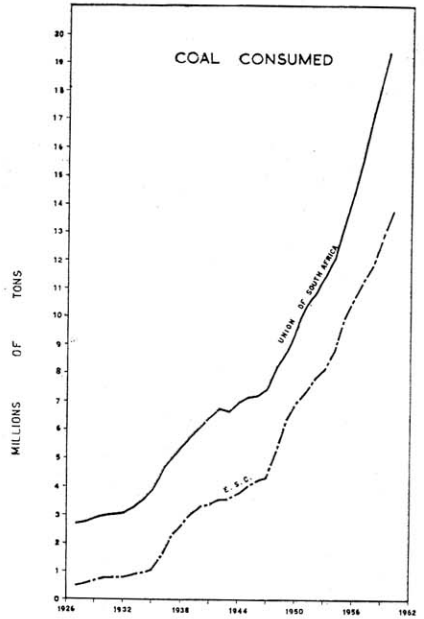
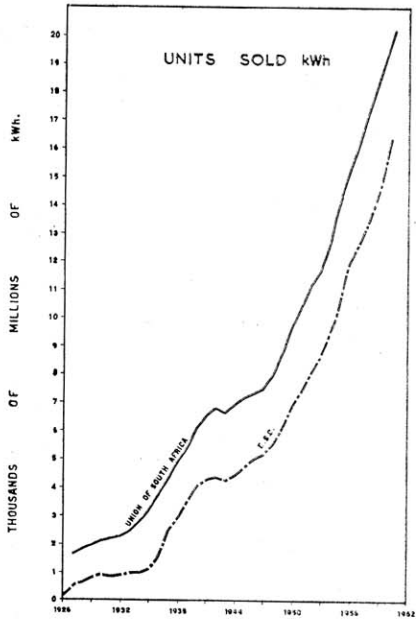
ANNEXURE C — UNION STATISTICS

Diagrams illustrating the production and distribution of electricity, incorporating information supplied by courtesy of the Bureau of Census and Statistics (Pretoria).

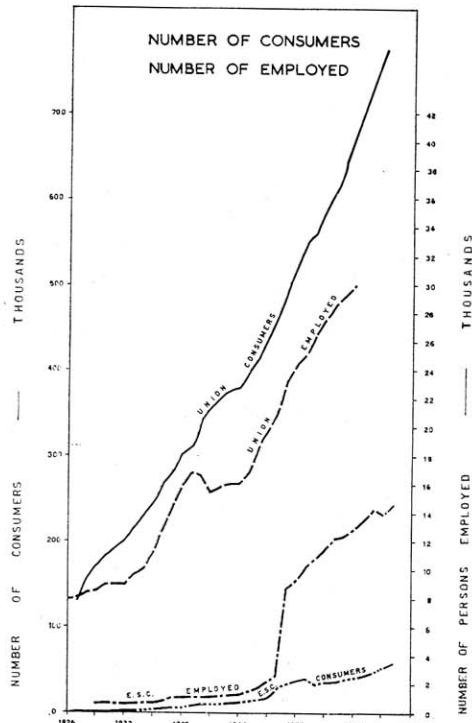
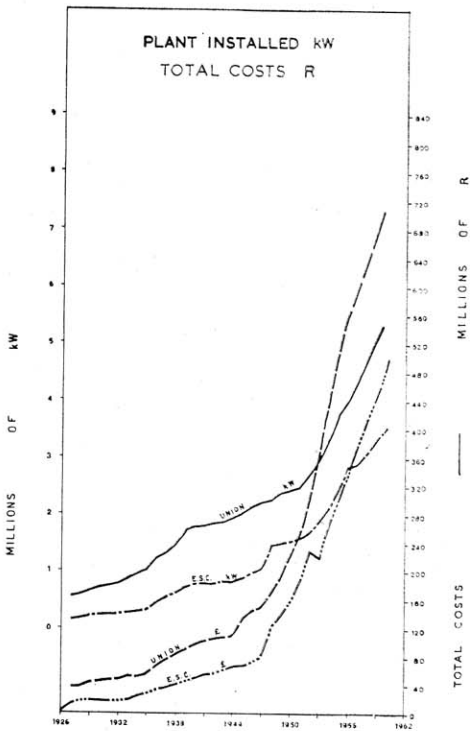
Yours faithfully,

J. Theo. Spittingh.

Chairman.



STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY
IN THE UNION OF SOUTH AFRICA
WITH E.S.C. STATISTICS SUPERIMPOSED



THE REPORT OF THE AUDITORS

*The Chairman and Members,
Electricity Supply Commission,
Johannesburg.*

Johannesburg,
18th May, 1962.

GENTLEMEN,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December, 1961.

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.

In the past the Redemption Fund was divided in the Commission's records into sections corresponding to the loans. These sections were further sub-divided over the Undertakings on which the moneys raised had been expended. Because of the steadily increasing number of loans issued by the Commission the maintenance of these records was proving complex and cumbersome. The Commission, therefore, decided to alter its records so that the Fund is now divided into sections corresponding to its Undertakings only. As a result of this change, the Redemption Fund Account for the year ended 31st December, 1961, and the schedule of Redemption Fund Investments at that date were drawn up in new forms, which have been approved by the Minister. We are satisfied that this method of keeping the records will still enable the Commission to comply with the requirements of the Electricity Act, 1958.

The Commission has invested the moneys accruing to each section of the Fund in the investments prescribed in the Schedule to the Act and in valuing the Fund at 31st December, 1961, we have taken into account the market value of the investments at that date.

The value of the Fund at 31st December, 1961, was in excess of the sum required for the redemption of the respective loans in terms of the Schedule to the Electricity Act, 1958. In the case of long term loans the redemption period does not exceed the maximum term of the respective loans. In the case of medium term loans, for periods of 17 years or less, the period of redemption is between 22 and 25 years.

The Minister has fixed the dates from which provision for redemption of Loans Nos. 39 and 40 commenced at 1st April, 1961, and 1st October, 1961, respectively, and application has been made to have 1st April, 1962, fixed as the date from which redemption of Loan No. 42 should commence. In accordance with the usual practice provision has also been made for the redemption of moneys expended out of subsequent loans on works which had come into commercial operation before 31st December, 1961.

OVERSEAS LOANS

Repayments of capital, in respect of Overseas Loans, as laid down in the Loan Agreements, take the place of contributions to Redemption Fund normally required to be made for loans issued by the Commission.

In the case of Loan No. 28 from the International Bank for Reconstruction and Development, which has to be repaid by half-yearly instalments over a period of $8\frac{1}{2}$ years, contributions are charged to Revenue Accounts of Undertakings on a 25 years sinking fund basis, the shortfall being met from local loans.

Loan No. 41, raised in Switzerland, has to be repaid by ten annual instalments from 1965 to 1974 but provision is being made for repayment by setting aside amounts over the period of the loan, i.e. 15 years.

The Commission entered into a loan agreement dated 1st December, 1961, to borrow from the International Bank for Reconstruction and Development the sum of \$14,000,000. The loan is to bear interest at $5\frac{3}{4}\%$ per annum and is repayable in half-yearly instalments from 1st December, 1963, to 1st December, 1971. At 31st December, 1961, no amounts had been drawn under the agreement and no charges had accrued.

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 all Undertakings in commercial operation.

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 1960 and 1961:—

	<i>Surplus+</i> <i>Deficit—</i>		<i>Amounts set aside to</i> <i>Reserve Fund</i>	
	1960	1961	1960	1961
Cape Western+	R9,704	+ R340,894	R408,000	R408,000
Cape Northern+	63,286	+ 134,538	105,000	105,000
Border... ..+	42,848	+ 8,515	100,000	90,000
Natal Southern-	151,248	+ 134,478	400,000	400,000
Natal Central-	217,066	- 157,705	300,000	270,000
Eastern Transvaal-	18,130	+ 202,749	160,000	220,000
Rand and O.F.S.+	1,370,874	+ 1,293,509	3,236,800	3,370,000
	<u>+ R1,100,268</u>	<u>+ R1,956,978</u>	<u>R4,709,800</u>	<u>R4,863,000</u>
Brought forward from previous year		<u>939,506</u>		
Net Accumulated Sur- plus at end of year as detailed in Balance Sheet		<u>R2,896,484</u>		

An overall surplus of R1,956,978 has increased the net accumulated surplus carried forward to 1962 to R2,896,484.

The surplus of R340,894 resulting from operations at Cape Western Undertaking has reduced the accumulated deficit of that Undertaking to R9,111, whilst the accumulated deficit at Border Undertaking has been reduced to R142,558.

The Cape Northern Undertaking now has an accumulated surplus of R303,883 and charges to consumers were reduced in January, 1962.

Operations at the Natal Southern Undertaking resulted in a surplus of R134,478, and an accumulated surplus of R183,698, but a deficit is expected for 1962.

