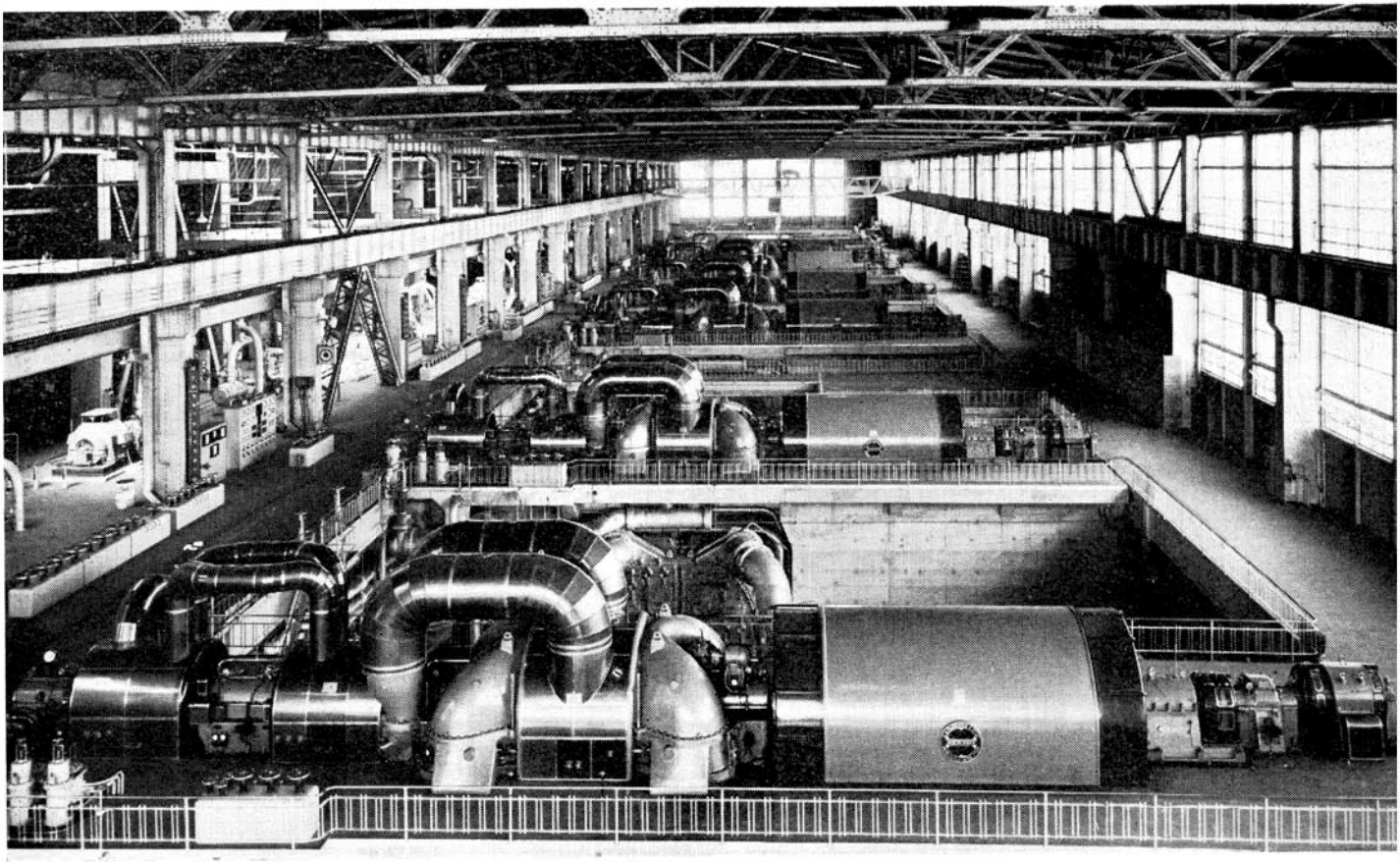


TAAIBOS POWER STATION

The turbine room showing five of the eight 60,000 kW sets to be installed, in operation

MEMBERS OF THE

Electricity Supply Commission

Dr. JOHANNES THEOBALD HATTINGH (Chairman)

ROBERT BURNS WATERSTON

WALTER HEINRICH ANDRAG

Dr. REINART LUDWIG STRASZACKER

THOMAS PRICE STRATTEN

CONTENTS

Electricity Supply Commission

Escom House,

Rissik Street,

Johannesburg,

26th July, 1956.

To the Honourable,

The Minister of Economic Affairs,

Pretoria.

Sir,

As required by Section 14 of the Electricity Act, No. 42 of 1922, the Commission has the honour to present its thirty-third Annual Report, covering its activities during the year ended at 31st December, 1955, and including brief comment on important developments up to the 30th April, 1956.

GENERAL REVIEW.

During 1955, in the Cape Western Undertaking, the Natal Undertakings and the Rand and Orange Free State Undertaking, a total of 330,000 kW of new generating plant was completed and taken into commercial operation. In the power stations of the Border Undertaking and the Cape Northern Undertaking, the effective capacity was increased by addition of new boiler plant. The commissioning of this new plant brought about a marked improvement in the electricity supply throughout the country, and the total units generated increased by more than 1,562 million units, which was an increase of 14·7 per cent. over the output for the year 1954.

With the commissioning of new plant at Taaibos, Vierfontein and Wilge Power Stations, it was possible after the winter of 1955 to relax the control on the maximum demands of consumers of the Rand and Orange Free State Undertaking, and the control was lifted in the early months of 1956.

Although there are areas where it is still necessary to maintain transient limitations, until reinforcement of major transmission and distribution networks is completed, the broad statement may be made that the Commission is now supplying the full requirements of consumers who are connected to its networks in all its Undertakings.

This is not to say that Escom expects a slowing down in development and new construction. The aggregate of future demands already notified to Escom indicates that for some years at least expansion of electricity supply will require to continue at or about the rate which has obtained during the post-war years. The steps being taken to meet future requirements are reported under the heading "Plant Capacity" on page 9.

OUTPUT AND SALES

During the past 10 years the Commission's output has been expanded by two-and-a-half times.

The total units purchased, including units carried over other transmission systems and re-purchased by Escom, was 339 million units, which is equal to about 3 per cent. of the output. This represents a reduction of assistance from outside sources.

The total units sold (electricity, air and steam) increased by 13·3 per cent.

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

	1955	1954	Increase
Units generated	12,214,458,902	10,651,937,082	14·7%
Units purchased	339,255,676	437,332,210	—
Units sold	10,964,043,148	9,676,579,993	13·3%

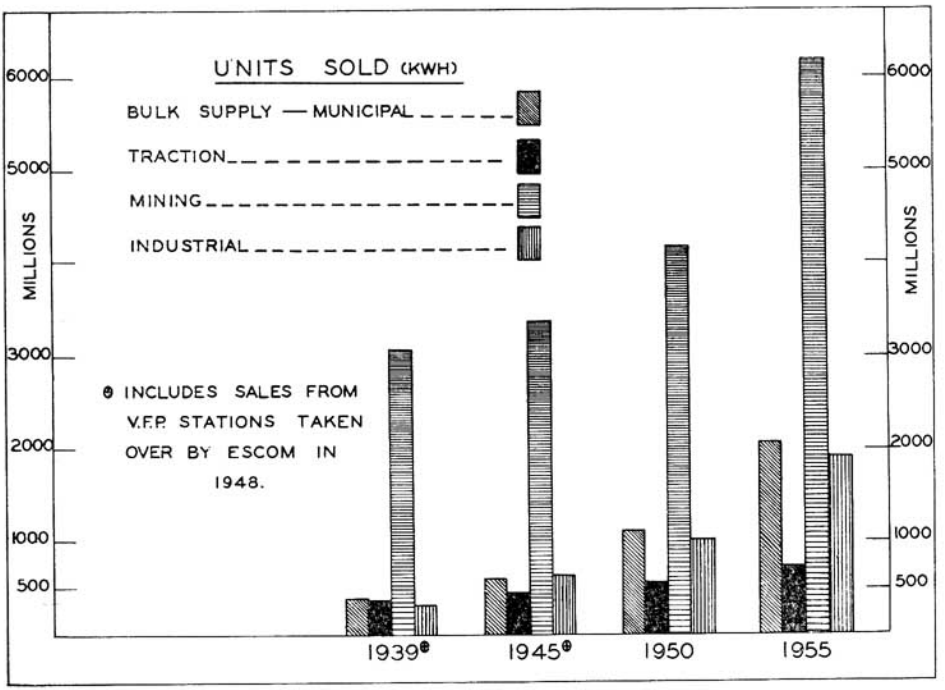
Sales of units by the individual Undertakings were as follows:—

	1955	1954	Increase
Cape Western	527,086,538	436,207,788	20·8%
Cape Northern	73,183,589	70,672,192	3·6%
Border	130,800,794	118,235,613	10·6%
Natal Southern	869,999,813	777,680,114	11·9%
Natal Central	546,403,224	532,530,626	2·6%
Rand and Orange Free State ...	8,416,301,964	7,465,237,018	12·7%
Eastern Transvaal	394,612,147	270,460,216	45·9%
Sabie	5,655,079	5,556,426	1·8%
	10,964,043,148	9,676,579,993	13·3%

Analysis of the total sales according to classes of consumers gives the following totals:—

	1955	1954	Increase
Bulk Supplies:			
Municipal	2,051,270,731	1,841,937,643	11·4%
Direct Supplies:			
Traction	689,737,822	619,207,916	11·4%
Mining	6,176,331,487	5,523,541,253	11·8%
Industrial	1,890,092,216	1,549,680,831	22·0%
Domestic	153,324,975	139,450,022	10·0%
Street Lighting	3,285,917	2,762,328	19·0%
	10,964,043,148	9,676,579,993	13·3%

As the statistics of electricity supply are not read easily by those who are not familiar with this somewhat specialised business, the quantity of units sold to consumers in the main categories of supply are shown in the following pole-diagram:—



Mining Supplies—Mineral production has always been a major factor in the South African economy, and the expansion of mining, including base metal mining, that has taken place since 1939 is indicated by the following figures:—

The value of mineral production in the Union in 1939 amounted to approximately £110 million, including gold which realized £99 million and coal valued at nearly £5 million. The value of mineral production in 1954 (the latest figure published) rose to £230 million, of which gold and coal accounted for £164 million and £16 million respectively. Gold production increased further to £182 million in 1955, including the gold output of the Orange Free State to the value of £27 million.

Escom's function in supplying electricity to the mining industry is shown in the pole-diagram.

The increase in the Commission's sales to mining consumers includes 1,187 million units sold to twelve new mines in the Orange Free State goldfield. Although nine of these new mines were classified as gold producers at the end of 1955, this goldfield is still in process of development, and it has been forecast that the electricity requirements for the area will be doubled within the next decade. In the Klerksdorp area five new mines have been started since 1945. Of these mines only three have commenced milling so that further large quantities of power will be required in this area as development proceeds.

The increase in mining supplies also reflects the additional requirements of mines in the old area and in the new areas for the mining and extraction of uranium ores.

The 1955 statistics do not include any supply to the new gold mining area in the Bethal district. A supply was made available to the first mine in this area in February, 1956, and here also large quantities of electricity will be needed for the development of the mines and the towns in this new goldfield.

Collieries do not require the very large quantities of power that are consumed by the gold mines; nevertheless the output of coal in the Union increased from about 14,000,000 tons in 1939 to over 31,000,000 tons in 1954, and Escom has been called upon to increase the supply of electricity for collieries in the Natal and Transvaal coal fields about threefold during the period 1939 to 1955.

Municipal Supplies—The most significant development shown in the pole-diagram is the increase in sales in bulk to Municipal undertakings. These figures reflect not only the growth of the Municipal electricity undertakings, but also the abandonment of local generation in many municipalities.

In 1939 thirty-seven local authorities (including the Municipalities of Germiston and Witbank) were supplied with about 365* million units. During the war an additional ten municipalities were connected and the total supply increased to about 565* million units. In 1955 the Commission gave supply in bulk to ninety-eight urban local authorities and the total sales rose to 2,051 million units.

* Includes supplies from V.F.P. power stations taken over by Escom.

This three-fold increase means that two-thirds of the present municipal load is new load for which Escom has had to procure and install additional plant.

Industrial Supplies—Escom's sales to consumers classified as Industrial were doubled during the war period, and then increased by more than three-fold in the post-war decade.

The importance of the development in the industrial field may be gauged from figures of the net production of the Union's "Manufacturing Industries" as defined in official statistics. Net production of these industries increased from £92 million in 1939 to £195 million in 1945, and to £400 million in 1950 (the latest figure published).

Although a small part of the power required for industrial purposes is supplied by industries themselves and part is supplied by other electricity undertakings, Escom's sales of electricity for industrial purposes now amounts to a large and important load. When allowance is made for the fact that part of the bulk supplies to local authorities is re-sold to industrial consumers of the local authorities, it will be seen that the total industrial load supplied by Escom in 1955 is comparable in magnitude with the load taken by the gold mining industry as it existed in 1939.

A tabulation of units sold by undertakings to all consumers each year since 1925 is given in Statement No. 3 of Annexure B, and the distribution of units sold in 1955 is given in Statement No. 4.

PLANT CAPACITY

A broad picture of the development of the Commission's undertakings up to the date of this report is summarized in the following tabulation of the capacity of plant installed and in commercial service in the Commission's power stations at the five-year intervals 1945, 1950, and April, 1956.

The steps that are being taken to meet future requirements are indicated in the last column which shows the capacity of plant under construction or on order at April, 1956.

The eight new power stations which have been designed and built, or are in course of building, in this period are distinguished by heavy type.

Rated Capacity of Electric Generating Plant

	Installed and in Commission			Under Construction or on order at
	1945 (kW)	1950 (kW)	April, 1956 (kW)	April, 1956 (kW)
Cape Western Undertaking:				
Hex River Power Station ...	—	—	60,000	—
Salt River No. 1 Power Station	90,300	90,300	90,300	—
Salt River No. 2 Power Station	—	—	60,000	60,000
	90,300	90,300	210,300	60,000
Cape Northern Undertaking:				
Central Power Station, Kimberley	20,000*	20,000	31,000	—
(*Existing plant purchased by Escom in 1950)				
Border Undertaking:				
Alice Power Station	381**	435	—	—
King William's Town Power Station	3,500**	4,500	4,500	—
Westbank No. 1 Power Station	24,500**	24,500	32,000	—
Westbank No. 2 Power Station	—	—	—	30,000
	28,381**	29,435	36,500	30,000
(**Existing plant purchased by Escom in 1947 and 1948)				
Natal Undertakings:				
Colenso Power Station ...	85,000	110,000	135,000	—
Congella Power Station ...	98,000	166,000	206,000	—
South Coast Power Stations ...	1,566	3,400	3,400	—
Umgeni Power Station	—	—	60,000	60,000
	184,566	279,400	404,400	60,000

Rand and O.F.S. Undertaking:					
Brakpan Power Station	...	48,000†	48,000	48,000	—
Highveld Power Station	...	—	—	—	240,000
Klip Power Station ...	...	424,000	424,000	424,000	—
Rosherville Power Station	...	48,000†	48,000	48,000	—
Simmerpan Power Station	...	40,000	40,000	34,000	—
Taaibos Power Station ...	...	—	—	240,000	240,000
Vaal Power Station ...	...	66,000	179,000	318,000	—
Vereeniging Power Station	...	157,500†	157,500	157,500	—
Vierfontein Power Station	...	—	—	270,000	90,000
Wilge Power Station ...	...	—	—	180,000	60,000
		783,500	896,500	1,719,500	630,000
Eastern Transvaal Undertaking:					
Witbank Power Station	...	108,000	108,000	128,000	—
Sabie Undertaking:					
Gorge Power Station ...	...	1,350	1,350	1,350	—
TOTAL—ALL UNDERTAKINGS		1,216,097	1,424,958	2,531,050	780,000

(†Existing plant purchased by Escom in 1948)

Thus, in the decade since 1945 the Commission has achieved an increase of over 100 per cent in the capacity of electric generating plant in commercial service in its Undertakings—in round figures, an increase from 1,216,000 kW in 1945 to 2,531,000 kW at 30th April, 1956.

The total of 780,000 kW of plant under construction or on order at April, 1956, represents the steps being taken by the Commission to meet future demands. The plant referred to is in various stages of construction, and details of the progress of construction are given under the heading "New Power Stations and Extensions to Existing Power Stations," on pages 12 and 13.

CAPITAL EXPENDITURE

The statistics relating to the production and supply of electricity in the Union which are reproduced in Annexure C of the Report show that responsibility now rests on Escom for the greater part of the country's electricity supply.

The evolution of electricity supply on a national basis, in accordance with the design of the 1922 Act, has proceeded a long way; and it is worthy of note that the process is both stimulated and controlled by the test of economic factors. Whenever a small generating plant is no longer able to do the work required of it, there is a fresh opportunity for choosing between local generation and a purchased supply; and thus in each instance where a small generating plant is discarded in favour of a purchased supply, the decision rests upon an assessment of the economic advantage derived from the concentration of production in a modern large power station. In this way economics governs Escom's development, and whether it is to be slow or rapid: but it may be noted also that the burden of financing both the present and future plant requirements is being shifted from the local authority or the industrialist, as the case may be, to Escom.

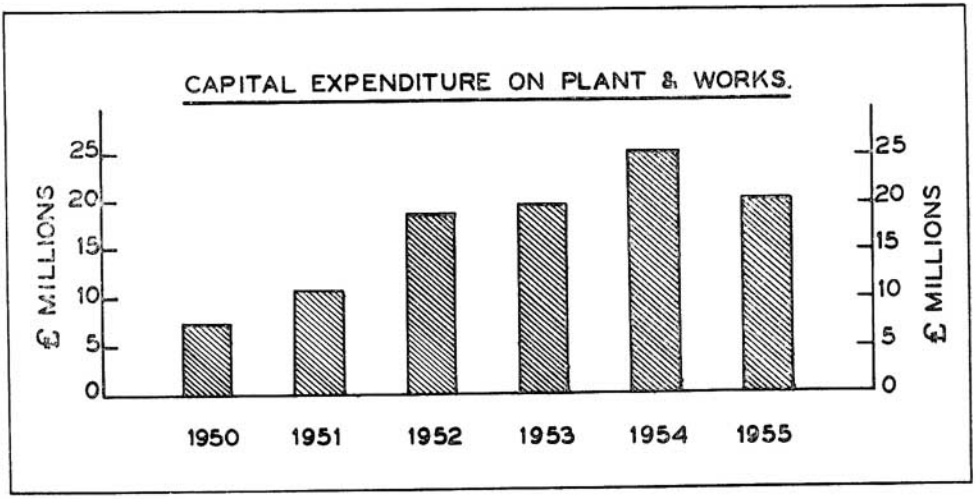
The capital expenditure of the Commission over the period 1945 to 1955 is summarized in the following table:—

Capital Expenditure on Plant and Works
(£'s millions)

	At 1945	At 1950	At 1955
Cape Western Undertaking	3·19	6·79	20·92
Cape Northern Undertaking	—	0·22*	1·68
Border Undertaking	—	0·58*	3·57
Natal Undertakings	7·61	12·55	23·70
Rand and O.F.S. Undertaking	10·93	33·63*	97·00
Eastern Transvaal Undertaking ...	2·74	3·26	4·54
Sabie Undertaking	0·10	0·10	0·10
	£24·57	£57·13*	£151·51

(* Including the price paid for existing plant purchased in 1947, 1948 and 1950).

The Commission's expenditure on capital account† for each year from 1950 is represented in the following diagram:—



(† Omitting Swartkops Power Station).

The Commission continues to obtain the bulk of its capital requirements in South Africa. Since 1945 a total of £103,500,000 has been raised by the issue of local loans; but in order to meet these large commitments on capital account, the Commission has also raised loans outside South Africa. Two dollar loans of $30,000,000 each were obtained from the International Bank for Reconstruction and Development and a $19,600,000 loan was negotiated from the Export-Import Bank of Washington. A further loan of £2,000,000 sterling was raised from the Commonwealth Development and Finance Company, Limited, of London. The loans from bankers overseas are equivalent to about £30,500,000, and have been used to meet a large part of the payments to overseas manufacturers for the import of plant which is not manufactured in this country.

EMPLOYMENT

During the period covered by this report the problem of attracting adequate staff has demanded more and more attention. The number of Europeans in the Commission's employ increased from 3,256 in 1950 to 4,514 in the service at 31st December, 1955. Notwithstanding this increase, the Commission's staff, especially the experienced staff, have been severely taxed by the effort to man the new power stations and to construct and operate the extended networks.

In order that the best use may be made of the available personnel and of their time, the Commission called in Management Consultants of international standing to report on certain aspects of its organization, and planned maintenance programmes have been introduced in certain power stations and departments.

It is significant that while the number of Europeans employed shows an increase of 33 per cent, the increase in output has been about 58 per cent. Thus, the concentration of production in large power stations will result in a greater productivity of manpower.

The Commission continues to make its contribution to the training of artisans and other employees. A bursary scheme will be introduced with a view to attracting to the Commission's service European matriculants who will be assisted to take an approved course at an approved University.

NEW POWER STATIONS AND EXTENSIONS TO EXISTING POWER STATIONS

The progress of construction in the Commission's major power stations during the period under review was as follows:—

Cape Western Undertaking

Salt River No. 2 Power Station, Cape Town: As reported last year, No. 1 boiler was taken into service on 3rd November, 1954, and was used to supply steam to Salt River No. 1 Power Station. No. 2 boiler was commissioned on 12th April, 1955, and was used in the same way, in the place of the less efficient plant in the old station.

Salt River No. 2 Power Station was started up in May, 1955, when the first turbo-alternator became available for load.

No. 3 boiler was steamed in September and No. 4 boiler in March, 1956. The second turbo-alternator was taken into service in November, 1955.

Satisfactory progress has been made in the erection of the additional two sets and boilers which comprise the 1952 extensions, and one set is expected to be available during the winter.

Cape Northern Undertaking

Central Power Station, Kimberley: The erection of the remaining two boilers, Nos. 11 and 12, was completed during the year and these boilers were taken into service in October and August, respectively.

Border Undertaking

West Bank No. 2 Power Station, East London. Although the first boiler in No. 2 Power Station was not fully completed at the time, it was steamed on 26th June, 1955, in order to make up the shortfall of steaming capacity in No. 1 Station.

The progress in the construction of the new station was again retarded by shortages of labour and materials; but it is expected that the two sets in No. 2 Station will be ready for commissioning by the end of May, 1956.

Natal Southern Undertaking

Umgeni Power Station, near Pinetown, Natal: No. 4 boiler was completed in March, 1955, and the second 30,000 kW turbo-generator was commissioned in June.

The civil works for the "A" extensions comprising two further 30,000 kW turbo-generators and four 180,000 lb./hr. boilers were commenced during the year. These additional sets are planned to be in service in 1957 and 1958.

Rand and Orange Free State Undertaking

Highveld Power Station, district Heilbron, O.F.S.: As stated in the last Annual Report much preliminary work was done before April, 1955, in the design of a further new power station for the Rand and Orange Free State Undertaking. The water supply will be provided by the Department of Water Affairs from the enlarged conservation works on the Vaal River and coal will be supplied from a new colliery to be established by the Clydesdale (Transvaal) Collieries, Ltd., on coal-bearing ground south of the Company's existing colliery at Coalbrook. The power station will be adjacent to Taaibos Power Station, and the Commission's village is being enlarged to cater for the employees of the two stations.

Inquiries for plant were issued to manufacturers in Britain, U.S.A., Germany and Switzerland and orders have been placed for one 60,000 kW turbo-alternator from Metro-Vickers (Britain) and three 60,000 kW turbo-alternators from Brown Boveri (Switzerland), and two 550,000 lb./hr. boilers from Babcock and Wilcox (South Africa) and two 550,000 lb./hr. boilers from International Combustion Ltd. The station has been designed for extension up to 8 x 60,000 kW sets, and the estimated cost of the initial installation of four such sets is £14,500,000. The programme of construction provides for completion of two sets, with the corresponding boilers, by the end of 1958.

