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A new view of Escom's Umgeni Power Station which has been enlarged to provide for growth of load in Natal. (Photo: Whysall's Studio, Durban).

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**Electricity Supply Commission**

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# Electricity Supply Commission

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Escom Centre.

204, Smit Street.

Johannesburg.

6th July, 1961.

To the Honourable,  
The Minister of Economic Affairs,  
Pretoria.

Sir,

As required by Section 19 of the Electricity Act, No. 40 of 1958, the Commission has the honour to present its thirty-eighth Annual Report and the Accounts covering its work during the financial year ended at 31st December, 1960.

It has been the practice for many years to include comment upon developments up to the 30th April of the year following; but this year, in order to expedite the compilation of the Report, comment is restricted to events which took place before 31st March, 1961.

## DECIMAL COINAGE

The change-over to the new decimal coinage in South Africa was effected without difficulty throughout Escom's organization.

In some Undertakings it was necessary to introduce minor changes in tariff rates, in order that there should be exact equivalents in the new coinage, and this was done in advance of decimalization day. Particulars of these changes are given on page 20 under the heading Costs and Tariffs. Apart from these changes, however, Escom's charges for electricity remained the same as before—the old rates expressed in the new coinage.

Inasmuch as all accounts and financial statements for the year 1960 are set up in Escom's books in the units of the old coinage, the accounts and costs for 1960 set out in this Report are expressed in that coinage.

## PREFACE: POWER SUPPLY IN SOUTH AFRICA

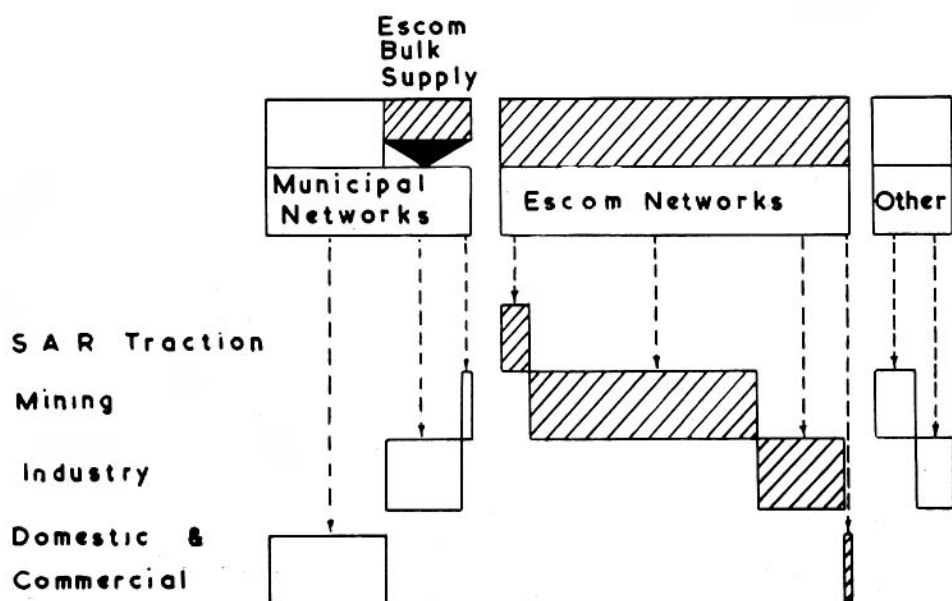
In view of the circulation of the Report overseas, the following diagram and brief outline explains the sources of generation and the distribution of electricity in South Africa, and Escom's part in the general picture:—

### GENERATION AND USE OF ELECTRICITY IN SOUTH AFRICA

Units generated :-

Municipal	Escom	Other
18.7%	69.4%	11.9%

Units sold and used -



The diagram indicates the sources of generation in South Africa as "Municipal", "Escom" and "Other", the percentages representing the proportions of units generated.

Most of the municipal generating plant is owned by the five large municipalities of Cape Town, Johannesburg, Pretoria, Port Elizabeth and Bloemfontein: the remainder is made up of a large number of small power plants in towns which are considerable distances from the main industrial areas.

The figure for Escom is the total for all its Undertakings. Escom has separate Undertakings for different areas; and the geographical situation of the separate Undertakings is shown in colour on the map which appears opposite page 11. Details of the plant installed and the operating statistics for each power station in each Undertaking are given in Annexure B, on pages 86-99 but it should be noted that the power stations of the two Natal Undertakings are interconnected and operated as pooled stations; and that the power stations of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking form another group of pooled stations. Cape Northern Undertaking draws part of its power requirements from this pool.

Legislation in South Africa does not place restriction upon persons who elect to generate electricity for their own use: and "Other" plant is, for the most part, privately owned by mining and industrial companies. Installations for the generation of electricity by re-use of process steam in pass-out turbines are included in this category.

The source from which the main classes of consumers draw their requirements is indicated in the diagram: and a rough approximation of the amount of electricity purchased and used by the classes of consumers may be gained by deduction from the figures of Escom's output and sales set out on page 10.

## GENERAL REVIEW: 10 YEARS OF DEVELOPMENT

The decade ended in 1960 was one of great economic development, in which Escom was called upon to play a full part.

Escom's sales in 1960 amounted to a total of 16,094 million units (electricity, air and steam) which, in comparison with the corresponding figure of 6,910 million units in 1950, is an increase of 133 per cent over 10 years, equivalent to an average rate of growth of 8.8 per cent each year.

In this decade the capacity of generator plant installed in Escom power stations was increased from 1,513,975 kW to 3,479,450 kW, an increase of 130 per cent: and, at 31st March, 1961, further new plant to a total of 1,265,000 kW was in course of construction in Escom power stations or on order.

To achieve that expansion, Escom's capital investment in power stations and in its transmission and distribution systems amounted to £188,171,344. The greater part of this capital was raised in South Africa by the issue of local Loans: but, during this period, Escom's statutory powers were extended to enable it to raise capital outside South Africa, and a total of £34,605,031 was borrowed overseas under loan agreements concluded with the International Bank for Reconstruction and Development, the Export-Import Bank of Washington, the Commonwealth Development Finance Company, Limited, and a consortium of Swiss Banks.

Escom's revenue increased from £9,526,071 to £40,917,882.

The growth of supplies to the main classes of consumers is shown in the following Table:—

	Units sold:		Increase in 10 years
	1950	1960	
<b>Bulk Supplies:</b>			
Municipalities ... ..	1,109,158,650	3,245,823,266	193%
Number of Consumers... ..	70	155	
<b>Direct Supplies:</b>			
Traction ... ..	524,024,643	1,045,184,342	100%
Mining ... ..	4,162,768,417	8,371,892,863	101%
Industrial ... ..	1,000,686,054	3,178,118,186	218%
Domestic and Street Lighting	113,946,138	253,110,619	122%
	<u>6,910,583,902</u>	<u>16,094,129,276</u>	<u>133%</u>

The high rate of increase in units sold to municipalities is due to the increase in the number of consumers which has been achieved by progressive extension of Escom's transmission and distribution systems to serve new areas.



## GENERAL REVIEW: YEAR 1960

The striking feature of the statistics for the year 1960 is that the growth of electricity supply in 1960 was at a rate greater than the average for the decade just passed.

Sales of electricity, air and steam during the past two years, the annual increase for 1960 and the average annual increase during the past 10 years were as follows:—

						Annual Increase 1960	Average Annual Increase 10 years
			1960	1959			
Bulk Supplies:							
Municipal	...	...	3,245,823,266	3,060,902,685		6·0%	11·4%
Direct Supplies:							
Traction	...	...	1,045,184,342	887,435,946		17·8%	7·2%
Mining	...	...	8,371,892,863	7,801,823,456		7·3%	7·2%
Industrial	...	...	3,178,118,186	2,745,960,371		15·7%	12·4%
Domestic	...	...	247,020,667	222,915,934		10·8%	8·1%
Street Lighting	...	...	6,089,952	5,418,899		12·4%	7·5%
			16,094,129,276	14,724,457,291		9·3%	8·8%

Total Revenue for the year amounted to £40,917,882, which is an increase of 12·1 per cent over 1959. The increase in 1960 in the average cost per unit sold was 2·64 per cent, so that the lower rate of increase in costs which was commented upon in the last Annual Report has continued.

**Bulk Supplies to Municipalities.** As in recent years, the figure for bulk supplies is affected by the reduction in the amount of electricity taken by the Cape Town City Council, in accordance with the planned reduction of Escom's commitment to the Council. The growth of supplies furnished in bulk to municipalities, excluding the City Council of Cape Town was 7·83 per cent for the year.

New supplies were given in 1960 to Cathcart in the Eastern Cape; Belfast and Machadodorp in the Transvaal; Marquard, Clocolan and Ficksburg in the Eastern Free State. The supply to Ladybrand was commenced on 23rd March, 1961.

Carletonville was established as a municipality on 1st March, 1960, and took over the electricity reticulation in the townships of Carletonville and Oberholzer, which had previously been carried out by the township owners.

The partial supply which has for some years been given by Escom to the Municipality of Kroonstad ceased in November, 1960, when the new municipal power station was brought into service; and the supply agreement was terminated on 1st February, 1961.

**Traction Supplies.** The large increase in units used by the South African Railways for traction reflects a full year's working of the extensions to the electric traction systems on the Reef and in Pretoria, which were reported last year, and the conversion to electric traction of the main line between Welgedacht and Witbank and the Ogies/Vandyksdrif branch line, which was completed in October, 1960. Five new substations, Abor, Ogies, Blackhill, Kromklip and Vandyksdrif, are supplied from the Eastern Transvaal Undertaking, and two substations at Eloff and Dryden are supplied from the Rand and Orange Free State Undertaking.

On the Natal systems eleven new traction substations—all mercury-arc-rectifier substations—were connected at Colenso, Glencoe, Boscobello, Estcourt, Lidgetton, Pietermaritzburg, Wasbank, Brakwal, Van Reenen and Mooi River on the Natal Central Undertaking, and M'kondeni on the Natal Southern Undertaking. Three of the old motor-generator substations, Nottingham Road, Lidgetton and Teteluku, were closed down.

The report of the General Manager, South African Railways records that at the 31st March, 1960, the length of electrified track totalled 2,708 miles, or almost 15 per cent of the total rail network in South Africa. The Witbank lines, which were converted to electric traction in October, 1960, make up a further 160 track miles.

**Mining Supplies.** The increase of 570 million units in sales to Mining Consumers represents an increase of 7·3 per cent on the corresponding figure for 1959.

The amount of power (electricity and compressed air) sold to the gold mines on the Witwatersrand shows little change. There were some reductions in the quantities of power purchased by old mines, which are approaching the end of profitable working; but the reductions during the year were offset by increased requirements of mines which are exploiting ore bodies at great depth, the so-called ultra deep level mines.

Supplies purchased by gold mines in the Klerksdorp, Far West Rand, Orange Free State and Bethal goldfields, show an increase for the year of 11·8 per cent. Mining activity in these areas, as indicated by the amount of electricity used 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		
	1958	1959	1960
Witwatersrand* ... ..	3,123	3,119	3,116
Klerksdorp... ..	868	987	1,137
Far West Rand ... ..	1,135	1,243	1,368
Orange Free State ... ..	1,678	1,887	2,078
Bethal ... ..	52	72	99
<b>Gold Mining</b> (including Uranium) ... ..	<b>6,856</b>	<b>7,308</b>	<b>7,798</b>
<b>Diamond and Other Mines</b> ... ..	<b>208</b>	<b>269</b>	<b>330</b>
<b>Coal Mines</b> ... ..	<b>213</b>	<b>225</b>	<b>243</b>
	<u><b>7,277</b></u>	<u><b>7,802</b></u>	<u><b>8,371</b></u>

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

**Uranium Contracts.** The “stretch-out” of the contracts subsisting between the South African producers and the Atomic Energy Authorities to provide for delivery of the agreed quantities of uranium over a longer period will result in a small reduction in the amount of power used for the recovery and extraction of this metal; but the trading in quotas which followed after the modification of the contracts appears to be rationalization amongst South African producers which can be expected to improve the long-term prospects for this category of mining.

**Industrial Supplies.** In this category the more important increases were to consumers in the metal industries: the new ferro-manganese project of Feralloys, Limited, at Cato Ridge in Natal; African Metals Corporation, Limited, Dunswart Iron and Steel Works, Limited, S.A. Iron, Steel and Industrial Corporation, Limited, ("Iskor") and Union Steel Corporation, Limited in the Transvaal. In addition several small supplies were furnished to consumers in this category for experimental and proving work, and there appears to be a prospect of further full-scale developments in the production of ferro-chrome and ferro-manganese.

Other large increases in 1960 were in the supplies to Rand Carbide, Limited, at Witbank; the new nitrogen works of African Explosives and Chemical Industries, Limited, at North Rand; the newsprint mill of S.A. Pulp and Paper Industries, Limited, at Springs; and the works of Electrolytic Metals Corporation, Limited, on the West Rand, for the production of electrolytic manganese.

## OUTPUT AND SALES

The total units generated in all Escom's Undertakings in 1960 was 18,543 million units. Purchases from outside sources were reduced to 15 million.

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

	1960	1959	Increase
Units generated ... ..	18,543,341,972	16,926,480,087	9·6%
Units Purchased ... ..	15,320,932	93,614,989	—
Units sold ... ..	16,094,129,276	14,724,457,291	9·3%

Sales of units by individual Undertakings were as follows:

	1960	1959	Increase
Cape Western ... ..	871,604,603	861,795,585	1·1%
Cape Northern ... ..	185,184,788	171,387,629	8·0%
Border ... ..	172,281,916	165,048,030	4·4%
Natal Southern ... ..	1,408,995,045	1,228,640,386	14·7%
Natal Central ... ..	649,289,819	629,418,295	3·2%
Eastern Transvaal ... ..	762,016,927	633,326,551	20·3%
Rand and Orange Free State ... ..	12,044,756,178	11,034,840,815	9·2%
	16,094,129,276	14,724,457,291	9·3%



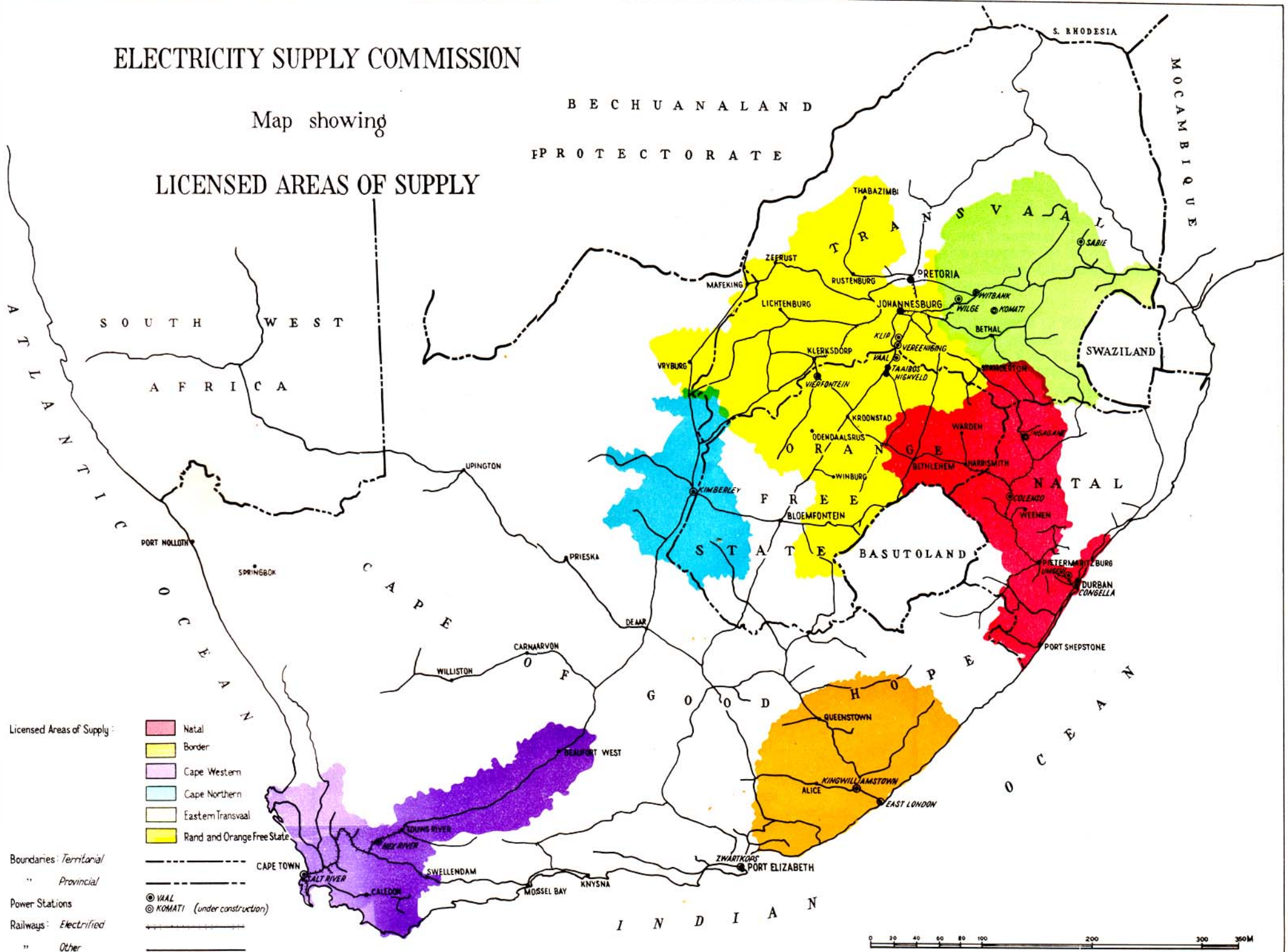
## **DISASTER AT THE COALBROOK NORTH COLLIERY**

The disaster which occurred on 21st January, 1960, at the Coalbrook North Colliery of The Clydesdale (Transvaal) Collieries, Limited, and the consequences for Escom which followed from it were reported in the last Annual Report.

# ELECTRICITY SUPPLY COMMISSION

Map showing

## LICENSED AREAS OF SUPPLY



The cost of coal procured for the power stations of the Rand and Orange Free State Undertaking rose sharply in 1960, due to the changes in the loading of stations and the sources from which coal supplies had to be drawn to meet the emergency. The large increase in railage on coal represents the cost of transport of the substitute coal, and not an increase in railage rates.

Escom has been kept informed on the investigations made by the coal mining Consultants from overseas who were called in by the Colliery Company; and on the Colliery Company's proposals for raising production to the level required to supply the coal for Taaibos and Highveld Power Stations. *Inter alia*, steps have been taken by the Colliery Company to acquire additional coal rights, to ensure that the coal reserves will be adequate for the life of the two power stations.

By March, 1961, the position had been retrieved to the extent that the Coalbrook Collieries were supplying about three-quarters of the total requirements of Taaibos and Highveld stations, the bulk of it from the South Colliery. Unfortunately, a further movement of strata in the North Colliery occurred on 30th March, 1961, and in consequence of it, the Colliery Company decided to abandon the North Colliery. In order to make up the loss of output of the North Colliery, the plans for development of the eastern shafts have been accelerated.

## EXTENSIONS TO ESCOM'S UNDERTAKINGS

**Areas of Supply.** The licensed areas of supply of Escom's Undertakings, as at 31st December, 1960, are shown in colour on the map which faces this page.

In addition to the two extensions, granted on 27th January, 1960, which were described in the last Annual Report, the following further extensions were granted by the Electricity Control Board during the year:—

On 13th June, 1960, the area of supply of the Natal Southern Licence, 1927, was enlarged to include the area around Harding and the Weza forest area.

On 13th December, 1960, a number of farms within the area of supply of the Rand Extension Licence, on the common boundary between the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking, were transferred to the area of supply of the Eastern Transvaal Licence, 1925. This adjustment was desired for technical reasons, to achieve a better lay-out of rural electrification schemes in these areas.

On 13th December, 1960, also, additional areas were added to the area of supply of the Greater Rand Extension and Orange Free State Licence, comprising (i) a large part of the eastern Orange Free State, including the towns of Marquard, Clocolan, Ficksburg, Ladybrand, Excelsior, Tweespruit, Thaba 'Nchu, Dewetsdorp and Wepe-ner, (ii) portion of the north-western Free State, including Bultfontein and Hoopstad, and (iii) portion of the western Transvaal and the northern Cape Province, including Vryburg, up to the boundary of the Cape Northern Licence, 1949.

An application, made on 27th September, 1960, to extend the area of supply of the Cape Western Licence, 1925, so as to include the further section of the main railway between Touws River and Beaufort West, which is being converted to electric working, and an area approximately 30 miles on either side of the railway, was

opposed by certain municipalities in the Western Cape, mainly on the ground that the area applied for differed in type from the Cape Western area and would involve higher costs of transmission and distribution.

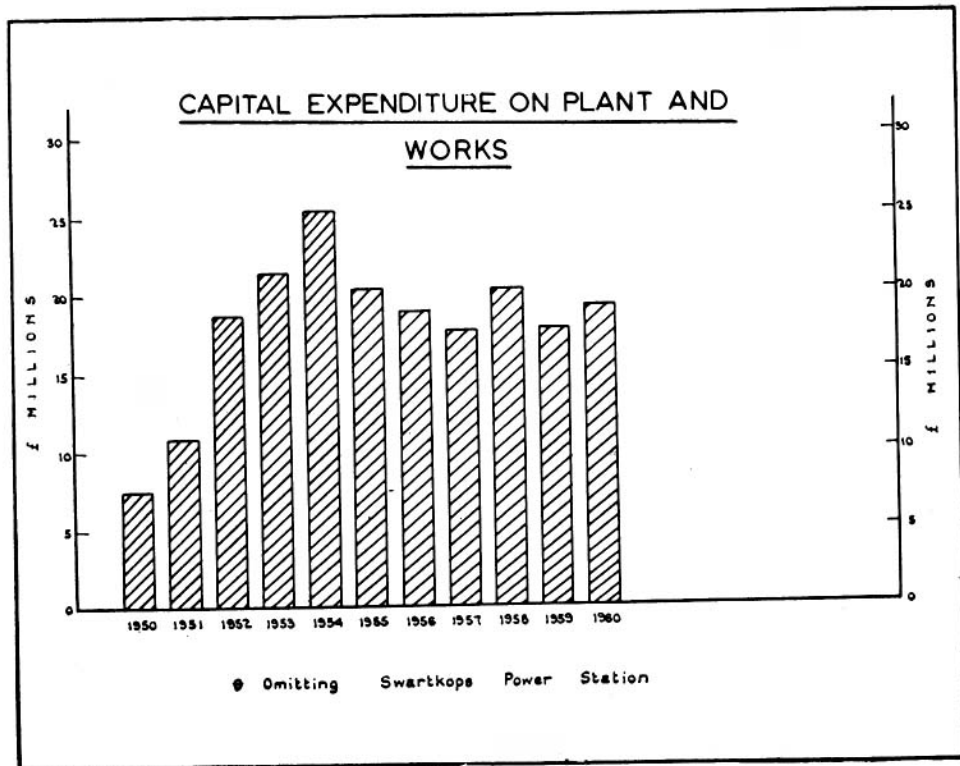
Escom's application and the objections to it were argued before the Electricity Control Board at the public hearing on 30th January, 1961. Escom showed that the interests of existing consumers would be safeguarded by the principle and practice of imposing "extension charges" on consumers in the new area, including the South African Railways which is the principal consumer, i.e. charges over and above the standard tariff charge, to cover such portion of the transmission and distribution costs as are not recouped by the standard charge.

Escom's application was granted by the Board on 13th March, 1961, and the additional area is shown on the map as part of the area of supply of the Cape Western Undertaking.

**Borrowing Powers.** Application was made on 8th December, 1960, for approval, in terms of Section 10 of the Electricity Act, 1958, of borrowing powers for a further £3,000,000, to cover extensions to Highveld Power Station and transmission and distribution systems in most Undertakings. These further works and borrowing powers therefor were approved in terms of an Executive Council authority granted on 19th January, 1961.

## CAPITAL EXPENDITURE

Escom's expenditure on capital account for each year from 1950 to 1960 inclusive is depicted in the following diagram:—



## PLANT CAPACITY

The plant taken into service in Escom's power stations during the year 1960 and the new plant under construction or on order at 31st December, 1960, is shown in the following table:—

	Plant taken into service: 1960		Plant under construction or on order at 31st December, 1960	
	Boilers lb./hr.	Generators kW	Boilers lb./hr.	Generators kW
<b>Cape Western Undertaking:</b>				
Hex River Power Station ... ..	—	—	550,000	60,000
<b>Border Undertaking:</b>				
West Bank Power Station ... ..	170,000	—	—	15,000
<b>Natal Undertakings:</b>				
Umgeni Power Station ... ..	—	—	1,300,000	120,000
Ingagane Power Station ... ..	—	—	1,800,000	200,000
<b>Eastern Transvaal Undertaking:</b>				
Komati Power Station ... ..	—	—	4,500,000	500,000
<b>Rand and O.F.S. Undertaking:</b>				
Highveld Power Station ... ..	1,100,000	120,000	1,100,000	120,000
	<b>1,270,000</b>	<b>120,000</b>	<b>9,250,000</b>	<b>1,015,000</b>

Within the period to 31st March, 1961, two boilers and one 60,000 kW turbo-generator at Umgeni Power Station were brought into service, and will therefore be available for the present winter load on the Natal Undertakings.