A further deficit, increasing the accumulated deficit to R460,150, was incurred at the Natal Central Undertaking and charges to consumers were increased in March, 1962.

The accumulated surpluses at the Eastern Transvaal and the Rand and O.F.S. Undertakings now amount to R259,900 and R2,760,822 respectively. The cost of operating both these Undertakings will be affected in 1962 by the bringing into commercial operation early in the year of the first sections of the new Komati Power and the necessary transmission lines.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1961 and, subject to the foregoing remarks, in terms of Section 18 (8) of the Electricity Act, 1958, we certify 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 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 as 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,

ALEX. AIKEN & CARTER.
HALSEY, BUTTON & PERRY.

ACCOUNTS

STATISTICAL AND OTHER STATEMENTS
UNION STATISTICS

Electricity Supply Commission.

Schedule of Expenditure on Capital

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1960.	Year ended 31st December, 1961.	Total at 31st December, 1961.
RAND AND ORANGE FREE STATE UNDERTAKING:			
Rand.			
Land and Rights	R1,120,202	R117,055	R1,237,257
Buildings and Civil Works	9,336,702	228,207	9,564,909
Machinery and Plant	39,903,610	4,425,294	44,328,904
	R50,360,514	R4,770,556	R55,131,070
Klip Power Station.			
Land and Rights	R277,719	—	R277,719
Buildings and Civil Works	3,544,026	R6,752	3,550,778
Machinery and Plant	10,532,605	9,998	10,542,603
	R14,354,350	R16,750	R14,371,100
Vaal Power Station.			
Land and Rights	R10,865	—	R10,865
Buildings and Civil Works	4,802,374	Cr. R60,983	4,741,391
Machinery and Plant	17,302,698	105,121	17,407,819
	R22,115,937	R44,138	R22,160,075
Vierfontein Power Station.			
Land and Rights	R62,084	—	R62,084
Buildings and Civil Works	9,847,494	R2,512	9,850,006
Machinery and Plant	33,172,645	Cr. 4,472	33,168,173
	R43,082,223	Cr. R1,960	R43,080,263
Taaibos Power Station.			
Land and Rights	R31,647	R2,322	R33,969
Buildings and Civil Works	11,993,353	89,705	12,083,058
Machinery and Plant	34,776,956	Cr. 125,119	34,651,837
	R46,801,956	Cr. R33,092	R46,768,864
Wilge Power Station.			
Land and Rights	R8,109	Cr. R2	R8,107
Buildings and Civil Works	6,481,207	38	6,481,245
Machinery and Plant	19,504,121	40,141	19,544,262
	R25,993,437	R40,177	R26,033,614
Highveld Power Station.			
Land and Rights	R59,498	R1,090	R60,588
Buildings and Civil Works	10,478,074	376,666	10,854,740
Machinery and Plant	25,180,473	1,121,974	26,302,447
	R35,718,045	R1,499,730	R37,217,775
Rand Extension.			
Land and Rights	R287,561	R108,975	R 396,536
Buildings and Civil Works	1,487,026	347,378	1,834,404
Machinery and Plant	31,245,837	2,264,534	33,510,371
	R33,020,424	R2,720,887	R35,741,311
Greater Rand Extension and Orange Free State.			
Land and Rights	R535,141	R43,053	R578,194
Buildings and Civil Works	2,059,936	9,635	2,069,571
Machinery and Plant	26,610,885	1,283,543	27,894,428
	R29,205,962	R1,336,231	R30,542,193

Electricity Supply Commission.

Account at 31st December, 1961.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1960.	Year Ended 31st December, 1961.	Total at 31st December, 1961.
Total Rand and Orange Free State Undertaking:			
Land and Rights	R2,392,826	R272,493	R2,665,319
Buildings and Civil Works	60,030,192	999,910	61,030,102
Machinery and Plant	238,229,830	9,121,014	247,350,844
	R300,652,848	R10,393,417	R311,046,265
CAPE WESTERN UNDERTAKING:			
Land and Rights	R631,627	R33,214	R664,841
Buildings and Civil Works	13,160,850	557,103	13,717,953
Machinery and Plant	42,539,245	4,997,917	47,537,162
	R56,331,722	R5,588,234	R61,919,956
CAPE NORTHERN UNDERTAKING:			
Land and Rights	R43,809	R14,735	R58,544
Buildings and Civil Works	715,337	Cr. 217,810	497,527
Machinery and Plant	6,850,151	1,192,511	8,042,662
	R7,609,297	R989,436	R8,598,733
BORDER UNDERTAKING:			
Land and Rights	R32,580	R8,567	R41,147
Buildings and Civil Works	1,891,915	13,626	1,905,541
Machinery and Plant	8,421,487	283,491	8,704,978
	R10,345,982	R305,684	R10,651,666
NATAL SOUTHERN UNDERTAKING:			
Land and Rights	R411,117	R20,988	R432,105
Buildings and Civil Works	10,608,147	384,706	10,992,853
Machinery and Plant	38,328,513	3,118,884	41,447,397
	R49,347,777	R3,524,578	R52,872,355
NATAL CENTRAL UNDERTAKING:			
Land and Rights	R353,601	R35,600	R389,201
Buildings and Civil Works	5,763,880	3,300,437	9,064,317
Machinery and Plant	20,236,366	1,638,835	21,875,201
	R26,353,847	R4,974,872	R31,328,719
EASTERN TRANSCVAAL UNDERTAKING:			
Land and Rights	R507,256	R151,225	R658,481
Buildings and Civil Works	11,012,292	3,985,101	14,997,393
Machinery and Plant	24,625,401	8,178,544	32,803,945
	R36,144,949	R12,314,870	R48,459,819
HEAD OFFICE:			
Land	R516,426	R7,016	R523,442
Buildings and Equipment	4,168,360	Cr. 4,164	4,164,196
	R4,684,786	R2,852	R4,687,638
SUMMARY:			
Land and Rights	R4,889,242	R543,838	R5,433,080
Buildings and Civil Works	107,350,973	9,018,909	116,369,882
Machinery and Plant	379,230,993	28,531,196	407,762,189
	R491,471,208	R38,093,943	R529,565,151

Electricity Supply

Schedule of Investments of the

INVESTMENTS.

LOCAL REGISTERED STOCKS.		Nominal Value	Book Value
Electricity Supply Commission—			
3½ per cent.	1954/64	R3,158,190	R3,096,653
3½ per cent.	1959/64	794,074	772,542
3½ per cent.	1956/66	873,018	802,932
3½ per cent.	1957/67	782,744	731,528
3½ per cent.	1959/64	1,641,120	1,558,246
3½ per cent.	1960/65	1,472,910	1,405,265
3½ per cent.	1961/66	1,233,318	1,157,295
3½ per cent.	1965/70	1,142,000	1,094,808
3 per cent.	1967/73	1,309,888	1,238,961
3 per cent.	1968/74	2,328,414	2,260,802
3½ per cent.	1968/73	13,321,040	13,216,269
3 per cent.	1969/74	678,800	637,925
3 per cent.	1969/74	136,360	126,744
3 per cent.	1965/67	340,100	313,291
3 per cent.	1964/67	2,164,980	2,053,002
3 per cent.	1964/68	471,200	435,512
4½ per cent.	1964/67	1,324,060	1,277,863
5 per cent.	1964/67	1,863,068	1,819,880
5 per cent.	1966/68	977,998	960,199
5 per cent.	1967/69	1,077,824	1,057,820
5 per cent.	1968/70	690,892	670,800
5 per cent.	1967/70	5,449,300	5,329,555
5 per cent.	1971/74	1,685,300	1,659,501
5 per cent.	1971/75	3,337,878	3,287,909
4 per cent.	1975/80	9,590,200	9,550,787
4 per cent.	1975/80	8,126,100	8,071,331
5 per cent.	1976/81	4,826,000	4,740,282
5 per cent.	1977/82	871,700	857,611
5 per cent.	1976/82	3,836,500	3,780,895
5 per cent.	1977/83	9,866,020	9,779,340
5 per cent.	1978/83	3,621,231	3,575,596
5 per cent.	1979/84	4,965,968	4,934,318
5 per cent.	1979/84	6,887,000	6,731,491
5 per cent.	1979/85	5,843,900	5,740,259
5 per cent.	1980/85	7,006,000	6,883,065
5 per cent.	1980/86	4,855,700	4,722,168
5 per cent.	1981/86	5,500,000	5,437,500
6½ per cent.	1981/86	6,064,300	5,988,496
Republic of South Africa			
3½ per cent.	1955/65	4,600	4,600
3 per cent.	1957/66	1,070,000	1,042,525
3 per cent.	1958/68	30,000	29,698
3 per cent.	1959/69	200,000	187,746
3 per cent.	1960/70	687,400	659,533
5½ per cent.	1979	300,000	299,625
Municipal—Johannesburg:			
3½ per cent.	1956/66	3,200	3,200
3½ per cent.	1960/65	40,000	38,113
3½ per cent.	1962/67	258,000	234,386
3½ per cent.	1965	2,400	2,400
3½ per cent.	1965/70	588,000	567,101
3 per cent.	1967/77	60,000	60,000
5½ per cent.	1974/79	194,000	192,545
Carried forward		R133,552,695	R131,079,913

Commission.