Taaibos Power Station, near Coalbrook, district Heilbron, O.F.S.: No. 2 turbo-generator, with its boiler plant, was brought into commercial service in April and the third set in October. No. 4 set, with its boiler, was commissioned at the beginning of March, 1956. The progress of construction of the remaining plant is satisfactory.

The operating statistics for this station are given on page 52.

Vierfontein Power Station, district Viljoenskroon, O.F.S.: During the year four additional boilers, making a total of thirteen, were steamed, and No. 8 turbo-generator was completed and placed in commission in November. No. 9 turbo-generator and No. 14 boiler were completed in February and March, 1956.

The operating statistics relating to this station are given on page 52 of the Report.

Wilge Power Station: The first 60,000 kW turbo-generator, with the two large boilers (Nos. 5 and 6), were completed and taken into service in July-August, 1955. No. 7 boiler was steamed on 2nd March, 1956, and No. 8 boiler on 6th April, 1956, and the second 60,000 kW machine (No. 4) was commissioned on 9th April, 1956.

An additional water supply has been granted to the Commission from the Bronkhorstspruit Dam, and this power station is being extended by the addition of a third 60,000 kW turbo-generator and one 550,000 lb./hr. boiler. Orders for this plant have been placed with the A.E.G. of Germany and Mitchell Engineering respectively. This additional plant is planned for service in 1958.

Operating statistics for Wilge Power Station are given on page 52 of the Report.

DEVELOPMENT OF ELECTRICITY SUPPLY IN RURAL AREAS.

The Commission's statistics, which show the units sold to various classes of consumers, do not distinguish between rural and urban areas. The figures relating to supplies furnished to towns and villages in the country districts, either as bulk supplies to local authorities or by Escom direct to consumers, are included under the general headings "Bulk Supplies to Municipalities" and "Domestic Supplies". All other supplies which are not classified as Traction or Mining are included in the category "Industrial" even in such instances as the new lucerne dehydration plant of Food and Feeds Industries Limited at Pokwani in the Kimberley district or a farmer's pumping installation on the Vaal River.

The extension of the Commission's circuits to give bulk supplies to or to undertake the reticulation of electricity in towns and villages in country districts, and the provision of supplies to commercial enterprises associated with agriculture are usually the basis of the development of these rural areas.

In areas which are far from towns or mines the provision of farm supplies is costly, because the Commission's transmission lines operate at a high voltage and the transformer cost to supply farms is often too great to be economical unless a number of small farms are grouped together.

The Managers of all Escom's Undertakings are anxious to give supplies to more farmers and many areas are being investigated.

Since the inception of the Rural Electrification Department of the Rand and O.F.S. Undertaking in 1952, the reticulation of over forty peri-urban townships, semi-rural agricultural and residential areas has been planned and carried out. Investigations are proceeding in a number of dispersed areas where small farms are grouped.

The Rand and O.F.S. Undertaking Rural Electrification Department has given and is giving special attention to applications from farming areas and agricultural small holdings. A rural network has been planned for Eikenhof, between Johannesburg and Vereeniging, and construction will commence about July, 1956. Terms have been offered applicants on the West Rand Agricultural Holdings, South Krugersdorp. Farmers and rural consumers have been offered terms of supply in a large area of about 80 square miles north of Roodepoort and Krugersdorp. Eighty-nine farmers have been offered a supply in the Koedoeskop area in the Rustenburg District. Another distribution is being planned to cover agricultural

holdings and small farms in the vicinity of Sundra and Eloff. Investigations are being made, inter alia, into the practicability of supplying the area around Parys and the farmers in the Mooi River Valley near Potchefstroom. In the Witkoppen area electricity is being made available to rural consumers. At the Linbro Park/Modderfontein Agricultural Holdings 60 consumers will shortly be receiving a supply and it is expected that this area will develop further. An initial scheme for the provision of electricity in an area covering Henley-on-Klip and Klip River Townships and immediate surrounding rural areas in the Meyerton district has been planned and will be brought into operation within the next eighteen months. Plans are being made for a supply to farming communities in the districts of Taaibos and east of Standerton. In the Lichtenburg district preliminary investigations are being carried out for the supply of electricity to farmers.

When an application is received from a group of farmers or other potential consumers in a rural area, a preliminary survey is carried out to determine whether a supply can be made available on economic terms taking into account the probable load required. If the investigations are favourable, a detailed survey is made and estimates of costs are prepared. Circulars are then issued to potential consumers setting out the terms of supply. If sufficient acceptances are received, the necessary work is immediately proceeded with.

In the Eastern Transvaal Undertaking a total of 52 farms were supplied with electricity during the year. Approximately 54 per cent of the farmers use electricity for farming as well as domestic purposes. In addition 57 rural consumers were connected who were not farmers, making a total of 109 rural consumers at the end of 1955. At present there are over 600 applications from farmers for the supply of electricity in the districts of Bethal, Bronkhorstspruit, Middelburg, Witbank and the Kinross, Leslie and Devon areas. These are being investigated.

In the Cape Western Undertaking there is a large plan for the construction of a line from Chavonnes which will be a rural ring main line to supply nearly 78 farmers in the Waaihoek area. The line is due for completion this year. There is, in addition, the proposed extension of the line beyond Caledon to connect Riviersonderend, Napier and the town of Bredasdorp. This line will also supply the rural development in the areas east and south of Caledon. A new line is to be constructed from Moorreesburg to the cement factory at De Hoek and to be continued to Piketberg to supply the town and farming community in the surrounding district.

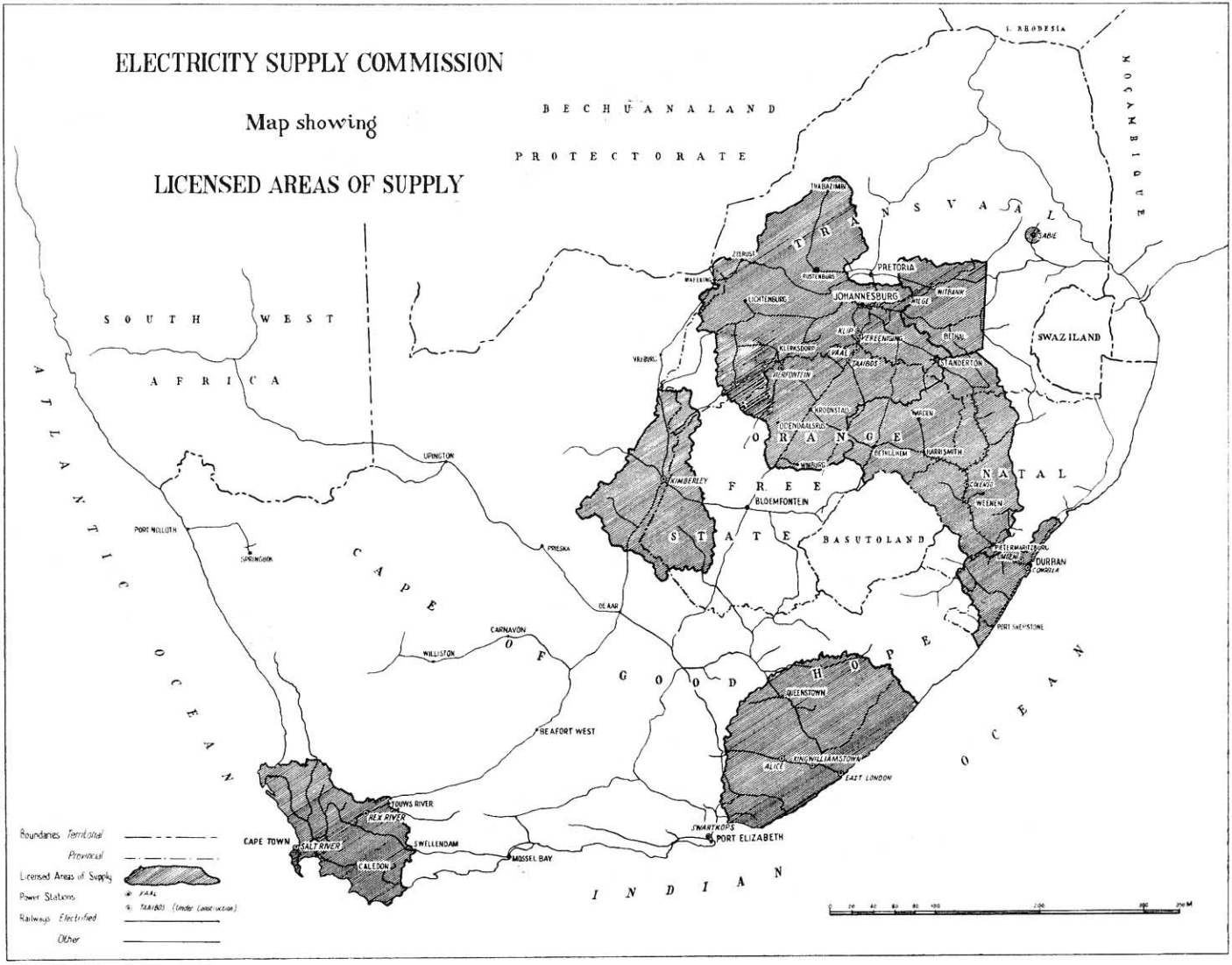
In the Border Undertaking there has been, for a number of years, an 11-kV system supplying farmers, Village Management Boards and industries in the Gonubie Mouth and Bonza Bay areas. In the King William's Town area a line is being constructed to Stutterheim via Blaney, which will be available to supply rural consumers along the route of the line. An investigation is being made at present into the prospects of a line from Fort Beaufort to supply farmers in the Kat River Valley. An 11-kV line from Adelaide to Bedford, which crosses a number of farms, is in operation making the supply of power available to a number of farmers with whom terms are now being negotiated.

In the Cape Northern Undertaking extensive electrification has been undertaken and is being developed along the Vaal River for pumped irrigation between Slypklip and Barkly West where many farmers are at present receiving a supply of electricity. An 11-kV line from Warrenton to Christiana is projected and as this will run parallel with the Vaal River supplies of electricity will be made available to farmers on route. A line isbei ng constructed to supply the Bellsbank

ELECTRICITY SUPPLY COMMISSION

Map showing

LICENSED AREAS OF SUPPLY



and Ulco mining communities, and in the near future a number of farmers will be connected when the line is energised in the latter half of this year. Similarly, the construction of the 66-kV line to Warrenton and Vaalharts will enable supplies to be given to farmers in these areas, a number of rural users being supplied at the present time. At present a number of farmers are being supplied from the Kimberley/Boshof line.

In the Natal Southern Undertaking a total of 33 schemes supplying rural consumers were completed at the end of 1955. Five further schemes are under construction and five more contemplated. Of the plans under construction the largest is the Eston/Mid-Illovo scheme which, when completed, will give a supply of electricity to 91 rural consumers. A total of 44 schemes for the supply of electricity to rural consumers in the Natal Central Undertaking were completed at the end of 1955. At present seven schemes are under construction and an additional 19 contemplated. Among the contemplated schemes a major one is the Aberfeldy/Kestell/Afrikaskop/Kransfontein area which will eventually supply a large number of rural consumers.

AREAS OF SUPPLY AND DEVELOPMENT OF TRANSMISSION SYSTEMS

During the year 1955 extensions of the Greater Rand Extension and Orange Free State Licence to include the towns of Wolmaransstad, Leeudoringsstad, Makwassie and Senekal were granted by the Electricity Control Board.

On 14th February, 1956, applications were made to the Board for extensions to the areas of supply of the Natal Undertakings and for re-adjustment of the common boundary between these Undertakings. The applications were approved by the Board and the adjustment of boundaries was made effective from the commencement of the pooling arrangements in 1955. Further details of the amendments to the licences are given in the reports on the separate Undertakings.

The total area in which the Commission is licensed to supply is now 118,700 square miles.

275 kV Transmission Lines: With the decision to establish the new Highveld Power Station near Coalbrook, O.F.S., with an ultimate capacity of eight 60 MW generators, it became necessary to provide adequate transmission facilities to transmit the output of the station to the O.F.S. goldfields area where the power is required. Consideration was given to the provision of additional 132 kV lines into the area but network studies clearly indicated that there would be considerable economic advantage in using a higher transmission voltage for this purpose. A voltage of 275 kV was decided upon as being the most suitable and also because it would make possible the use of 300 kV class equipment, recently adopted as an international standard when de-rated for the altitude of 5,000 feet.

Two parallel single circuit 275 kV transmission lines, 98 miles route length, are being constructed. Each line will be capable of transmitting the whole of the output of the new power station when complete, that is, 440 megawatts.

Construction of the first line will be completed in August, 1956, and it is proposed to operate it at 132 kV initially for transmission from Taaibos Power Station to the O.F.S. network until power is available from Highveld Power Station. By this means it has been possible to obviate the necessity for constructing an additional 132 kV line for transmission into the O.F.S. which would have become redundant when the 275 kV system is put into service.

As soon as the first line is completed construction of the second line will be put in hand and it is anticipated that this work will take about a year to complete.

The extensions made during the year to the Commission's transmission systems are reported in detail in the section dealing with the separate undertakings, and the statistics of the transformers and transmission and distribution lines installed at 31st December, 1955, are given in Annexure B to the Report.

In a summarized form the following lists describe the major transmission lines completed during 1955 and under construction or projected at the end of the year:—

	kV	Route Miles
Completed in 1955:		
Taaibos—Virginia No. 1	132	107
Wilge—Struben Direct	132	41
Taaibos—West Wits No. 2	132	54
Taaibos—Doornfontein	132	55
Northam—Rooiberg	80	30
Premier Mine—Northrand (Extension)	80	12
Premier Mine—Pretoria	80	22
Klerksdorp Area—Extension	80	21
Sasol from Vaal—Alma East	80	2
Turn in Western Reefs to Margaret Shaft	80	6
Matte Smelters	80	1
Virginia and Merriespruit (Ringing)	40	16
Riet. Cons—Kempton Park	40	5
Nuffield Ringing	40	7
Struben Ringing	40	31
Grootkop and Alma	40	33
West Wits—Doornfontein D.S. and Doornfontein	40	10
West Wits—West Driefontein Pumps	40	2
Riet Cons.—Lombardy	40	3
Alrode Duplicate	40	3
Bethal—Ermelo	88	34
Bethal—Wildebees	88	25
Wildebees—Capital	88	10
Riverton to Andalusia	66	35
Mason's Mill—Pietermaritzburg	88	1
Under Construction:		
Vierfontein to Margaret Shaft via Hartebeestfontein No. 41	88	30
Grootkop Network	40	20
Ermelo—Estancia	88	15
Kimberley to Riverton	66	18
Holpan to Union Lime Co.	66	41
East London—King William's Town	66	34
Mason's Mill—Pietermaritzburg	88	1

	kV	Route Miles
Projected:		
Everest—Highveld 2 x 100 miles ... ... (First line scheduled for completion 1956) (Second line 1957)	275	200
Highveld—Taaibos	132	1½
Virginia—Alma turn in to Everest	132	10
Western Transvaal Water Scheme	88	3
S.A.R. Midway 2nd Tee	88	3
S.A.R. Stretford	88	4
Calcined Products—Westgate	88	5
Heilbron—Frankfort—Villiers	88	60
Virginia—Whites	40	12
Virginia—Henneman	40	16
Virginia—Senekal	40	48
Merriespruit—Winburg—Theunissen and Star Diamonds	40	48
West Wits and Doornfontein Network	40	24
Diepsloot—Olifantsfontein	40	17
Diepsloot—Bryanston	40	12
Sallies Turn-in	40	22
Westgate—Rand Centre Network	40	25
Grootpan—Wildebees	132	30
Witbank—Middelburg—Groblersdal	88	76
Middelburg—Belfast—Waterval Boven	66	66
Blackhill—Oogies—Arbor (S.A.R. electrification) ...	88	60
Blackhill—Kromklip—Van Dyksdrif—Middeldrift (S.A.R. electrification)	88	30
Grootpan—Wildebees (2nd line)	132	30
North Coast Spur line (East London)	66	8
King William's Town—Grahamstown	66	70
Mason's Mill—Umgeni No. 2	132	40
Umgeni—Coedmore (double circuit)	132	12
Congella—Booth (double circuit)	88	2
Glencoe—Dundee (Two lines)	88	17
Ladysmith—Harrismith	88	60
Colenso—Ladysmith	88	16
Bethlehem—Lindley—Petrus Steyn	33	60
Umkomaas substation—Umkomaas town	11	5
Perdekop—Sandspruit	11	15

COSTS AND TARIFFS

It would be misleading to describe the world's markets as normal: nonetheless during the period covered by this Report, there has been keen competition between manufacturers of plant and equipment and prices appear to have attained some stability. However, inasmuch as the level of these prices is much above the old prices, the commissioning of new plant involves an increase in loan charges.

The cost of coal and railage on coal, which represents 30.5 per cent. of production costs, has continued to rise. The average price per ton of coal used in the Commission's steam raising power stations is shown in Statement No. 9 which appears on page 111.

The following changes in the Commission's tariffs have been made since the last Report:—

Border Undertaking: In order to balance the Undertaking's revenue account and to take account of the new capital expenditure on West Bank No. 2 Power Station and the 66 kV interconnection between East London and King William's Town, a complete revision of tariffs was necessary. The application was made on 8th December, 1955, and was granted by the Board after a public hearing. The new schedule of standard prices was introduced with effect from the beginning of the financial year, 1956.

Natal Undertakings: The revision of standard prices which was reported in the last Annual Report was introduced from the month of April, 1955. There were small surpluses in the revenue accounts for each Undertaking.

Rand and Orange Free State Undertaking: In view of the increase in costs and the change in the cost structure which followed from the commissioning of the new power stations and the new transmission and distribution networks of the Rand and Orange Free State Undertaking, a revision of tariffs was made during 1955. An application for amendment of the schedule of standard prices was submitted to the Board on 2nd December, 1955, and was approved by the Board. The amended tariffs were applied from January, 1956.

STATISTICAL SUMMARY

Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's undertakings during the year 1955, with the comparative figures for 1954, are as follows:—

	1955	1954	Increase
Total Revenue	**£22,735,571**	**£18,513,220**	**22·807%**
Total Production Costs (including interest, redemption and reserve fund charges)	**£22,430,974**	**£18,428,977**	**21·716%**
Difference between Revenue and Production Costs ...	**£304,597**	**£84,243**	**£220,354**
Average Price per unit sold	**0·4967d.**	**0·4569d.**	**8·713%**
Average revenue per unit sold (including Sundry Revenue)	**0·4977d.**	**0·4592d.**	**8·386%**
Average cost per unit sold	**0·4910d.**	**0·4571d.**	**7·423%**
Units generated	**12,214,458,902**	**10,651,937,082**	**14·669%**
Units sent out	**11,425,171,203**	**10,072,439,386**	**13·430%**
Units Purchased	**339,255,676**	**437,332,210**	**Decrease**
Units Sold	**10,964,043,148**	**9,676,579,993**	**13·305%**
Total cost of coal consumed (including railage)	**£6,854,516**	**£5,664,282**	**21·013%**
Railage on coal consumed	**£2,423,183**	**£2,084,895**	**16·226%**
Coal consumed (in tons of 2,000 lb.)	**9,920,451**	**8,845,950**	**12·147%**

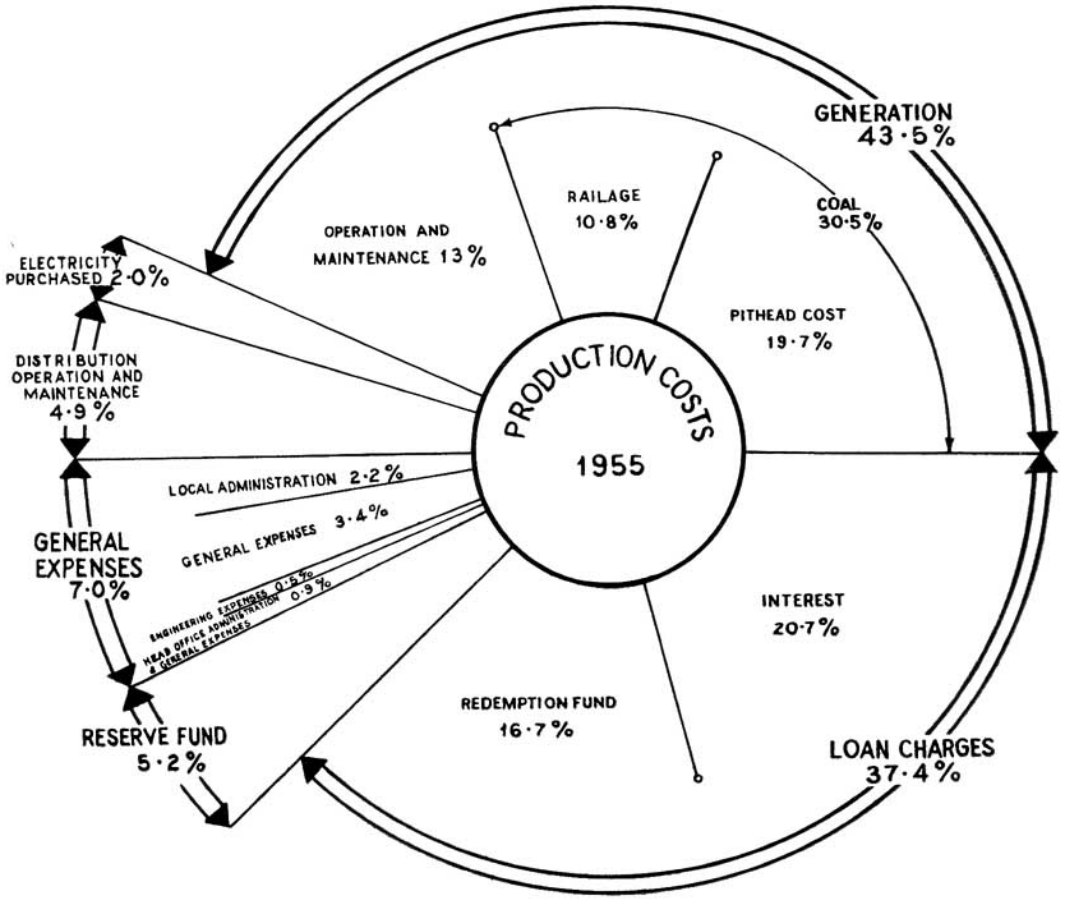
A diagram showing the subdivision of the Commission's total production costs for the year 1955 is reproduced below.

FINANCIAL

Loan Capital: During 1955 two local loans totalling £16,000,000 were raised, as follows:—

Date Issued	Amount	Interest	Issue Price	Redeemable
19th April	£8,000,000	4⅝%	£100%	31/5/75-80
1st November ...	£8,000,000	4⅞%	£100%	30/9/75-80
	£16,000,000			

These loans were fully subscribed but at the year end the amount received on account of the loan issued on the 1st November was £7,535,940. The balance of £464,060 payable not later than the 31st January, 1956, in terms of the prospectus, has since been received. The loans raised locally as Local Registered Stock totalled £127,750,000 at the year end, of which £2,500,000 had been repaid.



The loan of $19,600,000 U.S.A. from the Export-Import Bank of Washington, equivalent to approximately £7,000,000 bears interest at 4 per cent per annum and is redeemable over 15 years by equal half-yearly instalments, including interest, from the 16th February, 1956. The loan is to be used for the provision of power from Wilge Power Station for uranium production and is to be taken up during the period ending the 30th June, 1956. The amount taken up to the 31st December, 1955, was $16,868,924, equivalent to £6,028,889 South African currency.

The loan of $30 million U.S.A. raised in 1953 from the International Bank for Reconstruction and Development, equivalent to £10,726,956, has been fully taken up and bears interest at 4¾ per cent per annum. The loan is repayable over 8½ years by equal half-yearly instalments of principal and interest, from the 15th September, 1955, but the contributions are charged to working costs on a 25 years sinking fund basis, the difference being financed out of local loans.