In March, 1961, orders were placed for a further two boilers, each 1,125,000 lb./hr. steaming capacity, and two turbo-generators of 125,000 kW each, for Komati Power Station.

## NEW DEVELOPMENTS IN ESCOM'S UNDERTAKINGS

The operating statistics and the reports on the year's working on each Undertaking are given on pages 25 to 50: but the following brief notes direct attention to the more important new developments in Escom's Undertakings:—

**Cape Western Undertaking.** Satisfactory progress has been made in the enlargement of Hex River Power Station, which is required primarily to meet the demand for the new electrification between Touws River and Beaufort West; and the additional set is expected to be available about mid-1961.

At the year-end eight of the twelve traction substations were complete, and work on the remainder was well advanced: but, at the time of writing the Report, delays in the delivery of particular steel sections and other components for the 132 kV transmission lines to Beaufort West were causing anxiety as to the ability of the contractors to complete the work in time to meet the programme of the South African Railways.

**Cape Northern Undertaking.** The prospects and plans for extending the major transmission system beyond Silverstreams into the Postmasburg and Kuruman districts were described in the last Annual Report. Firm contracts have now been negotiated with the Municipalities of Postmasburg and Kuruman, with a number of manganese and asbestos mines, and also with the S.A. Iron, Steel and Industrial Corporation, Limited, for notified demands totalling 6,600 kVA. An application for extension of the licensed area of supply is in preparation.



**Natal Undertakings.** Two of the new boilers for Umgeni Power Station were steamed in January, 1961, and a third boiler was ready for steaming at the date of closing the Report. The first of the 60,000 kW sets for Umgeni was placed on load on 26th February, 1961.

During the year a second 100,000 kW turbo-generator and a second boiler were ordered for Ingagane Power Station, for service in 1964. The commissioning of this set will call for the establishment of the 275 kV transmission system between Ingagane Power Station and Georgedale Substation, near Cato Ridge: and this development of the Natal systems has been further advanced during the year.

**Eastern Transvaal Undertaking.** Good progress has been made in the construction of Komati Power Station, and the first boiler and turbo-generator are expected to be in service in the fourth quarter of 1961, followed by the second set and boiler at the beginning of 1962. The decisions to place orders for an additional three 100 MW sets and boilers, and two further 125 MW sets and boilers for Komati Power Station are reported under the heading, Plant Capacity.

Early in the year separate supplies were given to Bracken Mines, Limited, and Leslie Gold Mines, Limited, Electricity used by the three gold mines in the Bethal area which increased to 99 million units for the year, represents less than half the requirements notified for these mines.

The extension of the Undertaking's transmission system by means of a 132 kV line from Komati Power Station *via* Witkloof Substation to Machadodorp, and thence to Penge marks a first step towards major developments in the Eastern Transvaal Lowveld. Bulk supplies were commenced to Belfast and Machadodorp in March, 1960; and it is expected that the supply to the asbestos mine of Egnep (Pty.) Limited at Penge will be available about mid-1961.

Further negotiations have resulted in contracts to provide bulk supplies to the municipalities of Nelspruit, White River and Barberton; and a supply to Phosphate Development Corporation (Pty.) Limited at Phalaborwa. The initial supplies to these consumers are to be furnished by means of an extension from the Komati/Machadodorp 132 kV line: but these further extensions have been planned for conversion to a major 275 kV system, if such a development is required.

Arising out of these negotiations it has been agreed between Escom and the municipalities of Nelspruit and White River that the rural schemes which were in course of planning and development by the municipalities in the areas adjacent to their municipal areas will be constructed for and taken over by Escom, in order that they may be incorporated in larger rural schemes to serve the Lowveld area.

**Rand and Orange Free State Undertaking.** The commissioning of two further turbo-generators and boilers at Highveld Power Station is reported under the heading Plant Capacity. This power station which was started up early in 1959 has thus been built up to an installed capacity of 360,000 kW in two years. In November, 1960, the decision was taken to order two further 60,000 kW sets from Messrs. Brown Boveri of Switzerland, with corresponding boiler capacity, for commissioning for the winter of 1963.

During the year the construction of the major 275 kV transmission system described in the last Annual Report was urged on as rapidly as possible. The supply and galvanizing of steel sections to the standards required for these important lines proved a severe task for the South African manufacturers who were awarded sub-contracts: but it is hoped that the first 275 kV line between Komati Power Station and Nevis Distribution Station will be complete by the time Komati Power Station is ready for commercial operation.

The completion of the 88 kV line from Senekal to provide bulk supplies to Marquard, Clocolan, Ficksburg and Ladybrand in the eastern Free State is referred to on page 49. This work was completed somewhat behind schedule, due to difficulties in the supply and galvanizing of steel sections required for the transmission line and some delays over wayleaves: and as a result construction of the further 88 kV line from Winburg to provide bulk supplies to Excelsior, Tweespruit, Thaba 'Nchu, Dewetsdorp and Wepener has also been delayed. It is hoped that these further supplies will be made available in the second half of 1961.

In the western extremity of the area of supply, an offer of bulk supply to the municipality of Vryburg has been accepted, and an 88 kV line is planned from Watershed Distribution Station (near Lichtenburg) *via* Sannieshof and Delareyville to Vryburg, a distance of 120 miles. The possibilities of supplying Ottosdal and Schweizer-Reneke on economic terms, are being investigated.

Supply to Bloemhof is on the programme for mid-1962; and an offer of a bulk supply has been made to Hoopstad: so that extensions westwards which are in course of construction or projected for this Undertaking will cover the area up to the boundary of the Cape Northern Undertaking.

## DEVELOPMENT OF ELECTRICITY SUPPLY IN RURAL AREAS

The extension of electricity supply in rural areas is accepted as a special task of Escom, and continues to receive special attention from all departments of its organization.

During 1960 a great deal of work was done, in collaboration with certain manufacturers, in the development of ampere-demand meters and circuit breakers suitable for the small power supplies characteristic of rural areas. First cost of the meters and circuit breakers is a consideration of course; but reliability and maintenance are not less important, and considerable time and trouble was spent in testing these equipments. This development has now been brought to the stage where orders have been placed for the manufacture and delivery of meters and circuit breakers at a rate compatible with Escom's ability to install them without disrupting its normal work. The installation of ampere-demand meters, to enable Escom to introduce the new rural tariffs based on this metering, will extend over 1961, and in some Undertakings into 1962.

At all Undertakings the Managers are dealing with extensions to existing schemes and the investigation of new schemes. The routine of engineering investigation, preparation of estimates, and submission of an offer to potential consumers has, in many cases, to be repeated several times before a project finds adequate acceptance: and Escom would urge that Farmers' Associations should not be disappointed when the initial negotiations involve delays of this kind. Escom cannot reduce its terms on any given set of costs, for Escom's terms represent cost price: but economy in electricity supply is achieved by co-ordination; and a development of Escom's business in one direction usually opens the prospect of development in other directions also.

To sum up the progress which is being made in all Escom's Undertakings an additional 623 farms were supplied with electricity in 1960—or a total of 1,688 farms during the past three years. At an average cost of £1,000 per farm, this represents a capital investment of the order of £1,500,000. But that is part only of the picture: for, in order that economical terms can be offered for the farm supplies, it is necessary to include all potential consumers who can be served by a scheme. For example, in the Cape Western Undertaking in 1960, the number of additional "farms" supplied was 88: but altogether 594 new consumers, including 8 large users, were connected in that year to the Undertaking's rural networks.

For those who are interested in a more detailed picture, the following resume of the activities in the individual Undertakings shows the progress which is being made:—

**Cape Western Undertaking.** During 1960 an amount estimated at £165,000 was spent in the construction of farm lines and networks to supply consumers in small country villages. A total of 84 miles of overhead lines and 28 miles of low voltage circuits were added to the existing networks, and altogether 594 new consumers were supplied, including in that number 88 farms and 8 large users.

Several large schemes in the districts of Caledon, Bredasdorp and Piketberg were investigated and offered; but were not accepted, the terms being considered too high.

**Cape Northern Undertaking.** The networks which are being built up on the Vaalharts Settlements were extended in 1960 by 44 miles of 11 kV overhead lines; and an additional 131 plholders were given supplies of electricity for their farms. In the towns of Hartswater and Jan Kemp, 36 consumers were connected up.

An 11 kV overhead line was erected from Magogong substation to the village of Taung, where a new reticulation network was established. Forty-three consumers were connected at the year-end.

Other extensions to various networks totalled 15 miles of 11 kV lines: and 10 new consumers were connected.

**Border Undertaking.** During 1960, 22 new consumers were connected to the reticulation on the North Coast, and 11 new consumers were added to the South Coast network.

The rural scheme to serve the Umdanzani and Nahoon Valley areas, north-west of East London, which was started in 1959 was completed in September, 1960; and the first 16 consumers in this area were connected up.

The reticulation system to supply residents in Keiskammahoek was completed in 1960, and 34 consumers were taking supply at the end of the year.

An extension was made to the Kat River 11 kV line, in order to supply consumers in Seymour and additional rural consumers in the surrounding area. Thirteen new consumers were served by this extension.

Five farms were supplied from the 11 kV line which was built to furnish a bulk supply to Cathcart; and four farms were supplied from the lines to Alexandria and Port Alfred.

**Natal Southern Undertaking.** In this Undertaking 62 farms and some 20 other rural consumers were connected up during the year. These figures include 18 consumers between Sezela and Umtwalume, 7 at Ixopo, 4 at Hammarsdale, 8 at Umlaas Road, 5 at Umkomaas and 8 on the Natal North Coast between Driefontein and Spioenkop.

**Natal Central Undertaking.** In the area served by the Natal Central Undertaking 62 farms and 19 other rural consumers were connected up during 1960. Of the farms, 29 are in the area between Ennersdale and Moorleigh, 5 at Winterton, 3 at Bethlehem, and 3 at Tweedie.

The activity in the field of rural electrification may be judged from the following figures. During the year supplies were offered to 175 farmers. Of these 72 applicants considered that the terms were too high, and declined the offers; 58 accepted the terms, and are to be connected. In 42 cases a decision had not been taken at the year-end.

**Eastern Transvaal Undertaking.** Reticulation networks were erected in 1960 in the villages of Davel and Morgenzon, and residents who desired to be supplied with electricity were connected. The line which was built to Davel is used also to supply 12 farmers whose farms are on the route of the line.

The Undertaking's distribution network is being extended to Dullstroom and Hendrina. Distribution in these towns will be undertaken by Escom, and a start has been made in the erection of the reticulation system in Hendrina.

A second 22 kV line between Groblersdal and Marble Hall was brought into service to provide a duplicate means of supply to Marble Lime and Associated Industries, Limited, at Marble Hall. This second line was built along the Olifants River where the largest number of farmers could be connected; and at the end of the year 25 farms were being served from the line.

Good progress was made with the Vaalfontein farm scheme in the Groblersdal district, where 36 farms were connected.

A further 18 farms were connected to the Devon scheme, between Nigel and Bethal.

Negotiations with farmers in the Kinross area resulted in a scheme to serve 11 farms.

Two farms at Ermelo, 4 at Leslie, and 4 at Middelburg were connected to existing networks.

Altogether 128 farms were connected up by the Eastern Transvaal Undertaking during 1960.

**Rand and Orange Free State Undertaking.** During 1960 a total of 385 new consumers in rural areas were given supplies. In the peri-urban areas around Johannesburg, in which residential townships are interspersed amongst small holdings and small farms, an additional 502 consumers were connected.

Good progress was maintained in building the Muldersdrif/Boschkop scheme; and 115 new consumers were connected, to bring the total to 316 at the end of the year. An extension to this scheme, which is planned for 135 consumers, was started early in 1961.

Extensions to the Witkoppen reticulation were made, to furnish supplies to 11 additional consumers.

The first part of the network to serve Eikenhof (Jackson's Drift) area, between Johannesburg and Vereeniging, was virtually finished at the year-end: 44 miles of circuits were erected to serve 108 consumers. Work is to be started on a second zone in this area during 1961.

In the Henley-on-Klip area, 61 new consumers were connected during the year, the total at that date being raised to 282.

Construction of the rural scheme in the Parys area was started early in 1960; and at the year-end 12 consumers were taking supplies.

Two more large schemes were launched during the year. The first will cover the areas Brentwood Park, Pomona and small farms north of Benoni, and is designed to serve upwards of 1,000 consumers. At the year-end 144 plots and small farms were connected.

The second new scheme will cover an area around Halfway House, between Johannesburg and Pretoria. It is designed to serve 286 consumers; and, at the end of 1960, 29 consumers were connected up.

Planning and negotiation of a number of schemes extended throughout the year. Adequate support was found and the first steps were taken towards the establishment of the following new rural schemes:—

**Heidelberg district:** extensions to the Gravett scheme, to supply 20 farmers.

**Vanderbyl Park/Barrage scheme:** to cover an area north of the Vaal River, between Vanderbyl Park and the Barrage; the initial scheme is planned for 180 consumers.

**Schoonspruit scheme:** to cover part of the Schoonspruit Valley, between Klerksdorp and Ventersdorp; designed for 110 potential consumers.

**Rysmierbult scheme:** to cover a restricted area around Rysmierbult; designed for approximately 30 farmers.

**Magaliesburg scheme:** to cover the area from the vicinity of Tarlton to Magaliesburg, and up to the Hekpoort Valley; the initial scheme to serve approximately 150 potential consumers.

**Walkerville/De Deur scheme:** to cover portion of Walkerville Small Farms and De Deur; approximately 250 potential consumers.

**Sundra scheme:** to cover a restricted area around Sundra; designed for approximately 230 consumers.

A large scheme which was offered to farmers in the Delmas area was not well supported; and a fresh offer, based on the proposal to commence with a restricted area, is being prepared.

A number of other schemes are being investigated: and at the time of writing the Report a preliminary canvass is being made to test the support for rural electrification scheme for farmers in the districts of Viljoenskroon and Bothaville.

## 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 1960 and the lines under construction or projected at the year end:—

Completed in 1960.		Voltage (kV)	Total circuit Miles
C.N.U.	Kimberley D/S—Herlear S/S ... ..	66	3
E.T.U.	Grootpan D/S—Blackhill S/S ... ..	88	19
	Grootpan D/S—Ogies S/S ... ..	88	5
	Grootpan D/S—Arbor S/S ... ..	88	28
	Wildebrees D/S—Bracken S/S—Lesco S/S ... ..	88	14
N.U.	S.A.R. supply Tees and Loops ... ..	88	10
	Colenso S/S—Ladysmith S/S ... ..	88	16
R. & O.F.S.U.	Senekal S/S—Marquard S/S—Clocolan S/S—Ladybrand S/S—Ficksburg S/S ... ..	88	90
	Carrdell D/S Network extensions and rearrangement ... ..	88	13
	North Rand D/S Network extensions and rearrangement ... ..	88	2
	Alma D/S Network extensions and rearrangement	42	17
	Libanon D/S, Doornfontein D/S and West Wits D/S Network extensions and rearrangement ...	42	19
	E.R.P.M. D/S and Benoni S/S extensions ... ..	42	3

**Under Construction 1.1.61.**

C.W.U.	Hex River P/S–Beaufort West S/S (Dble circuit)...	132	440
	Ysterplaat S/S–Muldersvlei S/S ... ..	132	20
	Muldersvlei S/S–Windmill S/S ... ..	132	18
	Muldersvlei S/S–Fitgrove S/S (Dble circuit)...	132	32
	Windmill S/S–Paarl S/S (Dble circuit) ... ..	66	6
C.N.U.	Kimberley D/S–Ulco S/S ... ..	132	54
	Kimberley D/S–N.T.P. S/S (De Beers) ... ..	66	4
	Silverstreams S/S–Manganore S/S–Sishen S/S ...	132	59
B.U.	Gately S/S–North Coast Tee point ... ..	66	6
E.T.U.	Machadodorp S/S–Lydenburg–Penge S/S ... ..	132	102
N.U.	Georgedale D/S–Northdene S/S (Dble Circuit) ...	88	33
	Tees to Umgeni and Duff's Road Traction S/S ...	132	10
R. & O.F.S.U.	Komati P/S–Nevis D/S ... ..	275	128
	Nevis D/S–Snowdon D/S ... ..	275	70
	Snowdon D/S–Highveld P/S ... ..	275	74
	Highveld P/S–Scafell D/S ... ..	275	42
	Loops to Western Deep Levels S/S ... ..	132	17
	Winburg S/S–Excelsior S/S–Tweespruit S/S– Driedorp S/S... ..	88	81
	Esselen D/S–North Rand D/S 3rd line... ..	88	12
	Struben D/S–Valley D/S. Network extensions and rearrangement ... ..	42	15
	West Wits D/S Network extensions ... ..	42	4

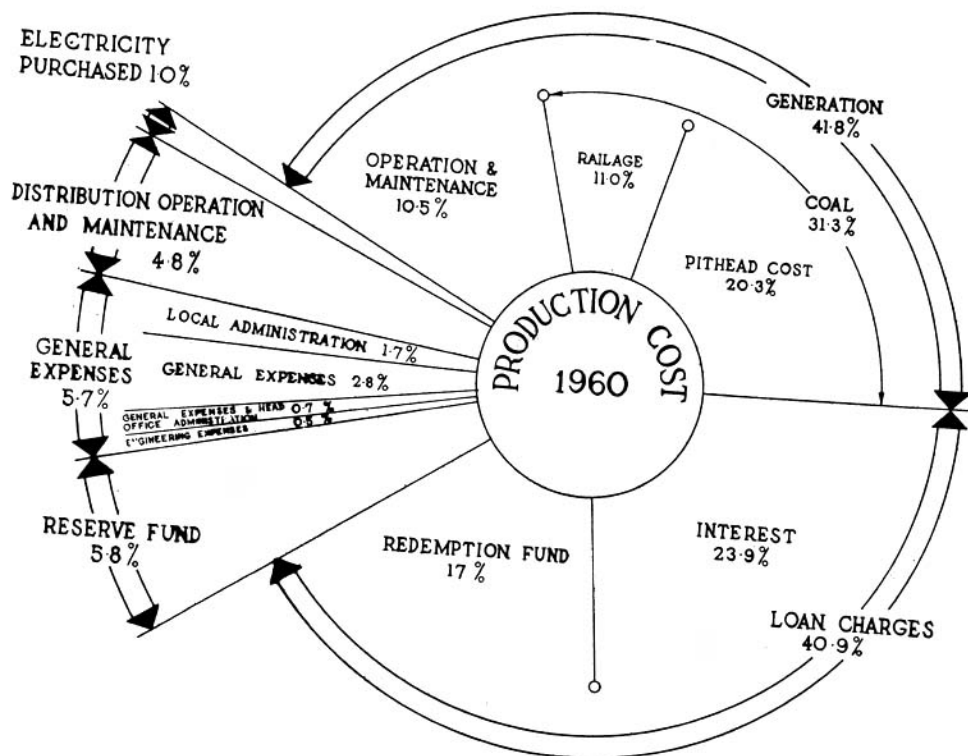
**Projected 1.1.61.**

C.W.U.	Windmill S/S–Hex River P/S ... ..	132	36
C.N.U.	Sishen S/S–Kuruman S/S–Riries S/S–Hotazel S/S	66	55
B.U.	Conversion K.W.T. S/S–Alice S/S line ... ..	66	33
E.T.U.	Leeuwkloof Tee point–Marathon D/S ... ..	275	61
	Marathon D/S–Foskor S/S ... ..	132	101
	Marathon D/S–Malelane S/S ... ..	66	45
	Marathon D/S–Barberton S/S ... ..	66	30
N.U.	Ingagane P/S–Georgedale D/S ... ..	275	320
	Turn-in lines to Georgedale D/S ... ..	132	10
N.U.	Dundee S/S–Vryheid S/S... ..	88	50
	Further S.A.R. supply Tees and Loops... ..	88	20
R. & O.F.S.U.	Wolmaransstad S/S–Bloemhof S/S ... ..	88	43
	Deviation Snowdon D/S–Valley D/S line to E.R.P.M. D/S ... ..	88	12
	Snowdon D/S rearrangement ... ..	88	40
	Alberton–Union S/S (Roodekop) (Dble circuit)...	88	10



## COSTS AND TARIFFS

Escom's cost structure is shown in the following diagram of Production Costs for 1960:—



During the financial year under review the following changes were made in Escom's tariffs:—

**Cape Western Undertaking.** The surcharge on the standard tariffs which was 5 per cent in 1958 was raised to 10 per cent with effect from the accounting month of August, 1960.

An application dated 27th September, 1960, was made for amendment of the standard tariffs: (i) to adopt a new basic price of coal and new rates for adjustments to the unit charges, in order that there should be exact equivalents in the new decimal coinage; (ii) to introduce a service charge and a demand charge based upon measurement of the demands of small power users, in place of the existing charge based upon h.p. installed; and (iii) to introduce a service charge into the tariff for domestic supplies, with consequential adjustment of the room charge, and to allow consumers in this category the choice between the domestic tariff and the small power users tariff. This application was before the Board at the end of the year.

**Natal Undertakings.** The standard prices which were introduced for the Natal Undertakings in April, 1955, remained unchanged up to and including 1960: but a surcharge of 5 per cent for both Undertakings was introduced from the commencement of 1961.

**Eastern Transvaal Undertaking.** A revision of the schedule of standard prices was introduced on this Undertaking with effect from January, 1960, as reported in the last Annual Report.

**Rand and Orange Free State Undertaking.** Tariffs for this Undertaking remained at the same level in 1960 as in 1959, this being the first year since 1948 when an upward adjustment of prices was not necessary. There was, however, some increase in charges, made under the provisions for adjustment of the unit charges to take account of the increase in coal costs. For the year under review the major part of this increase arose from the emergency measures taken after the disaster at the Coalbrook Colliery, as reported on page 10.

During the year, however, application was made to the Electricity Control Board for minor amendments to the "coal clause" in the standard tariffs, so that there would be exact equivalents in the new decimal currency. In order that there should not be any change in the incidence of the tariffs, the amendments provided for the adoption of a new basic price of coal, and the incorporation into the unit rates of the difference arising from this change. The application was approved by the Board on 13th December, 1960, and the new rates were applied from the commencement of the financial year 1961.