SCHEDULE No. 2.

Redemption Fund at 31st December, 1961.

	Brought forward	Nominal Value R133,552,695	Book Value R131,079,913
Municipal—Cape Town:			
3½ per cent.	1960/65	4,000	4,000
3½ per cent.	1962/67	450,000	445,136
3 per cent.	1976	200,000	189,510
5½ per cent.	1980/85	300,000	296,250
Municipal—Durban:			
3½ per cent.	1962/72	231,000	180,180
3½ per cent.	1965/75	90,000	81,787
3½ per cent.	1966/76	100,000	100,000
3 per cent.	1967/77	668,000	635,064
5½ per cent.	1974/79	120,000	118,500
Municipal—Bloemfontein:			
5½ per cent.	1975/80	80,000	79,000
Municipal—Germiston:			
5½ per cent.	1985	20,000	19,750
		<u>R135,815,695</u>	<u>R133,229,090</u>
Interest Accrued			1,272,751
			<u>R134,501,841</u>
Market Value		<u>R121,249,947</u>	
ALLOCATION OF INVESTMENTS TO UNDERTAKINGS.			
		Nominal Value.	Book Value including Interest accrued.
Cape Western Undertaking		R16,005,890	R15,867,196
Cape Northern Undertaking		1,280,769	1,270,599
Border Undertaking		1,753,324	1,736,589
Natal Southern Undertaking		12,099,650	11,957,068
Natal Central Undertaking		12,132,464	12,017,412
Eastern Transvaal Undertaking		5,276,156	5,218,507
Rand and Orange Free State Undertaking		78,169,510	77,322,980
Undertaking which has been sold		6,500,000	6,525,603
Head Office		2,597,932	2,585,887
		<u>R135,815,695</u>	<u>R134,501,841</u>

Johannesburg,
30th March, 1962

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission

LOAN CAPITAL

Loans Nos. 1 and 2 R16,000,000 repaid out of subsequent loans

Loan No.	Local Registered Stocks	Outstanding	Repaid
3	R1,000,000 4½ per cent. 1953/63		R1,000,000
4	R5,000,000 4½ per cent. 1953		5,000,000
5	R13,500,000 3½ per cent. 1954/64	R13,500,000	
6	R5,000,000 3½ per cent. 1959/64	5,000,000	
7	R4,000,000 3½ per cent. 1956/66	4,000,000	
8	R4,000,000 3½ per cent. 1957/67	4,000,000	
9	R4,000,000 3½ per cent. 1959/64	4,000,000	
10	R3,000,000 3½ per cent. 1960/65	3,000,000	
11	R4,000,000 3½ per cent. 1961/66	4,000,000	
12	R5,000,000 3½ per cent. 1965/70	5,000,000	
13	R6,000,000 3 per cent. 1967/73	6,000,000	
14	R6,000,000 3 per cent. 1968/74	6,000,000	
15	R30,000,000 3½ per cent. 1968/73	30,000,000	
16	R6,000,000 3½ per cent. 1969/74	6,000,000	
17	R6,000,000 3½ per cent. 1969/74	6,000,000	
18	R10,500,000 3½ per cent. 1965/67	10,500,000	
19	R6,000,000 3½ per cent. 1964/67	6,000,000	
21	R10,000,000 3½ per cent. 1964/68	10,000,000	
22	R9,000,000 4½ per cent. 1964/67	9,000,000	
23	R10,000,000 5 per cent. 1964/67	10,000,000	
25	R7,000,000 5 per cent. 1966/68	7,000,000	
26	R8,000,000 5 per cent. 1967/69	8,000,000	
27	R8,500,000 5 per cent. 1968/70	8,500,000	
29	R16,000,000 5 per cent. 1967/70	16,000,000	
31	R16,000,000 5 per cent. 1971/74	16,000,000	
32	R20,000,000 5 per cent. 1971/75	20,000,000	
33	R16,000,000 4½ per cent. 1975/80	16,000,000	
34	R16,000,000 4½ per cent. 1975/80	16,000,000	
35	R16,500,000 5½ per cent. 1976/81	16,500,000	
36	R20,000,000 5 per cent. 1977/82	20,000,000	
37	R22,000,000 5½ per cent. 1976/82	22,000,000	
38	R24,000,000 5½ per cent. 1977/83	24,000,000	
39	R24,000,000 5 per cent. 1978/83	24,000,000	
40	R22,000,000 5½ per cent. 1979/84	22,000,000	
42	R20,000,000 5½ per cent. 1979/84	20,000,000	
43	R16,000,000 5 per cent. 1979/85	16,000,000	
44	R16,000,000 5 per cent. 1980/85	16,000,000	
45	R17,000,000 5½ per cent. 1980/86	17,000,000	
46	R16,000,000 5½ per cent. 1981/86	16,000,000	
47	R18,000,000 6½ per cent. 1981/86	16,000,000	

(Payable in full not later than the 31st January 1962, in terms of the Prospectus)

Fully Paid R16,350,800

Partly Paid 466,590 16,817,390

R487,000,000 Total Local Registered Stocks R479,817,390 R6,000,000

AT 31st DECEMBER, 1961

Loan No.	Outstanding	Repaid
R487,000,000	Brought forward R479,817,390	R6,000,000
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT		
20	R21,464,843 \$30,000,000 4 per cent.	
28	R8,475,287 Repayable by half-yearly instalments 1954/70 13,135,599	8,329,244
	\$30,000,000 4½ per cent. Repayable by half-yearly instalments 1955/63 R21,453,912	
	Less repaid out of local loans 12,978,625	
	<u>R8,475,287</u>	2,632,672
EXPORT-IMPORT BANK OF WASHINGTON		
24	R14,016,587 \$19,600,000 4 per cent.	
	Repayable by half-yearly instalments 1956/70 9,382,875	4,633,712
COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED		
30	R4,000,000 5 per cent.	
	Repayable by half-yearly instalments 1954/68 1,920,000	2,080,000
SWISS LOAN		
41	R8,274,721 Swiss Francs 50,000,000 5 per cent.	
	Repayable by annual instalments 1965/74 8,274,721	
	<u>R543,231,438</u>	<u>R23,675,628</u>
	<u>R518,373,200</u>	

Electricity Supply Commission

ACCOUNT No. 1.

Redemption Fund Account for the Year ended 31st December, 1961.

Balance as per Balance Sheet		R135,400,461	Balance at 31st December, 1960, Brought Forward		R118,436,528
Cape Western Undertaking	R15,855,669		Cape Western Undertaking	R13,911,184	
Cape Northern Undertaking	1,281,242		Cape Northern Undertaking	995,363	
Border Undertaking	1,764,775		Border Undertaking	1,408,956	
Natal Southern Undertaking	11,947,320		Natal Southern Undertaking	10,332,155	
Natal Central Undertaking	12,638,294		Natal Central Undertaking	11,507,823	
Eastern Transvaal Undertaking	5,173,309		Eastern Transvaal Undertaking	4,618,333	
Rand and Orange Free State Undertaking	77,664,689		Rand and Orange Free State Undertaking	66,699,685	
Head Office	2,575,163		Head Office	2,463,029	
Original Cost of an Undertaking which has been sold	6,500,000		Assets Sold	6,500,000	
	<u>R135,400,461</u>			<u>R118,436,528</u>	
			Amounts Contributed during the Year as per Revenue Accounts		11,279,620
			Cape Western Undertaking	R1,200,444	
			Cape Northern Undertaking	203,291	
			Border Undertaking	268,374	
			Natal Southern Undertaking	1,061,429	
			Natal Central Undertaking	613,064	
			Eastern Transvaal Undertaking	371,280	
			Rand and Orange Free State Undertaking	7,561,738	
			Other Contributions		54,415
			Proceeds of Sales of Fixed Property		48,614
			Profit on Redemption of Investment		1,423
			Interest Earned on Investments		5,579,861
		<u>R135,400,461</u>			<u>R135,400,461</u>

J. VAN NIEKERK, Chief Accountant

Johannesburg,
30th March, 1962.

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 18th May, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 2.

Reserve Fund Account for the Year ended 31st December, 1961.