These amounts increased the Commission's loan capital at the date of the Balance Sheet to £152,573,101.

Redemption Fund: The amount in the Redemption Fund at the 31st December, 1955, totalled £28,003,861 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 31st December, 1955, was £3,675,509.

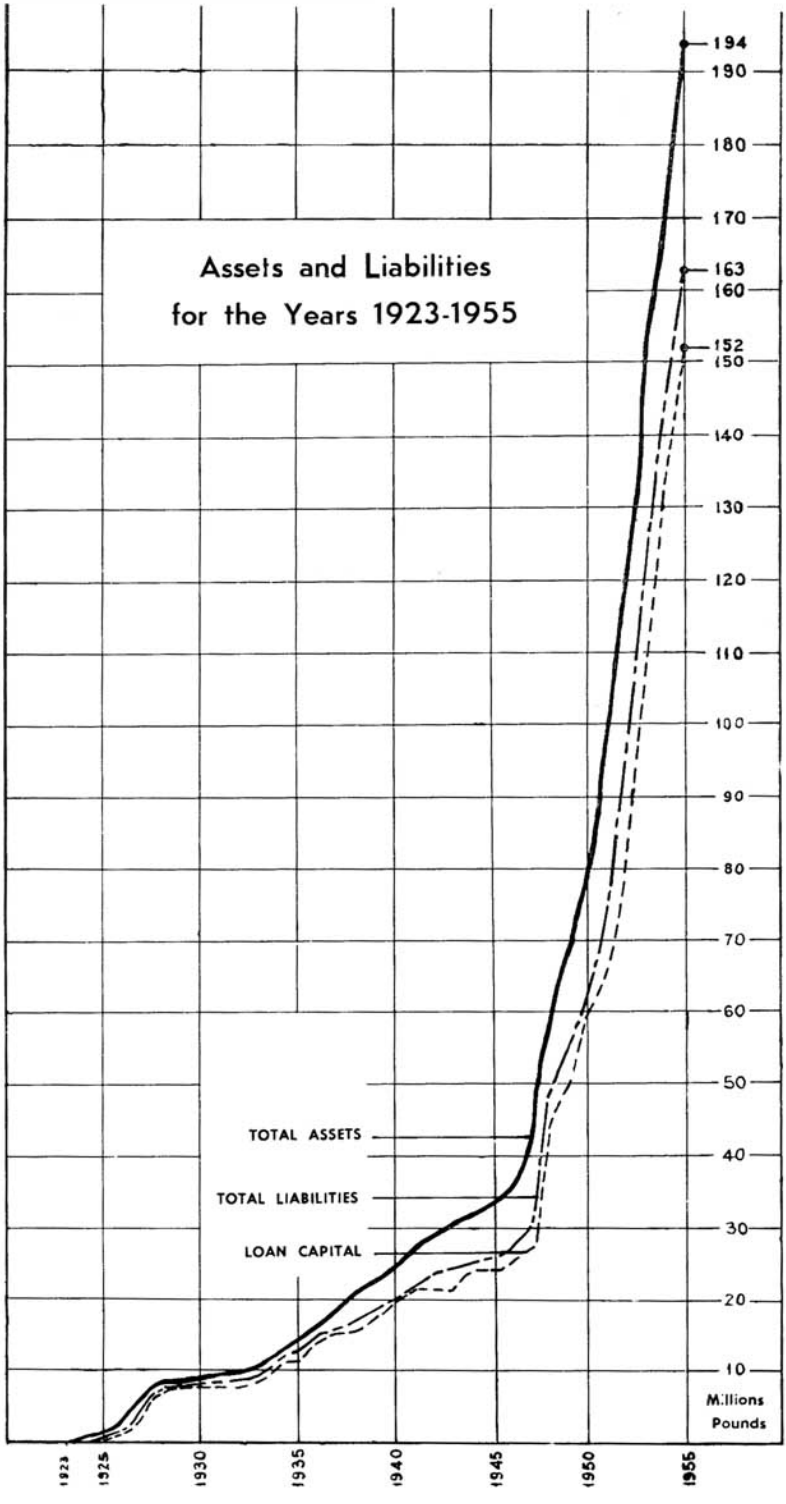
Capital Expenditure: Expenditure on Capital Account during the year amounted to £20,256,442 which increased the total capital expenditure at 31st December, 1955, to £152,170,983.

Expenditure on Capital Account will amount to approximately £234,500,000 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, 1955, was £31,901,740, the nominal value being £32,236,060. The market value of these investments at that date was £28,731,790.

Assets and Liabilities: The Commission's total assets at the 31st December, 1955, amounted to £193,768,696, and its total liabilities to £163,155,416, the excess of assets (as shown in the Balance Sheet) over liabilities being £30,613,280.

A graph showing the growth of assets and liabilities since 1923 is reproduced on the opposite page.


Assets and Liabilities
for the Years 1923-1955
194
190
180
170
163
160
152
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
Millions
Pounds
TOTAL ASSETS
TOTAL LIABILITIES
LOAN CAPITAL
1923
1925
1930
1935
1940
1945
1950
1955

STAFF

Home Ownership Scheme: The balance at 31st December, 1955, on loans granted to employees to enable them to acquire homes under the Commission's Home Ownership Scheme in terms of the 1941 amendment to the Electricity Act, was £742,751.

Personnel: The staff employed by the Commission at the 31st December, 1955, numbered 12,490 employees made up as follows:—

	1955	1954	
Europeans	4,514	4,366	Increase of 3·4 per cent
Non-Europeans ...	7,976	7,951	Increase of 0·3 per cent
	12,490	12,317	Increase of 1·4 per cent

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

THE COMMISSION'S UNDERTAKINGS

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

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

CAPE WESTERN UNDERTAKING

CONSUMERS — Class	Number	SALES — Units	SALES — Increase	Revenue from Sales	Average Price per Unit Sold — 1955	Average Price per Unit Sold — 1954
			%	£	d	d
Traction	2	160,962,220	52·725	711,083	1·0602	1·2880
Bulk	23	134,113,204	7·489	567,541	1·0156	1·0012
Industrial	1,919	134,643,184	14·740	731,918	1·3046	1·2893
Domestic and Lighting	22,817	97,367,930	9·774	616,912	1·5206	1·5314
	24,761	527,086,538	20·834	2,627,454	1·1964	1·2558

	1955	1954	Accumulated to 31.12.55
Total Revenue	£2,644,643	£2,293,749	
Working Costs	£2,547,544	£2,151,206	
Surplus	£97,099	£142,543	£87,804
Capital Expenditure	£3,587,965	£3,541,136	£20,923,089

	Salt River Power Station No. 1 — 1955	Salt River Power Station No. 1 — 1954	Salt River Power Station No. 2 — From 2/5/1955	Hex River Power Station — 1955	Hex River Power Station — 1954
Units Sent Out	118,320,378	140,959,908	124,523,888	219,825,420	206,519,260
Maximum half-hour Demand kW S.O.	62,496	52,270	57,900	59,000	48,450
Station Peak kW	68,200	58,100	62,000	60,800	52,000
Load Factor %	21·6	30·9	36·0	42·4	48·8
Thermal Efficiency % S.O.	17·15	17·19	24·64	24·83	24·34
FUEL:					
Coal Consumed—tons	82,708	115,488	93,146	131,675	121,516
Average per unit sent out—lb.	1·725	1·639	1·209	1·198	1·177
Calorific Value B.Th.U./lb	11,530	12,110	11,450	11,470	11,910
Total Cost	£358,213*	£236,865		£256,136	£224,778
Cost per ton	40s. 9d.*	41s.		38s. 11d.	37s.

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

General—Throughout 1955 construction work at Salt River No. 2 Power Station and on the distribution system proceeded satisfactorily. At Salt River No. 2 Power Station, after the setbacks suffered in 1954 due to late delivery of materials, steady progress was maintained during 1955 and plant was commissioned in time to meet load demands.

A further report on Salt River No. 2, Power Station is given on page 12.

In terms of the 1932 Agreement pooled operation of the Commission's power stations at Salt River and the Cape Town City Council's power stations was continued throughout the year, and at the request of the City Council, one machine at Hex River Power Station was run until the 30th September in order to assist the pooled stations while special maintenance was carried out on plant in the pooled stations. On occasions all three machines at Hex River Power Station were run to meet peak demands.

By a further arrangement with the City Council adopted after the 30th September plant at Hex River Power Station was run in the place of the less efficient plant at Salt River No. 1 Power Station, thus effecting savings in fuel consumption.

Load was curtailed for short periods on five occasions during the year due to minor plant failures at the power stations. No load shedding occurred due to lack of plant.

Output and Sales—The number of units sold during 1955 was 527,086,538 units which represents an overall increase of 20·8 per cent. This large increase was due to Main Line Traction: the increase in sales, excluding traction, was 10·7 per cent.

Coal—Adequate coal stocks were on hand at the pooled power stations at the commencement of the year, but towards mid-year deliveries fell below the burning rate, resulting in a steady decline in coal reserves at both the Salt River and Cape Town City Council's power stations. By the end of August, stocks were equivalent to only a week's burning at the respective power stations. At Hex River Power Station coal supplies were consistently satisfactory.

At the end of the year coal stock on hand at the Salt River Power Station was 20,000 tons and 29,000 tons at Table Bay Power Station.

During the year a further portion of the coal storage ground at Salt River was relinquished by contractors, and after this area had been excavated and levelled, storage space was increased to 30,000 tons. An additional area to store approximately 8,000 tons of coal will become available during 1956.

Salt River No. 1 Power Station—The programme of overhaul and modification of the boiler plant and turbine overhauls and reblading continued during the year, and the installation of grit collectors was completed. Extensive repairs to corroded structural steelwork in the boiler house was carried out and is continuing.

A 33 kV stator which was rewound on site following an insulation failure was replaced in service.

Building of a new Fitter's Workshop contiguous with the boiler house basement was started and was nearing completion at the end of the year.

Considerable re-routing of cables in the power station grounds was undertaken in connection with the commissioning of the No. 2 Power Station switchhouse.

Until the first turbo-alternator was placed on load in May, 1955, Nos. 1 and 2 boilers in Salt River No. 2 Power Station were used to supply steam to No. 1 Station, and steaming of the less efficient boiler plant in the old station was thereby reduced. No. 3 boiler was completed in September and No. 2 machine in November. Thus Salt River No. 2 Power Station was able to carry an appreciable part of the load on the pooled stations, and the reduction in the output and load factor for Salt River No. 1 Power Station reflects the use of the more efficient plant in the new Station for base load and the less efficient plant for peak loads only.

Major Transmission System—The construction of a second 66 kV line between Hex River Power Station and Touw's River was commenced early in the year and completed and commissioned on the 23rd December, 1955. This provides a duplicate supply to all Traction Substations between Worcester and Touw's River.

The laying of two 66 kV underground cables between Oakdale Substation and Salt River Power Stations, and the installation of the two associated 45 MVA 33/66-kV step-up transformers at Salt River Power Station were completed early in the year. The feeders and transformers were tested and commissioned, the first on the 28th May and the second on the 6th July, 1955.

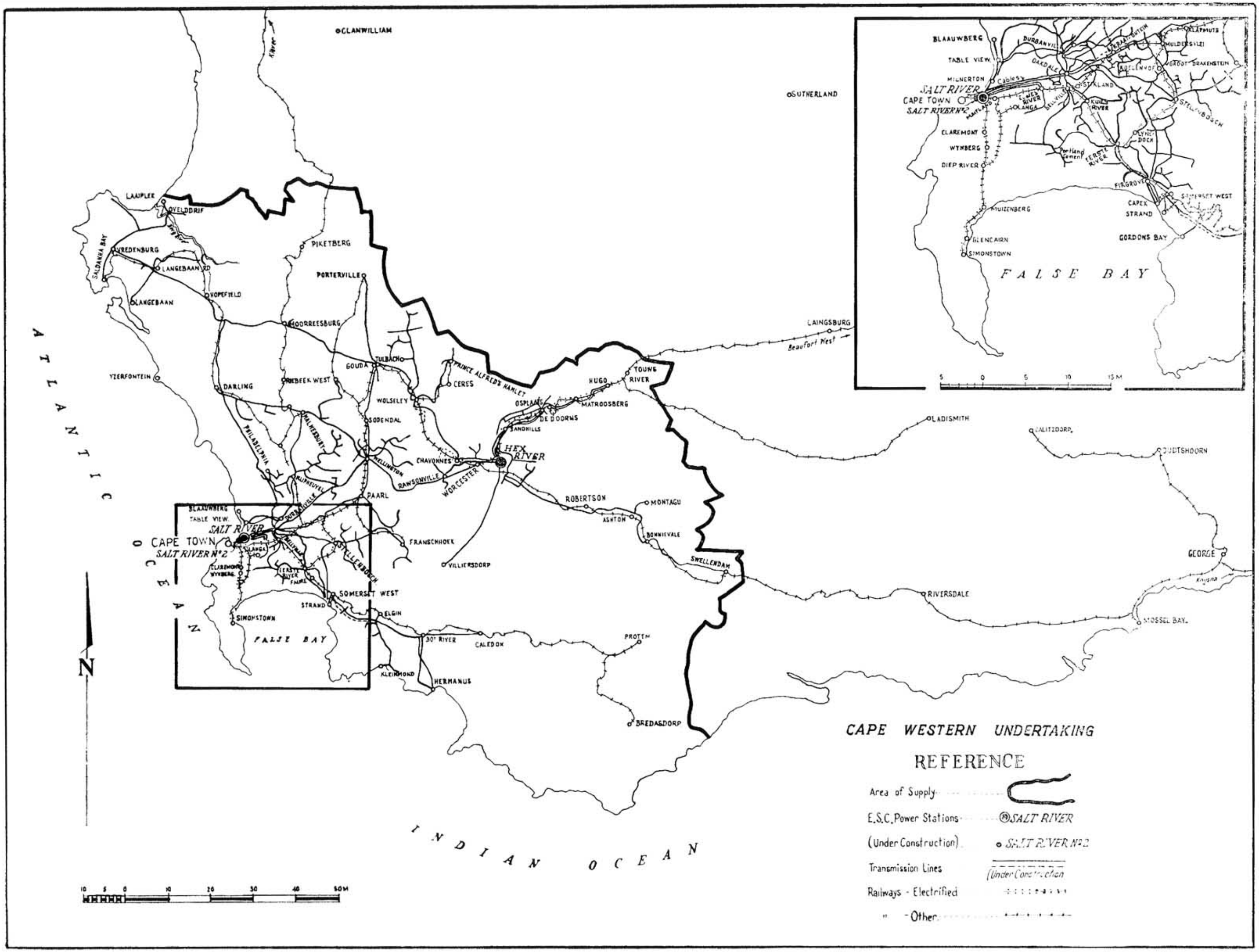
Work on a third Elsies River 33 kV feeder from Salt River Power Station was also completed at about that time; but to date the feeder has not been commissioned due to alterations at Elsies River Substation not having been completed.

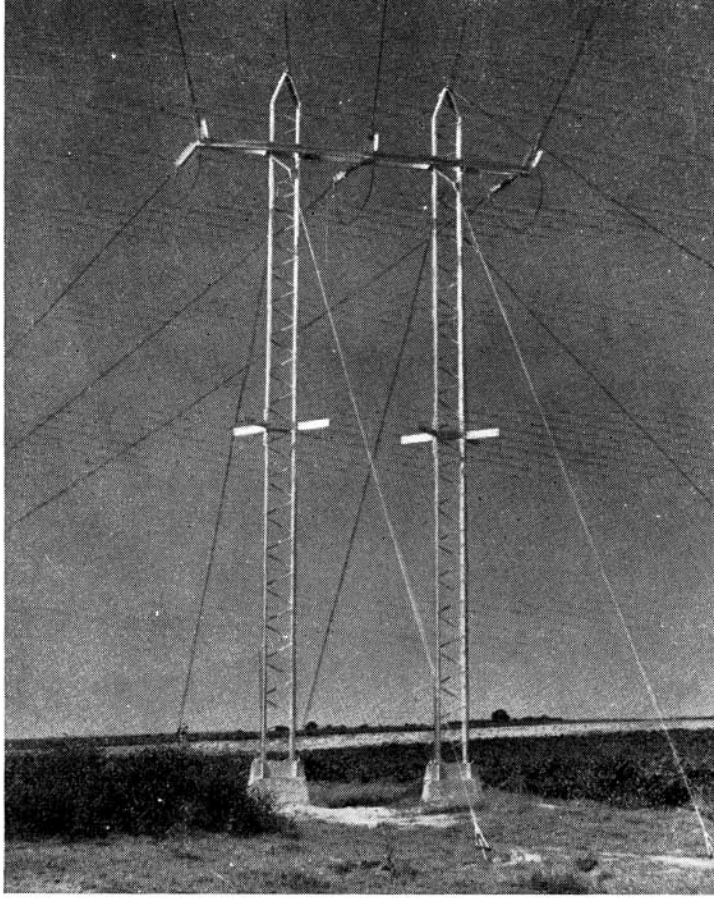
Phase-shifting transformers ordered for Oakdale Substation to ensure proper sharing of load on the 66 kV cables and the previously-installed 33 kV cables, arrived shortly after the 66 kV cables were completed, but were not commissioned until the 14th December, 1955.

Construction work on 66 kV substations at Stellenbosch and Capex continued during the year as material became available, and it is expected to have all work completed by the time the transformers and switchgear necessary for the change-over to 66 kV working become available. Construction of a new substation at Lourens River commenced early in 1956 and the whole of the Oakdale-Stellenbosch-Lourens River-Capex-Oakdale network will be changed over to 66 kV working not later than November, 1956.

Bulk Supply and Industrial Consumers—One additional bulk supply was made available, during the year, to the town of Porterville. The Municipality notified a demand of 200 kVA and a supply was furnished by extending the 11 kV line feeding the Imperial Cold Storage Factory at Gouda to Porterville, a distance of about 18 miles.

During the year 22 Industrial Consumers in the Large User category, having a total load of 2,254 kVA, were connected to the system.


CAPE WESTERN UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
SALT RIVER
(Under Construction)
SALT RIVER No. 2
Transmission Lines
(Under Construction)
Railways - Electrified
" - Other
ATLANTIC OCEAN
INDIAN OCEAN
FALSE BAY
CAPE TOWN
SALT RIVER
SALT RIVER No 2
CLANWILLIAM
SUTHERLAND
LAINGSBURG
Beaufort West
LADISMITH
CALITZDORP
OUDTSHOORN
GEORGE
MOSSEL BAY
RIVERSDALE
SWELLENDAM
BREDASDORP
HERMANUS
CALEDON
ROBERTSON
MONTAGU
ASHTON
BONNIEVALE
WORCESTER
HEX RIVER
PAARL
WELLINGTON
STELLENBOSCH
SOMERSET WEST
STRAND
SIMONSTOWN
MALMESBURY
DARLING
PIKETBERG
PORTERVILLE
MOORREESBURG
GOUDA
TULBACH
CERES
VREDENBURG
SALDANHA BAY
LANGEBAAN
HOPEFIELD
VELDDRIF
LAAIPLEK
YZERFONTEIN
BLAAUWBERG
TABLE VIEW
MILNERTON
CLAREMONT
WYNBERG
DIEP RIVER
MUIZENBERG
GLENCAIRN
DURBANVILLE
OAKDALE
BELLVILLE
KUILS RIVER
FIRGROVE
GORDONS BAY
LANGA
KLAPMUTS
MULDERSVLEI
GROOT DRAKENSTEIN
LYNEDOCH
KLEINMOND
ELGIN
FRANSCHHOEK
VILLIERSDORP
HUGO
TOUWS RIVER
MATROOSBERG
DE DOORNS
SANDHILLS
CHAVONNES
RAWSONVILLE
WOLSELEY
SOPENDAL
PRINCE ALFRED'S HAMLET
PROTEM
RIEBEEK WEST
PHILADELPHIA
5 0 5 10 15 M
10 5 0 10 20 30 40 50 M
N



Strain structure on the 66 kV transmission line at Vlottenberg.

Development of Urban Distribution—The demand for electricity in the urban areas of Goodwood, Parow and Bellville increased steadily during the year. The highest maximum demand recorded was 29·3 MVA, which is an increase of 11 per cent over the maximum demand for 1954, as compared with 10·7 per cent increase in the previous year.

Development of Rural Supplies—Extensions to rural networks continued during the year, and 278 connections were made, which included 78 farmers.

There still remain large areas where farmers are interested in obtaining supplies of electricity, but as the cost per consumer in sparsely populated areas is high it is not expected that the number of connections for 1956 will exceed that for 1955.

Financial—There was a surplus on the year's working of £97,099. Thus the deficit on the Undertaking's revenue account has been recouped and there was a surplus of £87,804 at the 31st December, 1955.

CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1955	1954
			%	£	d	d
Bulk	4	47,770,627	+5·745	198,513	0·9973	0·9459
Mining	3	24,011,143	− 2·232	121,325	1·2127	1·2013
Industrial	60	1,281,667	+52·125	20,174	3·7778	2·8863
Domestic and Lighting	70	120,152	+26·173	1,234	2·4652	2·4806
	137	73,183,589*	+3·554	341,246	1·1191	1·0598

	1955	1954	Accumulated to 31.12.55
Total Revenue	£342,674	£313,633	
Working Costs	£344,604	£307,677	
Surplus	—	£5,956	£178
Deficit	£1,930	—	—
Capital Expenditure	£253,071	£280,612	£1,678,716
CENTRAL POWER STATION—			
Units Sent Out	70,011,696	68,254,599	
Maximum half-hour Demand kW S.O.	17,118	17,960	
Station Peak kW	18,100	19,300	
Load Factor %	46·8	43·3	
Thermal Efficiency % Sent Out ...	12·32	12·32	
COAL:			
Consumption—tons	80,462	77,471	
Average per unit sent out—lb ...	2·299	2·270	
Calorific Value B.Th.U./lb ..	12,050	12,200	
Total Cost	£123,995	£112,699	
Cost per ton	30s. 10d.	29s. 1d.	

*This total includes sales of units re-purchased.

Output and Sales—Units sold in 1955 show an increase of 3·5 per cent. Barkly West Municipality continued to expand its electricity undertaking, with an increase of 19 per cent; Boshof Municipality with 18·4 per cent. Warrenton Municipality which commenced taking a bulk supply in April, 1955, took 353,600 units in nine months, compared with 263,197 units during the whole of 1954, when the town was supplied from its own diesel station.

A bulk supply was given to the Virginian Cheese and Food Company at Fourteen Streams in June, 1955, and this factory, although not working to full capacity took 42,056 units in six months with a maximum demand of 50 kVA.

The Irrigation Department's Central Construction Workshops at Andalusia, which closed down its diesel station at the end of June and commenced taking a bulk supply, showed an initial maximum demand of 248 kVA and bought 345,023 units during the last six months of 1955. This Workshops supply included some 240 domestic consumers who have since become the Commission's consumers.

Towards the end of the year supply was made available to a new lucerne dehydration plant operated by Food and Feeds Industries Ltd. at Pokwani, and a new lucerne mill operated by Vaalharts Landbou Koöpersie at Magogong. The total demand of these new industries was 360 kVA and it is expected that this type of industry will grow considerably now that power is available in the Vaalharts area.

New Developments—During the year work continued on the planning and design of the 132 kV interconnector which will transmit additional power from the power stations operated by the Rand and Orange Free State Undertaking to the Cape Northern Undertaking in 1958 when the Kimberley Power Station will not be able to supply the whole of the load of this Undertaking.

Construction of the 66 kV line to Warrenton and Vaalharts was completed; but the line was commissioned at 33 kV temporarily.