## STATISTICAL SUMMARY

Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's undertakings during the year 1960, with the comparative figures for 1959, are as follows:—

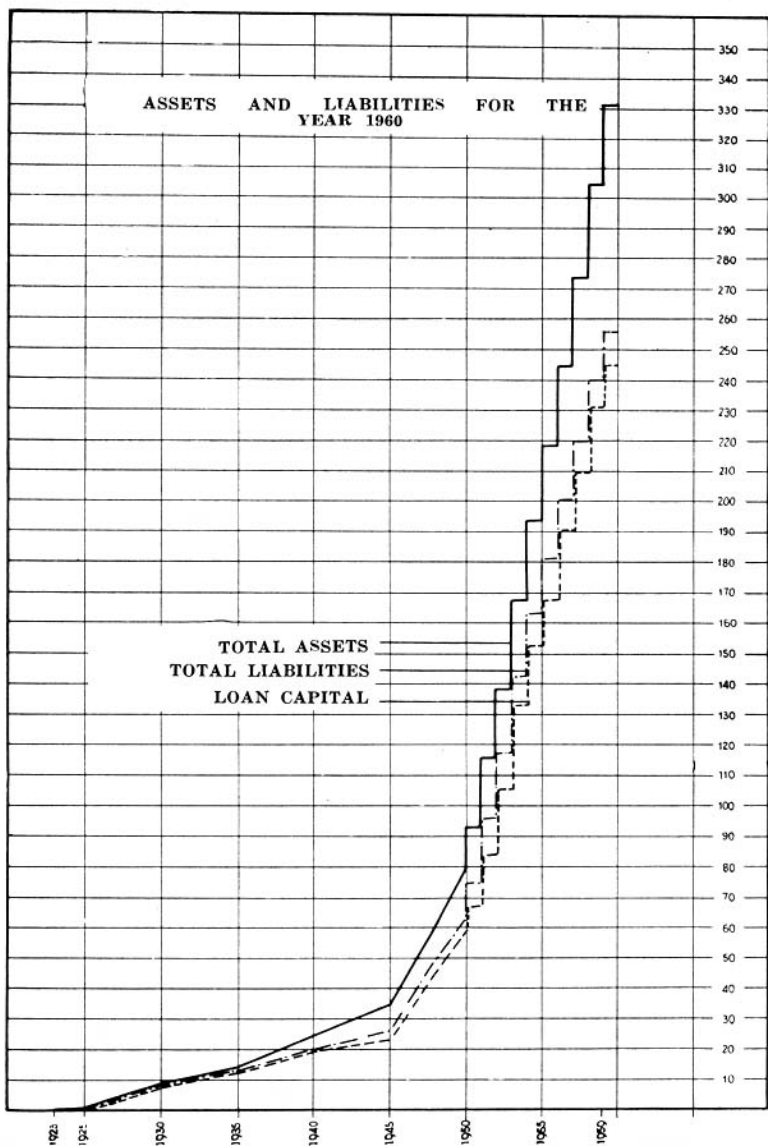
	1960	1959	Increase
Total Revenue .. .. .	£40,917,882	£36,503,831	12·092%
Total Production Costs (including interest, redemption and reserve fund charges) .. .. .	£40,367,748	£35,983,535	12·184%
Difference between Revenue and Production Costs .. .. .	£550,134	£520,296	£29,838
Average Price per Unit Sold ..	0·6094d.	0·5941d.	2·582%
Average Revenue per Unit Sold (including sundry revenue) ..	0·6102d.	0·5950d.	2·553%
Average Cost per Unit Sold ..	0·6020d.	0·5865d.	2·637%
Units Generated .. .. .	18,543,341,972	16,926,480,087	9·552%
Units Sent Out .. .. .	17,361,049,153	15,777,115,134	10·039%
Units Purchased .. .. .	15,320,932	93,614,989	—
Units Sold .. .. .	16,094,129,276	14,724,457,291	9·302%
Total Cost of Coal Consumed (including railage) .. .. .	£12,686,259	£10,484,934	20·995%
Railage on Coal Consumed ..	£4,456,037	£3,349,116	33·051%
Coal Consumed (in tons of 2,000 lbs) .. .. .	13,792,816	12,730,278	8·347%

## FINANCIAL

**Loan Capital.** On the 31st May, 1960, the Commission's  $4\frac{3}{4}\%$  Local Registered Stock, 1953/63 (Loan No. 3) for £500,000 was repaid.

During 1960 two local loans totalling £16,500,000 were raised as follows:—

<b>Date Issued</b>	<b>Amount</b>	<b>Interest</b>	<b>Issue Price</b>	<b>Redeemable</b>
12th April .. ..	£8,000,000	$5\frac{3}{8}\%$	£99.10.0%	31/10/80—85
27th September ..	8,500,000	$5\frac{1}{2}\%$	£98.10.0%	28/2/80—86
	<hr/> <u>£16,500,000</u>			



These loans were fully subscribed but at the year end the amount received on account of the loan issued on the 27th September was £8,013,714. The balance of £486,286 payable not later than the 31st January, 1961 in terms of the prospectus, has since been received. At the year end the loans raised locally as Local Registered Stock totalled £226,500,000 of which £3,000,000 had been repaid.

These amounts increased the Commission's loan capital at the date of the Balance Sheet to £244,803,443.

**Redemption Fund.** The amount in the Redemption Fund at the 31st December, 1960, totalled £59,218,264 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 amounts in the Redemption Fund include 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, 1960 was £12,204,608.



**Capital Expenditure.** Expenditure on Capital Account during the year amounted to £19,170,419 which increased the total capital expenditure at the 31st December, 1960, to £245,735,604.

Expenditure on Capital Account will amount to approximately £346,000,000 on completion of all the works to which the Commission is committed and on projected works.

**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, 1960, was £71,623,154 the nominal value being £72,203,326. The market value of these investments at that date was £66,962,058.

**Assets and Liabilities.** The Commission's total assets at the 31st December, 1960, amounted to £331,678,553 and its total liabilities to £255,785,634, the difference being £75,892,919, which is represented by the amounts in the redemption, reserve and sinking funds, loans repaid, and balance on revenue account.

## STAFF

**Home Ownership Scheme.** The balance at 31st December, 1960, 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 £1,166,334.

**Personnel.** The staff employed by the Commission at the 31st December, 1960, numbered 14,654 employees made up as follows:—

	1960	1959	Increase	
Europeans .. .. .	5,413	5,311	102	1·9%
Non-Europeans.. ..	9,241	8,636	605	7·0%
	14,654	13,947	707	5·1%

The Commission desires to express to all members of the staff its appreciation of their loyal and conscientious service.

## ESCOM'S UNDERTAKINGS

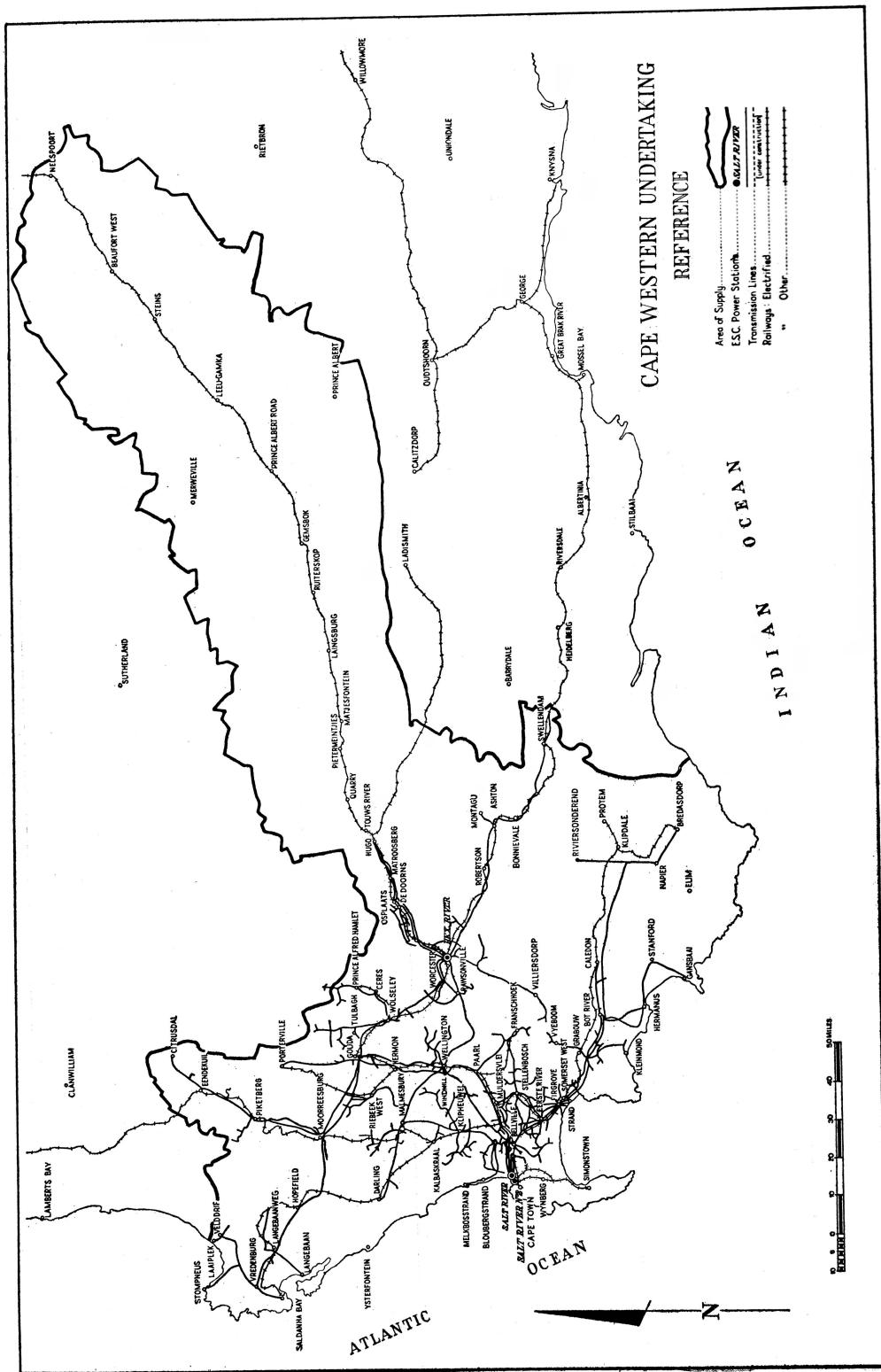
The operation and development of Escom's separate Undertakings are reviewed in detail in the following pages.

*General Note:*—"Working Costs" include interest charges and Redemption Fund contributions on loan capital and amounts set aside to Reserve Fund.

# CAPE WESTERN UNDERTAKING

CONSUMERS		SALES					Average Price per Unit Sold			
		Class	Number	Units	Decrease/Increase	Revenue from Sales	1960		1959	
							£	d.	£	d.
Traction .. .. .	2	202,216,600	Per cent +3.494	970,741	1.1521	1.1204				
Bulk .. .. .	30	299,323,464	-9.743	1,306,038	1.0472	1.0788				
Industrial .. .. .	2,550	235,098,376	+12.926	1,307,160	1.3344	1.3234				
Domestic and Lighting .. .. .	28,341	134,966,163	+6.620	958,848	1.7050	1.6537				
	30,923	871,604,603	+1.138	4,542,787	1.2509	1.2317				
					1959		Accumulated to 31.12.59			
					£		£			
Total Revenue .. .. .				4,558,401	4,438,872					
Working Costs .. .. .				4,553,549	4,449,603					
Surplus .. .. .				4,852						
Deficit .. .. .										
Capital Expenditure .. .. .				2,585,791	10,731	175,003		28,165,861		
					939,603					
					Hex River Power Station		Hex River Power Station			
					No. 1		No. 2			
					1960	1959	1960	1959		
Units Sent Out .. .. .		21,832,520		34,254,730	706,323,920	702,422,025	210,890,860	183,384,730		
Maximum half-hour Demand kW S.O. .. .. .		36,735		44,082	126,251	121,412	57,500	59,800		
Station Peak kW .. .. .		42,600		48,000	135,000	129,000	59,200	61,600		
Load Factor .. .. .		6.8		8.9	63.9	66.0	41.9	35.0		
Thermal Efficiency .. .. .		13.7		14.4	26.8	26.7	22.8	22.8		
					Salt River Power Station		Salt River Power Station			
					1960	1959	1960	1959		
FUEL:										
Coal Consumed—tons .. .. .		14,766		22,604	391,781	388,938	137,229	118,369		
Average per unit sent out—lb .. .. .		2.129		2.006	1.092	1.083	1.301	1.291		
Calorific Value B.Th.U./lb .. .. .		11,670		11,790	11,670	11,790	11,510	11,590		
Total Cost .. .. .		£983,037*		£1,000,553*	£321,101	£321,101	£278,363	£278,363		
Cost per ton .. .. .		48s. 4d.		48s. 7d.	46s. 10d.	46s. 10d.	47s. 0d.	47s. 0d.		

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



CAPE WESTERN UNDERTAKING

REFERENCE

- Area of Supply
- ESC Power Station
- Transmission Lines
- Railways: Electrified
- Other

INDIAN OCEAN

ATLANTIC OCEAN





## CAPE WESTERN UNDERTAKING

**Area of Supply.** The map on page 26 incorporates the extension of the licensed area of supply in the Swellendam district, which was granted by the Electricity Control Board on 27th January, 1960, and the further enlargement of the Undertaking which was granted by the Board on 13th March, 1961, for the electrification of the section of the main railway between Touws River and Beaufort West and the supply to other consumers in the area extending about 30 miles on either side of the railway.

**Output and Sales.** The supply taken by the Cape Town City Council was reduced from 146 million units to 103 million units, in accordance with the agreement made with the Council. Excluding the supply to Cape Town, the total units sold by the Undertaking in 1960 show an increase of 7·4 per cent over the corresponding figure for the previous year. A large part of the increase was in electricity sold to consumers in the industrial class, the increase being 12·9 per cent for the year. An additional 33 consumers in the large user category, whose notified maximum demands amounted to 3,030 kVA, were connected to the system during 1960.

The maximum demand on Escom's system was 167,900 kW, an increase of 13,300 kW over the previous year.

The major share of the load was allocated to Salt River No. 2 Power Station, in order to take advantage of its higher thermal efficiency; but output from Hex River Power Station was increased by approximately 29 million units above the output of the previous year. Salt River No. 1 Power Station continued to be used mainly as a peak load station.

Coal supplies were satisfactory throughout the year; and overall there was some improvement in grade.

The cost per ton of coal burnt was slightly lower at both power stations.

**Hex River Power Station: Extensions.** Satisfactory progress was made in the installation of No. 5 boiler and No. 4 turbo-generator, which were expected to be ready for commissioning about May or June, 1961.

The further extensions—Boiler No. 6 and No. 5 turbo-generator—were ordered for commissioning in 1963.

**Major Transmission System.** Most of the survey work for the Salt River/Muldersvlei/Windmill 132 kV circuits was completed by the year-end, except a section in the vicinity of Ysterplaat Air Station, where considerable difficulties were encountered.

The 66 kV double circuit transmission line between Windmill and Paarl substations was completed before the end of the year; and the site for Windmill substation was cleared and levelled. It was hoped that the equipment for this substation would be available early in 1961.

Progress in the construction of the 132 kV transmission lines from Hex River Power Station to Beaufort West, and the traction substations en route, is reported on page 13.

**Distribution Systems.** The demand for electricity in the urban areas of Goodwood, Parow and Bellville increased by 4·6 per cent during the year, to a total of 36·1 MVA. A total of 1,077 new consumers were connected during the year, of whom 15 were large users with a total maximum demand of 985 kVA.

A resume of the development of rural supplies is given on page 15.

At the year end there were 29,076 consumers supplied from the Undertaking's urban and rural reticulation systems, this number being an increase of 1,490 consumers.

**Financial.** The increase in working costs for 1960 was small, being only 2·3 per cent above the figure for the previous year: but, having regard to the accumulated deficit at 31st December, 1959, and the loss in that year, an increase in tariffs was unavoidable. This was effected by raising the surcharge on all tariffs from the previous figure of 5 per cent to 10 per cent, with effect from August, 1960.

A small surplus of £4,852 was realized on the year's working, leaving the accumulated deficit at the figure of £175,003.

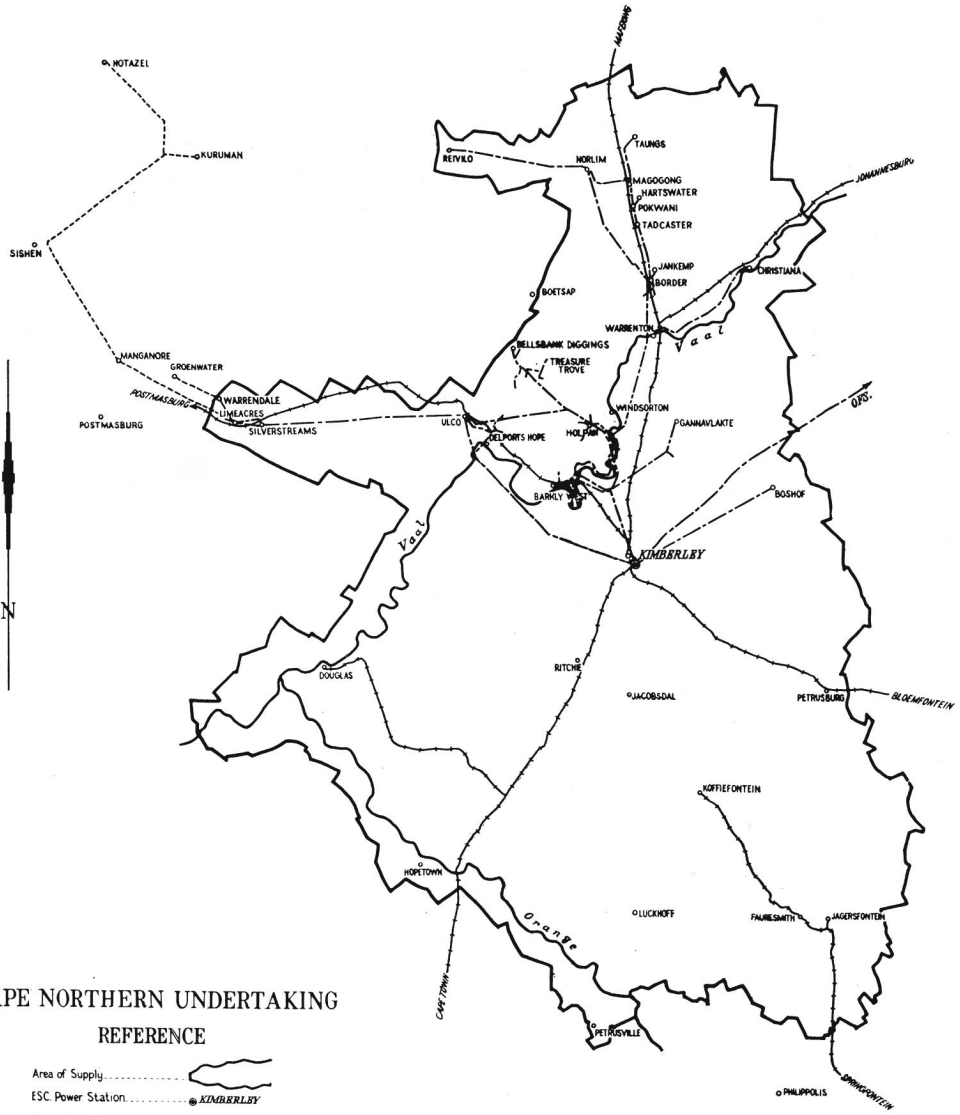
## CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1960	1959
Bulk ... ..	5	64,941,706	Per cent. +7.410	£ 284,615	d. 1.0518	d. 1.0541
Mining ... ..	16	73,208,029	+16.364	369,964	1.2129	1.2520
Industrial ... ..	94	43,618,340	-3.708	201,780	1.1102	1.0264
Domestic & Lighting... ..	937	3,416,713	+25.841	45,475	3.1943	3.0388
	1,052	*185,184,788	+8.050	901,834	1.1688	1.1509

	1960	1959	Accumulated to 31.12.60
	£	£	£
Total Revenue ... ..	902,615	823,011	
Working Costs ... ..	870,972	760,616	
Surplus ... ..	31,643	62,395	84,672
Capital Expenditure ... ..	256,967	356,451	3,804,648
<b>CENTRAL POWER STATION—</b>			
Units Sent Out ... ..	62,220,933	56,328,952	
Maximum half-hour Demand kW S.O. } ... ..	21,345	23,230	
Station Peak kW ... ..	23,800	25,600	
Load Factor ... ..	33.2	27.7	
Thermal Efficiency % S.O. ...	12.1	11.9	
<b>COAL:</b>			
Coal consumed—tons ... ..	78,543	69,384	
Average per unit sent out—lb... ..	2.525	2.464	
Calorific Value B.Th.U./lb. ...	11,200	11,600	
Cost ... ..	£148,499	£132,979	
Cost per ton ... ..	37s. 10d.	38s. 4d.	

\*This total includes units purchased from Rand and O.F.S. Undertaking.



CAPE NORTHERN UNDERTAKING  
REFERENCE

- Area of Supply.....
- ESC Power Station..... @ KIMBERLEY
- Transmission lines..... (Under construction)
- Railways.....

## CAPE NORTHERN UNDERTAKING

**Sales.** The units sold in 1960 reached a total of 185·2 million units, an increase of 8 per cent over the sales for the previous year. De Beers Consolidated Mines Limited increased their consumption by 12·3 per cent and Northern Lime Company Limited at Taung Works by 19·2 per cent. The Anglo Alpha Cement Company Limited at Ulco, however, took a smaller supply.

Bulk supplies to municipalities showed increases in all cases. The Kimberley City Council increased its purchase by 6·8 per cent, while the smaller municipalities which have been given bulk supplies in the last few years continued to show rapid development. The increase at Barkly West was 18 per cent; Warrenton 28·5 per cent, and Christiana 22·5 per cent. Among the new consumers, permanent Gypsum and Allied Industries at Wintersrush consumed 1·6 million units, and Reivilo Cheese Factory ·9 million units.

The small diamond mines in the Smith Mine and Bellsbank areas continued to develop and increased their purchases by 15%. These mines are now consuming over 2·5 million units per annum.

The number of consumers on the Vaalharts plottolders scheme increased from 196 to 316 and used ·66 million units in the year.

**Interconnection with the Pooled Power Stations.** During the year 129 million units were imported from the Rand and O.F.S. Undertaking *via* Grootkop Substation, and 62 million units were sent out from the Central Power Station, Kimberley.

The maximum demand on the network was 42·6 MW of which 20·6 MW was supplied by the local power station.

**Development of the transmission and distribution systems.** A major 132 kV transmission line from Kimberley to Ulco was completed and energised at 66 kV in March, 1961. This will enable the 132 kV line which has just been completed from Silverstreams to Manganore substation and which is now being extended to Sishen to be energised at 132 kV during the latter part of 1961 to supply the manganese mines in the Postmasburg area, Postmasburg Municipality and Iscor's iron ore quarry at Sishen, which supplies the requirements of the Corporation's Steel works at Vanderbyl Park.

From the Sishen 132/66/11 kV substation a 66 kV line will supply the asbestos mines to the west of Kuruman and Kuruman Municipality from two 66 kV substations at Asbes and Riries. The 66 kV line will be extended to the new manganese fields around Hotazel and will be commissioned in 1962.

Duplicate 66 kV lines have been erected to supply the new substations for De Beers Consolidated Mines, Limited, at Kimberley and the Kimberley City Council. Both substations will be commissioned in 1961 and will replace the existing cable network emanating from the Central Power Station.

From Silverstreams substation an 11 kV line has been extended by 13 miles from Warrendale to Groenwater to supply a second asbestos mine.

**Rural Development.** A report on the development of rural supplies on this Undertaking is given on page 16.

**Financial.** There was no change in tariffs during 1960.

The Revenue Account shows a surplus of £31,643 on the year's working, and a total surplus of £84,672 is reflected at the 31st December, 1960.