Expenditure during the year on Replacements and Betterment	R693,373	Balance at 31st December, 1960, brought forward	R24,409,215
Cape Western Undertaking	R82,614	Cape Western Undertaking	R2,676,691
Cape Northern Undertaking	100	Cape Northern Undertaking	372,806
Border Undertaking	28,645	Border Undertaking	340,596
Natal Southern Undertaking	143,540	Natal Southern Undertaking	1,552,736
Natal Central Undertaking	80,411	Natal Central Undertaking	2,272,080
Eastern Transvaal Undertaking	16,067	Eastern Transvaal Undertaking	991,284
Rand and Orange Free State Undertaking	341,996	Rand and Orange Free State Undertaking	16,203,022
	<hr/>		
Balance as per Balance Sheet	29,903,360	Amounts set aside during the year as per Revenue Accounts	4,863,000
Cape Western Undertaking	3,144,451	Cape Western Undertaking	408,000
Cape Northern Undertaking	498,845	Cape Northern Undertaking	105,000
Border Undertaking	420,865	Border Undertaking	90,000
Natal Southern Undertaking	1,894,039	Natal Southern Undertaking	400,000
Natal Central Undertaking	2,582,169	Natal Central Undertaking	270,000
Eastern Transvaal Undertaking	1,248,181	Eastern Transvaal Undertaking	220,000
Rand and Orange Free State Undertaking	20,114,810	Rand and Orange Free State Undertaking	3,370,000
	<hr/>		
		Interest Earned on Investments	1,324,518
	<hr/>		
	R30,596,733		R30,596,733

Electricity Supply

CAPE WESTERN

Revenue Account for the Year

Generation.			
Operation—			
Fuel		R2,597,227	
Water and Stores		56,885	
Salaries and Wages		320,772	
Other Expenses		18,305	
Maintenance—			
Stores		51,663	
Salaries and Wages		352,520	
Other Expenses		44,785	
			R3,442,157
Distribution.			
Operation and Maintenance—			
Stores		40,680	
Salaries and Wages		480,682	
Other Expenses		90,008	
			611,370
General Expenses.			
Local Administration and Technical Management		362,959	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Claims, Insurance, Pension Fund Contributions, etc.)		439,919	
Head Office Administration Expenses		82,472	
Head Office Engineering Expenses		63,175	
			948,525
Capital Charges.			
Interest		2,377,109	
Redemption Fund		1,200,444	
Instalments and Provision for Repayment of Overseas Loans		173,512	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired		597	
Amount set aside to Reserve Fund		408,000	
			4,159,662
			9,161,714
Balance carried down			340,894
			R9,502,608
Balance at 31st December, 1960, brought forward			R350,005
			R350,005

Johannesburg,
30th March, 1962.

J. VAN NIEKERK, Chief Accountant.

Commission

UNDERTAKING

ended 31st December, 1961.

ACCOUNT No. 3.

Sales of Electricity.			
Traction Supplies		R2,169,098	
Bulk Supplies		2,412,203	
Industrial Supplies		2,816,645	
Domestic and Lighting Supplies		2,070,842	
			R9,468,788
Other Revenue			33,820

Balance brought down			R9,502,608
Balance as per Balance Sheet			R340,894
			9,111
			R350,005

Referred to in our Report of 18th May, 1962.

**HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,**
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 4.

CAPE NORTHERN UNDERTAKING

Revenue Account for the Year ended 31st December, 1961.

Generation.		
Operation—		
Fuel	R254,414	
Water and Stores	29,369	
Salaries and Wages	59,279	
Other Expenses	13,426	
Maintenance—		
Stores	4,653	
Salaries and Wages	33,394	
Other Expenses	5,089	
		R399,624
Electricity Purchased.		
Proportion of Pooled Costs of Rand and Orange Free State and Eastern Transvaal Undertakings	484,960	
Electricity supplied by Rand and Orange Free State Undertaking	54,045	
		539,005
Distribution.		
Operation and Maintenance—		
Stores	8,314	
Salaries and Wages	29,907	
Other Expenses	17,308	
		55,529
General Expenses.		
Local Administration and Technical Management	46,644	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	40,034	
Head Office Administration Expenses	11,375	
Head Office Engineering Expenses	8,714	
		106,767
Capital Charges.		
Interest	392,150	
Redemption Fund	203,291	
Instalments and Provision for Repayment of Overseas Loans	1,539	
Amount set aside to Reserve Fund	105,000	
		701,980
Balance carried down		1,802,905 134,538
		R1,937,443
Balance as per Balance Sheet		R303,883
		R303,883

Sales of Electricity.		
Bulk Supplies		R624,186
Mining Supplies		764,571
Industrial Supplies		421,279
Domestic Supplies		124,016
		R1,934,052
Other Revenue		3,391
		R1,937,443
Balance at 31st December, 1960, brought forward		R169,345
Balance brought down		134,538
		R303,883

Referred to in our Report of 18th May, 1962.

Johannesburg,
30th March, 1962.

J. VAN NIEKERK, Chief Accountant,

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 5.

BORDER UNDERTAKING

Revenue Account for the Year ended 31st December, 1961.

Generation.			
Operation—			
Fuel	R594,003		
Water and Stores	8,660		
Salaries and Wages	108,390		
Other Expenses	3,878		
Maintenance—			
Stores	26,135		
Salaries and Wages	79,964		
Other Expenses	12,543		
	R833,573		
Electricity Purchased			
Electricity Purchased		135	
Distribution.			
Operation and Maintenance—			
Stores	12,783		
Salaries and Wages	57,711		
Other Expenses	16,155		
	86,649		
General Expenses.			
Local Administration and Technical Management	52,250		
General Expenses (including Stores Expenses, Rates, Claims, Insurance, Pension Fund Contributions, etc.)	68,513		
Head Office Administration Expenses	11,375		
Head Office Engineering Expenses	8,714		
	140,852		
Capital Charges.			
Interest	497,396		
Redemption Fund	268,374		
Instalments and Provision for Repayment of Overseas Loans	8,062		
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	458		
Amount set aside to Reserve Fund	90,000		
	864,290		
Balance carried down		1,925,499	
		8,515	
		R1,934,014	R1,934,014
Balance at 31st December, 1960, brought forward	R151,073		
	R151,073		R151,073
Sales of Electricity.			
Bulk Supplies		R1,549,803	
Industrial Supplies		140,155	
Domestic and Lighting Supplies		242,300	
		R1,932,258	R1,932,258
Other Revenue			1,756

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
30th March, 1962.

Referred to in our Report of 18th May, 1962.

HALSEY, BUTTON & PERRY
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 6

NATAL SOUTHERN UNDERTAKING

Revenue Account for the Year ended 31st December, 1961.

Generation.		
Proportion of Pooled Costs (as per attached statement)		R8,401,358
Other Operation and Maintenance Costs—		
Operation—		
Fuel	593	
Water and Stores	130	
Salaries and Wages	1,540	
Other Expenses	52	
Maintenance—		
Stores	Cr. 61	
Salaries and Wages	983	
Other Expenses	78	
		R8,404,673
Electricity Purchased.		
Electricity Purchased		69,175
Distribution.		
Operation and Maintenance—		
Stores	57,651	
Salaries and Wages	185,913	
Other Expenses	147,807	
		391,371
Less—Charged to Pooled Costs (Interconnector)	11,963	379,408
General Expenses.		
Local Administration and Technical Management	236,878	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Claims, Insurance, Pension Fund Contributions, etc.)	195,435	
Head Office Administration Expenses	82,472	
Head Office Engineering Expenses	63,175	
		577,960
Less—Charged to Pooled Costs	364,203	213,757
Capital Charges.		
Interest	2,005,071	
Redemption Fund	1,061,429	
Sinking Fund	906	
Instalments and Provision for Repayment of Overseas Loans	195,235	
Amount set aside to Reserve Fund	400,000	
		3,662,641
Less—Charged to Pooled Costs	3,112,194	550,447
		9,617,460
Balance carried down		134,478
		R9,751,938
Balance as per Balance Sheet		R183,698
		R183,698

Sales of Electricity.		
Traction Supplies		R733,119
Bulk Supplies		7,108,088
Industrial Supplies		1,311,743
Domestic and Lighting Supplies		592,716
		R9,745,666
Other Revenue		20,073
Less—Credited to Pooled Costs		13,801
		6,272
		R9,751,938
Balance at 31st December, 1960, brought forward		R49,220
Balance brought down		134,478
		R183,698

Referred to in our Report of 18th May, 1962.

Johannesburg,
30th March, 1962.

J VAN NIEKERK, Chief Accountant.

HALSEY, BUTTON & PERRY,
ALEX, AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 7

NATAL CENTRAL UNDERTAKING

Revenue Account for the Year

ended 31st December, 1961.