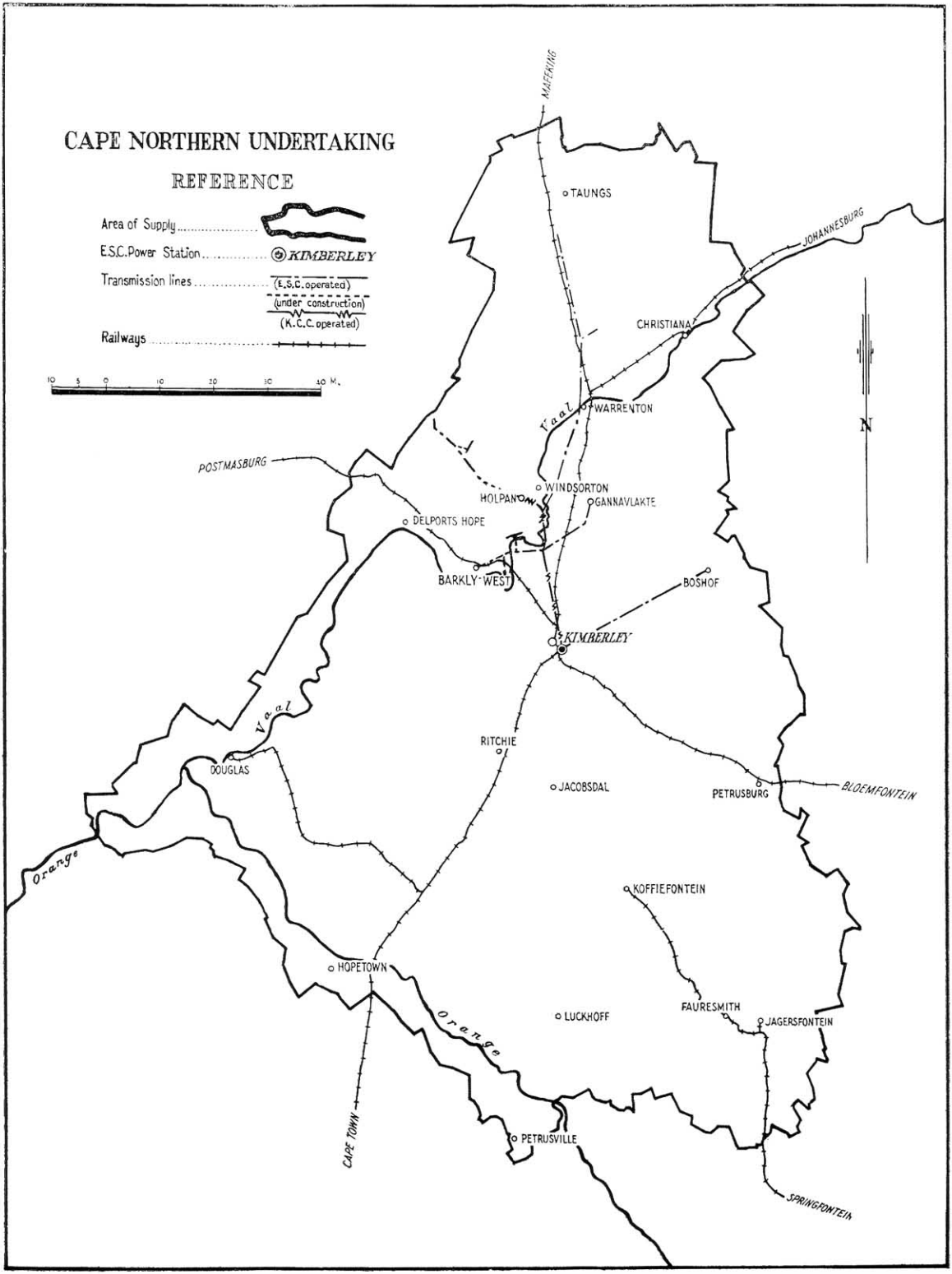
As the existing Municipal 33 kV transmission line to Riverton will be inadequate to serve the Vaalharts area and the additional mining and cement companies to the North West, a 66 kV transmission line on steel poles has been constructed between Kimberley and Riverton. The line will be placed in service when the step-up transformers arrive; and thereafter the Commission will distribute to its own consumers without making use of the municipal network.

Negotiations have been completed for the purchase of the Riverton-Holpan 33/66 kV concrete pole transmission line from the Kimberley City Council, and this line has been reinsulated for 66 kV operation. The Electricity Control Board sanctioned the transfer to Escom of the area of supply served by this line, and a new 11 kV farmers' line is being erected so that existing supplies to small consumers may be transferred from the 33/66 kV concrete pole line to this line.

Work has commenced on a 66 kV steel transmission line from Holpan to Ulco, and a wood pole spur line of some 9 miles to serve Harts Substation situated between Smith's mine and Bellsbank has ben completed, together with 13 miles of 11 kV lines serving these small diamond mines.

Additional 11 kV lines from the Hartz Substation will eventually be necessary to supply riparian farmers to the North and South.

At Ulco the Anglo-Alpha Cement Company is expanding its works and will take a partial supply from Escom in 1957, until the 132 kV interconnection from


CAPE NORTHERN UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Station
KIMBERLEY
Transmission lines
(E.S.C. operated)
(under construction)
(K.C.C. operated)
Railways
10 5 0 10 20 30 40 M.
MAFEKING
TAUNGS
JOHANNESBURG
CHRISTIANA
WARRENTON
Vaal
N
POSTMASBURG
WINDSORTON
HOLPAN
GANNAVLAKTE
DELPORTS HOPE
BARKLY-WEST
BOSHOF
KIMBERLEY
Vaal
RITCHIE
DOUGLAS
JACOBSDAL
PETRUSBURG
BLOEMFONTEIN
Orange
KOFFIEFONTEIN
HOPETOWN
LUCKHOFF
FAURESMITH
JAGERSFONTEIN
Orange
CAPE TOWN
PETRUSVILLE
SPRINGFONTEIN

the Rand and O.F.S. Undertaking is commissioned in 1958, after which the Company is contemplating taking the entire supply from Escom of approximately 8,000 kW.

Twenty-four miles of 11 kV lines were erected and commissioned in the Warrenton and Vaalharts areas, and development here will continue steadily. A line following the Vaal River will be erected from Warrenton to Christiana.

Negotiations are in progress for the supply to the township of Hartswater, and with Jacobsdal and potential consumers on the adjacent Riet River Irrigation scheme, and also with Douglas Municipality and farmers in that vicinity who will require comparatively large supplies for pumping water from the Vaal River. It will not be possible to supply these consumers until additional power becomes available from the Rand and O.F.S. Undertaking in 1958.

Power Station—During the period under review the remaining two new boilers were completed and commissioned. Nos. 3 and 4 generating sets were transferred from Vlei cooling to the new mechanical draught cooling towers, and the booster pumphouse was brought into use.

The new base exchange feed water softening plant and the new condensate system were brought into operation in September, 1955 with beneficial results.

Although the peak demand on the station at 17,118 kW was slightly lower than the previous year, the units sent out 70,011,696 showed an increase of 2·5 per cent.

With the commissioning of the new boilers the station was able to cope with the peak demand without difficulty.

Financial—The revenue account for the year showed a deficit of £1,930 on the total revenue of £342,674.

It is thought that the relatively small increase in total sales is due to some extent to the higher tariffs which have induced economics in the consumption of electricity. This is an obvious economic consequence and is not to be decried in this or any other business.

BORDER UNDERTAKING

CONSUMERS — Class	Number	SALES — Units	SALES — Increase or Decrease	Revenue from Sales	Average Price per Unit Sold — 1955	Average Price per Unit Sold — 1954
			%	£	d	d
Bulk	6	118,175,967	+11.036	415,081	0·8430	0·7458
Industrial	101	3,997,292	+ 6·387	35,272	2·1178	2·0488
Domestic and Lighting	2,244	8,410,968	+ 7·632	69,824	1·9924	1·9612
Steam—Industrial	2	216,567	− 7·353	970	1·0753	1·0061
	2,353	130,800,794*	+10·627	521,147	0·9562	0·8681

	1955	1954	Accumulated to 31.12.55
Total Revenue	£522,345	£427,898	
Working Costs	£570,784	£466,039	
Deficit	£48,439	£38,141	£153,295
Capital Expenditure	£823,689	£1,041,090	£3,565,753

	East London West Bank No. 1 — 1955	East London West Bank No. 1 — 1954	King William's Town — 1955 Steam	King William's Town — 1954 Steam	King William's Town — 1955 Oil	King William's Town — 1954 Oil
Units Sent Out	116,307,889	105,255,930	13,907,784	12,501,090	121,620	85,505
Maximum Half-hour Demand kW S.O. ...	25,220	23,250	3,780	3,618	900	1,000
Load Factor %	52·6	51·6	42·4	39·7	In parallel with steam plant	
Thermal Efficiency % S.O.	13·56	14·00	13·39	13·29		
FUEL:						
Coal Consumed—tons ...	121,671	106,115	14,674‡	12,862†		
Average per Unit Sent Out	2·092	2·016	2·077	2·019		
Calorific Value B.Th.U./lb	12,030	12,090	12,550	12,770		
Total Cost	£254,028	£200,782	£33,511	£27,292		
Cost per ton	41s. 9d.	37s. 10d.	45s. 8d.	42s. 5d.		
Fuel Oil consumed—lb					72,161	49,011
Fuel Oil per unit S.O.—lb					0·593	0·573

*This total includes sales of units re-purchased.
‡Includes 233 tons for Live Steam Supply.
†Includes 243 tons for Live Steam Supply.

Development of the Undertaking—In the last annual report it was stated that the completion of the transmission line from King William's Town to Alice, Fort Beaufort, Adelaide and Bedford and the supply of electricity to these towns from the power station at King William's Town was the first stage in the integration of the Border Undertaking.

During the year good progress was made in the second stage of integration. Work on the 66 kV interconnector between East London and King William's Town and in the construction of West Bank No. 2 Power Station has been pushed on as rapidly as possible, and it is expected that the new power station and the interconnector will be in service during the coming winter. This will enable the base load of the Undertaking as a whole to be supplied from the more efficient plant in the new station and in West Bank No. 1 Power Station, and the plant in King William's Town Power Station will only be used when it is necessary to call upon that plant to meet peak-load demands.

The construction of an 11 kV line to supply Stutterheim was commenced and good progress is being maintained.

Grahamstown City Council has accepted the Commission's offer of a partial supply of electricity which will be required in the winter of 1958. The supply will be transmitted over a single 66 kV line to be built from King William's Town.

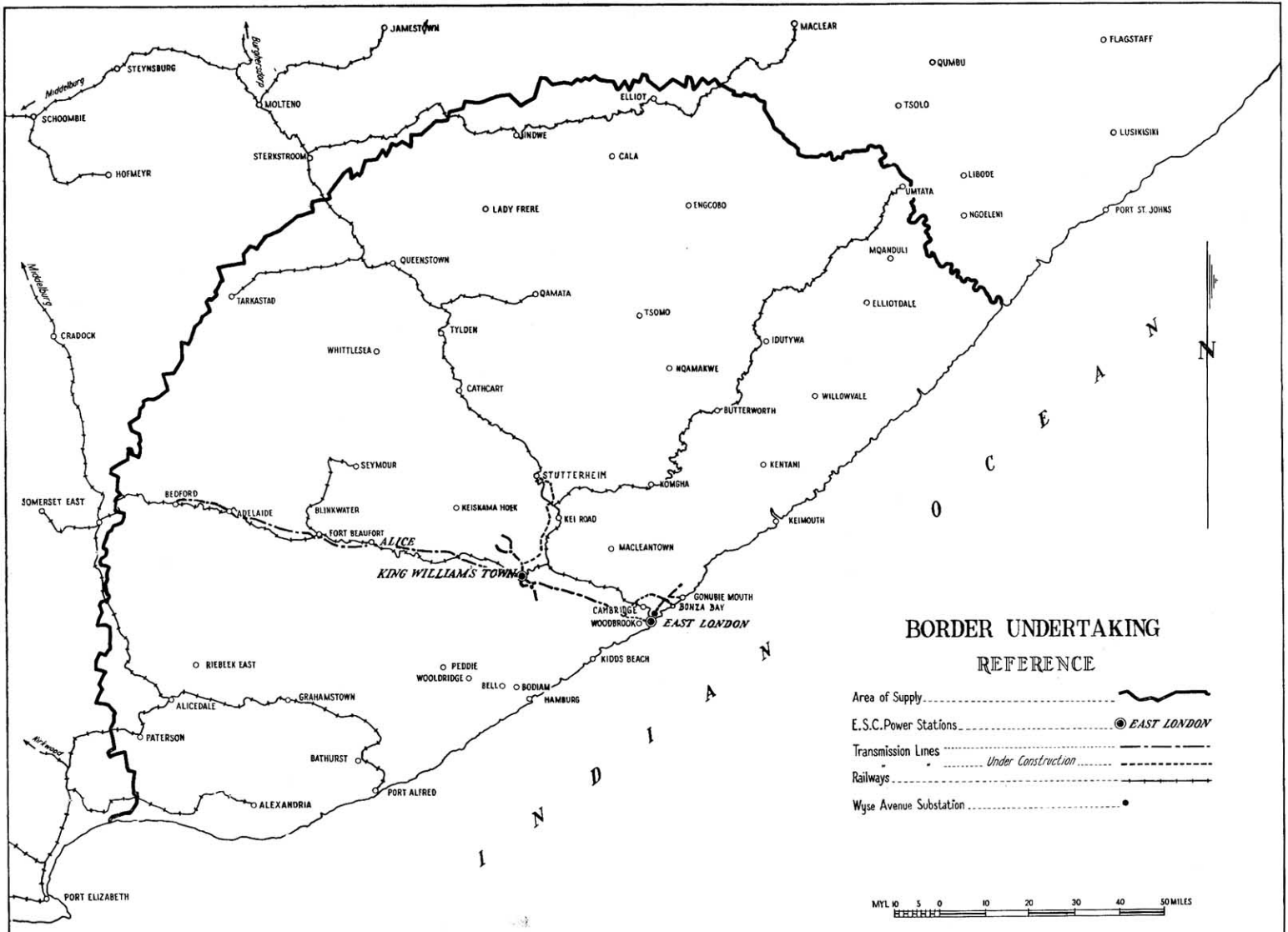
A survey is being made of the possibilities of establishing a supply scheme in the Kat River Valley.

Output and Sales.—The total sales for the Undertaking during the year were 10·6 per cent higher than the corresponding figure for 1954. Area increases were, East London 10·66 per cent, King William's Town 10·78 per cent and Alice 4·77 per cent. The total of 90 new consumers was added to the system.

East London—Shortage of steaming capacity in West Bank No. 1 Power Station necessitated shedding load during June. The expectation that No. 1 boiler in West Bank No. 2 Power Station would be ready for steaming in May was not realised, but this new boiler came on range on the 26th June. Although this boiler was brought into service before it was fully completed, its assistance eliminated further load shedding, and its use since July has enabled long overdue overhauls and repairs to be done to the boilers in No. 1 Station.

The East London City Council increased their purchase of units by 10·44 per cent over the corresponding figure for 1954. Their maximum demand was 26,830 kVA as compared with 24,370 kVA in 1954.

The maximum demand for the North Coast system (which was previously referred to as the Gonubie and Bonza Bay areas) rose from 480 kVA in 1954 to 524 kVA for the year under review; and the units fed into this system increased by over 20 per cent. New consumers were added at the rate of about three per month to make the total 321 at the end of the year. Supply was commenced and made available to Beaconhurst Estates Township.



BORDER UNDERTAKING

REFERENCE

Area of Supply .....

E.S.C. Power Stations ..... ◉ EAST LONDON

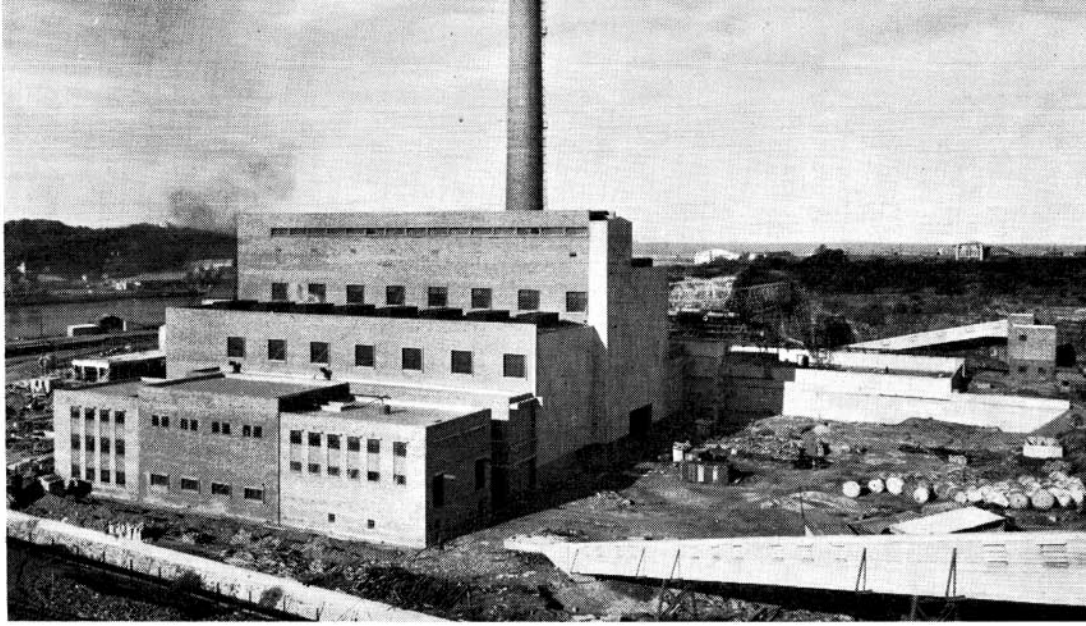
Transmission Lines .....

" " ..... Under Construction .....

Railways .....

Wyse Avenue Substation .....

MYL 10 5 0 10 20 30 40 50 MILES



West Bank No. 2 Power Station at East London where two sets are now operating.

King William's Town—An additional 43 consumers were connected to the King William's Town reticulation system; of these the Mount Coke Mission and the Native Affairs Department at Jan Tzatsoe's Location were Large Users. The Izeli Convent accepted terms for supply and work on that project was commenced. The King William's Town Power Station continued to supply all system requirements from King William's Town through to Bedford. Units sold to King William's Town reticulation consumers were 9,923,241, and to all other consumers in the hinterland system 3,090,340.

Alice—Further sales of the Alice generating plant have been made. Reconstruction of the reticulation system at Lovedale was completed. The increase in sales in Alice was only 4·77 per cent for 1955.

Financial—In view of increased costs, especially the cost of fuel and maintenance costs, and of the large deficit accumulated to the 31st December, 1954, it became necessary to introduce an interim adjustment of tariffs during the year. A surcharge of 15 per cent was made, under the Act, on all accounts for supplies metered on and after 16th September, 1955. Although this adjustment helped to stabilize the position, the loss on the year's working amounted to the large figure of £48,439, and the accumulated deficit increased to £153,295.

In order to correct the financial position and to take account of the new situation that will obtain with the commissioning of West Bank No. 2 Power Station and the King William's Town interconnectors, application was made to the Electricity Control Board for approval of a new Schedule of Standard Prices. After a public hearing on 7th February, 1956, the Board granted the Commission's application and the revised tariffs were introduced with effect from the beginning of the 1956 year.

NATAL SOUTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1955	1954
			%	£	d	d
Traction	1	65,652,748	57·303	190,617	0·6968	0·5587
Bulk	2	756,106,054	8·788	2,064,971	0·6555	0·5318
Industrial	280	27,395,747	17·185	128,252	1·1235	0·7966
Domestic and Lighting	4,650	20,845,264	18·870	168,444	1·9394	1·7811
	4,933	869,999,813*	11·871	2,552,284	0·7041	0·5694

	1955	1954	Accumulated to 31.12.55
Total Revenue	£2,554,383	£1,889,498	
Working Costs	£2,450,975	£1,938,676	
Surplus	£103,408	—	£43,333
Deficit	—	£49,178	
Capital Expenditure	£1,481,837	£1,675,039	£14,309,052

	Congella Power Station Nos. 1 and 2		Umgeni Power Station		Port Shepstone Power Station	
	1955	1954	1955	1954	1955	1954
Units Sent Out	711,404,210	750,538,540	228,614,583	83,068,541	92,591	96,930
Maximum half-hour Demand kW S.O.	155,285	168,896	57,800	31,200	3,410	3,138
Station Peak kW	174,500	189,000	62,000	34,200	3,450	3,305
Load Factor %	52·3	50·7	59·0	40·6		
Thermal Efficiency %	20·20	20·48	21·84	21·06		
FUEL:						
Coal Consumed	506,163	533,914	155,639	30,081†		
Average per unit sent out	1·423	1·423	1·362	1·356		
Calorific Value B.Th.U./lb	11,870	11,710	11,470	11,950		
Total Cost	£793,000	£725,378	£255,538	£46,233		
Cost per ton	31s. 4d.	27s. 2d.	32s. 10d.	30s. 9d.		
Fuel Oil consumed—lb					54,609	57,495
Fuel Oil per unit sent out—lb.					0·590	0·593

*This total includes sales of units re-purchased.
†Tonnage of coal charged to Revenue Account.

Area of Supply—During the year negotiations were concluded for the purchase of the Glenbain Hydro-electric Power Company's plant and distribution system and the development of the Commission's supply system into the Ixopo district, and on 14th February, 1956, an application was made to the Electricity Control Board for alterations to the area of supply, to include the areas around Ixopo, Umzimkulu and Port Edward, to re-adjust the common boundary between the Natal Undertakings and to re-define the area of supply of Natal Southern Undertaking by farm boundaries.

The re-adjustment of the common boundary was based on the technical arangement that Mason's Mill Substation, which is fed from the 132 kV interconnector between Umgeni Power Station and Colenso Power Station, constitutes the point of separation of the distribution systems of the Undertakings. From Mason's Mill Substation electricity is supplied on the one hand into the 88 kV lines which supply the Railway Substations and other consumers south of Pietermaritzburg towards Durban and on the other hand to the Municipality of Pietermaritzburg and other consumers of the Natal Central Undertaking. Thus, all supplies which are, electrically speaking, located south of Mason's Mill Substation are now defined as supplies of Natal Southern Undertaking.

The application was granted by the Board, and the adjustments between the Undertakings were made effective from and including the financial year 1955.

Output and Sales—Sales of electricity to the various classes of consumers are shown in the table, which indicates a rate of growth of nearly 12 per cent. These figures are affected by the transfer of supplies, as explained above; but the major increase in Sales of the Undertaking is in the supply to the Durban Corporation which was nearly 9 per cent. greater than in the previous year.

Sales of the two Natal Undertakings taken together show an annual increase of about 8 per cent.

Congella Power Station—Two major interruptions occurred on the 13th and 27th May respectively due to failure of a 33 kV air-blast circuit-breaker. On the first occasion all supplies were interrupted, but partial supply was maintained on some feeders on the second occasion. Steps are being taken to prevent a recurrence.

The work of splitting the busbars of the station necessitated by the increased rupturing capacity arising from interconnection with Umgeni and Colenso Power Stations, proceeded throughout the year, and reactors were installed in the 6·6 kV busbars for the same reason.