# BORDER UNDERTAKING

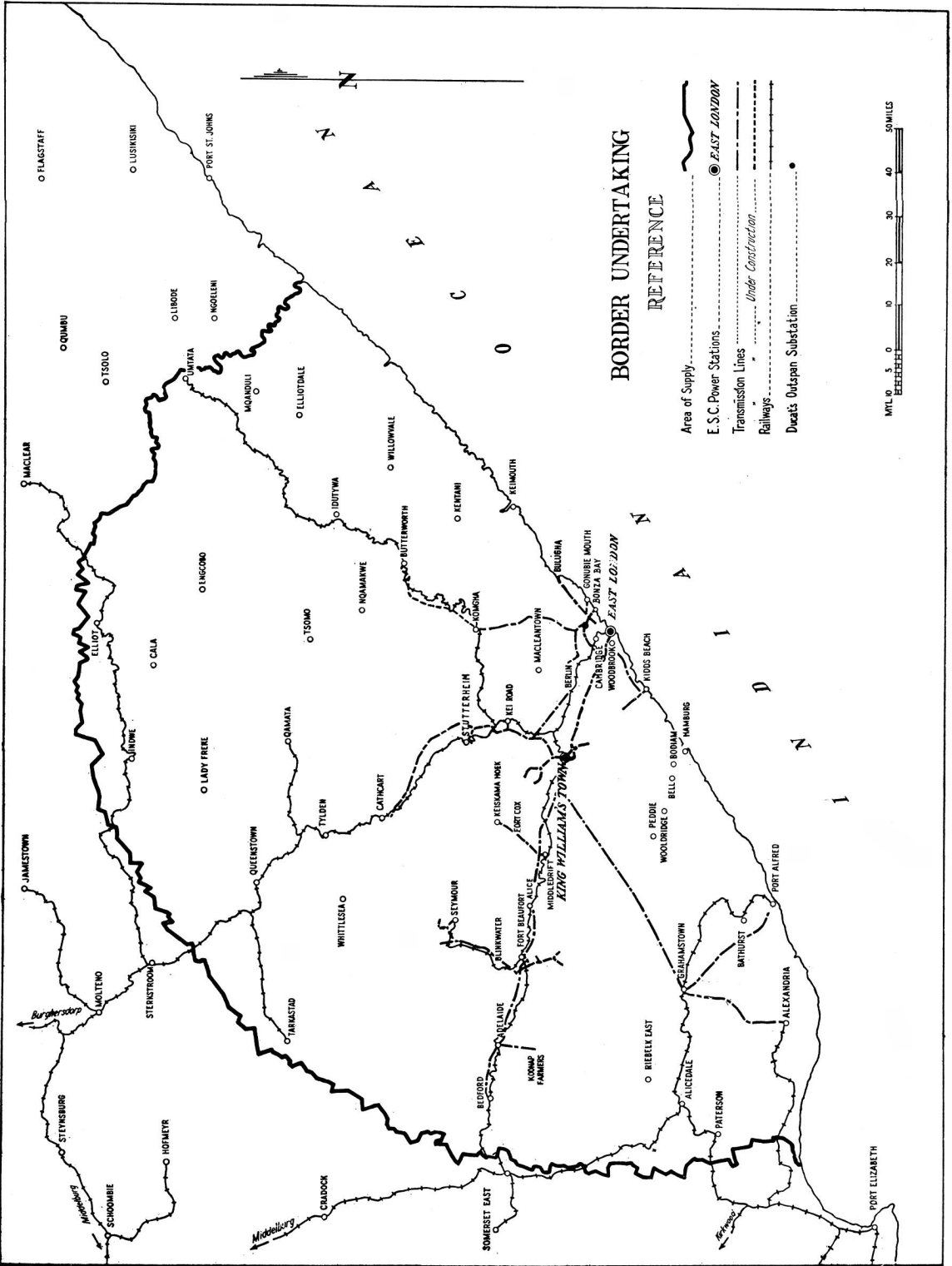
		CONSUMERS			SALES			Average Price per Unit Sold	
		Class	Number	Units	Increase	Revenue from Sales	1960	1959	
Bulk .. .. .					%	£	d.	d.	
Industrial .. .. .		11	155,189,375	3.694	761,929	1.1783	1.1809		
Domestic and Lighting .. .. .		255	6,462,276	16.256	64,326	2.3890	2.4735		
		2,627	10,630,265	8.162	109,691	2.4765	2.4333		
		2,893	172,281,916	4.383	935,946	1.3038	1.2990		
					1960	1959	Accumulated to 31.12.60		
Total Revenue .. .. .			£		£	£			
Working Costs .. .. .			936,945		894,506				
Surplus .. .. .			915,521		866,640				
Deficit .. .. .			21,424		27,866				
Capital Expenditure .. .. .			205,496		401,926		75,536	5,172,991	

		East London West Bank No. 1 and No. 2		King William's Town (standby) The Steam Station did not operate during 1960.	
		1960	1959	1960 Oil	1959 Oil
Units Sent Out .. .. .			169,615,490	2,765	4,540
Maximum half-hour Demand kW S.O. .. .. .		36,680	34,420	1,000	983
Station Peak kW .. .. .		40,600	37,000	In parallel with steam plant	
Load Factor .. .. .		54.8	56.3		
Thermal Efficiency S.O. .. .. .		21.5	21.0		
				1,577	2,698
				0.570	0.595

		1960	1959
FUEL:			
Coal Consumed—tons .. .. .		122,520	118,955
Average per Unit Sent Out .. .. .		1.388	1.403
Calorific Value B.Th.U./lb .. .. .		11,440	11,600
Total Cost .. .. .		£282,134	£277,293
Cost per Ton .. .. .		46s. 1d.	46s. 7d.
Fuel Oil consumed—lb. .. .. .		—	—
Fuel Oil per unit S.O.—lb. .. .. .		—	—



### BORDER UNDERTAKING REFERENCE

- Area of Supply ..... [dotted line]
- E.S.C. Power Stations ..... [circle with dot]
- Transmission Lines ..... [dashed line]
- Railways ..... [solid line with cross-ticks]
- Under Construction ..... [dotted line]
- Duat's Outspan Substation ..... [star symbol]

MYL 0 5 10 20 30 40  
MILES  
0 5 10 20 30 40  
MILES

## BORDER UNDERTAKING

**General.** West Bank No. 2 Power Station produced 94·5 per cent of the total units generated on the Undertaking, the increased availability of plant in the Station arising from the commissioning of the new Boiler 3 in April, 1960. The older and less efficient plant in West Bank No. 1 Station was used to meet peak loads and for stand-by purposes.

Two partial interruptions of generated supply occurred, the output of the Station being reduced for a total period of 59 minutes during the year.

**Output and Sales.** The units sold in 1960 totalled 172,281,916 kWh: an increase of 4·38 per cent over the figure for the previous year.

The supply taken by the East London Municipality increased by 2·9 per cent to 141,586,500 units, the maximum demand increasing from 29,100 kVA in 1959 to 30,750 in 1960.

The maximum demand for the Undertaking as a whole rose to 36,680 kW in 1960.

203 new consumers were connected during the year, bringing the total number at the end of the year to 2,893.

**West Bank Power Station.** Boiler 3 in West Bank No. 2 Station went into commercial operation in April, and the operating statistics reflect the increase in capacity of this Station and an improvement in efficiency. It was also possible to carry out essential repair work which had been delayed pending the commissioning of this unit.

Coal supplies throughout the year were regular and generally of satisfactory quality.

Further investigations into the failure of superheater tubes in Boilers 1 and 2 West Bank No. 2 Station were carried out; and while the "carry over" which is the cause of the trouble has not been eliminated, the incidence of failures has been reduced considerably.

The efficiency of the combined Stations increased from 21·0 per cent in 1959 to 21·5 per cent in 1960: and there was a reduction of 6d. per ton in the cost of coal burnt.

**King William's Town Power Station.** The Station was retained as stand-by, all boilers being empty and dried out.

The 1,000 kW Diesel set was run regularly on trial and was used on two occasions when abnormal conditions arose at West Bank Power Stations.

The steam plant was not operated during the year.

**Development of the Undertaking.** The Stutterheim 11 kV line was extended, and in September bulk supply was commenced to Cathcart Municipality.

Escom's offer of a supply was accepted by the Municipality of Butterworth. The erection of a 22 kV line from Komgha was nearing completion at the end of the year; but the supply will not be available until mid-1961 when the terminal equipment is due for delivery.

Negotiations are proceeding for a bulk supply to the Municipality of Idutywa, and to the Blythwood Training Institution near Nqamakwe in the Transkei.

The South African Railways have accepted Escom's terms for bulk supply to Alicedale where a diesel power station is at present operated by the Administration.

A resume of the developments in rural areas is given on page 16.

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

The Revenue Account showed a surplus of £21,424 for the year, the total revenue being £936,945.

The accumulated deficit was thus reduced to £75,536.

# NATAL SOUTHERN UNDERTAKING

CONSUMERS		SALES			Revenue from Sales		Average Price per Unit Sold	
		Number	Units	Increase %	£	1960 d.	1959 d.	
Traction	...	1	104,741,831	10.856	318,644	0.7301	0.6639	
Bulk (Local Authorities)	...	3	1,085,577,163	6.580	3,245,288	0.7175	0.7165	
Industrial	...	327	185,310,568	116.480	595,756	0.7716	0.9686	
Domestic and Lighting	...	6,282	33,365,483	11.219	273,900	1.9702	2.0679	
		6,613	1,408,995,045*	14.679	4,433,588	0.7552	0.7630	
			1960		1959	Accumulated to 31.12.58		
Total Revenue	...	...	£ 4,436,688		£ 3,908,794	£ —	£ —	
Working Costs	...	...	4,512,312		3,966,009	—	—	
Surplus	...	...	75,624		57,215	24,610	24,610	
Deficit	...	...	2,859,584		2,290,414	—	—	
Capital Expenditure	...	...				24,673,888	24,673,888	
			Umgeni Power Station		Port Shepstone Power Station			
			1960	1959	1960	1959		
Units Sent Out	...	633,427,900	579,382,900	29,222	50,000			
Maximum half-hour Demand kw	...	118,800	122,600	2,592	2,980			
Station Peak	...	125,000	124,500	2,660	3,020			
Load Factor %	...	60.7	56.5					
Thermal Efficiency %	...	20.9	23.7					
			Congella Power Station Nos. 1 and 2					
			1960	1959				
Units Sent Out	...	702,780,650	497,172					
Maximum half-hour Demand kw	...	151,000	11,550					
Station Peak	...	163,000	£949,285					
Load Factor %	...	52.8	38s. 2d.					
Thermal Efficiency %	...	20.7						
			533,201	1,455				
Coal Consumed	...	11,310						
Average per unit sent out	...	£1,011,417						
Calorific Value B.Th.U./lb.	...	37s. 11d.						
Total Cost	...							
Cost per ton	...							
Fuel Oil Consumed — lb.	...							
Fuel Oil per unit S.O. lb.	...							
					17,402	35,211		
					0.596	0.703		

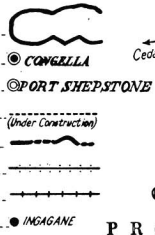
\*This total includes sales of units re-purchased.



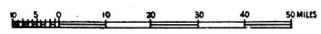


**NATAL UNDERTAKINGS  
REFERENCE**

- Areas of Supply.....
- E.S.C. Power Stations.....
- Diesel Stand-by Stations.....
- Transmission Lines.....
- Provincial Boundaries.....
- Railways - Electrified.....
- " - Other.....
- E.S.C. Power Station..... (Under Construction).....



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



## NATAL SOUTHERN UNDERTAKING

**Area of Supply.** The application of 28th March, 1960, for extension of the area of supply to include Harding and the Weza forest area was granted by the Electricity Control Board on 13th June, 1960.

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

The output from the pooled power stations increased by 10·7 per cent in 1960, the units supplied to each Undertaking being as follows:—

	1960	1959	Increase
Natal Southern Undertaking ... ..	1,420,299,600	1,242,157,550	14·3%
Natal Central Undertaking ... ..	717,409,120	689,060,490	4·1%
	2,137,708,720	1,931,218,040	10·7%

The simultaneous maximum demand on the interconnected stations rose from 340,720 kW in 1959 to 380,880 kW in 1960.

**Sales of Electricity.** Total sales by the Natal Southern Undertaking amounted to 1,409 million units for the year, which is an increase of 14·7 per cent over the corresponding figure for 1959.

Developments in the supplies furnished to the South African Railways for the Natal traction systems are reported on page 9.

The supply to the Durban Corporation rose to 1,078 million units, the annual increase being 6·6 per cent.

The ferro-chrome works of Feralloys, Limited, established at Cato Ridge, used over 135 million units in 1960. This was the first full year of working, and the increase in this supply accounts for the exceptionally large increase in sales in the industrial category.

**Umgeni Power Station.** Satisfactory progress was made in the construction of the further plant for Umgeni Power Station. Boilers Nos. 9 and 10 were steamed for the first time in January, 1961, and the first of the two 60,000 kW turbo-generators was placed on load at the end of February, 1961.

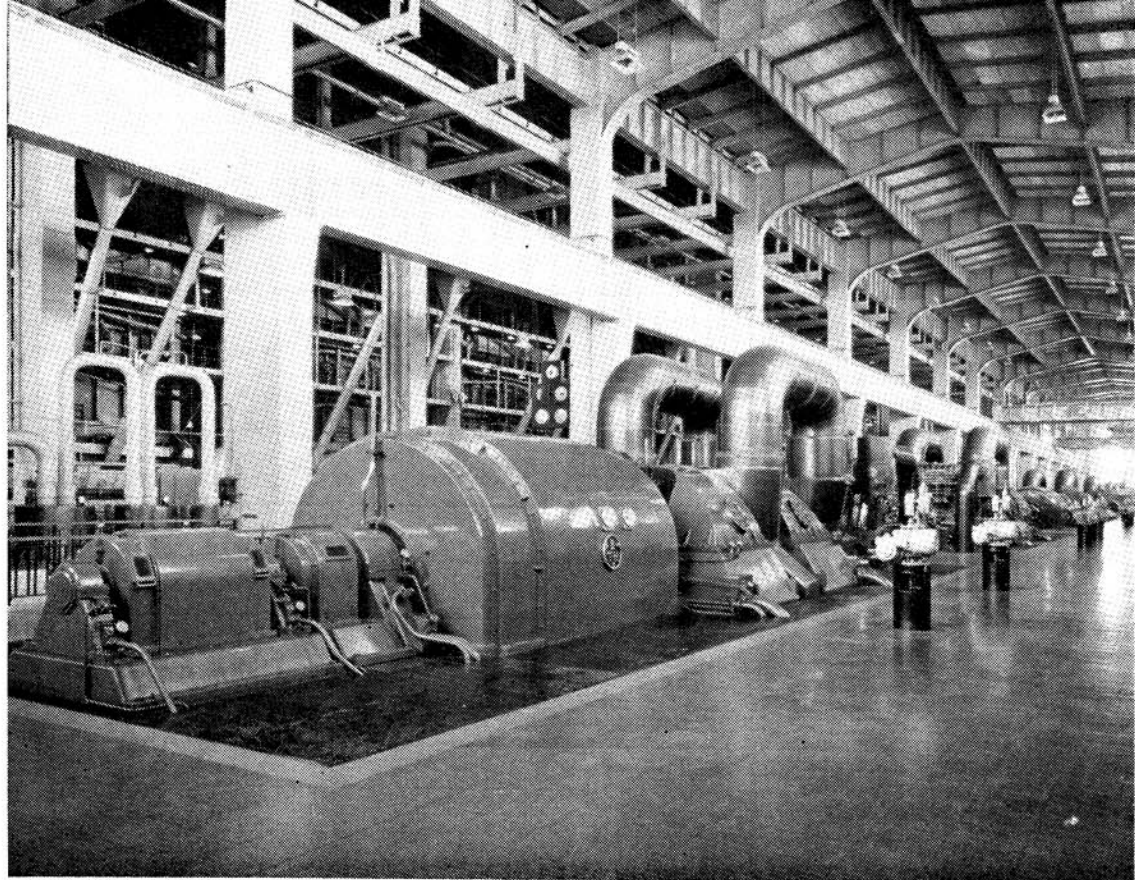
**Distribution System.** The operation and maintenance of Springfield Substation were taken over by the Durban Corporation in March, 1960.

During the second half of the year work was started on the extensions to Coedmore substation, which are required to provide an additional point of supply at 132 kV to the Durban Corporation.

At Marburg substation the two 2·5 MVA 88/11 kV transformers were replaced by two units of 7·5 MVA. At Margate two 2·5 MVA voltage regulators were installed and commissioned during September, 1960; and orders were placed for two 7·5 MVA transformers to replace the existing 2·5 MVA units at this substation.

All outstanding work at Umgababa Substation was completed during the year.

The extensions to Harding and Weza are referred to on page 11.



**UMGENI POWER STATION** showing the turbine room. The first of the 60,000 kW sets was placed on load on 26th February 1961.

**Rural Development.** The Driefontein rural scheme on the North Coast which was commenced in 1959 was completed during the year. Further extensions to this scheme are expected.

On the South Coast there was an increase in the number of applications for rural supplies and an increased rate of development is forecast.

A total of 82 new consumers were connected to the Undertaking's rural networks, of which 18 consumers were in the area Sezela/Umtwalumi.

**Financial.** There was no change in standard tariffs in 1960; but at the beginning of the year, by reason of the development in the North Coast and the South Coast areas, the surcharges applied in these areas were reduced from 50 per cent to 40 per cent for consumers supplied under the large users tariff, and from 30 per cent to 25 per cent for consumers charged on the small power users and the domestic tariffs.

In spite of the increase in sales the Revenue Account shows a further deficit on the year's working of £75,624. After allowance for a retrospective adjustment of revenue of £76,391, the accumulated surplus at the 31st December, 1960, was £24,610.

In order to meet rising costs a general surcharge of 5 per cent on standard tariffs was imposed in January, 1961.

## NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales  £	Average Price Per Unit Sold	
Class	Number	Units	Increase %		1960 d.	1959 d.
Traction ... ..	1	274,661,525	1·157	1,010,923	0·8833	0·8751
Bulk ... ..	17	269,811,700	4·663	948,353	0·8436	0·8498
Mining ... ..	15	38,876,010	8·660	154,545	0·9541	0·9698
Industrial ... ..	570	45,987,824	0·760	199,865	1·0431	1·0654
Domestic and Lighting ...	5,206	19,952,760	6·763	178,837	2·1511	2·1347
	5,809	649,289,819	3·157	2,492,523	0·9213	0·9213
				1960	1959	Accumulated to 31.12.60
				£	£	£
Total Revenue ... ..		2,499,928		2,423,181		
Working Costs ... ..		2,608,461		2,501,114		
Deficit ... ..		108,533		77,933		151,223
Capital Expenditure ... ..		1,121,400		1,289,825		13,176,924
<b>COLENZO POWER STATION—</b> Nos. 1 and 2				1960	1959	
Units Sent Out ... ..		771,109,120		649,054,490		
Maximum half-hour Demand kW S.O. ... ..		137,940		144,580		
Station Peak kW ... ..		151,000		153,000		
Load Factor % ... ..		63·6		53·3		
Thermal Efficiency % Sent Out ...		18·9		18·8		
<b>COAL:</b>						
Coal consumed — tons ...		626,648		520,875		
Average per unit sent out/lb.		1·625		1·605		
Calorific Value B.Th.U./lb. ...		11,080		11,290		
Total Cost ... ..		£977,027		£826,638		
Cost per ton ... ..		31s. 2d.		31s. 9d.		

**Operation of the Pooled Power Stations.** In terms of the Natal Licences, Colenso Power Station was operated with Congella and Umgeni Power Stations as pooled stations. The statistics of output and units taken by each Undertaking from the pooled stations are given on page 36.

**Sales of Electricity.** The total units sold by the Natal Central Undertaking increased to 649 million units, an increase of 3·2 per cent.

Developments in the supplies furnished to the South African Railways for the Natal traction systems are reported on page 9.

**Ingagane Power Station.** Progress was maintained in the construction of Ingagane Power Station, which is scheduled for commissioning in 1963.

In order to provide for growth of load on the Natal Undertakings a second 100 MW set, and equivalent boiler, were ordered for commissioning in 1964.

**Distribution System.** During the year it was again necessary to carry out alterations to lines throughout the system, mainly as a result of the rebuilding and re-routing of the national roads: and it appears that further alterations will be required for some years to come.

During August, 1960, the new Colenso/Ladysmith 88 kV line was completed and commissioned after considerable delays in the delivery of steelwork.

A new tee-line for the supply to Dannhauser and Durnacol substations from the new section of the Green 88 kV line between Glencoe and Newcastle, which was commissioned in 1959, was built and energised. Two 7·5 MVA transformers were installed and commissioned at Durnacol substation during February, 1960.

After considerable delays, construction of the new Bethlehem substation was commenced. The new substation, equipped with two 7.5 MVA transformers, together with two short lengths of 88 kV line over the Bethlehem town lands, was placed in operation during November, 1960. Dismantling of the old substation, and the lines to it, was in hand at the year-end.

Work also started on the installation of two additional transformers at Ladysmith substation, and this work is to be completed during the first half of 1961.

A site has been selected for a new 88 kV substation at Volksrust; and work on the new substation is scheduled to commence in the second half of 1961. The diesel power station, the capacity of which was far below the present demand at Volksrust, was shut down, and the plant has been sold.

**Rural Development.** The major concentration of work on the Natal Central Undertaking was in the Pietermaritzburg area. Two large rural schemes were in progress at the end of the year, one in the Greytown area and the other an extension of the Ixopo rural scheme to Donnybrook. These schemes are to be completed during the early part of 1961.

The Estcourt/Ennersdale scheme which was started in 1959 was completed during the second quarter of 1960.

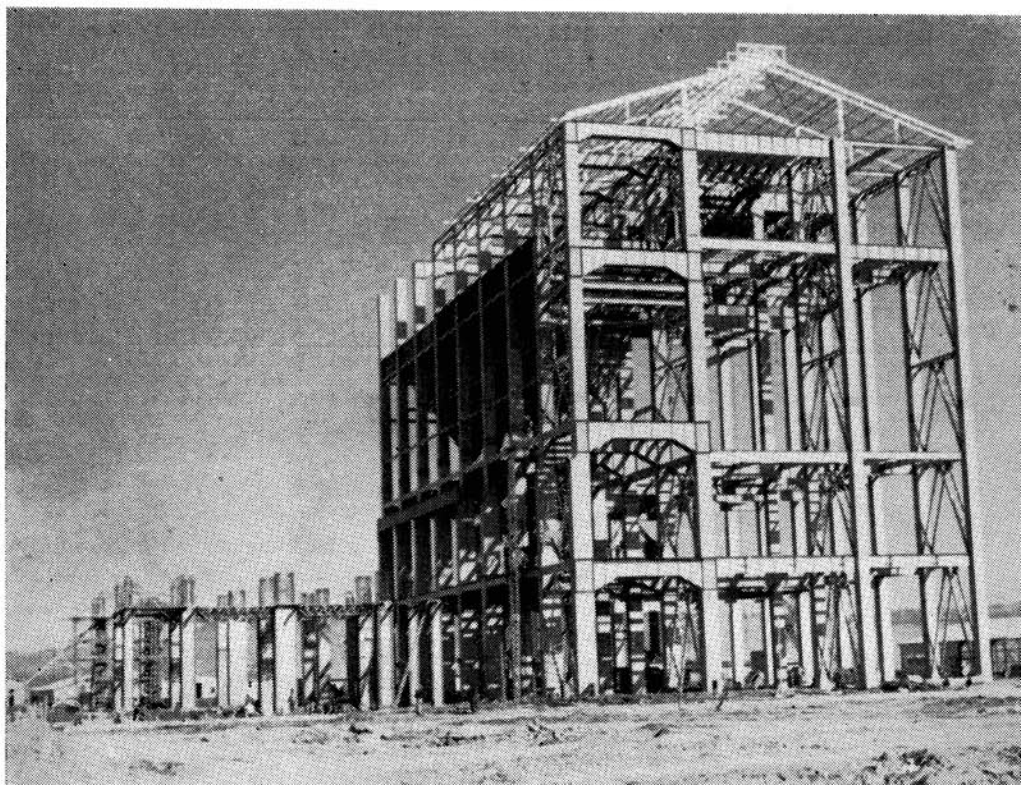
A supply to Hawkestone township in the inland area was provided towards the end of the year.

A total of 81 new consumers were connected up during the year.

**Financial.** The operating statistics show a small increase in revenue in 1960, as compared with the year 1959; but there was a deficit on the year's working of £108,533, which brought the accumulated deficit to £151,223 as at 31st December, 1960.

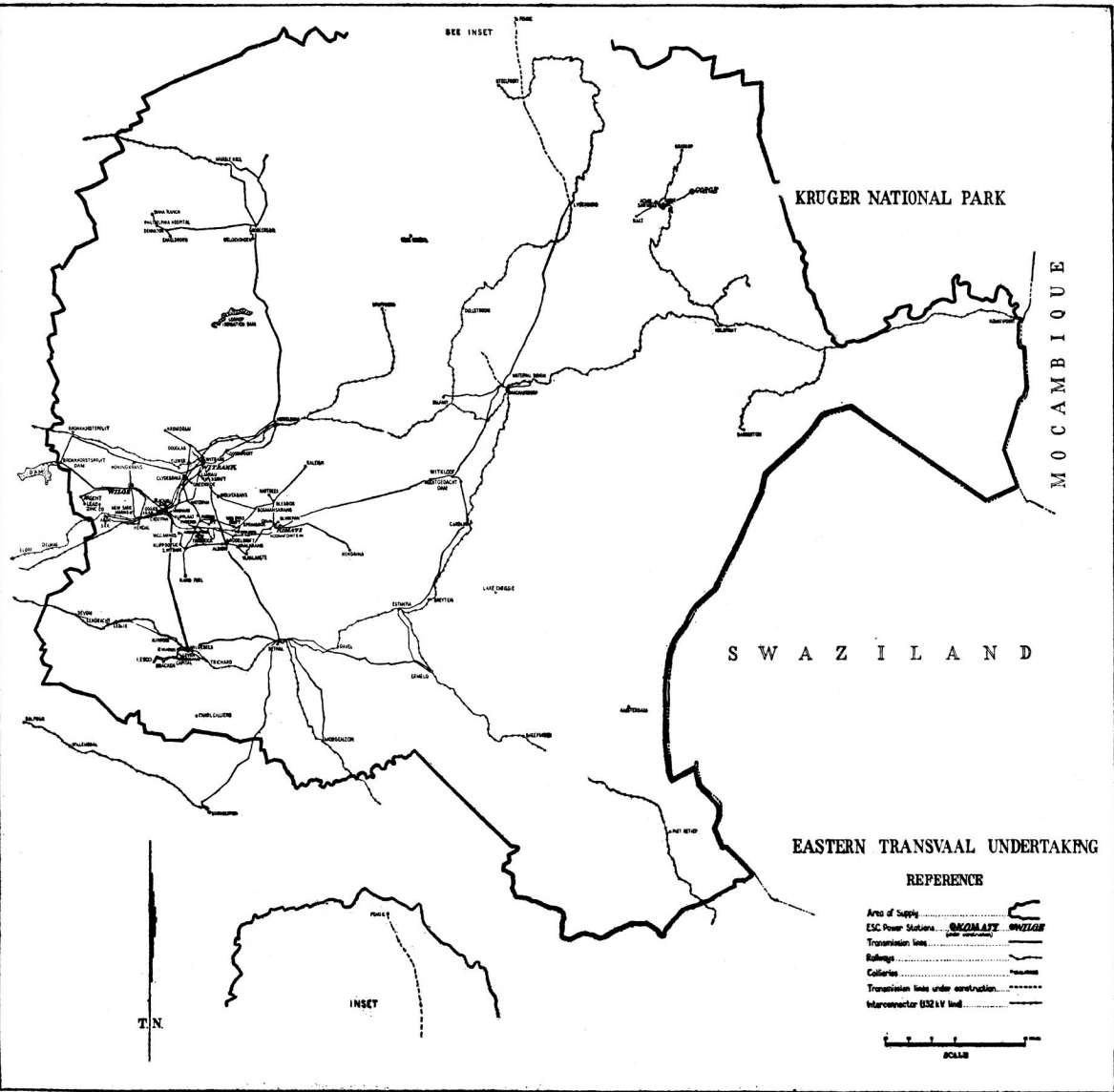
In view of the accumulated deficit and rising costs, an adjustment of tariffs by a general surcharge of 5 per cent was made with effect from January, 1961.