Generation.		
Proportion of Pooled Costs (as per attached statement)		R4,117,455
Distribution.		
Operation and Maintenance—		
Stores	R46,134	
Salaries and Wages	252,076	
Other Expenses	57,443	
	355,653	
Less—Charged to Pooled Costs (Interconnector)	10,140	
		345,513
General Expenses.		
Local Administration and Technical Management	157,918	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Claims, Insurance, Pension Fund Contributions, etc.)	229,881	
Head Office Administration Expenses	82,472	
Head Office Engineering Expenses	63,175	
	533,446	
Less—Charged to Pooled Costs	232,508	
		300,938
Capital Charges.		
Interest	1,094,394	
Redemption Fund	613,064	
Instalments and Provision for Repayment of Overseas Loans	68,574	
Amount set aside to Reserve Fund	270,000	
	2,046,032	
Less—Charged to Pooled Costs	1,239,944	
		806,088
		R5,569,994
Balance at 31st December, 1960, brought forward		R302,445
Balance brought down		157,705
		R460,150

Sales of Electricity.		
Traction Supplies	R2,124,068	
Bulk Supplies	2,032,785	
Mining Supplies	387,603	
Industrial Supplies	459,286	
Domestic and Lighting Supplies	391,293	R5,395,035
	39,784	
Other Revenue	22,530	
Less—Credited to Pooled Costs		17,254
		5,412,289
Balance carried down		157,705
		R5,569,994
Balance as per Balance Sheet		R460,150
		R460,150

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Johannesburg,
30th March, 1962.

Electricity Supply Commission

NATAL SOUTHERN AND

Statement of Pooled Costs and Allocation

Generation.			
Operation—			
Fuel		R5,988,636	
Water and Stores		150,919	
Salaries and Wages		561,237	
Other Expenses		94,284	
Maintenance—			
Stores		234,436	
Salaries and Wages		514,060	
Other Expenses		40,620	
		R7,584,192	
Interconnector.			
Operation and Maintenance—			
Stores		1,045	
Salaries and Wages		15,359	
Other Expenses		5,699	
		22,103	
General Expenses.			
Local Administration and Technical Management		163,533	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)		219,730	
Head Office Administration and Engineering Expenses		213,448	
		596,711	
Capital Charges.			
Interest		2,267,842	
Redemption Fund		1,296,387	
Instalments and Provision for Repayment of Overseas Loans		263,809	
Reserve Fund		524,100	
		4,352,138	
		R12,555,144	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
30th March, 1962.

Commission

NATAL CENTRAL UNDERTAKINGS

for the year ended 31st December, 1961.

Allocation.			
Natal Southern Undertaking		R8,401,358	
Natal Central Undertaking		4,117,455	
		R12,518,813	
Sundry Revenue			36,331
			R12,555,144

Referred to in our Report of 18th May, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

EASTERN TRANSCAAL

Revenue Account for the Year

Generation.		
Proportion of Pooled Costs (as per attached statement)	R2,805,937	
Other Operation and Maintenance Costs—		
Operation—		
Water and Stores	86	
Salaries and Wages	11,933	
Other Expenses	470	
Maintenance—		
Stores	78	
Salaries and Wages	893	
Other Expenses	132	
	R2,819,529	
Electricity Purchased.		
Electricity Purchased	1,532	
Electricity Supplied by Rand and Orange Free State Undertaking	197,578	
	199,110	
Distribution.		
Operation and Maintenance—		
Stores	8,755	
Salaries and Wages	128,797	
Other Expenses	58,738	
	196,290	
General Expenses.		
Local Administration and Technical Management	101,670	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	202,108	
Head Office Administration Expenses	82,472	
Head Office Engineering Expenses	63,175	
	449,425	
Less—Charged to Pooled Costs	223,302	
	226,123	
Capital Charges.		
Interest	791,027	
Redemption Fund	371,280	
Instalments and Provision for Repayment of Overseas Loans	38,190	
Amount set aside to Reserve Fund	220,000	
	1,420,497	
Less—Charged to Pooled Costs	410,209	
	1,010,288	
	4,451,340	
Balance carried down	202,749	
	R4,654,089	
Balance as per Balance Sheet	R259,900	
	R259,900	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
30th March, 1962.

ACCOUNT No. 8

Commission

UNDERTAKING

ended 31st December, 1961.

Sales of Electricity.		
Traction Supplies	R479,985	
Bulk Supplies	299,373	
Mining Supplies	1,819,927	
Industrial Supplies	1,854,542	
Domestic and Lighting Supplies	191,584	
	R4,645,411	
Other Revenue	16,896	
Less—Credited to Pooled Costs	8,218	8,678
	1,010,288	
	4,451,340	
	R4,654,089	R4,654,089
Balance at 31st December, 1960, brought forward		R57,151
Balance brought down		202,749
		R259,900

Referred to in our Report of 18th May, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

ACCOUNT No. 9

RAND AND ORANGE FREE STATE UNDERTAKING

Revenue Account for the Year ended 31st December, 1961.

Generation.		
Proportion of Pooled Costs (As per attached statement)		R41,934,797
Other Operation and Maintenance Costs		
Operation—		
Fuel	185,088	
Water and Stores	32,501	
Salaries and Wages	138,406	
Other Expenses	504	
Maintenance—		
Stores	52,887	
Salaries and Wages	192,449	
Other Expenses	1,814	
	R42,538,446	
Distribution.		
Operation and Maintenance—		
Stores	454,956	
Salaries and Wages	1,765,034	
Other Expenses	33,222	
	2,253,212	
<i>Less—Charged to Pooled Costs (Interconnector)</i>	66,763	
<i>Less—Charged to Cape Northern Undertaking</i>	54,045	
	2,132,404	
General Expenses.		
Local Administration and Technical Management	838,893	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Claims, Insurance, Pension Fund Contributions, etc.)	1,365,437	
Head Office Administration Expenses	216,135	
Head Office Engineering Expenses	165,561	
	2,586,026	
<i>Less—Charged to Pooled Costs</i>	1,797,235	
	788,791	
Capital Charges.		
Interest	13,433,214	
Redemption Fund	7,561,738	
Instalments and Provision for Repayment of Overseas Loans	2,568,521	
Amount set aside to Reserve Fund	3,370,000	
	26,933,473	
<i>Less—Charged to Pooled Costs</i>	18,860,638	
	8,072,835	
	53,532,476	
Balance carried down	1,293,509	
	R54,825,985	
Balance as per Balance Sheet	R2,760,822	
	R2,760,822	

Sales of Electricity.		
Traction Supplies	R2,420,161	
Bulk Supplies	6,609,849	
Mining Supplies	33,392,848	
Industrial Supplies	9,989,220	
Domestic and Lighting Supplies	535,629	
	R52,947,707	
Sales of Air and Steam	1,640,982	
	54,588,689	
Electricity Supplied to Eastern Transvaal Undertaking		197,578
Other Revenue	236,492	
<i>Less—Credited to Pooled Costs</i>	196,774	
	39,718	

Johannesburg,
30th March, 1962.

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

Electricity Supply Commission

RAND AND ORANGE FREE STATE AND

EASTERN TRANSVAAL UNDERTAKINGS

Statement of Pooled Costs and Allocation

for the year ended 31st December, 1961.

	Generation.	
Operation—		
Fuel	R18,280,286	
Water and Stores	344,929	
Salaries and Wages	2,224,171	
Other Expenses	66,071	
Maintenance—		
Stores	1,093,780	
Salaries and Wages	1,968,200	
Other Expenses	90,604	
	R24,068,041	
Electricity Purchased.		
Electricity Purchased		4,498
Interconnector.		
Operation and Maintenance—		
Stores	13,805	
Salaries and Wages	51,352	
Other Expenses	1,606	
	66,763	
General Expenses.		
Local Administration and Technical Management	641,768	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	1,021,967	
Head Office Administration and Engineering Expenses	356,802	
	2,020,537	
Capital Charges.		
Interest	9,496,536	
Redemption Fund	5,097,312	
Instalments and Provision for Repayment of Overseas Loans	2,405,207	
Reserve Fund	2,271,792	
	19,270,847	
	R45,430,686	

	Allocation.	
Rand and Orange Free State Undertaking	R41,934,797	
Eastern Transvaal Undertaking	2,805,937	
Cape Northern Undertaking	484,960	
	R45,225,694	
Sundry Revenue		204,992
		R45,430,686

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1962.

Johannesburg,
30th March, 1962.

HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER,
Registered Accountants and Auditors.

ANNEXURE B

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1961.