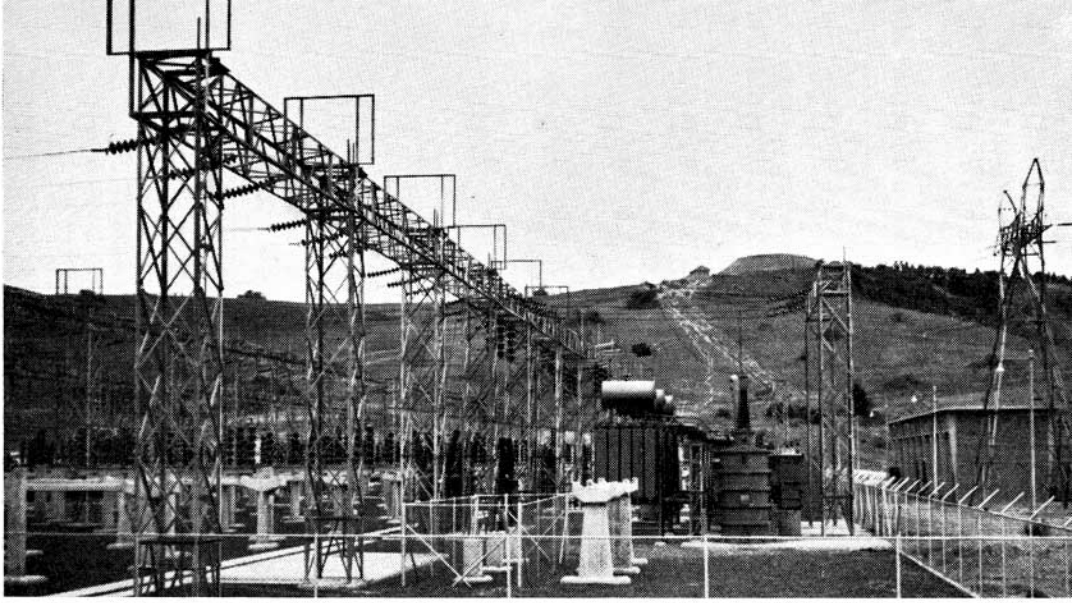
The Railway Administration advised that they would not be able to remove the coarse ash from the station after the end of the year and arrangements were made to do this by road transport.

With the commissioning of additional plant at Umgeni Power Station, it was possible to effect major repairs to some boilers at Congella.

Modifications were made to the precipitators of Boilers 15, 17 and 18 with satisfactory increases in their efficiency.

To overcome leaks in the condenser of one of the 40-MW turbo-generators the condenser was being completely retubed with cupro-nickel tubes.


TRANSVAAL
SWAZILAND
ORANGE FREE STATE
NATAL
BASUTOLAND
CAPE PROVINCE
INDIAN OCEAN
Heidelberg
Bethal
Ermelo
Vereeniging
Parys
Kroonstad
STANDERTON
AMERSFOORT
PIET RETIEF
PAARDEKOP
VOLKSRUST
WAKKERSTROOM
PAULPIETERSBURG
HEILBRON
FRANKFORT
VREDE
UTRECHT
HLOBANE
VRYHEID
NEWCASTLE
REITZ
WARDEN
LINDLEY
GLENCOE
DUNDEE
BETHLEHEM
HARRISMITH
KESTELL
LADYSMITH
BERGVILLE
COLENSO
WEENEN
ESTCOURT
GREYTOWN
KRANSKOP
ESHOWE
MOOI RIVER
MT. ALIDA
GLENSIDE
WARTBURG
HOWICK
STANGER
COMPENSATION
TONGAAT
PIETERMARITZBURG
VERULAM
UNDERBERG
THORNVILLE
HILLCREST
UMGENI
DURBAN
CONGELLA
RICHMOND
MID ILLOVO
IXOPO
WARNER BEACH
UMZINTO
Cedarville
FRANKLIN
KOKSTAD
HARDING
MARBURG
PORT SHEPSTONE
MARGATE
RAMSGATE
SOUTHBROOM
PORT EDWARD
N
NATAL UNDERTAKINGS
REFERENCE
Areas of Supply
E S C Power Stations — CONGELLA
Diesel Stand - by Stations — VOLKSRUST
Transmission Lines — (Under Construction)
Provincial Boundaries
Railways - Electrified
" - Other
E.S.C. Power Station (Under Construction) — UMGENI
The Natal Central Licence includes the areas of jurisdiction of the Local Authorities of Paardekop, Wakkerstroom and Amersfoort.
MYL 10 5 0 10 20 30 40 50 MILES



The switchyard at the Umgeni Power Station.

Umgeni Power Station—The output from Umgeni Power Station was increased to 228 million units in 1955, which represented an appreciable contribution to the output of the pooled power stations. By the end of June the "teething" troubles with the new plant had been rectified and the official acceptance tests on Sets Nos. 1 and 2 were conducted in July and August respectively.

Problems encountered on the boilers with air-heater operation and dust collectors are being studied.

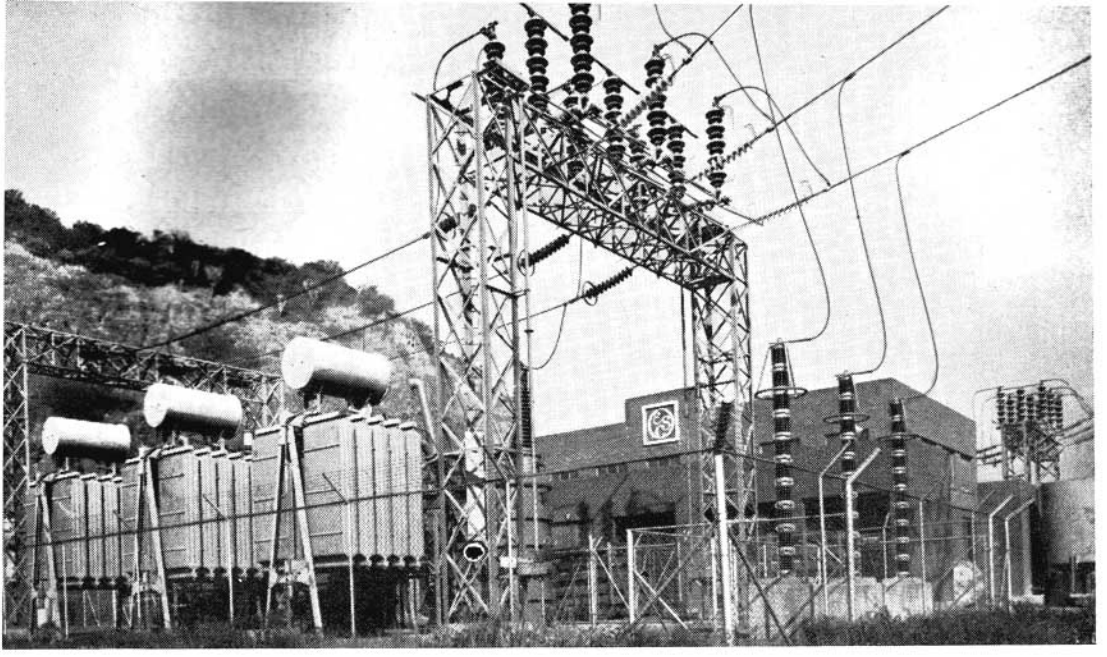
A report on construction at Umgeni Power Station appears on page 13.

Distribution System—During the year 19·84 miles of transmission and distribution lines were erected and energised at 6·6 kV and above, and 1·64 miles of 11 kV line were dismantled.

A 33 kV busbar fault occurred in February at Springfield Substation which revealed the necessity to drain and recompound all the junction boxes of the switchboard. This work was completed during the year.

The enquiry for the second 132 kV line from Umgeni to Mason's Mill was issued. This line will be 37·8 miles in length.

Work proceeded on obtaining servitudes for the two 132 kV lines twelve miles long from Umgeni to a new substation to be built at Coedmore for interconnection between Umgeni and Congella. These will be linked to the 88 kV South Coast line at Coedmore, and a new double-circuit, two miles long, 88 kV line will replace the existing Congella/Booth line, one circuit continuing along the track to Cato Ridge.



The Springfield substation.

The construction of a new 88 kV substation at Umkomaas proceeded throughout the year and it is hoped to commission this substation about mid-1956.

The development of the South Coast area has continued and the number of consumers increased by 352 to 3,835.

The maximum demand of the South Coast load increased by 10 per cent to 8,600 kVA.

The diesel power station at Port Shepstone was maintained as stand-by and was run on a few occasions.

On the North Coast, negotiations were concluded with the Borough of Stanger to take a partial supply from Escom. This will require the construction of 7·5 miles of 33 kV line from Tongaat to Compensation on the border of Stanger's area of supply, and it is hoped to complete this line during 1956.

Twenty-one new consumers were connected on the North Coast, making a total of 285.

Work was continued on the Eston/Mid-Illovo scheme where 13 rural consumers were connected during the year. In all 34 new rural consumers were connected in the Inland area.

Four large power users were connected during the year.

Financial—The revision of tariffs, which was reported in the last Annual Report, was effective from the month of April, 1955, and the revenue account for the year shows a surplus of £103,408. Thus, the accumulated deficit of £60,075 has been recouped, leaving a surplus of £43,333 at the 31st December, 1955.

NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1955	1954
			%	£	d	d
Traction	1	266,489,078	− 4·144	847,567	0·7633	0·5487
Bulk	15	195,877,360	+ 7·667	643,701	0·7887	0·6827
Mining	12	29,176,872	+11·701	109,031	0·8969	0·8033
Industrial	482	42,575,691	+25·471	169,580	0·9559	0·8926
Domestic and Lighting	3,912	12,284,223	− 2·023	111,666	2·1817	1·9933
	4,422	546,403,224	+ 2·605	1,881,545	0·8264	0·6629

	1955	1954	Accumulated to 31.12.55
Total Revenue	£1,888,555	£1,492,150	
Working Costs	£1,831,498	£1,495,080	
Surplus	£57,057	—	£45,512
Deficit	—	£2,930	
Capital Expenditure	Cr. £466,443	£575,759	£9,386,323
COLENSO POWER STATION—			
Units Sent Out	523,242,840	519,526,650	
Maximum half-hour Demand kW S.O.	109,940	109,680	
Station Peak kW	127,000	121,000	
Load Factor %	54·3	54·1	
Thermal Efficiency % Sent Out ...	18·32	19·13	
COAL:			
Consumption—tons	407,060	382,650	
Average per unit sent out—lb	1·556	1·473	
Calorific Value B.Th.U./lb ...	11,970	12,110	
Total Cost	£512,800	£410,595	
Cost per ton	25s. 2d.	21s. 6d.	

Area of Supply—On the 14th February, 1956, an application was made simultaneously with the application in connection with the Natal Southern Undertaking for revision of the area of supply of the Natal Central Undertaking for revision of the area of supply of the Natal Central Undertaking to adjust the common boundary between the Undertakings and to include the area of the Municipalities of Petrus Steyn and Lindley and the Village of Arlington. The readjustment involved the transfer to Natal Southern Undertaking of the supplies at three Railway Substations between Thornybush and Cato Ridge and a number of consumers supplied from the 88 kV lines south of Mason's Mill Substation.

The application was granted by the Board and the adjustments between the Undertakings was made effective for the whole of the financial year 1955.

Output and Sales—In spite of the transfer of supplies to the Natal Southern Undertaking, sales for the year show an increase of 2·6 per cent over the figures for 1954. The sum of the notified demands of consumers, excluding the Railways Administration, was 76,624 kVA, which represents an increase of over 10 per cent on the corresponding figure for the previous year.

Colenso Power Station—The operating statistics for Colenso Power Station show little change in 1955, as compared with 1954, but there was an appreciable increase in the cost of coal from £410,595 to £512,800.

The repairs to the new turbo-alternator, No. 8, were completed in April, and the final acceptance test was conducted on the 3rd and 4th May, 1955.

Distribution System—During the year 98·55 miles of transmission and distribution lines were erected and energised at 6·6 kV and above. A deviation to the 88 kV line between Ladysmith and Harrismith was built at Van Reenen's Pass to safeguard the supply to the Free State against landslides which threatened the line on track structures during the rainy season. This brought about a shortening of the line by 0·92 miles.

As reported last year, the 132/88 kV substation at Mason's Mill was commissioned in April, together with an 88 kV line from this substation to Pietermaritzburg 88 kV substation. The work of turning into Mason's Mill the original Pietermaritzburg/Congella 88 kV line was well in hand at the end of the year.

Supply at 88 kV to Pietermaritzburg Corporation from Mason's Mill was made available in April.

Permanent supplies to consumers were made available from the new Ballengeich Substation in May although construction at that substation was not completed until December.

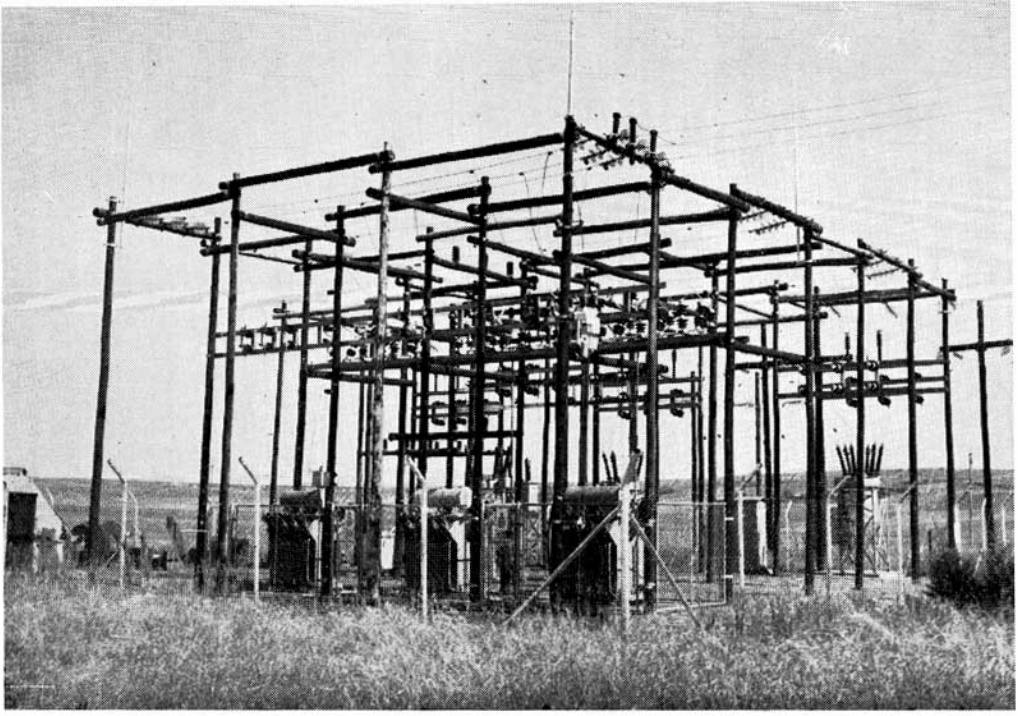
Supply at 88 kV to the Railway Administration's new mutator substation at Danskraal was given in April and the motor-generator sets in the latter substation are now retained as a stand-by.

At Newcastle work was commenced on the construction of $1\frac{1}{2}$ miles of 88 kV line across town lands which will enable $4\frac{1}{2}$ miles of line along the railway track to be removed.

Work is in progress to supply the Administration's new mutator substation at Frere from the adjacent motor-generator substation.

Servitudes are being negotiated for the two 88 kV lines to supply a new substation at Dundee. Only one line, approximately seven miles long, is to be built originally, teeing from the existing line along the track just north of Glencoe Substation.

Negotiations have been concluded with Lindley and Petrus Steyn for supplies and the survey of the route of the 33 kV line, approximately sixty miles long, from Bethlehem has been started.



The 33 kV substation at Warden. The use of wooden poles means a saving in costs and steel.

Servitudes are being negotiated for the 11 kV line to supply Sandspruit and Perdekop from the Volksrust/Amersfoort 22 kV line at Sandspruit.

During the year six new large power users were connected on this Undertaking.

The diesel power station at Volksrust was maintained as stand-by and was run when necessary.

Rural Supplies—Supplies in the Bergville Rural Scheme were given to the first consumers in May and 22 consumers had been connected by the end of the year.

Supplies were given to the original number of rural consumers in the Bethlehem/Wolhuterskop/Asrivier area during the year and further farmers were connected as they applied, to a total of 54. Further extensions are in progress.

Supplies to rural consumers in the Rosetta/Nottingham Road area were given in March and the scheme to supply 13 consumers was completed in November.

In all 104 new rural consumers were connected during the year.

Financial—The revision of tariffs which was reported in the last Annual Report was applied from April, 1955, and the revenue account for the year shows a surplus of £57,057. As at the 31st December, 1955, there was an accumulated surplus of £45,512.

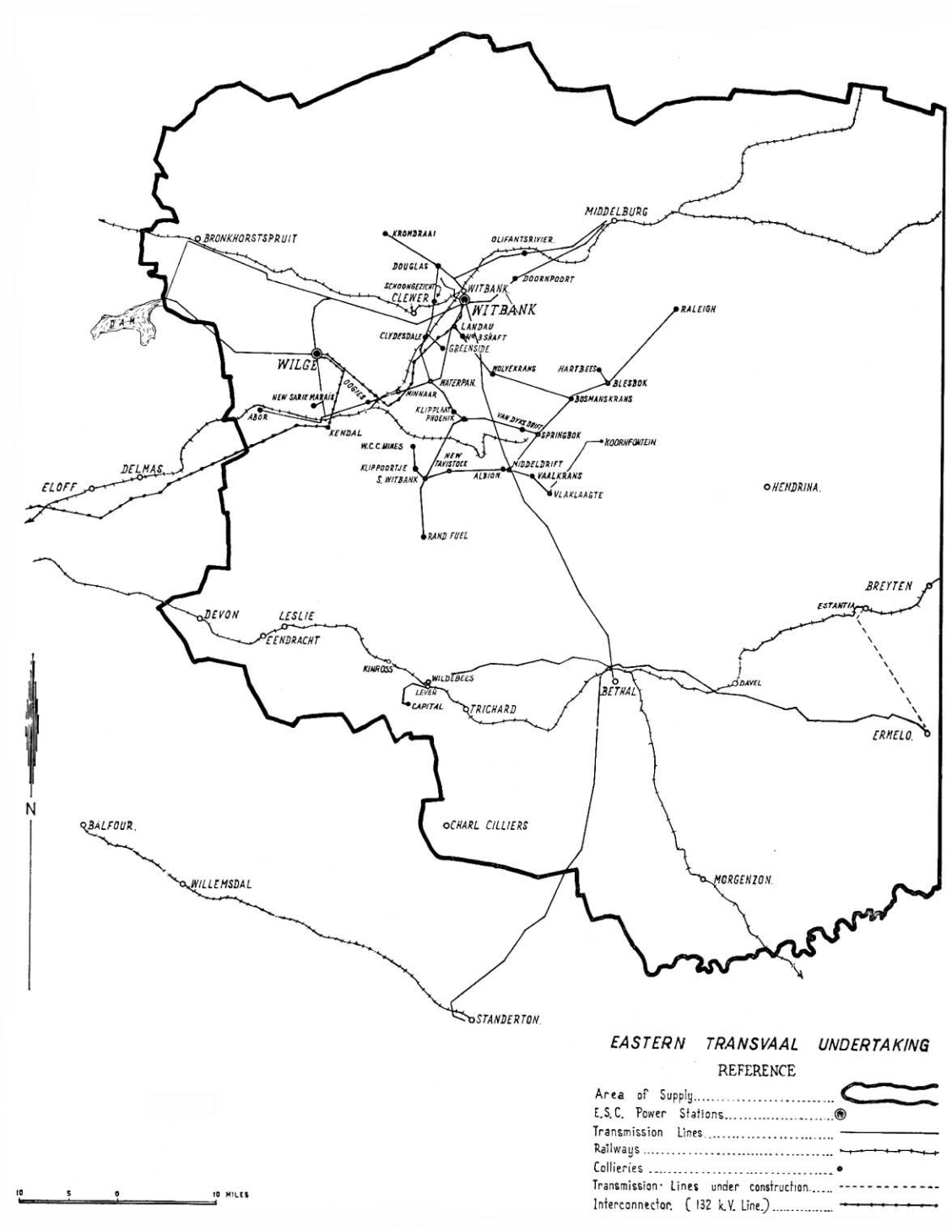
EASTERN TRANSVAAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1955	1954
			%	£	d.	d.
Traction	1	17,770,782	5·794	34,423	0·4649	0·4326
Bulk	4	22,686,105	18·958	47,471	0·5022	0·4811
Mining	30	96,349,955	9·252	210,990	0·5256	0·5419
Industrial	54	256,125,539	76·692	352,000	0·3298	0·3519
Domestic and Lighting	712	1,679,766	16·174	14,676	2·0969	2·0836
	801	394,612,147	45·904	659,560	0·4011	0·4372

	1955	1954	Accumulated to 31.12.55
Total Revenue	£663,516	£1,200,129	
Working Costs	£654,399	£1,172,518	
Surplus	£9,117	£27,611	£24,126
Capital Expenditure	£415,995	£219,769	£4,542,958
WITBANK POWER STATION:			
Units Sent Out	755,472,929	792,101,994	
Maximum one hour Demand kW S.O.	117,509	114,817	
Load Factor %	73·4	78·8	
Thermal Efficiency % Sent Out	16·7	16·44	
COAL:			
Consumption—tons	705,935	731,410	
Average per unit sent out—lb ...	1·869	1·847	
Calorific Value B.Th.U./lb. ...	10,940	11,240	
Total Cost	£267,441	£256,491	
Cost per ton	7s. 7d.	7s.	

New Developments—The 88 kV line Bethal/Ermelo and the step-down substation at Ermelo were completed, and supply to the Ermelo Municipality was commenced on the 29th October, 1955. Construction of the 88 kV line from Ermelo to Estancia was well advanced at the end of the year.

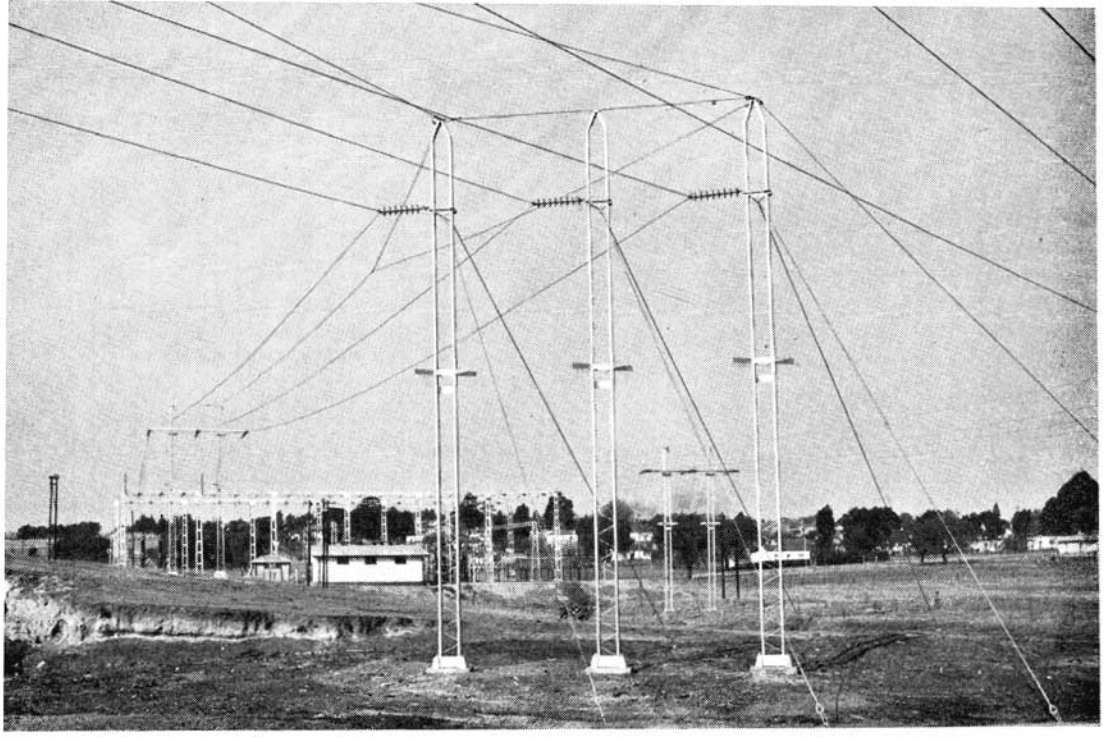
During the year the main substation at Ferrometals, Limited, was erected and commissioned to supply a load of 15,000 kVA which represents the notified demand for the first stage of production at these works.