**INGAGANE POWER STATION** showing the boilerhouse steelwork and turbo-generator foundations. Work on this station started at the beginning of 1960 and the progress made is considered satisfactory.



## EASTERN TRANSVAAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1960	1959
Traction ... ..	1	46,465,260	Per cent	£	d.	d.
Bulk ... ..	11	47,134,566	32·358	119,793	0·6187	0·5352
Mining ... ..	41	239,687,386	15·078	127,670	0·6501	0·6249
Industrial ... ..	375	424,800,926	19·543	684,516	0·6584	0·6491
Domestic and Lighting ...	1,495	3,928,789	20·145	785,577	0·4438	0·3923
			23·309	51,508	3·1465	3·1124
	1,923	762,016,927	20·320	1,769,064	0·5572	0·5102
		1960	1959	Accumulated to 31.12.60		
		£	£	£		
Total Revenue ... ..		1,773,130	1,350,320			
Working Costs ... ..		1,782,195	1,356,046			
Deficit ... ..		9,065	5,726			
Surplus ... ..				£28,575		
Capital Expenditure ... ..		6,969,838	3,772,460	£18,072,475		
		Witbank Power Station		Sabie Power Station		
		1960	1959	1960	1959	
Units sent out ... ..		742,485,337	606,206,884	2,029,100	2,503,900	
Maximum Demand kW S.O...		122,675	118,211	560	650	
		(Hour)	(Hour)	(Half-Hour)	(Half-Hour)	
Load Factor % ... ..		68·9	58·5	41·3	44·0	
Thermal Efficiency % S.O. ..		15·4	15·3			
COAL:						
Coal consumed—tons ... ..		734,491	599,840			
Average per unit sent out—lb.		1·978	1·979			
Calorific Value B.Th.U./lb. ...		11,170	11,290			
Total Cost ... ..		£387,252	£332,918			
Cost per ton ... ..		10s. 7d.	11s. 1d.			
RAINFALL:						
Inches ... ..				61·1	45·7	
Millimetres ... ..				1,552	1,162	



## EASTERN TRANSVAAL UNDERTAKING

**Area of Supply.** The enlargement of the Eastern Transvaal Undertaking to include the area around Penge, which was granted on the 27th January, 1960, is shown on the map on page 41. A further adjustment of the common boundary between the Eastern Transvaal Undertaking and the Rand and Orange Free State Undertaking which was approved by the Electricity Control Board on 13th December, 1960, is also shown.

**Sales of Electricity.** The table of units sold in 1960 reflects expansion of this Undertaking's service to all classes of consumers.

Units purchased by the South African Railways for the Pretoria traction system increased by approximately 10 million units; and the supplies to the five traction substations which feed the Witbank electrification, as reported on page 9, contributed a further increase in traction sales.

Two new bulk supply consumers, Belfast and Machadodorp, are included in the total, of bulk supplies.

The increase in the supplies taken by the new gold mines in the Bethal goldfield accounts for the bulk of the increase in Mining supplies; but in addition, collieries supplied by the Undertaking increased their consumption of electricity by nearly 12 million units.

In 1960 market conditions were favourable for Rand Carbide Limited, and this consumer took considerably more power than in the previous year.

**Witbank Power Station.** Although Witbank Power Station is used normally as a regulating station, an increased output was demanded from it to overcome the shortages of coal which arose from the Coalbrook Colliery disaster and the restriction of output from Vierfontein Colliery.

**Komati Power Station.** Progress of construction at Komati Power Station, and the decisions to order further plant for this station are reported on page 14.

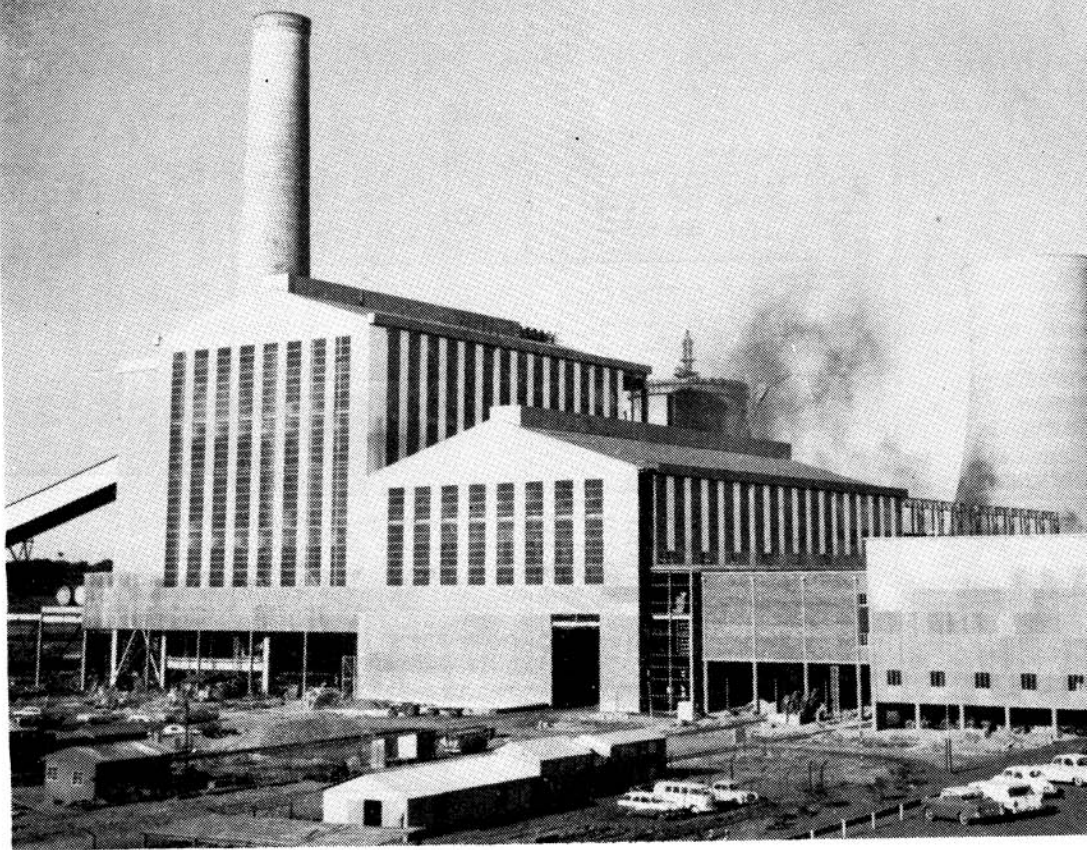
**Distribution System.** Important developments and extensions of the transmission and distribution system were made in 1960.

Grootpan distribution station was completed in all respects, and commissioned. This station constitutes a vital link in the new networks, receiving 2 x 132 kV lines from Witbank and Wilge Power Stations and being the point of origin of the 2 x 132 kV lines to Wildebees distribution station, and the duplicate 88 kV lines to the traction substations at Ogies, Arbor, Blackhill, Kromklip and Vandyksdrif.

Duplicate supplies to Bracken and Leslie Gold Mines were made available in February, 1960, each substation being equipped with 2 x 2.5 MVA transformers. A start was made on the substation for Winkelhaak No. 2 Shaft.

A temporary tapping was made at Steenkoolspruit on the 88 kV line to Middeldrift to furnish the supplies to Machadodorp, Belfast and the South African Railways at Belfast and Waterval Boven. Two 21 kV lines were built between Witkloof and Nootgedacht, and supply to the pumping station was made available on 16th January, 1961.





**KOMATI POWER STATION.** Good progress has been made with the construction of this station where the first boiler and turbo-generator are expected to be in service in the fourth quarter of 1961.

The line to Penge, which traverses difficult terrain, was under construction at the year-end. Work had been started on the substation, the supply being scheduled for the second quarter of 1961.

Geluk substation, near Komati Power Station, which is being equipped with two 15 MVA 88/31 kV transformers was nearing completion at the end of the year.

A new substation with duplicate busbars was built and placed in commission at Waterpan.

**Rural Development.** A resume of the expansion of rural networks in this Undertaking is given on page 17.

**Financial.** As reported in the last Annual Report, a revision of the Schedule of Standard Prices for the Undertaking was approved by the Electricity Control Board and was introduced with effect from January, 1960.

The expansion in the Undertaking is reflected in the large increase in working costs from £1,356,046 to £1,782,195, and the increase in revenue from £1,350,320 to £1,773,130. A small deficit of £9,065 is shown in the year's accounts; and the accumulated surplus was thus reduced to £28,575.

## RAND AND ORANGE FREE STATE UNDERTAKING

CONSUMERS			SALES			Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease	Per cent	1960		1959	
<b>ELECTRICITY:</b>								
Traction .. .. .	2	417,099,126		+43.365	1,051,983	d.	0.5925	
Bulk .. .. .	78	1,320,772,037		+10.193	3,069,505	d.	0.5395	
Mining .. .. .	111	7,906,930,875		+7.181	15,902,512	d.	0.4618	
Industrial .. .. .	868	2,227,415,563		+11.781	4,503,014	d.	0.4674	
Domestic and Lighting .. .. .	5,080	46,850,446		+25.500	215,830	d.	1.1121	
Electricity Supplied to Eastern Transvaal Undertaking .. .. .	—	—		—	92,518	—	—	
	6,139	11,919,068,047		+9.382				
<b>AIR and STEAM:</b>								
Bulk .. .. .	1	3,073,255		-5.269	957,776	d.	1.6503	
Mining .. .. .	11	113,190,563		-9.780				
Industrial .. .. .	24	9,424,313		-0.081				
	36	125,688,131		-9.012				
	6,175	12,044,756,178		+9.152	25,793,138	d.	0.4925	
					1959	Accumulated to 31/12/60		
Total Revenue .. .. .					£	£		
Working Costs .. .. .					25,810,175	22,665,147		
Surplus .. .. .					25,124,738	22,083,507		
Capital Expenditure .. .. .					685,437	581,640	£733,657	
					5,110,500	8,519,257	£150,326,424	

**RAND AND ORANGE FREE STATE UNDERTAKING—(Cont.)**

	Vaal Power Station		Wilge Power Station	
	1960	1959	1960	1959
Electricity Units Sent Out	1,952,318,714	1,912,202,262	1,506,961,586	1,292,316,128
Maximum Load	284,502	286,479	222,986	224,651
One-hour kW S.O.	78.1	76.2	76.9	65.7
Load Factor %	21.5	21.6	25.8	25.5
Thermal Efficiency % S.O.				
Coal:				
Coal consumed — tons	1,801,471	1,717,111	1,018,571	889,434
Average per unit sent out lb.	1.845	1.796	1.352	1.376
Calorific Value B.Th.U./lb.	8,590	8,800	9,790	9,710
Total Cost	£711,985	£639,217	£460,466	£431,476
Cost per ton	7s. 11d.	7s. 5d.	9s. 0d.	9s. 8d.

	Vereeniging Power Station		Vierfontein Power Station	
	1960	1959	1960	1959
Electricity Units Sent Out	851,308,852	700,591,239	1,604,320,573	1,891,575,735
Maximum Load	137,410	136,388	343,484	327,928
One-hour kW S.O.	70.5	58.6	53.2	65.8
Load Factor %	15.3	15.2	23.0	23.3
Thermal Efficiency % S.O.				
Coal:				
Coal consumed — tons	1,038,478	857,566	1,330,098	1,530,420
Average per unit sent out — lb.	2.440	2.448	1.658	1.618
Calorific Value B.Th.U./lb.	9,160	9,150	8,930	9,040
Total Cost	£451,357	£389,747	£996,156	£934,370
Cost per ton	8s. 8d.	9s. 1d.	15s. 0d.	12s. 3d.

**RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)**

	Brakpan Power Station		Highveld Power Station		Klip Power Station	
	1960	1959	1960	1959	1960	1959
Electricity Units Sent Out...						
Maximum Load One-hour kW	38,285,725	30,829,594	1,708,421,085	845,899,996	2,467,413,347	2,402,899,784
S.O. ....	27,036	26,211	283,613	167,275	351,873	356,370
Load Factor % ..	16.1	13.4	68.6	61.4	79.8	77.0
Thermal Efficiency % S.O. ..	12.4	12.2	29.0	29.2	20.5	19.5
COAL:						
Coal consumed-tons...	53,142	43,812	1,147,373	561,254	2,011,934	2,201,485
Average per unit sent out—lb.	2.776	2.842	1.343	1.327	1.631	1.832
Calorific Value B.Th.U./lb...	9,890	9,860	8,770	8,810	10,220	9,550
Total Cost ..	£47,309*	£47,142*	£832,853	£372,162	£2,101,797	£1,999,072
Cost per ton ..	17s. 0d.	19s. 3d.	14s. 6d.	13s. 3d.	20s. 11d.	18s. 2d.

	Rosherville Power Station		Taaibos Power Station	
	1960	1959	1960	1959
Electricity Units Sent Out ...				
Maximum Load One-hour kW	26,533,646	17,808,945	3,011,801,952	2,908,952,974
S.O. ....	32,898	34,208	447,384	418,012
Load Factor % ..	—	—	76.6	79.4
Thermal Efficiency % S.O. ...	9.5	9.0	26.1	26.9
COAL:				
Coal consumed-tons...	48,422	34,093	2,184,064	2,059,612
Average per unit sent out—lb.	3.650	3.829	1.450	1.416
Calorific Value B.Th.U./lb.	9,880	9,910	9,020	8,970
Total Cost ..	£143,077*	£155,320*	£1,997,754	£956,537
Cost per ton ..	18s. 7d.	20s. 5d.	18s. 4d.	9s. 3d.

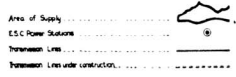
\*Includes cost of coal for compressed air.

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Brakpan Power Station		Rosherville Power Station	
	1960	1959	1960	1959
Compressed air units sent out .. .. .				
Steam Units Sent Out .. .. .				
COAL:				
Coal consumed—tons .. .. .	1,610,470	3,480,610	78,511,200	84,564,800
Average per unit sent out—lb. .. .. .	2,394	5,170	105,667	118,118
Calorific Value B.Th.U./lb. .. .. .	2,973	3,033	2,692	2,794
	9,890	,860	9,880	9,910
	Canada Dam Compressor Station		Robinson Compressor Station	
	1960	1959	1960	1959
Compressed Air Units sent out .. .. .				
Electric Input—kWh exc. Trans. Losses .. .. .	20,366,300	21,015,200	33,122,500	36,346,200
Air Units sent out/kWh per cent .. .. .	25,111,280	26,030,011	42,118,744	46,516,115
	81.10	80.73	78.64	78.14



RAND AND ORANGE FREE STATE UNDERTAKING  
REFERENCE



## RAND AND ORANGE FREE STATE UNDERTAKING

**Area of Supply.** The area of supply of the Undertaking is shown on the map on page 48. The map incorporates an extension made to the licensed area in the eastern Free State to authorize the supply to the towns of Marquard, Clocolan, Ficksburg, Ladybrand; Excelsior, Tweespruit, Thaba 'Nchu, Dewetsdorp and Wepener and other consumers in those areas; and further extensions covering the areas Bultfontein, Bloemhof, Hoopstad; Sannieshof, Delareyville and Vryburg. It incorporates also minor adjustments of the common boundary between the Rand Extension Licence and the Eastern Transvaal Licence, 1925. These amendments were granted by the Electricity Control Board on 13th December, 1960.

**Sales of Electricity and Compressed Air.** The total sales by the Undertaking (electricity, compressed air and steam) amounted to 12,044 million units, which is an increase of 9·2 per cent over the corresponding figure for 1959.

The increase in the supply taken by the South African Railways for traction purposes reflects the full year's working of the electrified sections between the Reef and Vereeniging and Vereeniging/Kroonstad, and increases in the supplies at Alliance, Crown and Jabavu substations. Two new traction substations at Dryden and Eloff, which feed the electrification of the Welgedacht/Witbank main line, were commissioned in October, 1960, as reported on page 9.

The Municipality of Carletonville, which was established on 1st March, 1960, with jurisdiction over a large area on the West Witwatersrand goldfield, became a new bulk supply consumer on that date. During 1960 new bulk supplies were given to the Municipalities of Marquard, Clocolan and Ficksburg in the Eastern Free State; and the supply to Ladybrand was inaugurated on 23rd March, 1961. Kroonstad Municipality ceased to take supply in November, 1960; and the agreement covering the partial supply was terminated on 1st February, 1961.

The total sales of power to mining consumers amounted to 8,020 million units for the year, this total including an increase of 7·2 per cent in electric units sold and a decrease of 9·8 per cent in sales of air and steam units. As reported on page 9, reductions were recorded in the supplies taken by some of the old mines, but the amount of power consumed by all mines on the Witwatersrand showed little change. The power consumption by mines in the Klerksdorp, Far West Rand and Orange Free State goldfields indicates a steady development of the new mines in those areas.

Comment on the arrangements for the "stretch-out" of the uranium contracts appears on page 10.

A report on the increase in electricity sales to consumers in the industrial class is given on page 10.

The large increase in sales in the category "Domestic and Lighting" reflects the expansion of the Undertaking's reticulations in rural and peri-urban areas. A report on these developments appears on page 17.

**Operation of the Pooled Power Stations.** Under the provisions of the Licences concerned, the electric power stations of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking are co-ordinated and operated as a single system of pooled power stations.

The total output, i.e. units sent out from the pooled power stations, amounted to 13,909 million units in 1960. The maximum simultaneous demand on the system, recorded in July, was 2,030,077 kW: and the monthly load factor remained at the high figure of 81 per cent.

The supplies taken by the separate Undertakings which draw their requirements from this group of pooled stations were as follows:—

	Maximum Demand in the year	Total Units (millions kWh)
Rand and Orange Free State Undertaking... ..	1,904,607 kW	13,039·3
Eastern Transvaal Undertaking ... ..	114,650 kW	737·6
Cape Northern Undertaking ... ..	21,739 kW	132·8

The cost of generation per unit sent out from the pooled power stations during the year was 3531d., the larger part of the rise in cost being due to increases in coal cost, including transport of coal, as a result of the disaster at the Coalbrook Colliery and the reduction in coal output of Vierfontein Colliery.

It should be noted that the operating statistics for the year 1960 of all power stations in the pool, including Witbank Power Station, reflect in some aspect the abnormal conditions of station loading and source of coal supplies which prevailed during the greater part of the year. Klip Power Station, for example, shows an increase in station loading, and an increase in coal cost per ton. The increase in station loading is understandable; the higher cost of coal is due to railage of coal from collieries in the Witbank district to Klip, in order to release coal from Springfield Colliery for burning at Taaibos Power Station.

Although an interruption of coal supplies on a scale comparable with that which followed upon the Coalbrook disaster is not to be expected, a careful study was made into all aspects of continuity of supply from the Undertaking's pit-head power stations; and additional rail and handling facilities have been provided, so that in the event of an interruption of coal supply from the local colliery, rail- or road-borne coal can be brought into the power stations at short notice.

A further report on the Coalbrook Colliery is given on page 10.

**Transmission and Distribution Systems.** The plans for the establishment of a new system of 275 kV transmission lines from Komati Power Station to Nevis distribution station, Snowden distribution station and Highveld Power Station, and from Highveld to Scafell distribution station were set out in some detail in the last Annual Report. This work has been pushed forward as rapidly as possible; but it is now evident that delays in the delivery of materials which were ordered for these lines from South African manufacturers will affect the planned programme for completion and commissioning of the new 275 kV lines. It is hoped, however, that the first line from Komati to Nevis distribution station will be available in time for the commissioning of the first set in Komati Power Station.

The 132 kV line from Carrdell to Watershed distribution station (near Lichtenburg) was completed during the year, and Watershed distribution station was commissioned with 2 x 60 MVA 132/88 kV transformers.

Further developments of the transmission and distribution systems are indicated in the lists of transmission lines built in 1960 and the lines under construction at the end of the year which are set out on page 18 of the Report.

**Financial.** There was no change in tariffs in the financial year 1960; but the increase in the cost of coal, including railage and handling, from an average cost of approximately 12/- per ton in 1959 to 14/2 per ton in 1960 involved higher adjustments under the coal clause.

Total revenue for the year increased to £25,810,175: and a surplus of £685,437 was realized on the year's accounts.

A general reduction in tariffs by 2 per cent, i.e. by increasing the general discount rate from 3 per cent to 5 per cent discount, was introduced with effect from January, 1961.

The amendments to the Schedule of Standard Prices for the Undertaking, which were sought in order to provide exact equivalents in the new decimal currency, and were applied from January, 1961, are explained on page 21.



## MUNICIPAL ELECTRICITY SUPPLY SCHEMES—1960

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

Delareyville  
Sannieshof

#### Extensions

Barberton  
Carletonville (3)  
Carolina  
Coligny  
Ermelo  
Kempton Park  
Nylstroom  
Potgietersrus  
Stilfontein  
Tzaneen (2)

### ORANGE FREE STATE:

#### New Schemes

Excelsior

#### Extensions

Fauresmith (2)  
Sasolburg  
Thaba 'Nchu  
Vrede

### NATAL:

#### New Schemes

#### Extensions

Empangeni  
Eshowe  
Stanger

### CAPE:

#### New Schemes

Barrydale  
Kirkwood  
Stanford  
Ugie

#### Extensions

Bizana  
Fraserburg  
Heidelberg  
Indwe  
Port Elizabeth  
Riversdale  
Williston

Up to the 31st December, 1960, a total of 1761 reports on Municipal Supply Schemes had been submitted by the Commission. Of these 281 were in respect of new schemes, 852 were in respect of extension schemes and 628 were reports on tenders.

## ANNEXURES

The Commission submits for the year 1960 with this Report:—

## ANNEXURE A — AUDITOR'S 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, 1960.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1960.

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

Statement No. 4—Units sold and number of consumers, 1960.

Statement No. 5—Power Station Statistics, 1960.

Statement No. 6—Power purchased, 1960.

Statement No. 7—Water consumed by power stations, 1960.

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 1960.