Undertaking and Area (Square Miles)	Electric Power-Station	Type	Station Capacity MW	BOILERS		MAIN GENERATORS		HOUSE SETS	
				No.	Continuous Maximum Rating, Each, thousand lb/hr	No.	Normal Rating Each MW	No.	Normal Rating Each MW
Border 21,500	King William's Town (Stand-by)	Steam	3.5	1	10.0	2	1.5		
		Oil	1.0	3	12.0	1	0.5		
	West Bank No. 1	Steam	32.0	6	21.5	1	1.5		
	West Bank No. 2	Steam	30.0	4	55.0	2	4.0		
				3	170.0	3	7.5		
Cape Northern 15,700	Central, Kimberley	Steam	30.0	8	30.0	1	3.0		
				4	75.0	3	5.0		
Cape Western 22,400	Salt River No. 1	Steam	90.3	2 6 6 4 1	60.0 100.0 260.0 200.0 275.0	3	10.0 20.0 30.0 20.0 30.0	}	1
	Salt River No. 2	Steam	120.0						
	Hex River	Steam	90.0						
		Steam	90.0						
Eastern Transvaal 26,862	Komati	Steam	100.0	1	900.0	1	100.0		
	Sabic Gorge	Hydro	1.35	20	70.0	3	0.45		
	Witbank	Steam	128.0	2	80.0	6	20.0		1
Natal Central 20,500	Colenso Nos. 1 and 2	Steam	165.0	8	60.0	5	12.0		
				4	80.0	3	25.0		
				5	180.0	1	30.0		
				2	200.0				8.0

Natal Southern 4,000	Congella Nos. 1 and 2	Steam	206·0	6 4 8	60·0 100·0 200·0	3 1 1 3	12·0 20·0 30·0 40·0
	Port Shepstone Umgeni	Oil Steam	3·4 240·0	— 8 5	— 180·0 260·0	2 2 4 4 2	0·7 1·0 30·0 60·0
Rand & O.F.S. 55,500	Brakpan	Steam	48·0	8 10 1	28·0 45·0 70·0	1 2 1	3·0 12·5 20·0
	Highveld	Steam	360·0	6	550·0	6	60·0
	Klip	Steam	424·0	25	180·0	12	33·0
	Rosherville	Steam	38·4	23 8	38·0 48·0	4	9·6
	Taabos	Steam	480·0	8	580·0	8	60·0
	Vaal	Steam	318·0	18	190·0	9	33·0
	Vereeniging	Steam	150·5	20 2 6	45·0 60·0 180·0	3 3	20·0 30·5
	Vierfontein	Steam	360·0	19	210·0	12	30·0
	Wilge	Steam	240·0	{ 4 4 1	125·0 400·0 580·0	2 3	30·0 60·0

SUMMARY:

Total Number of Boilers	.. .. .	284
Total Boiler House Rating	.. .. .	41,092,000 lb./hr.
Total Number of Main Generators	.. .. .	134 Capacity 3,601·65 MW
Total Number of House Sets	.. .. .	9 Capacity 57·30 MW
Total Plant Capacity (Electricity)	.. .. .	3,658·95 MW

Major Items of Plant Commissioned 1961.

Hex River	.. .. .	1	30 MW Generator & 1 275,000 lb./hr. Boiler.
Komati	.. .. .	1	100 MW Generator & 1 900,000 lb./hr. Boiler
Umgeni	.. .. .	2	60 MW Generators & 5 260,000 lb./hr. Boilers.

Statement No. 1—(continued)

COMPRESSED AIR POWER STATIONS: RAND UNDERTAKING

Name of Station	Number of Sets	Type	Compressor Output, h.p.		Drive
			Each	Total	
<i>Electric Driven</i>					
Canada Dam	1	Turbo	3,000	17,400	Electric Motor
Compressor Station	3	Turbo	4,800		
Robinson Compressor Station ..	3	Turbo	2,000	14,000	"
	1	Turbo	2,150		
	1	Turbo	2,850		
	1	Turbo	3,000		
<i>Steam Driven</i>					
Brakpan Power Station	2	Recip.	800	4,250	Recip. Steam Engines
	1	Turbo	2,650		
Rosherville Power Station ..	1	Turbo	4,400	48,800	"
	3	Turbo	6,000		
	2	Turbo	7,100		
	1	Turbo	9,700		
Total Compressed Air Sets	20		81,950 = 61.13 MW		

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1961

Undertaking	Number	MVA
Border	456	90.0
Cape Northern	860	283.7
Cape Western	3,302	1,022.5
Eastern Transvaal	763	1,277.1
Natal Central	1,739	641.4
Natal Southern	1,172	794.4
Rand	4,508	14,296.0
At Compressor Stations, Rand	40	324.6
TOTALS	13,840	18,729.7

10 KVA and under	4,862	Transformers
Over 10 and under 100	3,912	"
100 and over but under 200	885	"
200 and over but under 500	761	"
500 and over but under 1,000	681	"
1,000 and over but under 10,000	2,318	"
10,000 and over but under 20,000	230	"
20,000 and over	191	"
	13,840	"

TRANSMISSION LINES AND CABLES: CIRCUIT MILES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1961.

(a) TRANSMISSION LINES

Undertaking	275kV	132kV	88kV	66kV	42kV	33kV	22kV	21kV	11kV	6·6kV	3·3kV	2·0kV 2·1kV 2·2kV	525V	380/220V	Totals
Border...	—	—	—	107·10	—	67·70	53·41	—	413·47	—	3·50	—	—	83·85	729·03
Cape Northern ...	—	263·54	—	166·00	—	—	—	—	476·07	—	—	—	—	17·57	923·18
Cape Western ...	—	428·96	—	555·77	—	163·20	—	—	1,340·04	277·89	—	—	—	926·18	3,692·04
Eastern Transvaal ...	—	244·90	338·43	—	—	—	—	618·90	515·43	25·46	8·40	38·91	—	113·85	1,904·28
Natal Central ...	—	74·69	582·39	—	—	253·74	36·33	—	937·85	228·94	0·15	0·95	—	184·91	2,299·95
Natal Southern ...	—	102·80	179·71	—	—	96·80	—	—	853·08	43·68	—	—	—	247·97	1,254·04
Rand & O.F.S. ...	197·17	1,248·93	2,064·72	—	1,210·94	—	—	126·69	592·78	153·44	—	5·62	—	311·84	5,912·13
Totals ...	197·17	2,363·82	3,165·25	828·87	1,210·94	581·44	89·74	745·59	4,858·72	729·41	12·05	45·48	—	1,886·17	1,6714·65

(b) UNDERGROUND CABLES

Border...	—	—	—	—	—	—	—	—	19·73	—	2·34	—	—	—	22·07
Cape Western ...	—	—	—	23·32	—	69·23	—	—	92·22	3·73	2·13	—	—	66·80	257·43
Eastern Transvaal ...	—	—	—	—	—	—	—	19·24	7·03	1·17	1·04	0·04	—	32·87	61·39
Natal Central ...	—	—	—	—	—	—	—	—	3·13	4·25	1·89	—	—	4·72	13·99
Natal Southern ...	—	—	—	—	—	4·44	—	—	34·96	0·26	—	—	—	17·67	57·33
Rand & O.F.S. ...	—	—	—	—	4·15	—	—	81·88	39·45	146·46	1·72	16·53	1·84	42·22	334·25
Totals ...	—	—	—	23·32	4·15	73·67	—	101·12	196·52	155·87	9·12	16·57	1·84	164·28	746·46

Transmission Lines and Cables: Circuit Miles (excluding service connections on reticulation systems) at 31st December 1961.

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1961.

Undertaking	Electric Power Stations	BOILERS		GENERATORS		Transmission Lines and Cables Circuit Miles	TRANSFORMERS	
		No.	Continuous Maximum Rating Each thousand lb./hr.	No.	Normal Rating Each MW		No.	Total Capacity MVA
Border	West Bank No. 2.	—	—	1	15·0	—	24	0·7
Cape Northern	Central, Kimberley	—	—	—	—	55	247	135·2
Cape Western	Hex River	1	275	1	30·0	89	211	183·5
Eastern Transvaal	{ Witbank Komati }	{ 4 2 }	{ 900 1,125 }	{ 4 2 }	{ 100·0 125·0 }	251	138	986·1
Natal Central	Ingagane	2	900	2	100·0	29	54	546·4
Natal Southern	Umgeni	—	—	—	—	416	7	433·5
Rand	Highveld	2	550	2	60·0	444	433	1,331·3

SUMMARY:

Number of Boilers	11	...	C. M. R. 9,025,000 lb./hr.
Number of Generators	12	...	Total Rating 1,015·0 MW
Transmission Lines ... ..	...	...	1,284 Circuit Miles
Transformers... ..	1,349	...	Rating 3,616·7 MVA

STATEMENT No. 3

UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST THIRTY-SEVEN YEARS.