EASTERN TRANSVAAL UNDERTAKING

REFERENCE

- Area of Supply
- E.S.C. Power Stations
- Transmission Lines
- Railways
- Collieries
- Transmission Lines under construction
- Interconnector. (132 k.V. Line.)



The main substation at Ermelo with the town in the background.

Good progress was made in the supply of electricity to the new gold mining area near Bethal. The 88 kV line from Bethal to the main substation at Wildebees was completed, together with two 88 kV lines from Wildebees to Winkelhaak Mines, Limited, and the initial supply to this new gold mine was commenced in February, 1956.

Discussions and negotiations have taken place with the local authorities for the supply of electricity to the villages of Kinross, Leslie, Devon and Trichard, and it is expected that the initial supplies will be made available towards the end of the year or early in 1957.

Several applications for supply to towns and industrial projects in the Eastern Transvaal lowveld have been investigated. Escom is watching these potential developments; but negotiations have not been brought to a conclusion.

Output and Sales—The increase in sales by this Undertaking is made up by an increase of 13 per cent in the bulk supply to the Witbank Municipality, an increase of 9 per cent in mining supplies, i.e. primarily coal mining, and the very large increase in industrial supplies referred to above.

The operating statistics of Witbank Power Station show a small decrease in the units sent out from the Power Station and in the load factor. On account of the increase in the cost of coal and the relative low efficiency of this station, the Witbank Power Station will become more and more a regulating and peak load station.

Distribution System—On the 88 kV system extensive alterations were completed at Bethal Step-down Substation in order to allow for the re-routing of the Standerton 88 kV line and for the two new 88 kV lines, one to Ermelo and the other to Winkelhaak Gold Mines.

The 34 mile 88 kV line Bethal-Ermelo was completed in October. The 88 kV line from Bethal to Wildebees Step-down Substation, 21½ miles, and the two lines each 5·3 miles from Wildebees to Winkelhaak Gold Mine were completed in January, 1956.

A certain amount of work was done at both the Witbank Step-up and Middeldrift Step-down Substations to provide for the additional loads at these substations.

On the 21 kV network the original substation which has served Rand Carbide Limited since 1926, was completely altered during the year. The building was enlarged, the old switchgear was removed and replaced by air-blast circuit-breakers.

At the Cyanamid Factory a completely new substation with air-blast switchgear was erected. Existing 21 kV cables were re-routed, and the old switchgear was dismantled and removed.

A new substation with two 500 kVA transformers stepping down from 21 kV to 6·6 kV was erected at Tavispan in order to provide supplies to Outspan, Riverview and Jackaroo Plots.

The two heavy-duty lines frim Witbank Power Station to Ferrometals Works were completed. The main substation was equipped and placed in commission with a load of 15,000 kVA.

On the Wilge Power Station-Bronkhorstspruit Dam Line the carrier equipment for control of the pumps was connected in circuit.

Two 21 kV cables were laid and jointed at Wilge Power Station in order to complete the outgoing feeders at this station. A special linking substation was provided at this point to enable supplies to be maintained in the event of the failure of one of the cables.

At Middelburg Town Substation two 1,000 kVA transformers were installed. Short lines were built and small substations erected to supply Spitzkop Colliery in Ermelo District and Ferrometals Quarry at Balmoral, Witbank District.

The line to Raleigh Colliery, which closed down some years ago, was re-energised in order to supply a large farming concern. An extension of 1¼ miles of 21 kV line and two small substations were built for this supply.

Over 15 miles of 11 kV lines and four miles of 2·2 kV lines were built mainly in the Bethal area to supply farmers. About 3½ miles of low voltage lines were built as extensions to reticulation schemes.

During the year some fifty new reticulation consumers were added: fourteen of these were farmers.

Financial—There was no change in the tariffs in force on the Undertaking. The revenue account for the year shows a small surplus of £9,117.

RAND AND ORANGE FREE STATE UNDERTAKING

CONSUMERS		SALES			Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease	Revenue from Sales	1955	1954
ELECTRICITY:			%	£	d.	d.
Traction	1	178,862,994	+ 0·899	346,460	0·4649	0·4305
Bulk	61	772,884,328	+15·943	1,412,399	0·4386	0·4103
Mining	105	5,822,159,852	+12·562	9,297,910	0·3833	0·3496
Industrial	378	1,414,508,370	+16·356	2,315,776	0·3929	0·3749
Domestic and Lighting	2,047	15,902,589	+12·912	73,168	1·1042	1·0957
	2,592	8,204,318,133	+13·225			
AIR AND STEAM:						
Bulk	1	3,657,086	+24·956			
Mining	13	198,978,586	− 3·744			
Industrial	25	9,348,159	− 2·223			
	39	211,983,831	− 3·294	651,431	0·7375	0·6839
	2,631	8,416,301,964	+12·740	14,097,144	0·4020	0·3723

	1955	1954	Accumulated to 31.12.55
Revenue	£14,109,222	£11,947,388	
Working Costs	£14,021,152	£11,948,937	
Surplus	£88,070	—	
Deficit	—	£1,549	£187,538
Capital Expenditure	£14,160,328	£17,750,011	£97,005,314

RAND AND ORANGE FREE STATE UNDERTAKING—(continued)

	Brakpan Power Station		Klip Power Station	
	1955	1954	1955	1954
Electricity Units Sent Out	102,286,271	152,007,706	2,561,734,727	2,686,107,251
Maximum Load One-hour kW S.O.	42,023	42,966	367,850	388,237
Load Factor %	27·8	40·4	79·5	79·0
Thermal Efficiency % Sent Out	12·6	13·28	20·4	21·21
COAL:				
Consumption—tons	135,449	195,950	2,243,024	2,240,951
Average per unit sent out—lb	2·648	2·578	1·751	1·669
Calorific Value B.Th.U./lb	10,190	9,970	9,530	9,640
Total Cost	£104,535*	£139,766*	£1,621,164	£1,463,554
Cost per Ton	14s. 2d.	13s. 4d.	14s. 5d.	13s. 1d.

	Rosherville Power Station		Simmerpan Power Station	
	1955	1954	1955	1954
Electricity Units Sent Out	139,967,608	170,514,091	60,995,327	94,141,510
Maximum Load One-hour kW S.O.	46,156	47,696	34,736	34,742
Load Factor %	34·6	40·8	20·0	30·9
Thermal Efficiency % Sent Out	10·0	10·33	9·4	9·99
COAL:				
Consumption—tons	238,194	289,089	110,846	167,321
Average per unit sent out—lb	3·404	3·391	3·635	3·555
Calorific Value B.Th.U./lb	9,990	9,740	10,010	9,610
Total Cost	£328,368*	£359,604*	£89,990	£129,458
Cost per Ton	16s. 6d.	15s. 6d.	16s. 3d.	15s. 6d.

*Includes cost of coal for compressed air.

RAND AND ORANGE FREE STATE UNDERTAKING—(continued)

	Taaibos Power Station		Vaal Power Station		Wilge Power Station	
	1955	1954	1955	1954	1955	1954
Electricity Units Sent Out	757,819,158	29,044,071	2,106,479,013	2,194,841,997	462,067,967	71,210,257
Maximum Load One-hour kW S.O.	168,177	57.608	301,185	291,388	111,949	30,367
Load Factor %	51·4	—	79·8	86·0	47·1	82·0
Thermal Efficiency % S.O.	26·5	24·83	22·8	22·90	23·5	22·54
COAL:						
Consumption—tons	541,563	22,325	1,748,487	1,820,296	335,198	56,042
Average per unit sent out —lb	1·429	1·537	1·660	1·659	1·451	1·574
Calorific Value B.Th.U./lb	9,020	8,940	9,010	8,980	10,010	9,620
Total Cost	£236,419	£9,966	£624,009	£618,643	£129,998	£22,658
Cost per ton	8s. 9d.	8s. 11d.	7s. 2d.	6s. 10d.	7s. 9d.	8s. 1d.

	Vereeniging Power Station		Vierfontein Power Station	
	1955	1954	1955	1954
Electricity Units Sent Out	790,523,367	803,490,582	1,429,127,750	959,341,981
Maximum Load—One-hour kW S.O.	141,275	119,658	226,948	147,546
Load Factor %	63·9	76·7	71·9	74·2
Thermal Efficiency % Sent Out	16·0	16·14	22·7	22·58
COAL:				
Consumption—tons	948,756	950,758	1,149,087	775,016
Average per Unit Sent Out—lb	2·400	2·367	1·608	1·619
Calorific Value B.Th.U./lb	8,870	8,930	9,350	9,330
Total Cost	£387,346	£363,277	£478,025	£316,243
Cost per ton	8s. 2d.	7s. 8d.	8s. 4d.	8s. 2d.

	Brakpan Power Station		Rosherville Power Station	
	1955	1954	1955	1954
Compressed Air Units Sent out			118,258,700	122,938,700
Steam Units Sent Out	8,009,640	8,969,490		
COAL:				
Consumption—tons	11,698	14,296	159,016	176,164
Average per unit sent out—lb	2·921	3·188	2·689	2·866
Calorific Value B.Th.U./lb	10,190	9,970	9,990	9,740

	Canada Dam Compressor Station		Robinson Compressor Station	
	1955	1954	1955	1954
Compressed Air Units Sent Out	39,142,500	40,306,600	45,368,600	45,966,200
Electric Input—kWh exc. Trans. losses ...	46,763,332	48,456,572	57,933,280	59,265,744
Air Units Sent Out/kWh per cent.	83·70	83·18	78·31	77·56

	Modder B and New Modder Compressor Stations	
	1955	1954
COMPRESSED AIR:		
Units Sent Out	9,196,664	8,729,990
Electric Input kWh	10,641,883	10,141,900
Air Units Sent Out/kWh per cent.	86·42	86·08

Output and Sales—The total figure of sales of electricity, 8,204,318,133 units, shows an increase of 958 million units over the sales for the year 1954. Sales of compressed air and steam were lower by 3 per cent than the previous year, and this decrease is attributable to a slight diminution of mining requirements in the central area of the Witwatersrand. The overall increase in sales was 12·7 per cent, and was spread proportionately amongst the major classes of consumers.

The significant features in the statistical tables are the increased outputs of the new power stations Vierfontein, Wilge and Taaibos, and the fact that the cost of coal burnt at these power stations was about 8/- per ton.

The commissioning of additional plant at Vierfontein, Wilge and Taaibos involved a further reduction in the hours of working in the old power stations on the Reef, as is reflected in the lower outputs and load factors at Brakpan, Rosherville and Simmer Pan Power Stations.

The output at Vaal Power Stations shows a slight reduction due to a breakdown of a turbo-generator, which occurred at the beginning of December, and to the decision to take out of service, as a precautionary measure, two further machines of similar design. The cause of failure has been investigated with the assistance of the manufacturers, and it is expected that the machines will be returned to service during the coming winter.

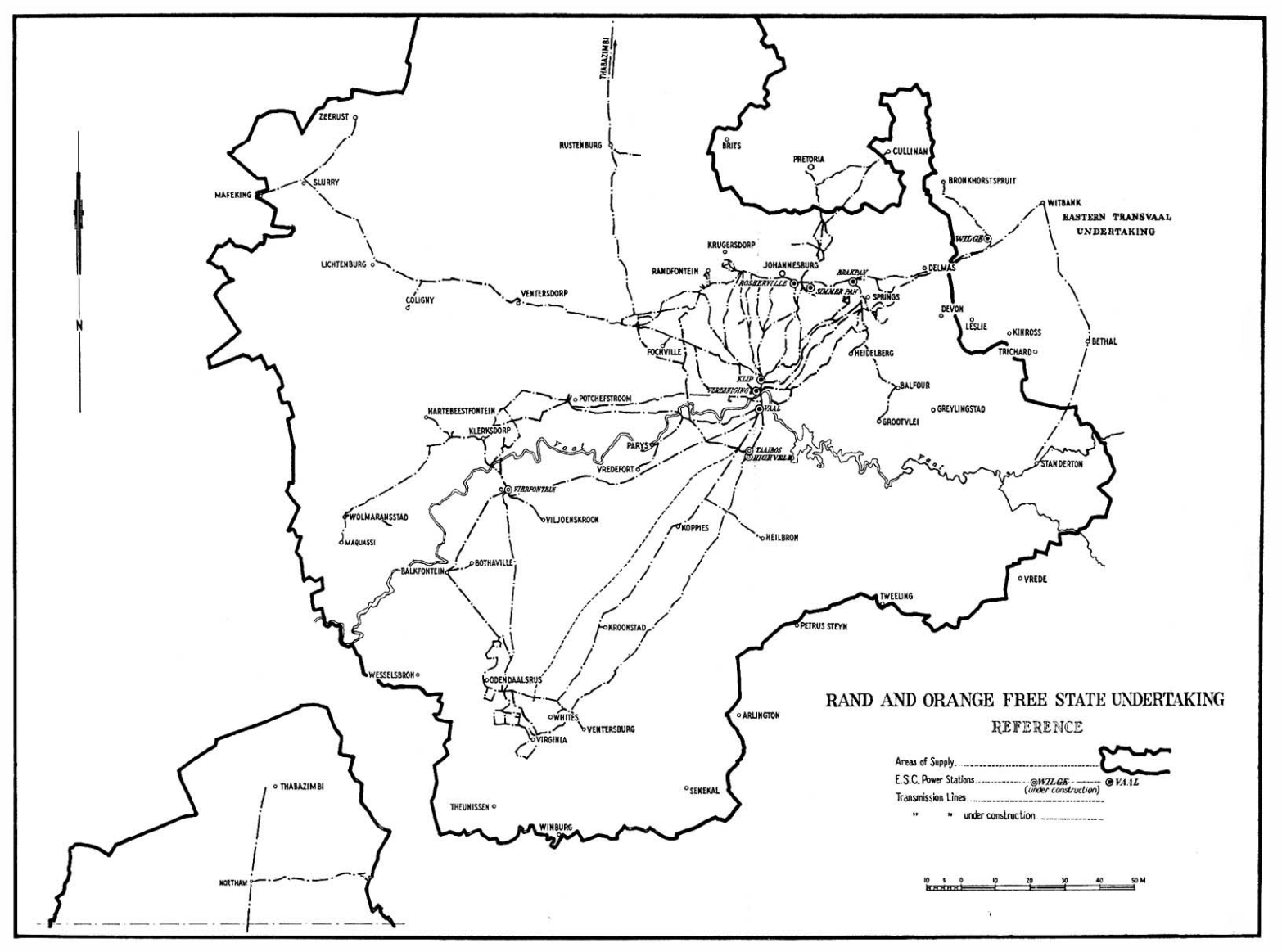
Generating Plant Capacity—Details of the progress of construction in the new power stations of the Undertaking are given on pages 12 and 13 of this Report.

The maximum load on the pooled power stations during 1955 was 1,389,015 kW, which figure includes the demand of the Eastern Transvaal Undertaking. The highest load recorded up to the end of April, 1956, was 1,452,468 kW. The maxima of the two Undertakings in 1955 were: Rand and O.F.S. Undertaking 1,322,571 kW; Eastern Transvaal Undertaking 69,631 kW.

The expectation recorded in the 1954 Report that load restrictions would be less onerous was realised. Since the middle of March, 1955, it has not been necessary to call upon consumers to reduce load, although during the winter months there was little or no margin between the load carried and the generating plant available. In the early months of 1956 the restrictions imposed upon consumers maximum demands were removed.

Supply in the Orange Free State—At the year-end there were twelve gold mines connected to the new networks in the Orange Free State. Of these, nine had started to produce gold and two more commenced milling in 1956. At the year-end nine mines had been scheduled as uranium producers.

Units sold to consumers in the Orange Free State province increased to 1,372,267,642 kWh, while maximum demand at power stations supplying the O.F.S. network was over 200,000 kW. Altogether the outlay of capital by the Commission to date for power production and the development of the new transmission and distribution systems can be assessed as some £20 millions; and further expenditure will be incurred to bring the mines to full production. It is of interest to note that the value of the gold output in the Orange Free State rose to £27 millions in 1955.


THABAZIMBI
ZEERUST
RUSTENBURG
BRITS
PRETORIA
CULLINAN
BROMKHORSTSPRUIT
WITBANK
EASTERN TRANSVAAL UNDERTAKING
MAFEKING
SLURRY
KRUGERSDORP
WILGE
LICHTENBURG
RANDFONTEIN
JOHANNESBURG
BRAKPAN
DELMAS
ROSERVILLE
SUMMER PAN
SPRINGS
COLIGNY
VENTERSDORP
DEVON
LESLIE
KINROSS
BETHAL
TRICHARD
FOCHVILLE
HEIDELBERG
KLIP
VERGENIGING
BALFOUR
POTCHEFSTROOM
HARTEBEESTFONTEIN
VAAL
GREYLINGSTAD
GROOTVLEI
KLERKSDORP
PARYS
TAAIBOS HUGENOTE
STANDERTON
VREDEFORT
VIERFONTEIN
WOLMARANSSTAD
VILJOENSKROON
KOPPIES
HEILBRON
MAQUASSI
BOTHAVILLE
BALKFONTEIN
VREDE
TWEELING
PETRUS STEYN
KROONSTAD
WESSELSBRON
ODENDAALSRUS
ARLINGTON
WHITES
VENTERSBURG
VIRGINIA
SENEKAL
THABAZIMBI
THEUNISSEN
WINBURG
NORTHAM
N
RAND AND ORANGE FREE STATE UNDERTAKING
REFERENCE
Areas of Supply.
E.S.C. Power Stations. @WILGE (under construction) @VAAL
Transmission Lines.
" " under construction.
10 5 0 10 20 30 40 50 M

The second 132 kV interconnector between Virginia and Alma distribution stations was completed and placed in service early in 1956. Preliminary arrangements have been made for the establishment in the Orange Free State, between Virginia and Alma distribution stations, of a further distribution station to be named "Everest." The function of Everest Distribution Station will be to receive and distribute the output from Highveld Power Station.

Two 275 kV transmission lines for transmitting the output from Highveld to the Orange Free State area are under construction and will be operated at 132 kV from Taaibos Power Station until Highveld comes into commercial service.

Reinforcements of the 40 kV network have been carried out to meet the growing load of consumers, and power lines are under construction to give supplies to the Municipalities of Senekal, Winburg and Theunissen.

Distribution System—The new distribution stations at Nuffield (Springs), Doornfontein (in the West Witwatersrand/Blyvooruitzicht area) and the switching station south of Pretoria have all been completed and placed in commercial service, and sundry networks of 88 kV and other voltages have been reinforced to meet growing loads in the West Witwatersrand extension area.

The Undertaking has been notified of the projected extension of railway electrification in its area of supply and the planning of the system extensions to meet this further electrification is well advanced.

Financial—Since 1952 adjustment of the Undertaking's tariffs has been effected by reduction of the discount rates and under the formula for variation of the unit rate to take account of the change in the cost of coal. On review of the tariff structure it was found necessary to increase the demand-related charges to take account of the high capital cost of new plant, and to diminish the coal adjustment formula to take into account the improvement in thermal efficiency of the new power stations. These changes were embodied in an application for amendment of the Schedule of Standard Prices, which was made to the Electricity Control Board on 2nd December, 1955. The amendments were approved by the Board and have been applied from January, 1956. The general discount on the revised tariffs was 17 per cent.

The Revenue Account showed a small surplus of £88,070 for 1955 and at the end of the year the accumulated deficit stood at £187,538.

SABIE UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1955	1954
			%	£	d	d
Mining	1	5,655,079	1·775	10,187	0·4324	0·3908

	1955	1954	Accumulated to 31.12.55
Total Revenue	£10,233	£9,048	
Working Costs	£10,018	£9,117	
Surplus	£215	--	£290
Deficit	—	£69	—
Capital Expenditure	—	—	£96,170
SABIE POWER STATION—			
Units Sent Out	5,837,200	5,673,700	
Maximum half-hour Demand kW S.O.	1,100	1,100	
Station Peak kW	1,175	1,200	
Load Factor	60·6	58·9	
RAINFALL at Power Station:			
Inches	84·89	48·16	
Millimetres	2,156	1,223	

The whole of the output of the Sabie Hydro Electric Power Station was taken by one consumer, at cost. The existing contract is subject to termination by the consumer giving twelve months' notice.

The plant in the power station continued to give satisfactory service during the year.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES—1955

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

TRANSVAAL:

New Schemes	Extensions	Tenders
Northcliff No. 6	Carletonville	Groblersdal
	Kempton Park (2)	Leeudoringstad
	Klerksdorp	Louis Trichardt
	Louis Trichardt (2)	Makwassie
	Nylstroom	Nelspruit
	Potchefstroom	Nylstroom
	Rustenburg	Pietersburg
		Tzaneen
		Wolmaransstad

ORANGE FREE STATE:

New Schemes	Extensions	Tenders
Wesselsbron	Bethulie	Bloemfontein (4)
	Bloemfontein	Petrus Steyn
	Brandfort	Trompsburg
	Frankfort	
	Kroonstad	
	Lindley	
	Petrus Steyn	
	Villiers	
	Winburg	

NATAL:

Extensions
Empengeni
Stanger

CAPE:

New Schemes	Extensions	Tenders
Lady Grey	Albertinia	Cradock
	Cape Town	Fraserburg
	Clanwilliam	George (2)
	Fraserburg	Heidelberg
	Heidelberg	Lusikisiki
	Loxton	Oudtshoorn
	Pearston	Somerset East (2)
	Port Elizabeth	Sutherland
	Riversdale	Williston
	Vryburg	

SOUTH WEST AFRICA:

Extensions	Tenders
Karasburg	Gobabis (2)
Keetmanshoop	
Mariental	
Okahandja	
Omaruru	
Otjiwarongo	

Up to the 31st December, 1955, a total of 1,493 reports on Municipal Supply Schemes had been submitted by the Commission. Of these, 242 were in respect of new schemes, 718 were in respect of extension schemes and 533 were reports on tenders.

ANNEXURES

The Commission submits for the year 1955 with this Report:

ANNEXURE A—AUDITORS' REPORT AND ACCOUNTS

The Report of the Auditors
Balance Sheet
Schedule No. 1—Expenditure on Capital Account
Schedule No. 2—Investments of the Redemption Fund
Schedule No. 3—Loan Capital and Sundry Loans and Amounts Outstanding for Rights Acquired
Account No. 1—Redemption Fund Account
Account No. 2—Reserve Fund Account
Revenue Accounts in respect of:
Account No. 3—Cape Western Undertaking
Statement of Pooled Costs, Cape Town
Account No. 4—Cape Northern Undertaking
Account No. 5—Border Undertaking
Account No. 6—Natal Southern Undertaking
Account No. 7—Natal Central Undertaking
Account No. 8—Eastern Transvaal Undertaking
Account No. 9—Rand and Orange Free State Undertaking
Account No. 10—Sabie Undertaking

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, 1955.
Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1955.
Statement No. 3—Units sold to all consumers during the past thirty-one years.
Statement No. 4—Units sold and number of consumers, 1955.
Statement No. 5—Power Station Statistics, 1955.
Statement No. 6—Power purchased, 1955.
Statement No. 7—Water consumed by power stations, 1955.
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 1955.
Statement No. 9—Coal used at the Commission's steam-raising 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 HATTINGH,
Chairman.

ANNEXURE A

THE REPORT OF THE AUDITORS

Johannesburg,
24th May, 1956.

The Chairman and Members,
Electricity Supply Commission,
Johannesburg.

GENTLEMEN,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December, 1955.

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 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, 1955, 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, 1955, was in excess of the sum required for the redemption of the respective loans in terms of the Schedule to the Electricity Act (as amended). In the case of long term loans, the redemption period does not exceed the maximum term of the respective loans. In the case of medium term loans, for periods of 17 years or less, the period of redemption is between 22 and 25 years.

The Minister has fixed the dates from which provision for redemption of Loans Nos. 23, 25 and 26 commenced at 1st August, 1955, 1st December, 1955, and 1st January, 1956, respectively.

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, 1955.