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

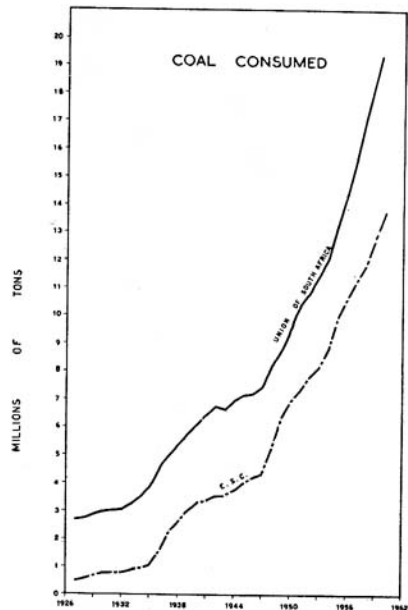
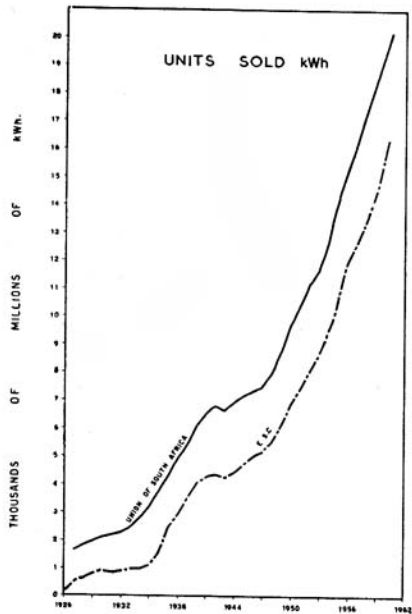
## ANNEXURE C — UNION STATISTICS

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

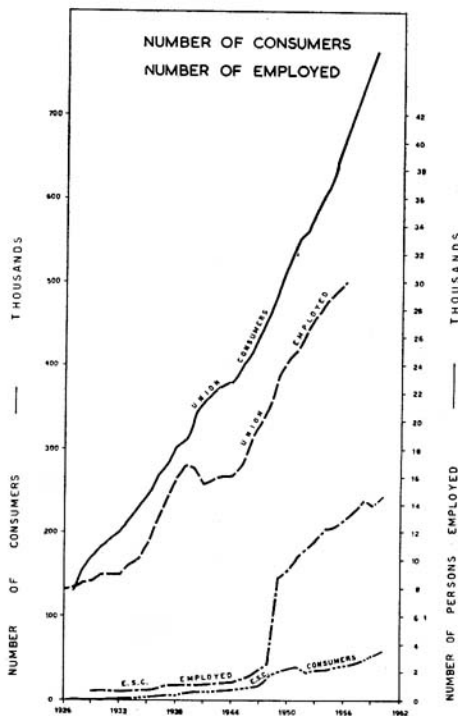
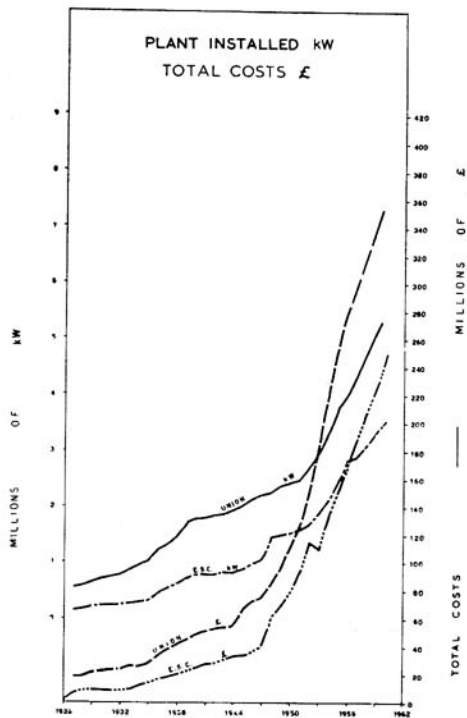
Yours faithfully,

*J. Theo. Sefatung*

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, 1961

GENTLEMEN,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December, 1960.

### 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 records of the Commission the Redemption Fund is divided into sections corresponding to the loans. 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, 1960 we have taken into account the market value of the investments at that date.

In the aggregate the value of the Fund at 31st December, 1960, 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 date from which provision for redemption of Loan No. 38 commenced at 1st October, 1960 and application has been made to have 1st April, 1961 fixed as the date from which redemption of Loan No. 39 should commence.

We understand that application will be made, within the prescribed period, to the Minister to fix the dates from which provision for redemption of subsequent loans must be made. Provision has been made, however, for the redemption of moneys expended out of such loans on works which had come into commercial operation before 31st December, 1960.

### 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 8½ 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.

### 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 1959 and 1960:—

	<i>Surplus+</i> <i>Deficit—</i>		<i>Amounts set aside to</i> <i>Reserve Fund</i>	
	1959	1960	1959	1960
Cape Western ... .. —	£10,731	+ £4,852	£204,000	£204,000
Cape Northern ... .. +	62,395	+ 31,643	52,500	52,500
Border ... .. +	27,866	+ 21,424	45,600	50,000
Natal Southern ... .. —	57,215	— 75,624	200,000	200,000
Natal Central ... .. —	77,933	— 108,533	150,000	150,000
Eastern Transvaal ... .. —	5,726	— 9,065	65,000	80,000
Rand and O.F.S. ... .. +	581,640	+ 685,437	1,494,900	1,618,400
	<u>+ £520,296</u>	<u>+ 550,134</u>	<u>£2,212,000</u>	<u>£2,354,900</u>
Brought forward from previous year ... ..		— 156,773		
Adjustment of Natal Southern Undertaking revenue for prior years ... ..		+ 76,391		
Net Accumulated Surplus at end of year as detailed in Balance Sheet ... ..		<u>£469,752</u>		

The deficit of £156,773 at 31st December, 1959 has been eliminated and, after bringing into account additional revenue from traction supplies at Natal Southern Undertaking relating to prior years, an accumulated surplus of £469,752 is carried forward to 1961.

The results of operations at Cape Western Undertaking have been better than anticipated, and a small surplus, £4,852, has reduced the accumulated deficit to £175,003, whilst the accumulated deficit at Border Undertaking has been reduced to £75,536.

At the Natal Southern and Natal Central Undertakings the year's operations resulted in further deficits and charges to consumers were increased by 5% in February, 1961.

The Rand and O.F.S. Undertaking account reflects a further surplus, £685,437, and an accumulated surplus of £733,657. A reduction in charges to consumers came into effect on 1st January, 1961.

## GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1960 and, subject to the foregoing remarks, in terms of Section 18(8) of the Electricity Act, 1958, we certify as follows:—

- We have found the Accounts of the Commission to be in order.
- 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.
- Due provision has been made for the redemption and repayment of moneys borrowed by or advanced to the Commission.
- 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.
- Sums fixed by the Commission have been set aside to the Reserve Fund under Section 13 as prescribed.
- All our requirements as Auditors have been complied with and carried out.

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

REGISTERED ACCOUNTANTS AND AUDITORS.

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**ACCOUNTS**

STATISTICAL AND OTHER STATEMENTS

UNION STATISTICS

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# Electricity Supply Commission.

## Schedule of Expenditure on Capital Account at 31st December, 1960.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1959.	Year ended 31st December, 1960.	Total at 31st December, 1960.
<b>RAND AND ORANGE FREE STATE UNDERTAKING:</b>			
<b>Rand.</b>			
Land and Rights .. .. .	£515,809	£44,292	£560,101
Buildings and Civil Works .. .. .	4,475,154	193,197	4,668,351
Machinery and Plant .. .. .	19,047,804	904,001	19,951,805
	£24,038,767	£1,141,490	£25,180,257
<b>Klip Power Station.</b>			
Land and Rights .. .. .	£138,860	—	£138,860
Buildings and Civil Works .. .. .	1,772,226	Cr. £213	1,772,013
Machinery and Plant .. .. .	5,265,488	814	5,266,302
	£7,176,574	£601	£7,177,175
<b>Vaal Power Station.</b>			
Land and Rights .. .. .	£5,432	—	£5,432
Buildings and Civil Works .. .. .	2,399,906	£1,282	2,401,188
Machinery and Plant .. .. .	8,657,110	Cr. 5,761	8,651,349
	£11,062,448	Cr. £4,479	£11,057,969
<b>Vierfontein Power Station.</b>			
Land and Rights .. .. .	£31,042	—	£31,042
Buildings and Civil Works .. .. .	4,879,040	£44,706	4,923,746
Machinery and Plant .. .. .	16,488,017	98,306	16,586,323
	£21,398,099	£143,012	£21,541,111
<b>Taibos Power Station.</b>			
Land and Rights .. .. .	£15,811	£12	£15,823
Buildings and Civil Works .. .. .	5,999,499	Cr. 2,822	5,996,677
Machinery and Plant .. .. .	17,345,605	42,873	17,388,478
	£23,360,915	£40,063	£23,400,978
<b>Wilge Power Station.</b>			
Land and Rights .. .. .	£4,055	—	£4,055
Buildings and Civil Works .. .. .	3,235,953	£4,650	3,240,603
Machinery and Plant .. .. .	9,726,280	25,781	9,752,061
	£12,966,288	£30,431	£12,996,719
<b>Highveld Power Station.</b>			
Land and Rights .. .. .	£29,749	—	£29,749
Buildings and Civil Works .. .. .	5,047,389	£191,648	5,239,037
Machinery and Plant .. .. .	11,011,447	1,578,789	12,590,236
	£16,088,585	£1,770,437	£17,859,022
<b>Rand Extension.</b>			
Land and Rights .. .. .	£118,141	£25,640	£143,781
Buildings and Civil Works .. .. .	711,276	32,237	743,513
Machinery and Plant .. .. .	14,516,107	1,106,811	15,622,918
	£15,345,524	£1,164,688	£16,510,212
<b>Greater Rand Extension and Orange Free State.</b>			
Land and Rights .. .. .	£263,409	£4,161	£267,570
Buildings and Civil Works .. .. .	942,831	87,137	1,029,968
Machinery and Plant .. .. .	12,572,484	732,959	13,305,443
	£13,778,724	£824,257	£14,602,981

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1959.	Year Ended 31st December, 1960.	Total at 31st December, 1960.
<b>Total Rand and Orange Free State Undertaking:</b>			
Land and Rights .. .. .	£1,122,308	£74,105	£1,196,413
Buildings and Civil Works .. .. .	29,463,274	551,822	30,015,096
Machinery and Plant .. .. .	114,630,342	4,484,573	119,114,915
	£145,215,924	£5,110,500	£150,326,424
<b>CAPE WESTERN UNDERTAKING:</b>			
Land and Rights .. .. .	£294,941	£20,872	£315,813
Buildings and Civil Works .. .. .	6,079,608	500,817	6,580,425
Machinery and Plant .. .. .	19,205,521	2,064,102	21,269,623
	£25,580,070	£2,585,791	£28,165,861
<b>CAPE NORTHERN UNDERTAKING:</b>			
Land and Rights .. .. .	£16,397	£5,508	£21,905
Buildings and Civil Works .. .. .	357,604	64	357,668
Machinery and Plant .. .. .	3,173,680	251,395	3,425,075
	£3,547,681	£256,967	£3,804,648
<b>BORDER UNDERTAKING:</b>			
Land and Rights .. .. .	£14,301	£1,989	£16,290
Buildings and Civil Works .. .. .	939,121	6,837	945,958
Machinery and Plant .. .. .	4,014,073	196,670	4,210,743
	£4,967,495	£205,496	£5,172,991
<b>NATAL SOUTHERN UNDERTAKING:</b>			
Land and Rights .. .. .	£187,584	£17,974	£205,558
Buildings and Civil Works .. .. .	4,850,039	454,034	5,304,073
Machinery and Plant .. .. .	16,776,681	2,387,576	19,164,257
	£21,814,304	£2,859,584	£24,673,888
<b>NATAL CENTRAL UNDERTAKING:</b>			
Land and Rights .. .. .	£152,788	£24,013	£176,801
Buildings and Civil Works .. .. .	2,252,177	629,763	2,881,940
Machinery and Plant .. .. .	9,650,559	467,624	10,118,183
	£12,055,524	£1,121,400	£13,176,924
<b>EASTERN TRANSVAAL UNDERTAKING:</b>			
Land and Rights .. .. .	£199,626	£54,002	£253,628
Buildings and Civil Works .. .. .	2,840,854	2,665,292	5,506,146
Machinery and Plant .. .. .	8,062,157	4,250,544	12,312,701
	£11,102,637	£6,969,838	£18,072,475
<b>HEAD OFFICE:</b>			
Land .. .. .	£258,863	Cr. £650	£258,213
Buildings and Equipment .. .. .	2,022,687	61,493	2,084,180
	£2,281,550	£60,843	£2,342,393
<b>SUMMARY:</b>			
Land and Rights .. .. .	£2,246,808	£197,813	£2,444,621
Buildings and Civil Works .. .. .	48,805,364	4,870,122	53,675,486
Machinery and Plant .. .. .	175,513,013	14,102,484	189,615,497
	£226,565,185	£19,170,419	£245,735,604



# Electricity Supply Commission.

## Schedule of Investments of the Redemption Fund at 31st December, 1960.

INVESTMENTS.				Nominal Value	Book Value
<b>LOCAL REGISTERED STOCKS.</b>					
<b>Electricity Supply Commission—</b>					
3½ per cent.	1954/64			£1,198,845	£1,182,553
3½ per cent.	1959/64			319,237	312,332
3¼ per cent.	1956/66			362,909	334,460
3½ per cent.	1957/67			376,977	352,850
3¼ per cent.	1959/64			667,510	633,382
3¼ per cent.	1960/65			491,205	472,228
3¼ per cent.	1961/66			547,143	516,264
3¼ per cent.	1965/70			563,100	540,886
3 per cent.	1967/73			654,744	619,330
3 per cent.	1968/74			1,164,207	1,130,401
3¾ per cent.	1968/73			6,658,170	6,606,372
3½ per cent.	1969/74			337,400	317,386
3¾ per cent.	1969/74			67,830	63,097
3¾ per cent.	1965/67			85,050	80,329
3¾ per cent.	1964/67			886,505	848,602
3¾ per cent.	1964/68			189,900	177,385
4¼ per cent.	1964/67			550,580	533,840
5 per cent.	1964/67			672,134	655,561
5 per cent.	1966/68			440,459	433,759
5 per cent.	1967/69			456,912	450,733
5 per cent.	1968/70			274,831	267,699
5 per cent.	1967/70			2,571,950	2,521,665
5 per cent.	1971/74			833,400	821,280
5 per cent.	1971/75			1,647,839	1,624,696
4¾ per cent.	1975/80			4,793,200	4,773,782
4¾ per cent.	1975/80			4,052,450	4,026,377
5½ per cent.	1976/81			2,402,500	2,360,423
5½ per cent.	1977/82			433,350	426,500
5½ per cent.	1976/82			1,906,500	1,879,532
5½ per cent.	1977/83			4,925,860	4,883,245
5¾ per cent.	1978/83			1,776,825	1,757,075
5¾ per cent.	1979/84			2,477,084	2,461,469
5¾ per cent.	1979/84			3,429,600	3,353,069
5¾ per cent.	1979/85			2,906,450	2,855,658
5¾ per cent.	1980/85			3,501,150	3,439,845
5½ per cent.	1980/86			2,427,850	2,361,084
Carried forward				£57,051,656	£56,075,149
<b>The Government of the Union of South Africa—</b>					
Brought forward				£57,051,656	£56,075,149
3½ per cent.	1955/65			2,300	2,300
3 per cent.	1956/61			40,000	39,289
3 per cent.	1957/66			535,000	521,262
3 per cent.	1958/68			15,000	14,849
3 per cent.	1959/69			100,000	93,873
3 per cent.	1960/70			343,700	329,767
5¼ per cent.	1979			150,000	149,812
<b>Municipal—Johannesburg:</b>					
3¼ per cent.	1956/66			1,600	1,600
3¾ per cent.	1960/65			20,000	19,057
3½ per cent.	1962/67			129,000	117,193
3½ per cent.	1965			1,200	1,200
3½ per cent.	1965/70			294,000	283,550
3 per cent.	1967/77			30,000	30,000
5¾ per cent.	1974/79			97,000	96,272
<b>Cape Town:</b>					
3¾ per cent.	1960/65			2,000	2,000
3½ per cent.	1962/67			225,000	222,568
3 per cent.	1976			100,000	94,755
5¾ per cent.	1980/85			150,000	148,125
<b>Durban:</b>					
3¼ per cent.	1962/72			115,500	90,090
3½ per cent.	1965/75			45,000	40,894
3½ per cent.	1966/76			50,000	50,000
3 per cent.	1967/77			334,000	317,532
5¾ per cent.	1974/79			60,000	59,250
<b>Bloemfontein:</b>					
5¾ per cent.	1975/80			40,000	39,500
<b>Germiston:</b>					
5¾ per cent.	1985			10,000	9,875
Interest Accrued					554,101
Market Value				£59,941,956	£58,849,762
Carried forward				£55,256,129	£59,403,863

# Electricity Supply Commission

## SCHEDULE OF INVESTMENTS OF THE REDEMPTION FUND AT 31st DECEMBER, 1960.

### ALLOCATION OF INVESTMENTS TO LOANS.

Loan No.	Local Registered Stocks.	Nominal Value.	Book Value including Interest accrued.
5	£6,750,000 3 $\frac{3}{4}$ per cent. 1954/64 .. .. .	£6,733,045	£6,699,154
6	£2,500,000 3 $\frac{1}{2}$ per cent. 1959/64 .. .. .	2,460,837	2,450,127
7	£2,000,000 3 $\frac{1}{4}$ per cent. 1956/66 .. .. .	1,948,909	1,922,896
8	£2,000,000 3 $\frac{1}{2}$ per cent. 1957/67 .. .. .	1,789,377	1,766,102
9	£2,000,000 3 $\frac{3}{4}$ per cent. 1959/64 .. .. .	1,729,410	1,704,882
10	£1,500,000 3 $\frac{3}{4}$ per cent. 1960/65 .. .. .	1,259,805	1,246,224
11	£2,000,000 3 $\frac{1}{4}$ per cent. 1961/66 .. .. .	1,548,243	1,517,157
12	£2,500,000 3 $\frac{1}{4}$ per cent. 1965/70 .. .. .	1,570,200	1,534,333
13	£3,000,000 3 per cent. 1967/73 .. .. .	1,568,744	1,527,030
14	£3,000,000 3 per cent. 1968/74 .. .. .	1,297,907	1,257,382
15	£15,000,000 3 $\frac{1}{2}$ per cent. 1968/73 .. .. .	8,885,170	8,782,869
16	£3,000,000 3 $\frac{1}{2}$ per cent. 1969/74 .. .. .	1,208,100	1,187,153
17	£3,000,000 3 $\frac{3}{4}$ per cent. 1969/74 .. .. .	1,120,980	1,111,697
18	£5,250,000 3 $\frac{3}{4}$ per cent. 1965/67 .. .. .	1,734,050	1,718,733
19	£3,000,000 3 $\frac{3}{4}$ per cent. 1964/67 .. .. .	1,116,505	1,085,773
21	£5,000,000 3 $\frac{3}{4}$ per cent. 1964/68 .. .. .	1,425,900	1,415,824
22	£4,500,000 4 $\frac{1}{4}$ per cent. 1964/67 .. .. .	1,133,930	1,128,927
23	£5,000,000 5 per cent. 1964/67 .. .. .	1,107,784	1,104,873
25	£3,500,000 5 per cent. 1966/68 .. .. .	789,709	787,049
26	£4,000,000 5 per cent. 1967/69 .. .. .	844,062	843,264
27	£4,250,000 5 per cent. 1968/70 .. .. .	847,831	843,963
29	£8,000,000 5 per cent. 1967/70 .. .. .	1,615,950	1,592,367
31	£8,000,000 5 per cent. 1971/74 .. .. .	1,935,450	1,934,082
32	£10,000,000 5 per cent. 1971/75 .. .. .	2,531,839	2,516,268
33	£8,000,000 4 $\frac{5}{8}$ per cent. 1975/80 .. .. .	4,058,700	4,065,122
34	£8,000,000 4 $\frac{7}{8}$ per cent. 1975/80 .. .. .	1,033,200	1,038,910
35	£8,250,000 5 $\frac{1}{8}$ per cent. 1976/81 .. .. .	927,500	921,495
36	£10,000,000 5 $\frac{1}{8}$ per cent. 1977/82 .. .. .	998,350	998,293
37	£11,000,000 5 $\frac{1}{8}$ per cent. 1976/82 .. .. .	1,155,500	1,142,158
38	£12,000,000 5 $\frac{1}{2}$ per cent. 1977/83 .. .. .	1,678,860	1,680,580
39	£12,000,000 5 $\frac{3}{8}$ per cent. 1978/83 .. .. .	750,825	751,662
40	£11,000,000 5 $\frac{5}{8}$ per cent. 1979/84 .. .. .	403,084	403,399
42	£10,000,000 5 $\frac{3}{8}$ per cent. 1979/84 .. .. .	309,600	306,828
43	£8,000,000 5 $\frac{3}{8}$ per cent. 1979/85 .. .. .	321,450	317,026
44	£8,000,000 5 $\frac{3}{8}$ per cent. 1980/85 .. .. .	101,150	100,261
		<u>£59,941,956</u>	<u>£59,403,863</u>

J. VAN NIEKERK, Chief Accountant.

# Electricity Supply Commission

## LOAN CAPITAL AT 31st DECEMBER, 1960.

Loans Nos. 1 and 2 £8,000,000 repaid out of subsequent loans.

Loan No.	Local Registered Stocks	Outstanding	Repaid
3:	£500,000 4½ per cent. 1953/63		£500,000
4:	£2,500,000 4½ per cent. 1953		2,500,000
5:	£6,750,000 3½ per cent. 1954/64	£6,750,000	
6:	£2,500,000 3½ per cent. 1959/64	2,500,000	
7:	£2,000,000 3½ per cent. 1956/66	2,000,000	
8:	£2,000,000 3½ per cent. 1957/67	2,000,000	
9:	£2,000,000 3½ per cent. 1959/64	2,000,000	
10:	£1,500,000 3½ per cent. 1960/65	1,500,000	
11:	£2,000,000 3½ per cent. 1961/66	2,000,000	
12:	£2,500,000 3½ per cent. 1965/70	2,500,000	
13:	£3,000,000 3 per cent. 1967/73	3,000,000	
14:	£3,000,000 3 per cent. 1968/74	3,000,000	
15:	£15,000,000 3½ per cent. 1968/73	15,000,000	
16:	£3,000,000 3½ per cent. 1969/74	3,000,000	
17:	£3,000,000 3½ per cent. 1969/74	3,000,000	
18:	£5,250,000 3½ per cent. 1965/67	5,250,000	
19:	£3,000,000 3½ per cent. 1964/67	3,000,000	
21:	£5,000,000 3½ per cent. 1964/68	5,000,000	
22:	£4,500,000 4½ per cent. 1964/67	4,500,000	
23:	£5,000,000 5 per cent. 1964/67	5,000,000	
25:	£3,500,000 5 per cent. 1966/68	3,500,000	
26:	£4,000,000 5 per cent. 1967/69	4,000,000	
27:	£4,250,000 5 per cent. 1968/70	4,250,000	
29:	£8,000,000 5 per cent. 1967/70	8,000,000	
31:	£8,000,000 5 per cent. 1971/74	8,000,000	
32:	£10,000,000 5 per cent. 1971/75	10,000,000	
33:	£8,000,000 4½ per cent. 1975/80	8,000,000	
34:	£8,000,000 4½ per cent. 1975/80	8,000,000	
35:	£8,250,000 5½ per cent. 1976/81	8,250,000	
36:	£10,000,000 5½ per cent. 1977/82	10,000,000	
37:	£11,000,000 5½ per cent. 1976/82	11,000,000	
38:	£12,000,000 5½ per cent. 1977/83	12,000,000	
39:	£12,000,000 5½ per cent. 1978/83	12,000,000	
40:	£11,000,000 5½ per cent. 1979/84	11,000,000	
42:	£10,000,000 5½ per cent. 1979/84	10,000,000	
43:	£8,000,000 5½ per cent. 1979/85	8,000,000	
44:	£8,000,000 5½ per cent. 1980/85	8,000,000	
45:	£8,500,000 5½ per cent. 1980/86		
	(Payable in full not later than the 31st January, 1961, in terms of the Prospectus)		
	Fully Paid .. .. .	£7,748,100	
	Partly Paid .. .. .	265,614	
		8,013,714	
	£226,500,000 Total Local Registered Stocks .. .. .	£223,013,714	£3,000,000
	<b>INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT</b>		
20:	£10,732,422 \$30,000,000 4 per cent. Repayable by half-yearly instalments 1954/70 .. .. .	7,163,335	3,569,087
28:	£5,497,300 \$30,000,000 4½ per cent. Repayable by half-yearly instalments 1955/63 .. .. .	£10,726,956	
	Less repaid out of local loans .. .. .	5,229,656	
		£5,497,300	
		4,282,201	1,215,099
	<b>EXPORT-IMPORT BANK OF WASHINGTON.</b>		
24:	£7,008,293 \$19,600,000 4 per cent. Repayable by half-yearly instalments 1956/70 .. .. .	5,116,833	1,891,460
	<b>COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED</b>		
30:	£2,000,000 5 per cent. Repayable by half-yearly instalments 1954/68 .. .. .	1,090,000	910,000
	<b>SWISS LOAN</b>		
41:	£4,137,360 Swiss Francs 50,000,000 5 per cent. Repayable by annual instalments 1965/74...	4,137,360	
		£244,803,443	£10,585,646

# Electricity Supply Commission

## Redemption Fund Account for the

Repayment of 4½ per cent Local Registered Stock 1953/63 (Loan No. 3)	£500,000
Difference between Book Value and Market Value of Loan 3 Investments transferred to other sections	41,134
<b>Balance as per Balance Sheet</b>	<b>59,218,264</b>
Cape Western Undertaking	£6,955,592
Cape Northern Undertaking	497,681
Border Undertaking	704,478
Natal Southern Undertaking	5,166,077
Natal Central Undertaking	5,753,911
Eastern Transvaal Undertaking	2,309,167
Rand and Orange Free State Undertaking	33,349,843
Head Office	1,231,515
Original Cost of an Undertaking which has been sold	3,250,000
	<b>£59,218,264</b>