Million Units

Year	Border	Cape Northern	Cape Western	Eastern Transvaal	Klip	Natal Central	Natal Southern	Rand & O.F.S.	Sabie	Vaal	Totals
1925			0.3	160.0		0.7			0.08		0.08
1926			5.8	439.1		104.2			0.7		161.7
1927			31.0	464.3		114.2	15.6		1.9		551.0
1928			47.9	543.1		123.9	78.9		2.8		627.9
1929			49.8	619.0		117.1	99.1		3.2		797.0
1930			52.1	603.4		101.1	103.9		4.6		889.6
1931			64.2	610.3		100.3	109.8		6.6		867.1
1932			100.7	639.4		109.2	118.5		6.1		890.7
1933			73.6	648.3		124.9	131.1		6.3		974.1
1934			80.0	727.9		154.3	149.8		7.2		985.2
1935			85.8	696.4	557.0	171.5	170.4		7.2		1,119.2
1936			94.0	684.5	1,349.9	210.6	189.4		6.9		1,688.0
1937			98.8	768.1	1,666.9	234.9	209.5		7.2		2,535.6
1938			106.5	767.7	2,193.2	266.2	233.7		7.2		2,985.4
1939			119.8	853.3	2,566.6	281.1	242.7		6.4		3,573.7
1940			136.2	862.6	2,675.9	302.4	270.3		6.7		4,070.2
1941			151.8	873.4	2,707.8	307.7	273.8		6.6		4,254.0
1942			145.7	849.1	2,669.1	312.4	293.4		6.3		4,320.8
1943			158.7	889.2	2,703.6	336.0	321.6		5.9		4,275.6
1944			165.9	830.7	2,643.0	333.2	348.8		6.7		4,415.8
1945			184.6	896.9	2,614.3	347.0	369.7		6.6	377.9	4,706.1
1946			198.6	887.7	2,547.2	346.0	402.6		7.4	582.5	5,002.4
1947	56.2		222.4	633.2	1,207.4	367.9	448.7	2,185.7	7.6	668.6	5,114.5
1948	69.2		249.5	358.3		371.8	513.0	6,222.2	7.3	433.1	5,576.9
1949	68.7		271.9	378.5		406.5	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	88.0	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		8,080.5
1953	107.8	67.1	375.5	409.9		492.3	713.2	6,560.0	6.4		8,732.2
1954	118.2	70.7	436.2	270.5		532.5	777.7	6,560.0	6.4		9,676.6
1955	130.8	73.2	527.1	394.6		546.4	870.0	8,416.3	5.6		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	536.5		621.7	1,018.7	9,151.6	5.9		12,763.1
1958	152.9	115.2	826.0	584.1		616.1	1,104.1	10,200.6	3.1		13,602.1
1959	165.1	171.4	861.8	633.3		629.4	1,288.6	11,034.8			14,724.4
1960	172.3	185.1	871.6	762.0		649.3	1,409.0	12,044.8			16,094.1
1961	178.8	191.3	860.1	901.5		684.0	1,497.5	12,700.0			17,013.2

Notes.—(1) Klip and Vaal are now included in Rand and O.F.S. Undertaking.

(2) Sabie Undertaking incorporated in Eastern Transvaal Undertaking since 1st July, 1958 in terms of the Amended Licence.

UNITS SOLD AND NUMBER OF

Energy Used:—
ELECTRICITY

Undertaking	TRACTION			BULK			MINING	
	Units	Per cent. Traction	No. Cons.	Units	Per cent. Bulk	No. Cons.	Units	Per cent. Mining
Border				160,003,683	4.750	12		
Cape Northern . .				70,146,662	2.083	7	74,014,089	0.858
Cape Western . .	214,505,743	18.205	2	261,814,115	7.773	31		
Eastern Transvaal	83,915,294	7.122	1	56,298,802	1.671	10	304,468,508	3.530
Natal Central . .	284,177,201	24.118	1	276,888,457	8.221	17	49,521,509	0.574
Natal Southern . .	118,280,133	10.039	1	1,143,496,690	33.949	4		
Rand & O.F.S. . .	477,383,366	40.516	2	1,399,595,384	41.553	87	8,197,891,874	95.038
Total Electricity	1,178,261,737	100.000	7	3,368,243,793	100.000	168	8,625,895,980	100.000
Per cent. of Total	6.976			19.943			51.073	

AIR AND STEAM

Rand and O.F.S.:								
Air				2,885,033		1	111,078,056	
Steam							948,838	
Total Air and Steam				2,885,833		1	112,026,894	
Per cent of Total				2.331			90.499	

ELECTRICITY, AIR & STEAM

Grand Total all Sales	1,178,261,737		7	3,371,128,826		169	8,737,922,874	
Per cent. of Grand Total	6.926			19.815			51.360	

Energy Used by Provinces:—
ELECTRICITY, AIR AND STEAM:

Cape	214,505,743	18.205	2	499,474,996	14.816	49	73,518,489	0.841
Natal	389,885,701	33.090	2	1,389,895,467	41.230	15	49,521,509	0.567
O.F.S.	65,719,701	5.578	1	210,496,868	6.244	39	2,186,721,494	25.026
Transvaal	508,150,592	43.127	2	1,271,261,495	37.710	66	6,428,161,382	73.566

STATEMENT No. 4

CONSUMERS, 1961 (Electricity, Air and Steam)

No. Cons.	INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number Consumers
	Units	Per cent. Industrial	No. Cons.	Units	Per cent. Domestic and Lighting	No. Cons.	Units	Per cent. Total Units Sold	
22	7,257,299	0.211	289	11,552,345	4.133	2,735	178,813,327	1.059	3,036
	42,464,491	1.235	115	4,682,645	1.675	1,224	191,307,887	1.133	1,368
	241,874,658	7.036	2,767	141,843,183	50.750	29,413	860,037,689	5.092	32,213
44	446,908,549	13.001	448	9,879,230	3.535	2,455	901,470,383	5.337	2,958
15	52,612,296	1.531	592	20,835,015	7.455	5,413	684,034,478	4.050	6,038
	201,396,457	5.869	349	34,329,522	12.283	6,548	1,497,502,802	8.867	6,902
111	2,444,967,385	71.127	893	56,369,686	20.169	6,120	12,576,207,695	74.462	7,213
192	3,437,481,135	100.000	5,453	279,491,626	100.000	53,908	16,889,374,271	100.000	59,728
	20.353			1.655			100.000		

10	8,875,624		23				122,838,713		34
1							948,838		1
11	8,875,624		23				123,787,551		35
	7.170						100.000		

203	3,446,356,759		5,476	279,491,626		53,908	17,013,161,822		59,763
	20.257			1.642			100.000		

Electricity 99.272 per cent. } of Total
Air and Steam 0.728 per cent. } Sales

21	291,497,943	8.458	3,163	157,922,143	56.503	33,304	1,236,919,314	7.270	36,539
15	251,376,415	7.294	763	47,084,519	16.846	9,301	2,127,763,611	12.507	10,096
17	95,468,836	2.770	139	3,167,077	1.134	978	2,561,573,976	15.056	1,174
150	2,808,013,565	81.478	1,411	71,317,887	25.517	10,325	11,086,904,921	65.167	11,954

(1) ELECTRICITY GENERATION:

1.1 STEAM ELECTRIC

Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS		Station Load Factor % Sent Out
			½ Hour (or Hour) Sent Out kW	Peak kW	
Border Undertaking:					
King William's Town... ..	79,670	76,170	2,700	—	—
West Bank No. 1 and 2	194,765,840	184,217,340	36,950	39,700	56·9
Central Natal Undertaking					
Central, Kimberley	59,192,300	50,087,415	19,044	21,100	30·0
Cape Western Undertaking					
Hex River	243,190,300	228,896,030	69,100	—	37·9
*Salt River No. 1	20,319,413	17,393,180	46,314	56,000	4·3
*Salt River No. 2	718,034,160	685,241,210	120,395	132,000	65·2
Eastern Transvaal Undertaking					
Komati... ..	4,951,727	2,941,120	—	—	—
Witbank	780,695,591	731,074,501	124,755	—	66·9
Natal Central Undertaking					
Colenso No. 1 and 2... ..	805,330,990	757,540,300	131,890	149,000	65·6
Natal Southern Undertaking:					
Congella No. 1 and 2... ..	716,467,100	660,922,410	136,824	155,000	55·1
Umgeni... ..	884,762,900	831,518,200	168,000	179,500	56·5
Rand and O.F.S. Undertaking:					
Brakpan	75,540,763	68,286,940	38,868	—	20·1
Highveld	2,487,158,688	2,336,086,952	338,611	—	78·8
Klip	2,658,725,199	2,480,048,757	391,854	—	72·2
Rosherville	48,498,948	44,922,733	37,935	—	13·5
Taaibos... ..	3,165,938,393	2,926,253,217	440,316	—	75·9
Vaal	2,135,860,936	2,010,671,661	286,709	—	80·1
Vereeniging	883,822,170	822,744,486	138,183	—	68·0
Vierfontein	1,826,925,266	1,701,917,721	312,054	—	62·3
Wilge	1,791,805,138	1,670,185,225	222,778	—	85·6
GRAND TOTAL	19,502,065,492	18,211,025,568			

Total R. and O.F.S. Undertaking (incl. Witbank and Komati). 15,859,922,819 14,795,133,313

*No. 1 also receives steam from No. 2

1.2 HYDRO ELECTRIC

Power Station	Units Generated	Units Sent out	Maximum Demands kW		Station Load Factor % Sent out	Rain	
			Half Hr. Sent out	Two Mins. Generated		Inches	mm.
Sabie	1,904,500	1,762,100	480	530	41·9	54·21	1377

STATEMENT No. 5

POWER STATION OPERATING STATISTICS: YEAR 1961.