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 28 from the International Bank for Reconstruction and Development, which has to be repaid by half-yearly instalments over a period of $8\frac{1}{2}$ years, contributions are charged to Revenue Accounts of Undertakings on a 25 years sinking fund basis, the shortfall being met from local loans.

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 1954 and 1955.

	Surplus/Deficit		Amounts Set Aside to Reserve Fund	
	1954	1955	1954	1955
Cape Western	+£142,543	+£97,099	£110,306	£136,902
Cape Northern	+5,956	−1,930	11,000	6,000
Border	−38,141	−48,439	11,000	15,000
Natal Southern	−49,178	+103,408	100,000	100,000
Natal Central	−2,930	+57,057	70,000	75,000
Eastern Transvaal ...	+27,611	+9,117	58,680	65,000
Rand and O.F.S. ...	−1,549	+88,070	559,745	773,377
Sabie	−69	+215	—	—
	+£84,243	+304,597	£920,731	£1,171,279
Brought forward from previous year		−444,187		
Accumulated Deficit at end of year		−£139,590		

The summary reflects an overall surplus on Revenue Account on operations for the year, of £304,597, after setting aside increased amounts to Reserve Fund. At Border and Rand Undertakings there were accumulated deficits of £153,295 and £187,538 respectively at the year end. Revisions in tariffs at these Undertakings have been introduced as from January, 1956, and it is expected that the accumulated deficits will be extinguished during the next few years.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1955 and, subject to the foregoing remarks, in terms of Clause 13 (4) of the Electricity Act, 1922, we certify as follows:—

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

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

(c) Due provision has been made for the redemption and repayment of moneys borrowed.

(d) As formerly, the Land and Rights, Buildings and Civil Works and Machinery and Plant are set out in the Balance Sheet as on a cost basis. The value of the other assets of the Commission is correctly stated.

(e) Sums fixed by the Commission have been set aside to the Reserve Fund under Section 9 as prescribed.

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

Yours faithfully,

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

Electricity Supply Commission.

Incorporated under the Electricity Act, 1922.

BALANCE SHEET at 31st DECEMBER, 1955.

Loan Capital (As per Schedule No. 3)		£152,573,101
Creditors and Credit Balances		10,028,609
Current Liabilities and Provisions	£8,626,002	
Interest Accrued on Loan Capital	1,056,411	
Deferred Liabilities for Assets and Rights Acquired	82,196	
Amount Received on account of the sale of Escom House	264,000	
Temporary Advances — Amount due to Bankers less Cash on Current Accounts and on hand.		553,706
Redemption Fund (as per Account No. 1)		28,003,861
Sinking Fund		6,449
Reserve Fund (As per Account No. 2)		3,675,509
		£194,841,235

NOTE—

In addition to the liabilities shown above the Commission is committed to the extent of approximately £49,800,000 for expenditure on Capital Account and £481,000 chargeable against Reserve Fund.

In addition to the annual contributions the Commission is committed to pay £65,102 annually to the Electricity Supply Commission Pension and Provident Fund for the period ending 31st December, 1969, and £11,027 during 1970.

The Commission is committed to purchase £1,000,000 Electricity Supply Commission 5 per cent. Local Registered Stock 1967/70 and £1,500,000 4¾ per cent. Local Registered Stock 1975/80 from a stockholder at par during the period 1956 to 1958 and 1956 to 1960 respectively.

The cost of Escom House, Johannesburg, sold under deed of sale dated the 16th August, 1954, for £800,000 is included in the expenditure on Capital Account, as this property will be transferred to the purchaser only when occupation is given in terms of the deed of sale.

Expenditure on Capital Account (excluding Cost of Assets Sold) (As per Schedule No. 1)			£152,170,983
Land and Rights	£1,384,956		
Buildings and Civil Works	32,017,115		
Machinery and Plant	118,768,912		
Movable Plant and Equipment (less depreciation)			933,065
Workshop Equipment, Instruments, Tools and Loose Plant	487,544		
Transportation Equipment	281,639		
Furniture and Office Equipment	163,882		
Stores and Materials			5,548,502
Debtors and Debit Balances			3,214,406
Current Debtors less Reserves	2,326,894		
Entire Share Capital of the Rand Mines Power Supply Company, Limited	600		
Expenditure on Investigations in terms of Section 3(b) of the Act and Payments in Advance	149,901		
Housing Loans to Employees Secured by First Mortgages, less Reserve	737,011		
Investment of Redemption Fund (as per Schedule No. 2) (Market Value £25,312,135)			28,225,930
Investment of Sinking Fund — Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £5,935)			6,568
Investment of Reserve Fund — Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £3,413,720)			3,669,242
Assets Sold less Loan Capital and Deferred Liabilities Repaid			932,949
Cost of Assets sold proceeds of which have been paid into the Redemption Fund in terms of the Act	5,105,265		
Loan Capital repaid (as per Schedule No. 3)	Cr. 3,885,986		
Deferred Liabilities repaid	Cr. 286,330		
Balance on Revenue Accounts (as per Accounts Nos. 3 to 10)			139,590
Cape Western Undertaking	Cr. 87,804		
Cape Northern Undertaking	Cr. 178		
Border Undertaking	153,295		
Natal Southern Undertaking	Cr. 43,333		
Natal Central Undertaking	Cr. 45,512		
Eastern Transvaal Undertaking	Cr. 24,126		
Rand and Orange Free State Undertaking	187,538		
Sabie Undertaking	Cr. 290		
			£194,841,235

Referred to in our Report of 24th May, 1956.

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

Johannesburg,
27th April, 1956.

J. THEO. HATTINGH, Chairman.
J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Schedule of Expenditure on Capital Account at 31st December, 1955.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1954	Year ended 31st December, 1955	Total at 31st December, 1955
RAND AND ORANGE FREE STATE UNDERTAKING:			
Rand.			
Land and Rights	£336,986	£32,281	£369,267
Buildings and Civil Works	2,521,000	Cr. 93,719	2,427,281
Machinery and Plant	14,984,785	1,069,061	16,053,846
	£17,842,771	**£1,007,623**	**£18,850,394**
Klip Power Station.			
Land and Rights	£128,325	£586	£128,911
Buildings and Civil Works	1,672,622	4,369	1,676,991
Machinery and Plant	4,894,582	Cr. 48,733	4,845,849
	£6,695,529	**Cr. £43,778**	**£6,651,751**
Vaal Power Station.			
Land and Rights	£5,347	—	£5,347
Buildings and Civil Works	2,278,421	£78,979	2,357,400
Machinery and Plant	8,408,931	108,078	8,517,009
	£10,692,699	**£187,057**	**£10,879,756**
Vierfontein Power Station.			
Land and Rights	£34,207	—	£34,207
Buildings and Civil Works	4,143,157	£594,536	4,737,693
Machinery and Plant	9,668,511	2,931,636	12,600,147
	£13,845,875	**£3,526,172**	**£17,372,047**
Taaibos Power Station.			
Land and Rights	£12,404	£3,835	£16,239
Buildings and Civil Works	4,091,975	1,219,947	5,311,922
Machinery and Plant	6,193,139	4,509,149	10,702,288
	£10,297,518	**£5,732,931**	**£16,030,449**
Wilge Power Station.			
Land and Rights	£4,054	—	£4,054
Buildings and Civil Works	2,275,919	£350,066	2,625,985
Machinery and Plant	5,379,580	1,422,405	6,801,985
	£7,659,553	**£1,772,471**	**£9,432,024**
Highveld Power Station.			
Land and Rights	—	£3,811	£3,811
Buildings and Civil Works	—	51,527	51,527
Machinery and Plant	—	175	175
	—	**£55,513**	**£55,513**
Rand Extension.			
Land and Rights	£63,130	£4,852	£67,982
Buildings and Civil Works	363,239	34,979	398,218
Machinery and Plant	7,832,747	999,141	8,831,888
	£8,259,116	**£1,038,972**	**£9,298,088**
Greater Rand Extension and Orange Free State.			
Land and Rights	£13,373	£2,859	£16,232
Buildings and Civil Works	565,058	60,140	625,198
Machinery and Plant	6,973,494	820,368	7,793,862
	£7,551,925	**£883,367**	**£8,435,292**
Total Rand and Orange Free State Undertaking:			
Land and Rights	£597,826	£48,224	£646,050
Buildings and Civil Works	17,911,391	2,300,824	20,212,215
Machinery and Plant	64,335,769	11,811,280	76,147,049
	£82,844,986	**£14,160,328**	**£97,005,314**

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1954	Year ended 31st December, 1955	Total at 31st December, 1955
CAPE WESTERN UNDERTAKING:			
Land and Rights	£89,352	£8,689	£98,041
Buildings and Civil Works	4,013,435	339,076	4,352,511
Machinery and Plant	13,232,337	3,240,200	16,472,537
	£17,335,124	**£3,587,965**	**£20,923,089**
CAPE NORTHERN UNDERTAKING:			
Land and Rights	£2,294	—	£2,294
Buildings and Civil Works	204,193	£26,467	230,660
Machinery and Plant	1,219,158	226,604	1,445,762
	£1,425,645	**£253,071**	**£1,678,716**
SWARTKOPS RIVER UNDERTAKING:			
Land and Rights	£60,880	Cr. £60,880	—
Buildings and Civil Works	1,272,350	Cr. 1,272,350	—
Machinery and Plant	2,062,853	Cr. 2,062,853	—
	£3,396,083	**Cr. £3,396,083**	—
BORDER UNDERTAKING:			
Land and Rights	£7,667	£235	£7,902
Buildings and Civil Works	643,366	156,840	800,206
Machinery and Plant	2,091,031	666,614	2,757,645
	£2,742,064	**£823,689**	**£3,565,753**
NATAL SOUTHERN UNDERTAKING:			
Land and Rights	£141,522	£4,387	£145,909
Buildings and Civil Works	3,363,184	105,991	3,469,175
Machinery and Plant	9,322,509	1,371,459	10,693,968
	£12,827,215	**£1,481,837**	**£14,309,052**
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£92,447	£39,735	£132,182
Buildings and Civil Works	1,605,316	27,636	1,632,952
Machinery and Plant	8,155,003	Ct. 533,814	7,621,189
	£9,852,766	**Cr. £466,443**	**£9,386,323**
EASTERN TRANSVAAL UNDERTAKING:			
Land and Rights	£27,030	£5,615	£32,645
Buildings and Civil Works	906,995	7,725	914,720
Machinery and Plant	3,192,938	402,655	3,595,593
	£4,126,963	**£415,995**	**£4,542,958**
SABIE UNDERTAKING:			
Land and Rights	£510	—	£510
Buildings and Civil Works	60,491	—	60,491
Machinery and Plant	35,169	—	35,169
	£96,170	—	**£96,170**
HEAD OFFICE:			
Land	£319,423	—	£319,423
Buildings and Equipment	344,185	—	344,185
	£663,608	—	**£663,608**
SUMMARY:			
Land and Rights	£1,338,951	£46,005	£1,384,956
Buildings and Civil Works	30,324,906	1,692,209	32,017,115
Machinery and Plant	103,646,767	15,122,145	118,768,912
	£135,310,624	**£16,860,359**	**£152,170,983**

Johannesburg,
27th April, 1956.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Schedule of Investments of the Redemption Fund at 31st December, 1955.

SCHEDULE No. 2.

INVESTMENTS.
LOCAL REGISTERED STOCKS.

	Nominal Value	Book Value
Electricity Supply Commission—		
4¾ per cent. 1953/63	£109,875	£109,863
3¾ per cent. 1954/64	906,831	905,298
3½ per cent. 1959/64	196,397	195,273
3¼ per cent. 1956/66	349,350	323,866
3½ per cent. 1957/67	356,877	337,370
3¾ per cent. 1959/64	652,910	620,411
3¾ per cent. 1960/65	446,750	431,563
3¼ per cent. 1961/66	516,500	491,206
3¼ per cent. 1965/70	554,000	535,972
3 per cent. 1967/73	641,050	612,887
3 per cent. 1968/74	1,142,000	1,116,741
3⅛ per cent. 1968/73	6,642,000	6,601,085
3½ per cent. 1969/74	296,300	285,509
3¾ per cent. 1969/74	57,700	54,732
3¾ per cent. 1965/67	50,200	48,679
3¾ per cent. 1964/67	610,000	596,988
3¾ per cent. 1964/68	100,000	98,000
4¼ per cent. 1964/67	502,500	488,611
5 per cent. 1964/67	324,850	318,081
5 per cent. 1966/68	354,050	349,675
5 per cent. 1967/69	427,800	422,501
5 per cent. 1968/70	195,220	190,235
5 per cent. 1967/70	1,191,350	1,176,715
5 per cent. 1971/74	743,150	734,001
5 per cent. 1971/75	1,474,450	1,459,960
4⅝ per cent. 1975/80	4,751,500	4,736,442
4⅞ per cent. 1975/80	2,546,250	2,520,787
The Government of the Union of South Africa—		
3½ per cent. 1953/58	25,000	24,824
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	522,722
3 per cent. 1958/68	15,000	14,849
3 per cent. 1959/69	100,000	94,751
3 per cent. 1960/70	343,700	331,746
Municipal—		
Johannesburg:		
3¼ per cent. 1956/66	1,600	1,600
3¾ per cent. 1959	6,200	6,200
3¾ per cent. 1960/65	20,000	19,056
3¼ per cent. 1962/67	129,000	119,245
3½ per cent. 1965	1,200	1,200
3¼ per cent. 1965/70	294,000	284,895
3 per cent. 1967/77	30,000	30,000
Cape Town:		
3¾ per cent. 1960/65	2,000	2,000
3¼ per cent. 1962/67	225,000	222,568
3 per cent. 1976	100,000	95,588
Durban:		
3¼ per cent. 1962/72	115,500	90,090
3¼ per cent. 1965/75	45,000	41,484
3¼ per cent. 1966/76	50,000	50,000
3 per cent. 1967/77	334,000	320,320
	28,554,360	28,077,178
Interest Accrued		148,752
	£28,554,360	£28,225,930
Market Value	£25,312,135	

ALLOCATION OF INVESTMENTS TO LOANS.

Loan No.	Local Registered Stocks.	Nominal Value	Book Value including Interest Accrued
3	£500,000 4¾ per cent. 1953/63	£513,425	£511,859
5	£6,750,000 3¾ per cent. 1954/64	5,323,481	5,296,303
6	£2,500,000 3½ per cent. 1959/64	1,782,997	1,775,873
7	£2,000,000 3¼ per cent. 1956/66	1,382,350	1,361,793
8	£2,000,000 3½ per cent. 1957/67	1,259,177	1,241,804
9	£2,000,000 3¾ per cent. 1959/64	1,210,110	1,188,851
10	£1,500,000 3¾ per cent. 1960/65	808,350	798,992
11	£2,000,000 3¼ per cent. 1961/66	991,600	967,420
12	£2,500,000 3¼ per cent. 1965/70	1,000,100	970,821
13	£3,000,000 3 per cent. 1967/73	843,550	808,711
14	£3,000,000 3 per cent. 1968/74	672,700	642,266
15	£15,000,000 3⅛ per cent. 1968/73	4,826,000	4,749,270
16	£3,000,000 3½ per cent. 1969/74	577,000	566,836
17	£3,000,000 3¾ per cent. 1969/74	521,000	515,869
18	£5,250,000 3¾ per cent. 1965/67	724,200	713,567
19	£3,000,000 3¾ per cent. 1964/67	391,000	384,091
21	£5,000,000 3¾ per cent. 1964/68	467,000	465,325
22	£4,500,000 4¼ per cent. 1964/67	295,850	294,806
23	£5,000,000 5 per cent. 1964/67	310,500	309,548
25	£3,500,000 5 per cent. 1966/68	171,300	170,835
26	£4,000,000 5 per cent. 1967/69	149,950	149,534
27	£4,250,000 5 per cent. 1968/70	144,220	143,264
29	£8,000,000 5 per cent. 1967/70	265,350	264,728
31	£8,000,000 5 per cent. 1971/74	275,200	274,211
32	£10,000,000 5 per cent. 1971/75	183,450	183,201
33	£8,000,000 4⅝ per cent. 1975/80	3,261,500	3,274,160
	Future—not yet raised	203,000	201,992
		£28,554,360	£28,225,930

Johannesburg,
27th April, 1956.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

SCHEDULE No. 3.

LOAN CAPITAL AT 31st DECEMBER, 1955.

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

Loan No.			Outstanding	Repaid
		LOCAL REGISTERED STOCKS.		
3:	£500,000	4¾ per cent. 1953/63	£500,000	
4:	£2,500,000	4½ per cent. 1953		£2,500,000
5:	£6,750,000	3¾ per cent. 1954/64	6,750,000	
6:	£2,500,000	3½ per cent. 1959/64	2,500,000	
7:	£2,000,000	3¼ per cent. 1956/66	2,000,000	
8:	£2,000,000	3½ per cent. 1957/67	2,000,000	
9:	£2,000,000	3¾ per cent. 1959/64	2,000,000	
10:	£1,500,000	3¾ per cent. 1960/65	1,500,000	
11:	£2,000,000	3¼ per cent. 1961/66	2,000,000	
12:	£2,500,000	3¼ 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	3⅛ per cent. 1968/73	15,000,000	
16:	£3,000,000	3½ per cent. 1969/74	3,000,000	
17:	£3,000,000	3¾ per cent. 1969/74	3,000,000	
18:	£5,250,000	3¾ per cent. 1965/67	5,250,000	
19:	£3,000,000	3¾ per cent. 1964/67	3,000,000	
21:	£5,000,000	3¾ per cent. 1964/68	5,000,000	
22:	£4,500,000	4¼ 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	4⅝ per cent. 1975/80	8,000,000	
34:	£8,000,000	4⅞ per cent. 1975/80		
		(Payable in full not later than the 31st January, 1956, in terms of the Prospectus)		
		Fully Paid £6,750,600		
		Partly Paid 785,340	7,535,940	
	£127,750,000	Total Local Registered Stocks	£124,785,940	£2,500,000
		INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.		
Loan No. 20:	£10,732,422	$30,000,000 4 per cent. 1954/70	9,811,574	920,848
Loan No. 28:	£10,411,836	$30,000,000 (£10,726,956) 4¾ per cent. 1955/63 less £315,120 repaid out of local loans	10,206,698	205,138
		EXPORT-IMPORT BANK OF WASHINGTON.		
Loan No. 24:	£7,000,000	$19,600,000 4 per cent. (to be taken up during the period ending 30th June, 1956)		
		Amount received to 31st December, 1955	6,028,889	
		COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED.		
Loan No. 30:	£2,000,000	5 per cent. 1954/68	1,740,000	260,000
	£157,894,258		£152,573,101	£3,885,986

Johannesburg,
27th April, 1956.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Redemption Fund Account for the Year ended 31st December, 1955.

Balance as per Balance Sheet			£28,003,861
Cape Western Undertaking		£2,873,997	
Cape Northern Undertaking		97,599	
Border Undertaking		121,458	
Natal Southern Undertaking		1,998,179	
Natal Central Undertaking		3,211,581	
Eastern Transvaal Undertaking		944,912	
Rand and Orange Free State Undertaking		13,447,149	
Sabie Undertaking		25,637	
Head Office		259,835	
Assets Sold		5,023,514	
		£28,003,861	

Loan No.	Local Registered Stocks.		
3	£500,000 4¾ per cent. 1953/63	£498,648	
5	£6,750,000 3¾ per cent. 1954/64	5,307,197	
6	£2,500,000 3½ per cent. 1959/64	1,747,632	
7	£2,000,000 3¼ per cent. 1956/66	1,361,713	
8	£2,000,000 3½ per cent. 1957/67	1,256,439	
9	£2,000,000 3¾ per cent. 1959/64	1,170,957	
10	£1,500,000 3¾ per cent. 1960/65	804,818	
11	£2,000,000 3¼ per cent. 1961/66	966,653	
12	£2,500,000 3¼ per cent. 1965/70	965,175	
13	£3,000,000 3 per cent. 1967/73	790,337	
14	£3,000,000 3 per cent. 1968/74	636,099	
15	£15,000,000 3½ per cent. 1968/73	4,699,185	
16	£3,000,000 3½ per cent. 1969/74	564,756	
17	£3,000,000 3¾ per cent. 1969/74	513,615	
18	£5,250,000 3¾ per cent. 1965/67	710,222	
19	£3,000,000 3¾ per cent. 1964/67	381,995	
21	£5,000,000 3¾ per cent. 1964/68	473,048	
22	£4,500,000 4¼ per cent. 1964/67	320,734	
23	£5,000,000 5 per cent. 1964/67	254,130	
25	£3,500,000 5 per cent. 1966/68	172,080	
26	£4,000,000 5 per cent. 1967/69	159,977	
27	£4,250,000 5 per cent. 1968/70	149,876	
29	£8,000,000 5 per cent. 1967/70	285,708	
31	£8,000,000 5 per cent. 1971/74	248,854	
32	£10,000,000 5 per cent. 1971/75	199,740	
33	£8,000,000 4⅝ per cent. 1975/80	3,312,425	
34	£8,000,000 4⅞ per cent. 1975/80	9,261	
	Future—not yet raised	42,587	
		£28,003,861	£28,003,861

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Balance at 31st December, 1954, brought forward			£21,187,163
Cape Western Undertaking	£2,885,682		
Cape Northern Undertaking	64,205		
Border Undertaking	91,591		
Natal Southern Undertaking	1,550,736		
Natal Central Undertaking	3,346,250		
Eastern Transvaal Undertaking	1,363,919		
Rand and Orange Free State Undertaking	11,621,746		
Sabie Undertaking	25,637		
Head Office	237,397		
	£21,187,163		

Loan No.		
3	£486,983	
5	4,977,821	
6	1,647,091	
7	1,280,823	
8	1,148,442	
9	1,075,237	
10	728,787	
11	873,402	
12	869,869	
13	688,189	
14	534,289	
15	4,050,404	
16	464,576	
17	412,252	
18	537,874	
19	283,391	
21	304,410	
22	170,849	
23	178,667	
25	83,658	
26	76,675	
27	71,672	
29	107,163	
31	96,042	
32	7,803	
Future	30,794	
	£21,187,163	

Amounts contributed during the year as per Revenue Accounts			2,713,182
Cape Western Undertaking		335,709	
Cape Northern Undertaking		29,660	
Border Undertaking		25,434	
Natal Southern Undertaking		309,203	
Natal Central Undertaking		208,964	
Eastern Transvaal Undertaking		62,616	
Rand and Orange Free State Undertaking		1,742,479	
Sabie Undertaking		Dr. 883	
Other Contributions			17,123
Proceeds of Sales of Fixed Property			3,259,754
Interest earned on Investments after deducting amounts appropriated in writing off premiums on investments purchased			826,639
			£28,003,861

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 1922, subject to the remarks contained in our report dated 24th May, 1956.

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

Electricity Supply Commission.

Reserve Fund Account for the Year ended 31st December, 1955.