Loan No.	Local Registered Stocks.	
5	£6,750,000 3½ per cent. 1954/64	£6,701,499
6	£2,500,000 3½ per cent. 1959/64	2,444,231
7	£2,000,000 3½ per cent. 1956/66	1,861,056
8	£2,000,000 3½ per cent. 1957/67	1,763,516
9	£2,000,000 3½ per cent. 1959/64	1,767,359
10	£1,500,000 3½ per cent. 1960/65	1,185,959
11	£2,000,000 3½ per cent. 1961/66	1,509,982
12	£2,500,000 3½ per cent. 1965/70	1,528,670
13	£3,000,000 3 per cent. 1967/73	1,509,596
14	£3,000,000 3 per cent. 1968/74	1,235,841
15	£15,000,000 3½ per cent. 1968/73	8,476,227
16	£3,000,000 3½ per cent. 1969/74	1,224,898
17	£3,000,000 3½ per cent. 1969/74	1,110,574
18	£5,250,000 3½ per cent. 1965/67	1,713,231
19	£3,000,000 3½ per cent. 1964/67	947,397
21	£5,000,000 3½ per cent. 1964/68	1,381,401
22	£4,500,000 4½ per cent. 1964/67	1,101,689
23	£5,000,000 5 per cent. 1964/67	1,107,164
25	£3,500,000 5 per cent. 1966/68	816,369
26	£4,000,000 5 per cent. 1967/69	823,212
27	£4,250,000 5 per cent. 1968/70	831,651
29	£8,000,000 5 per cent. 1967/70	1,616,830
31	£8,000,000 5 per cent. 1971/74	2,002,090
32	£10,000,000 5 per cent. 1971/75	2,550,765
33	£8,000,000 4½ per cent. 1975/80	4,051,855
34	£8,000,000 4½ per cent. 1975/80	1,036,614
35	£8,250,000 5½ per cent. 1976/81	917,681
36	£10,000,000 5½ per cent. 1977/82	978,074
37	£11,000,000 5½ per cent. 1976/82	1,110,748
38	£12,000,000 5½ per cent. 1977/83	1,789,987
39	£12,000,000 5½ per cent. 1978/83	821,497
40	£11,000,000 5 per cent. 1979/84	304,145
42	£10,000,000 5 per cent. 1979/84	366,239
43	£8,000,000 5 per cent. 1979/85	485,943
44	£8,000,000 5½ per cent. 1980/85	86,404
45	£8,500,000 5½ per cent. 1980/86	35,145
	Future: not yet raised	22,725
		<b>£59,218,264</b>

£59,759,398

J. VAN NIEKERK, Chief Accountant.

## Year ended 31st December, 1960.

Balance at 31st December, 1959, brought forward		£51,608,049
	<b>Loan No.</b>	
Cape Western Undertaking	3	£500,000
Cape Northern Undertaking	5	6,681,520
Border Undertaking	6	2,326,437
	7	1,816,698
Border Undertaking	8	1,650,590
	9	1,586,983
Natal Southern Undertaking	10	1,126,227
	11	1,386,380
Natal Central Undertaking	12	1,408,879
	13	1,372,011
Eastern Transvaal Undertaking	14	1,117,183
	15	7,679,327
Rand and Orange Free State Undertaking	16	1,054,521
	17	978,210
	18	1,478,684
Head Office	19	824,700
	21	1,185,532
Assets Sold	22	946,549
	23	918,295
	25	638,687
	26	691,426
	27	675,001
	29	1,277,732
	31	1,540,049
	32	1,637,988
	33	3,889,848
	34	768,531
	35	657,355
	36	662,610
	37	796,381
	38	1,372,574
	39	431,233
	40	151,301
	42	97,030
	43	281,577
		<b>£51,608,049</b>
<b>Amounts contributed during the year as per Revenue Accounts</b>		<b>5,370,822</b>
Cape Western Undertaking		£613,875
Cape Northern Undertaking		94,970
Border Undertaking		124,632
Natal Southern Undertaking		498,242
Natal Central Undertaking		296,805
Eastern Transvaal Undertaking		147,166
Rand and Orange Free State Undertaking		3,595,132
<b>Other Contributions</b>		<b>14,977</b>
<b>Proceeds of Sales of Fixed Property</b>		<b>442,985</b>
<b>Interest Earned on Investments</b>		<b>2,322,565</b>

£59,759,398

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, 1961.

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

# Electricity Supply Commission

ACCOUNT No. 2.

## Reserve Fund Account for the Year ended 31st December, 1960.

<b>Expenditure during the year on Replacements and Betterment</b> .. ..		£495,420
Cape Western Undertaking .. .. .	£45,059	
Cape Northern Undertaking .. .. .	3,843	
Border Undertaking .. .. .	1,801	
Natal Southern Undertaking .. .. .	30,197	
Natal Central Undertaking .. .. .	86,319	
Eastern Transvaal Undertaking .. .. .	74,442	
Rand and Orange Free State Undertaking .. .. .	253,759	
<b>Balance as per Balance Sheet</b> .. .. .		12,204,608
Cape Western Undertaking .. .. .	1,338,346	
Cape Northern Undertaking .. .. .	186,403	
Border Undertaking .. .. .	170,298	
Natal Southern Undertaking .. .. .	776,368	
Natal Central Undertaking .. .. .	1,136,040	
Eastern Transvaal Undertaking .. .. .	495,642	
Rand and Orange Free State Undertaking .. .. .	8,101,511	

£12,700,028

<b>Balance at 31st December, 1959, brought forward</b> .. .. .		£9,819,670
Cape Western Undertaking .. .. .	£1,120,739	
Cape Northern Undertaking .. .. .	130,222	
Border Undertaking .. .. .	115,369	
Natal Southern Undertaking .. .. .	574,542	
Natal Central Undertaking .. .. .	1,019,733	
Eastern Transvaal Undertaking .. .. .	467,402	
Rand and Orange Free State Undertaking .. .. .	6,391,663	
<b>Amounts set aside during the year as per Revenue Accounts</b> .. ..		2,354,900
Cape Western Undertaking .. .. .	204,000	
Cape Northern Undertaking .. .. .	52,500	
Border Undertaking .. .. .	50,000	
Natal Southern Undertaking .. .. .	200,000	
Natal Central Undertaking .. .. .	150,000	
Eastern Transvaal Undertaking .. .. .	80,000	
Rand and Orange Free State Undertaking .. .. .	1,618,400	

<b>Profit on Redemption of Investment</b> .. .. .		808
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<b>Interest Earned on Investments</b> .. .. .		524,650
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£12,700,028

# Electricity Supply Commission

ACCOUNT No. 3.

## CAPE WESTERN UNDERTAKING

### Revenue Account for the Year ended 31st December, 1960.

	<b>Generation.</b>	
<b>Operation—</b>		
Fuel .. .. .	£1,304,138	
Water and Stores .. .. .	27,217	
Salaries and Wages .. .. .	157,225	
Other Expenses .. .. .	8,921	
<b>Maintenance—</b>		
Stores .. .. .	24,668	
Salaries and Wages .. .. .	177,190	
Other Expenses .. .. .	19,686	
	<u>£1,719,045</u>	
<b>Distribution.</b>		
<b>Operation and Maintenance—</b>		
Stores .. .. .	37,605	
Salaries and Wages .. .. .	259,006	
Other Expenses .. .. .	43,809	
	<u>340,420</u>	
<b>General Expenses.</b>		
Local Administration and Technical Management .. .. .	124,703	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ..	220,461	
Head Office Administration Expenses .. .. .	37,262	
Head Office Engineering Expenses .. .. .	30,668	
	<u>413,094</u>	
<b>Capital Charges.</b>		
Interest .. .. .	1,172,523	
Redemption Fund .. .. .	613,875	
Instalments and Provision for Repayment of Overseas Loans ..	90,305	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired .. .. .	287	
Amount set aside to Reserve Fund .. .. .	204,000	
	<u>2,080,990</u>	
	4,553,549	
Balance carried down .. .. .	4,852	
	<u>£4,558,401</u>	
Balance at 31st December, 1959, brought forward .. .. .	£179,855	
	<u>£179,855</u>	

<b>Sales of Electricity.</b>		
Traction Supplies .. .. .	£970,741	
Bulk Supplies .. .. .	1,306,038	
Industrial Supplies .. .. .	1,307,160	
Domestic and Lighting Supplies .. .. .	958,848	
	<u>£4,542,787</u>	
Other Revenue .. .. .		15,614

	<u>£4,558,401</u>	<u>£4,558,401</u>
Balance brought down .. .. .		£4,852
Balance as per Balance Sheet .. .. .		175,003
		<u>£179,855</u>

Johannesburg,  
30th March, 1961.

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1961.

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

# Electricity Supply Commission

## CAPE NORTHERN UNDERTAKING

### Revenue Account for the Year ended 31st December, 1960.

<b>Generation.</b>			
Operation—			
Fuel .. .. .	£148,499		
Water and Stores .. .. .	17,240		
Salaries and Wages .. .. .	28,972		
Other Expenses .. .. .	7,943		
Maintenance—			
Stores .. .. .	2,738		
Salaries and Wages .. .. .	17,308		
Other Expenses .. .. .	2,754		
		£225,454	
<b>Electricity Purchased.</b>			
Proportion of Pooled Costs of Rand and Orange Free State and Eastern Transvaal Undertakings .. .. .	216,290		
Electricity supplied by Rand and Orange Free State Undertaking .. .. .	26,811		
		243,101	
<b>Distribution.</b>			
Operation and Maintenance—			
Stores .. .. .	4,173		
Salaries and Wages .. .. .	13,336		
Other Expenses .. .. .	7,843		
		25,352	
<b>General Expenses.</b>			
Local Administration and Technical Management .. .. .	20,416		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	15,731		
Head Office Administration Expenses .. .. .	5,140		
Head Office Engineering Expenses .. .. .	4,230		
		45,517	
<b>Capital Charges.</b>			
Interest .. .. .	183,015		
Redemption Fund .. .. .	94,970		
Instalments and Provision for Repayment of Overseas Loans .. .. .	1,063		
Amount set aside to Reserve Fund .. .. .	52,500		
		331,548	
		870,972	
Balance carried down .. .. .		31,643	
		£902,615	
Balance as per Balance Sheet .. .. .		£84,672	
		£84,672	

<b>Sales of Electricity.</b>			
Bulk Supplies .. .. .		£284,615	
Mining Supplies .. .. .		369,964	
Industrial Supplies .. .. .		201,780	
Domestic Supplies .. .. .		45,475	
		£901,834	
Other Revenue .. .. .			781

Balance at 31st December, 1959, brought forward .. .. .	£53,029		
Balance brought down .. .. .	31,643		
	£84,672		

Referred to in our Report of 18th May, 1961.

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
30th March, 1961.

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

# Electricity Supply Commission

## BORDER

## UNDERTAKING

Revenue Account for the Year

ended 31st December, 1960.

Generation.		
Operation—		
Fuel .. .. .	£282,149	
Water and Stores .. .. .	4,294	
Salaries and Wages .. .. .	51,421	
Other Expenses .. .. .	2,304	
Maintenance—		
Stores .. .. .	11,087	
Salaries and Wages .. .. .	35,651	
Other Expenses .. .. .	5,187	
	£392,093	
Distribution.		
Operation and Maintenance—		
Stores .. .. .	5,853	
Salaries and Wages .. .. .	25,115	
Other Expenses .. .. .	5,747	
	36,715	
General Expenses.		
Local Administration and Technical Management .. .. .	27,750	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	31,376	
Head Office Administration Expenses .. .. .	5,140	
Head Office Engineering Expenses .. .. .	4,230	
	68,496	
Capital Charges.		
Interest .. .. .	237,746	
Redemption Fund .. .. .	124,632	
Instalments and Provision for Repayment of Overseas Loans .. .. .	5,571	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired .. .. .	268	
Amount set aside to Reserve Fund .. .. .	50,000	
	418,217	
	915,521	
Balance carried down .. .. .	21,424	
	£936,945	
Balance at 31st December, 1959, brought forward .. .. .	£96,960	
	£96,960	

Sales of Electricity.		
Bulk Supplies .. .. .	£761,929	
Industrial Supplies .. .. .	64,326	
Domestic and Lighting Supplies .. .. .	109,691	
	£935,946	
Other Revenue .. .. .		999
		£936,945
Balance brought down .. .. .		£21,424
Balance as per Balance Sheet .. .. .		75,536
		£96,960

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1961.

Johannesburg,  
30th March, 1961.

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



# Electricity Supply Commission

## NATAL SOUTHERN

### Revenue Account for the Year

Generation.		
Proportion of Pooled Costs (as per attached statement) .. .. .	£3,883,875	
Other Operation and Maintenance Costs—		
Operation—		
Fuel .. .. .	248	
Water and Stores .. .. .	66	
Salaries and Wages .. .. .	674	
Other Expenses .. .. .	28	
Maintenance—		
Stores .. .. .	92	
Salaries and Wages .. .. .	421	
Other Expenses .. .. .	6	
	£3,885,410	
Electricity Purchased.		
Electricity Purchased .. .. .	30,109	
Distribution.		
Operation and Maintenance—		
Stores .. .. .	25,684	
Salaries and Wages .. .. .	83,943	
Other Expenses .. .. .	76,569	
	186,196	
Less—Charged to Pooled Costs (Interconnector) .. .. .	5,114	
	181,082	
General Expenses.		
Local Administration and Technical Management .. .. .	91,712	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	87,905	
Head Office Administration Expenses .. .. .	37,262	
Head Office Engineering Expenses .. .. .	30,668	
	247,547	
Less—Charged to Pooled Costs .. .. .	159,001	
	88,546	
Capital Charges.		
Interest .. .. .	864,580	
Redemption Fund .. .. .	498,242	
Sinking Fund .. .. .	35	
Instalments and Provision for Repayment of Overseas Loans .. .. .	96,246	
Amount set aside to Reserve Fund .. .. .	200,000	
	1,659,103	
Less—Charged to Pooled Costs .. .. .	1,331,938	
	327,165	
	£4,512,312	
Balance brought down .. .. .	£75,624	
Balance as per Balance Sheet .. .. .	24,610	
	£100,234	

Johannesburg,  
30th March, 1961.

J VAN NIEKERK, Chief Accountant.

# Commission

## UNDERTAKING

### ended 31st December, 1960.

Sales of Electricity.		
Traction Supplies .. .. .	£318,644	
Bulk Supplies .. .. .	3,245,288	
Industrial Supplies .. .. .	595,756	
Domestic and Lighting Supplies .. .. .	273,900	
	£4,433,588	
Other Revenue .. .. .	8,113	
Less—Credited to Pooled Costs .. .. .	5,013	
	3,100	
	4,436,688	
Balance carried down .. .. .	75,624	

	£4,512,312	
Balance at 31st December, 1959, brought forward .. .. .	£23,843	
Adjustment of Traction Supplies for the period prior to 1st January, 1960 .. .. .	76,391	
	£100,234	

Referred to in our Report of 18th May, 1961.

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

# Electricity Supply Commission

## NATAL CENTRAL

### Revenue Account for the Year

<b>Generation.</b>		
Proportion of Pooled Costs (as per attached statement) .. .. .		£1,914,513
Other Operation and Maintenance Costs—		
Operation—		
Fuel .. .. .	67	
Water and Stores .. .. .	8	
Salaries and Wages .. .. .	77	
Other Expenses .. .. .	28	
Maintenance—		
Stores .. .. .	7	
Salaries and Wages .. .. .	16	
	£1,914,716	
<b>Distribution.</b>		
Operation and Maintenance—		
Stores .. .. .	23,223	
Salaries and Wages .. .. .	116,222	
Other Expenses .. .. .	35,482	
	174,927	
Less—Charged to Pooled Costs (Interconnector) .. .. .	2,567	
	172,360	
<b>General Expenses.</b>		
Local Administration and Technical Management .. .. .	75,609	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	89,999	
Head Office Administration Expenses .. .. .	37,262	
Head Office Engineering Expenses .. .. .	30,668	
	233,538	
Less—Charged to Pooled Costs .. .. .	110,767	
	122,771	
<b>Capital Charges.</b>		
Interest .. .. .	525,751	
Redemption Fund .. .. .	296,805	
Instalments and Provision for Repayment of Overseas Loans .. .. .	33,716	
Amount set aside to Reserve Fund .. .. .	150,000	
	1,006,272	
Less—Charged to Pooled Costs .. .. .	607,658	
	398,614	
	£2,608,461	
Balance at 31st December, 1959, brought forward .. .. .	£42,690	
Balance brought down .. .. .	108,533	
	£151,223	

## UNDERTAKING

### ended 31st December, 1960.

<b>Sales of Electricity.</b>		
Traction Supplies .. .. .		£1,010,923
Bulk Supplies .. .. .		948,353
Mining Supplies .. .. .		154,545
Industrial Supplies .. .. .		199,865
Domestic and Lighting Supplies .. .. .		178,837
	£2,492,523	
Other Revenue .. .. .		16,569
Less—Credited to Pooled Costs .. .. .		9,164
	7,405	
Balance carried down .. .. .		2,499,928
		108,533
		£2,608,461
Balance as per Balance Sheet .. .. .		£151,223
		£151,223

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1961.

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

# Electricity Supply Commission

## NATAL SOUTHERN AND

### Statement of Pooled Costs and Allocation

#### Generation.

Operation—			
Fuel .. .. .	£2,821,482		
Water and Stores .. .. .	80,755		
Salaries and Wages .. .. .	267,232		
Other Expenses .. .. .	54,390		
Maintenance—			
Stores .. .. .	106,869		
Salaries and Wages .. .. .	246,583		
Other Expenses .. .. .	18,209		
	£3,595,520		

#### Interconnector.

Operation and Maintenance—			
Stores .. .. .	1,071		
Salaries and Wages .. .. .	5,090		
Other Expenses .. .. .	1,520		
	7,681		

#### General Expenses.

Local Administration and Technical Management .. .. .	69,611		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	101,776		
Head Office Administration and Engineering Expenses .. .. .	98,381		
	269,768		

#### Capital Charges.

Interest .. .. .	977,634		
Redemption Fund .. .. .	570,801		
Instalments and Provision for Repayment of Overseas Loans .. .. .	129,961		
Reserve Fund .. .. .	261,200		
	1,939,596		

£5,812,565

# Commission

## NATAL CENTRAL UNDERTAKINGS

### for the year ended 31st December, 1960.

#### Allocation.

Natal Southern Undertaking .. .. .	£3,883,875		
Natal Central Undertaking .. .. .	1,914,513		
	£5,798,388		
Sundry Revenue .. .. .			14,177

£5,812,565

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
30th March, 1961.

Referred to in our Report of 18th May, 1961.

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

# Electricity Supply Commission

ACCOUNT No. 8

## EASTERN TRANSVAAL UNDERTAKING

### Revenue Account for the Year ended 31st December, 1960.

<b>Generation.</b>		
Proportion of Pooled Costs (as per attached statement) .. .. .	£1,127,616	
Other Operation and Maintenance Costs—		
Operation—		
Water and Stores .. .. .	78	
Salaries and Wages .. .. .	5,748	
Other Expenses .. .. .	156	
Maintenance—		
Stores .. .. .	176	
Salaries and Wages .. .. .	422	
Other Expenses .. .. .	16	
	£1,134,212	
<b>Electricity Purchased.</b>		
Electricity Purchased .. .. .	16,094	
Electricity Supplied by Rand and Orange Free State Undertaking	92,518	
	108,612	
<b>Distribution.</b>		
Operation and Maintenance—		
Stores .. .. .	20,139	
Salaries and Wages .. .. .	49,424	
Other Expenses .. .. .	21,674	
	91,237	
<b>General Expenses.</b>		
Local Administration and Technical Management .. .. .	43,544	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	73,715	
Head Office Administration Expenses .. .. .	37,262	
Head Office Engineering Expenses .. .. .	30,668	
	185,189	
<i>Less—Charged to Pooled Costs</i> .. .. .	79,220	
	105,969	
<b>Capital Charges.</b>		
Interest .. .. .	299,685	
Redemption Fund .. .. .	147,166	
Instalments and Provision for Repayment of Overseas Loans .. .. .	18,515	
Amount set aside to Reserve Fund .. .. .	80,000	
	545,366	
<i>Less—Charged to Pooled Costs</i> .. .. .	203,201	
	342,165	
	£1,782,195	
Balance brought down .. .. .	£9,065	
Balance as per Balance Sheet .. .. .	28,575	
	£37,640	

J. VAN NIEKERK, Chief Accountant.

<b>Sales of Electricity.</b>		
Traction Supplies .. .. .	£119,793	
Bulk Supplies .. .. .	127,670	
Mining Supplies .. .. .	684,516	
Industrial Supplies .. .. .	785,577	
Domestic and Lighting Supplies .. .. .	51,508	
	£1,769,064	
Other Revenue .. .. .	7,885	
<i>Less—Credited to Pooled Costs</i> .. .. .	3,819	
	4,066	
	1,773,130	
Balance carried down .. .. .	9,065	
	£1,782,195	
Balance at 31st December, 1959, brought forward .. .. .	£37,640	
	£37,640	

Referred to in our Report of 18th May, 1961.

Johannesburg,  
30th March, 1961.ALEX. AIKEN & CARTER,  
HALSEY, BUTTON & PERRY,  
Registered Accountants and Auditors.

# Electricity Supply Commission

ACCOUNT No. 9

## RAND AND ORANGE FREE STATE UNDERTAKING

### Revenue Account for the Year ended 31st December, 1960.

<b>Generation.</b>		
Proportion of Pooled Costs (as per attached statement) .. .. .	£19,578,731	
<b>Other Operation and Maintenance Costs—</b>		
<b>Operation—</b>		
Fuel .. .. .	100,157	
Water and Stores .. .. .	16,836	
Salaries and Wages .. .. .	75,897	
Other Expenses .. .. .	244	
<b>Maintenance—</b>		
Stores .. .. .	31,057	
Salaries and Wages .. .. .	108,160	
Other Expenses .. .. .	1,037	
	£19,912,119	
<b>Distribution.</b>		
<b>Operation and Maintenance—</b>		
Stores .. .. .	223,132	
Salaries and Wages .. .. .	857,179	
Other Expenses .. .. .	15,023	
	1,095,334	
Less—Charged to Pooled Costs (Interconnector) .. .. .	32,991	
Less—Charged to Cape Northern Undertaking .. .. .	26,811	
	1,035,532	
<b>General Expenses.</b>		
Local Administration and Technical Management .. .. .	318,139	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	615,825	
Head Office Administration Expenses .. .. .	97,651	
Head Office Engineering Expenses .. .. .	80,372	
	1,111,987	
Less—Charged to Pooled Costs .. .. .	769,471	
	342,516	
<b>Capital Charges.</b>		
Interest .. .. .	6,399,915	
Redemption Fund .. .. .	3,595,132	
Instalments and Provision for Repayment of Overseas Loans .. .. .	1,276,031	
Amount set aside to Reserve Fund .. .. .	1,618,400	
	12,889,478	
Less—Charged to Pooled Costs .. .. .	9,054,907	
	3,834,571	
	25,124,738	
Balance carried down .. .. .	685,437	
	£25,810,175	
Balance as per Balance Sheet .. .. .	£733,657	
	£733,657	

<b>Sales of Electricity.</b>		
Traction Supplies .. .. .	£1,051,983	
Bulk Supplies .. .. .	3,069,505	
Mining Supplies .. .. .	15,902,512	
Industrial Supplies .. .. .	4,503,014	
Domestic and Lighting Supplies .. .. .	215,830	
	£24,742,844	
Sales of Air and Steam .. .. .	957,776	
	25,700,620	
Electricity Supplied to Eastern Transvaal Undertaking .. .. .	92,518	
Other Revenue .. .. .	115,520	
Less—Credited to Pooled Costs .. .. .	98,483	
	17,037	

Balance at 31st December, 1959, brought forward .. .. .	£48,220
Balance brought down .. .. .	685,437
	£733,657

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 18th May, 1961.

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

Johannesburg,  
30th March, 1961.

## Electricity Supply

**RAND AND ORANGE FREE STATE AND**

### Statement of Pooled Costs and Allocation

	<b>Generation.</b>	
<b>Operation—</b>		
Fuel .. .. .	8,100,819	
Water and Stores .. .. .	186,659	
Salaries and Wages .. .. .	1,097,042	
Other Expenses .. .. .	40,296	
<b>Maintenance—</b>		
Stores .. .. .	500,837	
Salaries and Wages .. .. .	928,026	
Other Expenses .. .. .	29,221	
	£10,882,900	
<b>Electricity Purchased.</b>		
Electricity Purchased .. .. .		2,249
<b>Interconnector.</b>		
<b>Operation and Maintenance—</b>		
Stores .. .. .	6,819	
Salaries and Wages .. .. .	25,395	
Other Expenses .. .. .	777	
	32,991	
<b>General Expenses.</b>		
Local Administration and Technical Management .. .. .	244,483	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) .. .. .	447,087	
Head Office Administration and Engineering Expenses .. .. .	157,121	
	848,691	
<b>Capital Charges.</b>		
Interest .. .. .	4,545,163	
Redemption Fund .. .. .	2,423,190	
Instalments and Provision for Repayment of Overseas Loans .. .. .	1,194,973	
Reserve Fund .. .. .	1,094,782	
	9,258,108	
		£21,024,939

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
30th March, 1961.