Coal Burned Tons (2,000 lb.)	LB OF COAL		Calorific Value of Coal B.Th.U. as Recd. (Weighted Average)	B.Th.U. PER UNIT		OVERALL THERMAL EFFICIENCY %	
	Per Unit Generated	Per Unit Sent Out		Generated	Sent Out	Generated	Sent Out
121	3·037	3·177	12,040	36,560	38,250	9·3	8·9
129,365	1·328	1·404	11,580	15,380	16,260	22·2	21·0
67,842	2·293	2·710	11,350	26,030	30,760	13·1	11·1
144,934	1·192	1·266	11,600	13,830	14,690	24·7	23·2
17,587	1·933	2·258	11,570	22,360	26,130	15·3	13·1
375,078	1·041	1·091	11,570	12,040	12,610	28·3	27·1
3,133	—	—	—	—	—	—	—
701,268	1·797	1·918	10,960	19,700	21,020	17·3	16·2
630,407	1·566	1·664	11,150	17,460	18,550	19·5	18·4
509,555	1·422	1·542	11,210	15,940	17,290	21·4	19·7
519,941	1·175	1·251	11,600	13,630	14,510	25·0	23·5
94,747	2·508	2·775	9,780	24,530	27,140	13·9	12·6
1,603,654	1·290	1·373	8,740	11,270	12,000	30·3	28·4
2,044,566	1·538	1·649	10,190	15,670	16,800	21·8	20·3
80,950	3·338	3·604	9,770	32,610	35,210	10·5	9·7
2,107,975	1·332	1·441	8,900	11,850	12,820	28·8	26·6
1,878,785	1·759	1·869	8,520	14,990	15,920	22·8	21·4
1,009,788	2·285	2·455	8,980	20,520	22,050	16·6	15·5
1,398,265	1·531	1·643	9,110	13,950	14,970	24·5	22·8
1,129,021	1·260	1·352	9,690	12,210	13,100	27·9	26·0
14,446,982							
12,052,152							

POWER STATION OPERATING STATISTICS: YEAR 1961.

DIESEL ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Fuel Consumed		Lub. Oil gal.
			Half Hour	2 Mins.	Total lb.	Per kWh Sent Out	
King William's Town	6,125	6,125	980	1,000	3,951	0.641	
Port Shepstone	40,446	39,936	1,860	2,000	24,800	0.62	135
Totals	46,571	46,061					

(2) COMPRESSED AIR GENERATION:

Station	Type*	Units Generated	Air Units Sent Out		Coal Burned		Electric Input		Max. Sustained Load Over One Hour kW	Load Factor %
			Units	%	Total Tons	lb. Coal/Units Sent Out	Total kWh Excluding Losses	Units Sent Out/kWh %		
Central Rand Compressed Air System:—										
Rosherville	Steam	70,408,000	70,267,800	53.7	96,382	2.743				
Robinson	Electric	39,209,100	39,209,100	29.9			49,542,918	79.14	44,020 (April)	33.9
Canada Dam	Electric	21,438,500	21,438,500	16.4			26,501,451	80.90		
Air Pipe-Line Totals		131,055,600	130,915,400	100.0	96,382		76,044,369			

*Electrically Driven Compressors are fed from the Electric Distribution System of the Rand Undertaking.

(3) STEAM GENERATION:

Station	Units Generated	Units Sent Out	Coal Burned Tons of 2,000 lb.	lb. Coal Per Unit Sent Out	Max. Sustained Load over 1 Hour kW	Load Factor %	GENERATION SUMMARY:	
							Electricity Total Units	Coal Burnt
Brakpan	972,018	948,838	1,473	3.105	2,605	4.2	Units Sent Out	14,446,982
							18,211,025,568	14,446,982
							1,904,500	—
							46,571	—
							19,504,016,563	14,446,982
							70,408,000	96,382
							948,838	1,473
							18,284,050,367	14,544,837
							17,361,049,153	13,792,816
							923,001,214	752,021
							+ 5.566	+ 5.452
							GRAND TOTAL 1961	
							Air Units at Steam Driven Stations	
							Steam Units (Brakpan)	
							Total for 1960	
							Change on 1960 (Units or Tons)	
							%	

POWER PURCHASED, YEAR 1961.

Undertaking	Purchased from	Maximum Demands	Units
Eastern Transvaal	Ermelo Municipality	100 kVA	103,700
	Nelspuit	—	22,769
Natal Southern	Durban, City of — Canelands	2,196 kVA	8,273,190
Total Units Purchased			8,399,659
Total Units Sold 1961			17,013,161,822
Purchased as % of Sales			0.049

Note.—The transfer of power from one Undertaking to another is not shown above, as such is not "power purchased," but "interchanged power."
See Sales Statistics.

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1961.

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border... ..	20	—	—
Cape Northern	103	—	—
Cape Western	238	—	—
Natal Southern	726	—	—
Natal Central	39	410	—
Rand (Including Komati and Witbank Power Stations)	306	16,147	260

NOTE.—No deduction has been made for water disposed of as blow-down from cooling tower ponds and returned to source of supply.

STATEMENT No. 8.

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 1961.

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1961).

Cape Western Undertaking

Servitudes acquired—capitalised payments amounting to	R6,879.34
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Cape Northern Undertaking

Immovable property acquired for considerations amounting to ...	R7,000.00
Servitudes acquired—capitalised payments amounting to	R184.57

Natal Central Undertaking

Immovable property acquired for considerations amounting to ...	R1,600.00
Servitudes acquired — capitalised payments amounting to	R14,198.73½

Natal Southern Undertaking

Immovable property acquired for considerations amounting to ...	R9,936.40
Servitudes acquired — capitalised payments amounting to	R1,383.62

Eastern Transvaal Undertaking

Immovable property acquired for considerations amounting to ...	R500.00
Servitudes acquired — capitalised payments amounting to	R7,508.71
Servitudes acquired — annual payments amounting to	R48.72

Border Undertaking

Immovable property acquired for considerations amounting to ...	R100.10
Servitudes acquired — capitalised payments amounting to	R1,271.82

Rand and O.F.S. Undertaking

Immovable property acquired for considerations amounting to ...	R52,589.19
Servitudes acquired — capitalised payments amounting to	R189,705.79
Servitudes acquired — option moneys paid amounting to	R28,949.25
Leases acquired for annual rentals amounting to	R209.94

COAL USED AT COMMISSION'S POWER STATIONS
Average Cost per ton (2,000 lb.)

Power Station	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
	R.	R.	R.	R.	R.	R.	R.	R.	R.	R.	R.
Brakpan	0·89	0·96	1·01	1·33	1·42	1·50	1·65	1·73	1·93	1·70	1·77
Colenso... ..	1·43	1·85	1·99	2·15	2·52	2·71	2·87	2·97	3·17	3·12	3·11
Congella	2·00	2·35	2·54	2·72	3·13	3·25	3·43	3·58	3·82	3·79	3·75
Hex River	—	3·29	3·53	3·70	3·89	4·06	4·17	4·54	4·70	4·68	4·76
Highveld	—	—	—	—	—	—	—	—	1·33	1·45	1·60
Kimberley Central	2·44	2·64	2·78	2·91	3·08	3·28	3·40	3·59	3·83	3·78	3·75
Klip	0·76	0·97	1·16	1·31	1·45	1·61	1·73	1·79	1·82	2·09	2·14
King Williams Town	3·31	3·72	3·98	4·24	4·57	4·68	4·84	4·81	4·54	—	4·58
Komati	—	—	—	—	—	—	—	—	—	—	1·19
Rosherville	1·06	1·27	1·50	1·55	1·65	1·72	1·87	1·92	2·04	1·86	1·90
Salt River	3·38	3·53	3·75	4·10	4·07	4·22	4·38	4·57	4·86	4·83	4·85
Taatbos	—	—	—	0·89	0·87	0·73	0·76	0·84	0·93	1·83	1·98
Umgeni	—	—	—	3·07	3·28	3·31	3·49	3·72	4·05	4·04	4·01
Vaal	0·59	0·67	0·68	0·68	0·71	0·71	0·73	0·73	0·74	0·79	0·93
Vereeniging	0·57	0·67	0·72	0·76	0·82	0·85	0·92	0·98	0·91	0·87	0·96
Vierfontein	—	—	0·94	0·82	0·83	0·96	1·10	1·23	1·23	1·50	1·56
West Bank	3·15	3·40	3·53	3·78	4·18	4·08	4·17	4·39	4·66	4·61	4·59
Wilge	—	—	—	0·81	0·78	0·79	0·89	0·91	0·97	0·90	0·94
Witbank	0·45	0·59	0·70	0·70	0·76	1·03	1·03	1·05	1·11	1·06	1·05