## Commission

**EASTERN TRANSVAAL UNDERTAKINGS**

### for the Year ended 31st December, 1960.

	<b>Allocation.</b>	
Rand and Orange Free State Undertaking .. .. .	£19,578,731	
Eastern Transvaal Undertaking .. .. .	1,127,616	
Cape Northern Undertaking .. .. .	216,290	
	£20,922,637	
Sundry Revenue .. .. .		102,302
		£21,024,939

Referred to in our Report of 18th May, 1961.

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

# ANNEXURE B

## Electricity Supply Commission

### POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1960.

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		
		Steam	30.0	4	55.0	2	4.0		
Cape Northern 15,700	West Bank No. 2	Steam	30.0	3	170.0	2	15.0		
		Steam	30.0	8	30.0	1	3.0		
	Central, Kimberley	Steam	30.0	4	75.0	3	5.0		
Cape Western 22,400	Salt River No. 1 Salt River No. 2 Hex River	Steam	90.3	2	60.0	3	10.0	1	0.3
		Steam	120.0		100.0		20.0		
		Steam	60.0		260.0		30.0		
Eastern Transvaal 26,862	Sabie Gorge	Hydro	1.35	—	—	3	0.45		
	Witbank	Steam	128.0	20	70.0	6	20.0	1	8.0
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				

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	3·4 120·0	— 8	— 180·0	2 2 4	0·7 1·0 30·0
Rand & O.F.S. 55,500	Brakpan	Steam	48·0	10	45·0	1	3·0
	Highveld	Steam	360·0	6	550·0	2 1 6	12·5 20·0 60·0
	Klip	Steam	424·0	24	180·0	12	33·0
	Rosherville	Steam	38·4	24 8	38·0 48·0	4	9·6
	Taaiibos	Steam	480·0	8	580·0	8	60·0
	Vaal	Steam	318·0	18	190·0	9	33·0
	Vereeniging	Steam	157·5	20 2 6	45·0 60·0 180·0	3 3	20·0 32·5
	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
							7·0

## SUMMARY:

Total Number of Boilers	..	..	..	..	..	..	..	261
Total Boiler House Rating	..	..	..	..	..	..	..	38,057,000 lb./hr.
Total Number of Main Generators	..	..	..	..	..	..	..	131 Capacity 3,359·15 MW
Total Number of House Sets	..	..	..	..	..	..	..	9 Capacity 57·30 MW
Total Plant Capacity (Electricity)	..	..	..	..	..	..	..	3,416·45 MW

## Major Items of Plant Commissioned 1960

Umgeni ... .. 1—60 MW Generator



## 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. Engines
	1	Turbo	2,650		
Rosherville Power Station ..	1	Turbo	2,500	48,800	" Steam Turbine
	1	Turbo	4,400		
	3	Turbo	6,000		
	2	Turbo	7,100		
	1	Turbo	9,700		
Total Compressed Air Sets .. ..	21		84,450 = 63.00 MW		

## CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1960

Undertaking	Number	MVA
Border .. .. .	354	85.4
Cape Northern .. .. .	620	144.0
Cape Western .. .. .	2,914	892.3
Eastern Transvaal .. .. .	1,017	748.6
Natal Central .. .. .	1,556	622.1
Natal Southern .. .. .	1,019	628.6
Rand .. .. .	3,914	12,541.5
At Compressor Stations, Rand .. .. .	40	324.6
<b>TOTALS .. .. .</b>	<b>11,434</b>	<b>15,987.1</b>

10 KVA and under .. .. .	3,750	Transformers
Over 10 and under 100 .. .. .	3,097	"
100 and over but under 200 .. .. .	786	"
200 and over but under 500 .. .. .	657	"
500 and over but under 1,000 .. .. .	565	"
1,000 and over but under 10,000 .. .. .	2,182	"
10,000 and over but under 20,000 .. .. .	231	"
20,000 and over. .. .. .	166	"

**TRANSMISSION LINES AND CABLES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1960**

**(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...	—	—	—	102-00	—	67-70	—	—	405-94	—	3-50	—	—	76-55	655-69
Cape Northern ...	—	181-50	—	166-00	—	—	—	—	348-20	—	—	—	—	13-0	708-70
Cape Western ...	—	—	—	555-77	—	163-20	—	—	1,204-88	279-98	—	—	—	889-47	3,093-30
Eastern Transvaal	—	143-40	332-30	—	—	—	—	512-81	379-70	24-31	6-74	38-38	—	101-66	1,539-30
Natal Central ...	—	74-69	648-87	—	—	253-71	36-13	—	883-88	226-74	0-15	0-95	—	183-66	2,308-48
Natal Southern ...	—	102-80	179-71	—	—	44-51	—	—	517-16	42-92	—	—	—	247-99	1,135-09
Rand & O.F.S. ...	197-17	1,234-13	2,011-46	—	1,196-51	—	—	117-59	393-29	124-48	—	5-62	—	243-94	5,524-19
Totals ...	197-17	1,736-52	3,172-04	823-77	1,196-51	529-12	36-13	630-40	4,133-05	698-43	10-39	44-95	—	1,756-27	14,964-75

**(b) UNDERGROUND CABLES**

Border...	—	—	—	—	—	69-23	—	—	19-23	—	2-34	—	—	—	21-57
Cape Western ...	—	—	—	23-32	—	—	—	—	90-18	3-62	2-13	—	—	64-24	252-72
Eastern Transvaal	—	—	—	—	—	—	—	19-24	3-32	1-17	0-50	—	—	0-65	24-88
Natal Central ...	—	—	—	—	—	—	—	—	2-81	3-84	1-89	—	—	3-98	12-52
Natal Southern ...	—	—	—	—	—	4-44	—	—	31-68	0-16	—	—	—	16-73	53-01
Rand & O.F.S. ...	—	—	—	—	4-15	—	—	81-19	35-71	130-01	1-72	17-82	1-84	35-34	307-78
Totals ...	—	—	—	23-32	4-15	73-67	—	100-43	182-93	138-80	8-58	17-82	1-84	120-94	672-48

TOTAL WORKING:—LINES AND CABLES: 15,637-23

STATEMENT No. 2

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1960.

Undertaking	Electric Power Stations	BOILERS		GENERATORS		Trans- mission Lines and Cables Circuit Miles	TRANSFORMERS	
		No.	Continuous Maximum Rating Each thousand lb./hr.	No.	Normal Rating Each MW		No.	Total Capacity MVA
Border ... ..		—	—	1	15·0	25	54	7·5
Cape Northern ... ..	Central, Kimberley	—	—	—	—	114	201	260·0
Cape Western ... ..	Hex River	2	275	2	30·0	314	199	137·6
Eastern Transvaal ... ..	Witbank	—	—	—	—	101	498	646·7
Natal Central ... ..	Ingagane	2	900	2	100·0	380	187	503·5
Natal Southern ... ..	Umgeni	5	260	2	60·0	87	13	171·2
Rand ... ..	{ Highveld	2	550	2	60·0	473	197	1,240·9
	{ Komati	5	900	5	100·0			
		2	1,125	2	125·0			

SUMMARY:

Number of Boilers	...	18	...	...	...	C. M. R. 11,500,000 lb./hr.
Number of Generators	...	16	...	...	...	Total Rating 1,265·0 MW
Transmission Lines	...	...	...	...	...	1,494 Circuit Miles
Transformers...	...	1,349	...	...	...	Rating 2,967·4 MVA

**STATEMENT No. 3**  
**UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST THIRTY-SIX 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		6.1		890.7
1932			100.7	639.4		109.2	118.5		6.3		974.1
1933			73.6	648.3		124.9	131.1		7.3		985.2
1934			80.0	727.9		154.3	149.8		7.2		1,119.2
1935			85.8	696.4	557.0	171.5	170.4		6.9		1,688.0
1936			94.0	684.5	1,349.9	210.6	189.4		7.2		2,535.6
1937			98.8	768.1	1,666.9	234.9	209.5		7.2		2,985.4
1938			106.5	767.7	2,193.2	266.2	233.7		6.4		3,573.7
1939			119.8	853.3	2,566.6	281.1	242.7		6.7		4,070.2
1940			136.2	862.6	2,675.9	302.4	270.3		6.6		4,254.0
1941			151.8	873.4	2,707.8	307.7	273.8		6.3		4,320.8
1942			158.7	849.1	2,669.1	312.4	293.4		5.9		4,275.6
1943			165.9	830.7	2,703.6	336.0	321.6		6.7	377.9	4,415.8
1944			184.6	896.9	2,643.0	333.2	348.8		7.4	582.5	4,706.1
1945			198.6	887.7	2,614.3	346.0	369.7		7.6	582.5	5,002.4
1946			222.4	633.2	2,547.2	367.9	402.6		7.6	668.6	5,114.5
1947	56.2		222.4	633.2	1,207.4	367.9	448.7		7.3	435.1	5,576.9
1948	69.2		249.5	358.3		371.8	448.7	2,185.7	7.0		6,222.2
1949	68.7		271.9	378.5		406.5	513.0	4,653.9	7.0		6,910.6
1950	79.9	53.9	303.5	386.8		433.4	561.8	5,151.8	6.3		7,456.5
1951	88.0	58.5	341.2	425.0		454.0	617.0	5,563.2	6.1		8,080.5
1952	107.8	67.1	375.5	409.9		492.3	655.6	6,039.6	6.1		8,080.5
1953	118.2	70.7	436.2	270.5		532.5	713.2	6,560.0	6.4		8,732.2
1954	130.8	73.2	527.1	394.6		546.4	870.0	7,465.2	5.6		9,676.6
1955	139.1	78.7	585.1	505.9		595.4	957.7	8,416.3	5.6		10,964.0
1956	143.1	86.1	698.6	536.5		621.7	1,018.7	9,151.6	6.0		12,019.5
1957	152.9	115.2	826.0	584.1		616.1	1,104.1	10,200.6	5.9		13,602.1
1958	165.1	171.4	861.8	633.3		629.4	1,288.6	11,034.8	3.1		14,724.4
1959	172.3	185.1	871.6	762.0		649.3	1,409.0	12,044.8			16,094.1
1960											

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 .. .. .				155,189,375	4·786	11		
Cape Northern ..				64,941,706	2·003	5	73,208,029	0·886
Cape Western ..	202,216,600	19·348	2	299,323,464	9·231	30		
Eastern Transvaal	46,465,260	4·446	1	47,134,566	1·453	11	239,687,386	2·902
Natal Central ..	274,661,525	26·279	1	269,811,700	8·320	17	38,876,010	0·471
Natal Southern ..	104,741,831	10·021	1	1,085,577,163	33·477	3		
Rand & O.F.S. ..	417,099,126	39·906	2	1,320,772,037	40·730	78	7,906,930,875	95·741
<b>Total Electricity</b>	<b>1,045,184,342</b>	<b>100·000</b>	<b>7</b>	<b>3,242,750,011</b>	<b>100·000</b>	<b>155</b>	<b>8,258,702,300</b>	<b>100·000</b>
<b>Per cent. of Total</b>	<b>6·545</b>			<b>20·307</b>			<b>51·719</b>	

## AIR AND STEAM

Rand and O.F.S.:								
Air .. .. .				3,073,255	100·000	1	111,580,093	98·577
Steam .. .. .							1,610,470	1·423
<b>Total Air and Steam .. .. .</b>				<b>3,073,255</b>	<b>100·000</b>	<b>1</b>	<b>113,190,563</b>	<b>100·000</b>
<b>Per cent of Total</b>				<b>2·445</b>			<b>90·057</b>	

## ELECTRICITY, AIR &amp; STEAM

Grand Total all Sales .. .. .	1,045,184,342		7	3,245,823,266		156	8,371,892,863	
<b>Per cent. of Grand Total</b>	<b>6·494</b>			<b>20·168</b>			<b>52·018</b>	

## STATEMENT No. 4

## CONSUMERS, 1960 (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	
	6,462,276	0·204	255	10,630,265	4·200	2,627	172,281,916	1·079	2,893
16	43,618,340	1·377	94	3,416,713	1·350	937	185,184,788	1·160	1,052
	235,098,376	7·420	2,550	134,966,163	53·323	28,341	871,604,603	5·458	30,923
41	424,800,926	13·406	375	3,928,789	1·552	1,495	762,016,927	4·772	1,923
15	45,987,824	1·451	570	19,952,760	7·883	5,206	649,289,819	4·066	5,809
	185,310,568	5·848	327	33,365,483	13·182	6,282	1,408,995,045	8·824	6,613
111	2,227,415,563	70·294	868	46,850,446	18·510	5,080	11,919,068,047	74·641	6,139
<b>183</b>	<b>3,168,693,873</b>	<b>100·000</b>	<b>5,039</b>	<b>253,110,619</b>	<b>100·000</b>	<b>49,968</b>	<b>15,968,441,145</b>	<b>100·000</b>	<b>55,352</b>
	<b>19·844</b>			<b>1·585</b>			<b>100·000</b>		

10	9,424,313	100·000	24				124,077,661	98·719	35
1							1,610,470	1·281	1
<b>11</b>	<b>9,424,313</b>	<b>100·000</b>	<b>24</b>				<b>125,688,131</b>	<b>100·000</b>	<b>36</b>
	<b>7·498</b>						<b>100·000</b>		

·194	3,178,118,186		5,063	253,110,619		49,968	16,094,129,276		55,388
	<b>19·747</b>			<b>1·573</b>			<b>100·000</b>		

Electricity 99·219 per cent. } of Total  
Air and Steam 0·781 per cent. } SalesEnergy Used by Provinces:—  
ELECTRICITY, AIR AND STEAM:

Cape .. .. .	202,216,600	19·347	2	526,661,827	16·226	45	72,791,149	0·870
Natal .. .. .	379,403,356	36·300	1	1,326,508,963	40·868	14	38,876,010	0·464
O.F.S. .. .. .	47,614,562	4·556	2	212,338,869	6·542	32	2,131,656,924	25·462
Transvaal .. ..	415,949,824	39·797	2	1,180,313,607	36·364	65	6,128,568,780	73·204

15	285,072,284	8·970	2,892	148,875,144	58·818	31,845	1,235,617,004	7·677	34,799
15	228,709,743	7·196	722	45,650,650	18·036	8,868	2,019,148,722	12·546	9,620
17	95,167,752	2·995	133	2,903,067	1·147	937	2,489,681,174	15·470	1,121
147	2,569,168,407	80·839	1,316	55,681,758	21·999	8,318	10,349,682,376	64·307	9,848

## (1) ELECTRICITY GENERATION:

## POWER STATION OPERATING STATISTICS: YEAR 1960.

## 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	
Brakpan ... ..	43,434,964	38,285,725	Hour 27,063	—	16·1
Central, Kimberley ... ..	71,673,200	62,220,933	21,345	23,800	33·2
Colenso No. 1 & No. 2 ... ..	818,489,340	771,109,120	137,940	151,000	63·6
Congella No. 1 & No. 2 ... ..	792,960,500	733,171,700	157,934	174,000	52·8
Hex River ... ..	224,173,400	210,890,860	57,500 Hour	59,200	41·9
Highveld ... ..	1,820,380,538	1,708,421,085	283,613 Hour	—	68·6
Klip ... ..	2,644,260,011	2,467,413,347	351,873 Hour	—	79·8
Rosherville ... ..	29,020,554	26,533,646	32,898 Hour	—	—
Salt River No. 1 } No. 1 also receives Salt River No. 2 } Steam from No. 2	24,927,723	21,832,520	36,735	42,600	6·8
Taaibos ... ..	3,260,132,555	3,011,801,952	447,384 Hour	—	76·6
Umgeni ... ..	672,381,500	633,427,900	118,800 Hour	125,000	60·7
Vaal ... ..	2,074,654,887	1,952,318,714	284,502 Hour	—	78·1
Vereeniging ... ..	913,680,352	851,308,852	137,410 Hour	—	70·5
Vierfontein ... ..	1,727,128,543	1,604,320,573	343,484 Hour	—	53·2
West Bank No. 1 & No. 2 ... ..	186,634,270	176,545,660	36,680 Hour	40,600	54·8
Wilge ... ..	1,622,689,027	1,506,961,586	222,986 Hour	—	76·9
Witbank ... ..	793,655,231	742,485,337	122,675 Hour	—	68·9
<b>GRAND TOTALS: ...</b>	<b>18,460,847,275</b>	<b>17,225,373,430</b>			

Total Rand and O.F.S. Undertaking (including Witbank)	14,929,036,662	13,909,850,817			
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The King William's Town Steam Plant was not used.

## 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 .. ..	2,183,300	2,029,100	560	620	41·3	61·1	1552

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
53,142	2·447	2·776	9,890	24,200	27,450	14·1	12·4
78,543	2·192	2·525	11,200	24,550	28,280	13·9	12·1
626,648	1·531	1·625	11,080	16,960	18,010	20·1	18·9
533,201	1·345	1·455	11,310	15,210	16,460	22·4	20·7
137,229	1·224	1·301	11,510	14,090	14,980	24·2	22·8
1,147,373	1·261	1·343	8,770	11,060	11,780	30·9	29·0
2,011,934	1·522	1·631	10,220	15,550	16,670	21·9	20·5
48,422	3·337	3·650	9,880	32,970	36,060	10·4	9·5
14,766	1·865	2·129	11,670	21,760	24,850	15·7	13·7
391,781	1·042	1·092	11,670	12,160	12,740	28·1	26·8
2,184,064	1·340	1·450	9,020	12,090	13,080	28·2	26·1
412,023	1·226	1·301	10,980	13,460	14,280	25·3	23·9
1,801,471	1·737	1·845	8,590	14,900	15,850	22·9	21·5
1,038,478	2·273	2·440	9,160	20,820	22,350	16·4	15·3
1,330,098	1·540	1·658	8,930	13,750	14,810	24·8	23·0
122,520	1·313	1·388	11,440	15,020	15,880	22·7	21·5
1,018,571	1·255	1·352	9,790	12,290	13,240	27·8	25·8
734,491	1·851	1·978	11,170	20,680	22,090	16·5	15·4
<b>13,684,755</b>							

11,368,044

Statement No. 5—(Continued)  
**POWER STATION OPERATING STATISTICS: YEAR 1960.**

**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 .. .. .	2,765	2,765	1,000	1,000	1,577	0.570	—
Port Shepstone .. .. .	29,787	29,222	2,592	2,660	17,402	0.596	90
Volksrust .. .. .	4,295	4,166	400	400	3,758	0.902	19
<b>Totals .. .. .</b>	<b>36,847</b>	<b>36,153</b>			<b>22,737</b>		<b>109</b>

**(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	78,640,700	78,511,200	59.5	105,667	2.692	42,118,744	78.64	44,710 (July)	33.6
Robinson .. .. .	Electric	33,122,500	33,122,500	25.1			25,111,280	81.10		
Canada Dam .. .. .	Electric	20,366,300	20,366,300	15.4						
<b>Air Pipe-Line Totals .. .. .</b>		<b>132,129,500</b>	<b>132,000,000</b>	<b>100.0</b>	<b>105,667</b>		<b>67,230,024</b>			

\*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 %
Brakpan .. .. .	1,633,850	1,610,470	2,394	2.973	1,498 (Oct., Dec.)	12.2

**GENERATION SUMMARY:**

TOTAL COAL BURNED =	Steam Driven Generating Stations + Compressed Air Steam Driven Stations	
=	13,684,755 + 108,061	
=	13,792,816 Tons of 2,000 lb. (Increase of 1,062,538 over 1959 or 8.347%).	
TOTAL UNITS GENERATED =	Electricity (Steam + Hydro + Diesel) + Air Units Generated at Steam Driven Stations + Steam Units Generated (Brakpan).	
=	18,460,847,275 + 18,463,067,422 + 36,847	
=	36,923,914,702	
UNITS SENT OUT =	18,543,341,972 + 78,640,700 + 1,633,850	
=	17,361,049,153 (93.624% of Generated)	

**POWER PURCHASED, YEAR 1960.**

Under-taking	Purchased From	Maximum Demands	UNITS
Eastern Transvaal	Ermelo Municipality . . . . .	102 kVA	95,300
	Pretoria, City of—at Pinedene . . . . . (ceased March)	—	7,428,422
Natal	Durban, City of—at Canelands . . . . .	2,049 kVA	7,797,210
TOTAL UNITS PURCHASED . . . . .			15,320,932 (0.095 per cent of Units Sold)

**WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1960.**

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border... ..	19	—	—
Cape Northern ... ..	139	—	—
Cape Western ... ..	213	—	—
Natal Southern ... ..	548	—	—
Natal Central ... ..	33	403	—
Rand (including Witbank Power Station)	280	15,982	250

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 1960

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1960).

**Cape Western Undertaking**

Immovable property acquired for considerations amounting to..	£12,312	0	0
Servitudes acquired—capitalised payments amounting to.. ..	£2,860	6	9

**Cape Northern Undertaking**

Immovable property acquired for considerations amounting to..	£50	0	0
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**Natal Central Undertaking**

Immovable property acquired for considerations amounting to..	£2,625	0	0
Servitudes acquired—capitalised payments amounting to.. ..	£9,539	9	4
Leases acquired—office rentals paid per annum amounting to..	£216	0	0

**Natal Southern Undertaking**

Immovable property acquired for considerations amounting to..	£1,500	0	0
Servitudes acquired—capitalised payments amounting to.. ..	£1,631	19	2

**Eastern Transvaal Undertaking**

Immovable property acquired for considerations amounting to..	£100	0	0
Servitudes acquired—capitalised payments amounting to.. ..	£7,003	7	8
Servitudes acquired—annual payments amounting to.. .. .	£64	10	0

**Border Undertaking**

Immovable property acquired for considerations amounting to..	£60	0	0
Servitudes acquired—capitalised payments amounting to.. ..	£482	6	6
Leases acquired—rentals paid per annum amounting to.. ..		1	0

**Rand and Orange Free State Undertaking**

Immovable property acquired for considerations amounting to..	£28,709	10	4
Servitudes acquired—capitalised payments amounting to.. ..	£68,073	17	8
Servitudes acquired—option moneys paid amounting to.. ..	£10,100	3	0
Leases and Stand Licences acquired for annual rentals amounting to .. .. .	£872	16	8

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

Power Station	1950		1951		1952		1953		1954		1955		1956		1957		1958		1959		1960	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Brakpan ... ..	8	9	8	10	9	7	10	1	13	4	14	2	15	0	16	6	17	3	19	3	17	0
Colenso... ..	13	2	14	3	18	6	19	11	21	6	25	2	27	1	28	8	29	8	31	9	31	2
Congella ... ..	19	5	20	0	23	6	25	4	27	2	31	4	32	6	34	3	35	10	38	2	37	11
Hex River ... ..	—	—	—	—	32	10	35	4	37	0	38	11	40	7	41	9	45	5	47	0	46	10
Highveld ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	3	14	6
Kimberley Central	23	1	24	4	26	4	27	9	29	1	30	10	32	10	34	0	35	11	38	4	37	10
Klip King William's Town... ..	5	0	7	7	9	8	11	7	13	1	14	5	16	1	17	4	17	11	18	2	20	11
Rosherville ... ..	31	8	33	1	37	2	39	9	42	5	45	8	46	10	48	5	48	1	45	5	—	—
Salt River ... ..	9	5	10	7	12	9	15	0	15	6	16	6	17	2	18	9	19	2	20	5	18	7
Taatbos ... ..	32	5	33	10	35	3	37	5	41	0	40	9	42	3	43	10	45	8	48	7	48	4
Umgeni ... ..	—	—	—	—	—	—	—	—	8	11	8	9	7	4	7	7	8	5	9	3	18	4
Vaal ... ..	—	—	—	—	—	—	—	—	30	9	32	10	33	1	34	11	37	2	40	6	40	5
Vereeniging ... ..	5	4	5	11	6	8	6	10	6	10	7	2	7	1	7	3	7	3	7	5	7	11
Vierfontein ... ..	5	5	5	9	6	9	7	3	7	8	8	2	8	6	9	2	9	10	9	1	8	8
West Bank ... ..	—	—	—	—	—	—	9	5	8	2	8	4	9	8	11	0	12	3	12	3	15	0
Wilge ... ..	30	5	31	6	34	0	35	4	37	10	41	9	40	10	41	9	43	11	46	7	46	1
Witbank ... ..	—	—	—	—	—	—	—	—	8	1	7	9	7	10	8	11	9	1	9	8	9	0
Witbank ... ..	4	2	4	6	5	10	6	11	7	0	7	7	10	3	10	4	10	6	11	1	10	7