Expenditure during the year on Replacements and Betterment		£560,134
Cape Western Undertaking	£110,343	
Cape Northern Undertaking	1,778	
Border Undertaking	11,224	
Natal Southern Undertaking	10,545	
Natal Central Undertaking	37,189	
Eastern Transvaal Undertaking	7,090	
Rand and Orange Free State Undertaking	381,858	
Sabie Undertaking	107	
Balance as per Balance Sheet		3,675,509
Cape Western Undertaking	494,763	
Cape Northern Undertaking	38,988	
Border Undertaking ... ... Dr.	459	
Natal Southern Undertaking	258,050	
Natal Central Undertaking	686,946	
Eastern Transvaal Undertaking	227,144	
Rand and Orange Free State Undertaking	1,957,610	
Sabie Undertaking	12,467	
		£4,235,643

Balance at 31st December, 1954, brought forward		£2,946,846
Cape Western Undertaking	£451,763	
Cape Northern Undertaking	33,447	
Border Undertaking ... ... Dr.	4,164	
Natal Southern Undertaking	161,217	
Natal Central Undertaking	625,382	
Eastern Transvaal Undertaking	162,265	
Rand and Orange Free State Undertaking	1,504,805	
Sabie Undertaking	12,131	
Amounts set aside during the year as per Revenue Accounts		1,171,279
Cape Western Undertaking	136,902	
Cape Northern Undertaking	6,000	
Border Undertaking	15,000	
Natal Southern Undertaking	100,000	
Natal Central Undertaking	75,000	
Eastern Transvaal Undertaking	65,000	
Rand and Orange Free State Undertaking	773,377	
Interest earned on Investments		117,518
		£4,235,643

Johannesburg,
27th April, 1956.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

CAPE WESTERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Proportion of Pooled Costs (as per attached statement) ...	£875,053	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	256,136	
Water, Oil, Waste and Stores	15,045	
Salaries and Wages	34,074	
Other Expenses	784	
Maintenance—		
Stores	3,662	
Salaries and Wages	25,118	
Other Expenses	2,991	
	1,212,863	
Less—Electricity from Hex River Power Station charged to Pooled Costs	26,000	
		£1,186,863
Distribution.		
Operation and Maintenance—		
Stores	20,568	
Salaries and Wages	164,164	
Other Expenses	20,956	
		205,688
General Expenses.		
Local Administration and Technical Management	94,237	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	157,014	
Head Office Administration and General Expenses	28,737	
Engineering Expenses	16,795	
	296,783	
Less—Charged to Pooled Costs	32,207	
		264,576
Capital Charges.		
Interest	634,282	
Redemption Fund	335,709	
Instalments and Provision for Repayment of Overseas Loan ...	105,729	
Instalments and Provision for Repayment of Deferred Liabilities for Assets Acquired	75	
Amount set aside to Reserve Fund	136,902	
	1,212,697	
Less—Charged to Pooled Costs	322,280	
		890,417
		2,547,544
Balance carried down		97,099
		£2,644,643
Balance at 31st December, 1954, brought forward		£9,295
Balance as per Balance Sheet		87,804
		£97,099

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Sales of Electricity.		
Traction Supplies	£711,083	
Bulk Supplies	567,541	
Industrial Supplies	731,918	
Domestic and Lighting Supplies	616,912	
		£2,627,454
Other Revenue		17,189
		£2,644,643
Balance brought down		£97,099
		£97,099

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission and City of Cape Town.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1955.

Generation.		
Operation and Maintenance—		
Fuel	£1,379,211	
Water, Oil, Waste and Stores	87,364	
Salaries, Wages and Other Expenses	431,014	
		£1,897,589
Electricity Purchased.		
Electricity purchased from Hex Rixer Power Station		26,000
General Expenses.		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)		60,968
Capital Charges.		
Interest	306,178	
Redemption Fund	220,445	
Provision for Repayment of Overseas Loan	58,798	
Reserve Fund	83,454	
		668,875
		£2,653,432

Allocation in Terms of Agreement—		
Electricity Supply Commission	£875,053	
City of Cape Town	1,771,417	
		£2,646,470
Sundry Revenue		6,962
		£2,653,432

Cape Town,
27th April, 1956.

C. G. DOWNIE,
Manager of the Pooled Stations.

Electricity Supply Commission.

CAPE NORTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Operation—		
Fuel	£123,996	
Water, Oil, Waste and Stores	12,571	
Salaries and Wages	27,329	
Other Expenses	12,498	
Maintenance—		
Stores	4,603	
Salaries and Wages	14,681	
Other Expenses	1,703	
		£197,381
Electricity Purchased.		
Electricity Purchased		23,758
Distribution.		
Operation and Maintenance—		
Stores	390	
Salaries and Wages	1,136	
Other Expenses	212	
		1,738
General Expenses.		
Local Administration and Technical Management	9,059	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	7,620	
Head Office Administration and General Expenses	1,982	
Engineering Expenses	1,158	
		19,819
Capital Charges.		
Interest	63,181	
Redemption Fund	29,660	
Instalments and Provision for Repayment of Overseas Loans	3,071	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	Cr. 4	
Amount set aside to Reserve Fund	6,000	
		101,908
		£344,604
Balance brought down		£1,930
Balance as per Balance Sheet		178
		£2,108

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Sales of Electricity.		
Bulk Supplies	£198,513	
Mining Supplies	121,325	
Industrial Supplies	20,174	
Domestic Supplies	1,234	
		£341,246
Other Revenue		1,428
		342,674
Balance carried down		1,930
		£344,604
Balance at 31st December, 1954, brought forward		£2,108
		£2,108

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

BORDER UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation		
Operation—		
Fuel	£288,277	
Water, Oil, Waste and Stores	6,365	
Salaries and Wages	55,906	
Other Expenses	4,202	
Maintenance—		
Stores	9,740	
Salaries and Wages	27,955	
Other Expenses	5,883	
		£398,328
Electricity Purchased.		
Electricity Purchased		7,865
Distribution.		
Operation and Maintenance—		
Stores	1,254	
Salaries and Wages	11,751	
Other Expenses	2,191	
		15,196
General Expenses.		
Local Administration and Technical Management	22,908	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	21,301	
Head Office Administration and General Expenses	5,945	
Engineering Expenses	3,475	
		53,629
Capital Charges.		
Interest	48,378	
Redemption Fund	25,434	
Instalments and Provision for Repayment of Overseas Loans	32	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	6,922	
Amount set aside to Reserve Fund	15,000	
		95,766
		£570,784
Balance at 31st December, 1954, brought forward		£104,856
Balance brought down		48,439
		£153,295

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Sales of Electricity.		
Bulk Supplies	£415,081	
Industrial Supplies	35,272	
Domestic and Lighting Supplies	69,824	
		£520,177
Sales of Steam		970
Other Revenue		1,198
		522,345
Balance carried down		48,439
		£570,784
Balance as per Balance Sheet		£153,295
		£153,295

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

NATAL SOUTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation		
Proportion of Pooled Costs (as per attached statement) ...	£2,151,558	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	236	
Water, Oil, Waste and Stores	236	
Salaries and Wages	571	
Other Expenses	47	
Maintenance—		
Stores	455	
Salaries and Wages	753	
Other Expenses	51	
		£2,153,907
Electricity Purchased.		
Electricity Purchased		10,545
Distribution.		
Operation and Maintenance—		
Stores	10,493	
Salaries and Wages	41,034	
Other Expenses	13,113	
	64,640	
Less—Charged to Pooled Costs (Interconnector)	96	
		64,544
General Expenses.		
Local Administration and Technical Management	48,711	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	63,389	
Head Office Administration and General Expenses	28,737	
Engineering Expenses	16,795	
	157,632	
Less—Charged to Pooled Costs	103,263	
		54,369
Capital Charges.		
Interest	475,768	
Redemption Fund	309,203	
Instalments and Provision for Repayment of Overseas Loans	81,997	
Sinking Fund	120	
Amount set aside to Reserve Fund	100,000	
	967,088	
Less—Charged to Pooled Costs	799,478	
		167,610
		2,450,975
Balance carried down		103,408
		£2,554,383
Balance at 31st December, 1954, brought forward		£60,075
Balance as per Balance Sheet		43,333
		£103,408

Sales of Electricity.		
Traction Supplies	£190,617	
Bulk Supplies	2,064,971	
Industrial Supplies	128,252	
Domestic and Lighting Supplies	168,444	
		£2,552,284
Other Revenue	4,333	
Less—Credited to Pooled Costs	2,234	
		2,099
		£2,554,383
Balance brought down		£103,408
		£103,408

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

NATAL CENTRAL UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Proportion of Pooled Costs (as per attached statement)	£1,359,795	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	36	
Water, Oil, Waste and Stores	23	
Salaries and Wages	88	
Other Expenses	9	
Maintenance—		
Stores	8	
Salaries and Wages	89	
Other Expenses	1	
		£1,360,049
Distribution.		
Operation and Maintenance—		
Stores	18,041	
Salaries and Wages	82,878	
Other Expenses	15,589	
	116,508	
Less—Charged to Pooled Costs (Interconnector)	372	
		116,136
General Expenses.		
Local Administration and Technical Management	58,528	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	66,992	
Head Office Administration and General Expenses	28,737	
Engineering Expenses	16,795	
	171,052	
Less—Charged to Pooled Costs	78,474	
		92,578
Capital Charges.		
Interest	362,098	
Redemption Fund	208,964	
Instalments and Provision for Repayment of Overseas Loans ...	33,965	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	784	
Amount set aside to Reserve Fund	75,000	
	680,811	
Less—Charged to Pooled Costs	418,076	
		262,735
		1,831,498
Balance carried down		57,057
		£1,888,555
Balance at 31st December, 1954, brought forward		£11,545
Balance as per Balance Sheet		45,512
		£57,057

Sales of Electricity.		
Traction Supplies	£847,567	
Bulk Supplies	643,701	
Mining Supplies	109,031	
Industrial Supplies	169,580	
Domestic and Lighting Supplies	111,666	
		£1,881,545
Other Revenue	14,717	
Less—Credited to Pooled Costs	7,707	
		7,010
		£1,888,555
Balance brought down		£57,057
		£57,057

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
27th April, 1956.

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

NATAL SOUTHERN AND NATAL CENTRAL UNDERTAKINGS.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1955.

Generation.

Operation—		
Fuel	£1,561,337	
Water, Oil, Waste and Stores	64,356	
Salaries and Wages	182,316	
Other Expenses	27,551	
Maintenance—		
Stores	80,276	
Salaries and Wages	186,737	
Other Expenses	18,962	
		£2,121,535

Interconnector.

Operation and Maintenance—		
Stores	41	
Salaries and Wages	321	
Other Expenses	106	
		468

General Expenses.

Local Administration and Technical Management	44,277	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	73,087	
Head Office Administration and Engineering Expenses	64,373	
		181,737

Capital Charges.

Interest	597,867	
Redemption Fund	376,032	
Instalments and Provision for Repayment of Overseas Loans	115,962	
Reserve Fund	127,693	
		1,217,554
		£3,521,294

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Allocation.

Natal Southern Undertaking	£2,151,558	
Natal Central Undertaking	1,359,795	
		£3,511,353
Sundry Revenue		9,941
		£3,521,294

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

EASTERN TRANSVAAL UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Proportion of Pooled Costs (as per attached statement)		£493,784
Electricity Purchased.		
Electricity Purchased		22,781
Distribution.		
Operation and Maintenance—		
Stores	£3,499	
Salaries and Wages	11,709	
Other Expenses	2,312	
		17,520
General Expenses.		
Local Administration and Technical Management	24,399	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	38,314	
Head Office Administration and General Expenses	27,746	
Engineering Expenses	16,216	
	106,675	
Less—Charged to Pooled Costs	57,073	
		49,602
Capital Charges.		
Interest	116,701	
Redemption Fund	62,616	
Instalments and Provision for Repayment of Overseas Loans ...	17,674	
Amount set aside to Reserve Fund	65,000	
	261,991	
Less—Charged to Pooled Costs	191,279	
		70,712
		654,399
Balance carried down		9,117
		£663,516
Balance as per Balance Sheet		£24,126
		£24,126

Sales of Electricity.		
Traction Supplies	£34,423	
Bulk Supplies	47,471	
Mining Supplies	210,990	
Industrial Supplies	352,000	
Domestic and Lighting Supplies	14,676	
		£659,560
Other Revenue	7,067	
Less—Credited to Pooled Costs	3,111	
		3,956
		£663,516
Balance at 31st December, 1954, brought forward		£15,009
Balance brought down		9,117
		£24,126

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

RAND AND ORANGE FREE STATE UNDERTAKING

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Proportion of Pooled Costs (as per attached statement)	£10,705,056	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	139,915	
Water, Oil, Waste and Stores	18,202	
Salaries and Wages	71,575	
Other Expenses	449	
Maintenance—		
Stores	23,052	
Salaries and Wages	79,184	
Other Expenses	622	
	—	£11,038,055
Distribution.		
Operation and Maintenance—		
Stores	149,768	
Salaries and Wages	521,837	
Other Expenses	20,304	
	691,909	
Less—Charged to Pooled Costs (Interconnector)	20,589	
		671,320
General Expenses.		
Local Administration and Technical Management	227,026	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	415,395	
Head Office Administration and General Expenses	75,393	
Engineering Expenses	44,063	
	761,877	
Less—Charged to Pooled Costs	535,953	
		225,924
Capital Charges.		
Interest	2,976,455	
Redemption Fund	1,742,479	
Instalments and Provision for Repayment of Overseas Loans	786,111	
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	5,054	
Amount set aside to Reserve Fund	773,377	
	6,283,476	
Less—Charged to Pooled Costs	4,197,623	
		2,085,853
		14,021,152
Balance carried down		88,070
		£14,109,222
Balance at 31st December, 1954, brought forward		£275,608
		£275,608

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Sales of Electricity.		
Traction Supplies	£346,460	
Bulk Supplies	1,412,399	
Mining Supplies	9,297,910	
Industrial Supplies	2,315,776	
Domestic and Lighting Supplies	73,168	
		£13,445,713
Sales of Air and Steam		651,431
Other Revenue	69,407	
Less—Credited to Pooled Costs	57,329	
		12,078
		£14,109,222
Balance brought down	£88,070	
Balance as per Balance Sheet	187,538	
	£275,608	

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

RAND AND ORANGE FREE STATE AND EASTERN TRANSVAAL UNDERTAKINGS.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1955.

Generation.		
Operation—		
Fuel	£4,134,464	
Water, Oil, Waste and Stores	84,342	
Salaries and Wages	781,178	
Other Expenses	36,911	
Maintenance—		
Stores	247,655	
Salaries and Wages	559,989	
Other Expenses	19,553	
		£5,864,092
Electricity Purchased.		
Electricity Purchased		392,671
Interconnector.		
Operation and Maintenance—		
Stores	4,686	
Salaries and Wages	15,293	
Other Expenses	610	
		20,589
General Expenses.		
Local Administration and Technical Management	178,988	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	310,002	
Head Office Administration and Engineering Expenses	104,035	
		593,025
Capital Charges.		
Interest	2,040,067	
Redemption Fund	1,046,958	
Instalments and Provision for Repayment of Overseas Loans	742,617	
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	5,054	
Reserve Fund	554,207	
		4,388,903
		£11,259,280

Allocation.		
Rand and Orange Free State Undertaking	£10,705,056	
Eastern Transvaal Undertaking	493,784	
		£11,198,840
Sundry Revenue		60,440
		£11,259,280

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Referred to in our Report of 24th May, 1956.

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

Electricity Supply Commission.

SABIE UNDERTAKING.

Revenue Account for the Year ended 31st December, 1955.

Generation.		
Operation—		
Water, Oil, Waste and Stores	£93	
Salaies and Wages	5,853	
Other Expenses	1	
Maintenance—		
Stores	43	
Salaries and Wages	295	
Other Expenses	28	
	—	£6,313
Distribution		
Operation and Maintenance—		
Stores	38	
Salaries and Wages	663	
Other Expenses	167	
	—	868
General Expenses.		
Local Administration and Technical Management	488	
General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.)	873	
Head Office Administration and General Expenses	909	
Engineering Expenses	531	
	—	2,801
Capital Charges.		
Interest	919	
Redemption Fund	Cr. 883	
	—	36
		10,018
Balance carried down		215
		£10,233
Balance as per Balance Sheet		£290
		£290

Sales of Electricity.	
Mining Supplies	£10,187
Sundry Revenue	46
	£10,233
Balance at 31st December, 1954, brought forward	£75
Balance brought down	215
	£290

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
27th April, 1956.

Referred to in our Report of 24th May, 1956.

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

ANNEXURE B

STATEMENT No. 1

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLLED AS AT 31st DECEMBER, 1955.

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	Steam	4·5	1	10·0	2	1·5		
				3	12·0	1	0·5		
		Oil				1	1·0		
	West Bank No. 1	Steam	32·0	6	21·5	1	1·5		
				4	55·0	2	4·0		
						3	7·5		
	West Bank No. 2	Steam		1	170·0				
Cape Northern 14,800	Central, Kimberley	Steam	30·0	8	30·0	1	3·0		
				4	75·0	1	5·0		
						2	5·5		
						2	6·0		
Cape Western 12,600	Salt River No. 1	Steam	90·3	2	60·0	3	10·0	1	0·3
				6	100·0	3	20·0		
	Salt River No. 2	Steam	60·0	3	260·0	2	30·0		
	Hex River	Steam	60·0	4	200·0	3	20·0		
Eastern Transvaal 6,600	Witbank	Steam	128·0	20	70·0	6	20·0	1	8·0
				2	80·0				
Natal Central 20,500	Colenso Nos. 1 and 2	Steam	135·0	8	60·0				
				4	80·0	5	12·0		
				5	180·0	3	25·0		
	Volksrust	Oil	0·5	—	—	2	0·25		

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	Oil	3·4	—	—	2 2	0·7 1·0		
	Umgeni	Steam	30·0	4	180·0	2	30·0		
Rand 39,300	Brakpan	Steam	48·0	8 10 1	28·0 45·0 70·0	1 2 1	3·0 12·5 20·0		
	Klip	Steam	424·0	24	180·0	12	33·0	4	7·0
	Rosherville	Steam	48·0	32 8	38·0 48·0	5	9·6		
	Simmerpan	Steam	31·0	4 11 8	20·0 25·0 48·0	3 2	3·0 11·0		
	Taaibos	Steam	180·0	3	580·0	3	60·0		
	Vaal	Steam	318·0	18	190·0	9	33·0	3	7·0
	Vereeniging	Steam	157·5	20 2 6	45·0 60·0 180·0	3 3	20·0 32·5		
	Vierfontein	Steam	240·0	13	210·0	8	30·0		
	Wilge	Steam	120·0	4 2	150·0 400·0	2 1	30·0 60·0		
Sabie 200	Sabie Gorge	Hydro	1·35	—	—	3	0·45		

SUMMARY:

Total Number of Boilers	277	
Total Boiler House Rating	28,538,000 lb./hr.	
Total Number of Main Generators	115	Capacity 2,320·25 MW
Total Number of House Sets	9	Capacity 57·30 MW
Total Plant Capacity (Electricity)		2,377·55 MW

Major Items of Plant Commissioned 1955

Taaibos	1-60 MW Generator
Vierfontein	1-30 MW Generator
Wilge	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	
Electric Driven					
Canada Dam	1	Turbo	3,000	22,200	Electric
Compressor Station	4	Turbo	4,800		Motor
	3	Turbo	2,000	14,000	,,
	1	Turbo	2,150		,,
Robinson Compressor Station	1	Turbo	2,850		,,
	1	Turbo	3,000		,,
	1	Recip.	380	1,080	,,
At New Modder Mine ...	1	Recip.	700		,,
	1	Recip.	270	5,500	,,
	1	Recip.	380		,,
At Modder B Mine	2	Recip.	700		,,
	1	Recip.	1,300		,,
	1	Turbo	2,150		,,
Steam Driven					
	3	Recip.	800	7,600	Recip. Steam Engines
Brakpan Power Station ...	1	Turbo	2,650		Steam Turbine
	1	Turbo	2,550		,,
	1	Turbo	2,500	48,800	,,
	1	Turbo	4,400		,,
Rosherville Power Station ...	3	Turbo	6,000		,,
	2	Turbo	7,100		,,
	1	Turbo	9,700		,,
Total Compressed Air Generating Stations	32		99,180 = 73,988 kW		

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1955.

Undertaking	Number	MVA
Border	123	40·1
Cape Northern	92	48·6
Cape Western	2,207	665·0
Eastern Transvaal	433	381·2
Natal Central	1,205	448·3
Natal Southern	663	453·2
Rand	2,734	8,557·2
Sabie	13	3·6
At Compressor Stations, Rand	47	333·6
TOTALS	7,517	10,930·8

(1) Transmission Lines and Cables: Circuit Miles (excludes Service Connections on Reticulation Systems).
(2) Telephone and Pilot Cables: Circuit Miles.

(1) OVERHEAD TRANSMISSION LINES

Undertaking	275 kv	132 kv	88 kv	66 kv	40 kv	33 kv	22 kv	21 kv	20 kv	11 kv	6·6 kv	3·3 kv	2·0 kv 2·1 kv 2·2 kv	525 v	380/ 220 v	Totals
Border ...	—	—	—	—	—	67·70	—	—	—	54·10	—	3·50	—	—	55·91	181·21
Cape Northern	—	—	—	35·00	—	—	—	—	—	109·00	—	—	—	—	—	144·00
Cape Western	—	—	—	376·61	—	250·60	—	—	—	718·32	253·79	—	0·30	—	475·29	2,074·91
Eastern Transvaal	—	—	140·85	—	—	—	—	263·14	—	15·81	15·26	—	27·04	—	32·03	494·13
Natal Central ..	—	74·69	562·76	—	—	197·64	34·45	—	—	600·40	190·80	0·15	0·95	—	137·96	1,799·80
Natal Southern ...	—	57·12	149·09	—	—	17·97	—	—	—	276·75	44·48	—	—	—	170·98	716·39
Rand and O.F.S.	—	766·35	1,795·85	—	874·18	—	—	—	123·52	120·78*	110·30	0·84	10·92	—	83·61	3,886·35
Sabie	—	—	—	—	—	—	7·20	—	—	—	—	—	—	—	1·00	8·20
Totals ...	—	898·16	2,648·55	411·61	874·18	533·91	41·65	263·14	123·52	1,895·16	614·63	4·49	39·21	—	956·78	9,304·99

UNDERGROUND CABLES

Border ...	—	—	—	—	—	—	—	—	—	16·85	—	2·34	—	—	—	19·19
Cape Western	—	—	—	23·32	—	70·44	—	—	—	67·25	1·98	0·91	—	—	34·65	198·55
Eastern Transvaal	—	—	—	—	—	—	—	19·85	—	2·29	1·17	—	—	—	0·06	23·37
Natal Central ..	—	—	—	—	—	—	—	—	—	2·55	3·49	1·89	—	—	2·82	10·75
Natal Southern ...	—	—	—	—	—	2·15	—	—	—	4·05	0·13	0·03	—	—	4·05	10·41
Rand and O.F.S.	—	—	—	—	1·57	—	—	—	58·59	24·49*	96·69	1·51	27·51	1·82	15·97	228·15
Totals ...	—	—	—	23·32	1·57	72·59	—	19·85	58·59	117·48	103·46	6·68	27·51	1·82	57·55	490·42

*Includes 10 kV.

TOTAL OVERHEAD LINES AND UNDERGROUND CABLES: 9.795 CIRCUIT MILES.

(2) TELEPHONE AND PILOT CABLES

Cape Western	112	1,217 circuit miles.
Rand	1,092	
Witbank	13	

STATEMENT No. 2

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1955

Undertaking	Electric Power-Station	BOILERS		GENERATORS		Transmission Lines Circuit Miles	TRANSFORMERS	
		No.	Continuous Maximum Rating Each, thousand lb/hr	No.	Normal Rating Each MW		No.	Total Capacity MVA
Border	West Bank No. 2	1	170	2	15·0	73	6	7
Cape Northern ...	Central, Kimberley	—	—	—	—	9	36	27
Cape Western	Salt River No. 2	3	260	2	30·0	—	147	125
Eastern Transvaal ...	Witbank	—	—	—	—	—	14	124
Natal Central		—	—	—	—	—	82	9
Natal Southern ...	Umgeni	4	180	2	30·0	—	18	44
Rand	Highveld	4	550	4	60·0	585	213	1,201
	Klip	1	180	—	—			
	Taaibos	5	580	5	60·0			
	Vierfontein	6	210	4	30·0			
	Wilge	1 2	580 400	2	60·0			

SUMMARY:

Number of Boilers	27	C.M.R. 9,590,000 lb/hr.
Number of Generators	21	Total Rating 930·0 MW
Transmission Lines	...	667 Circuit Miles
Transformers	516	Rating 1,537 MVA

STATEMENT No. 3

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

Million Units

Year	Border	Cape Northern	Cape Western	Eastern Transvaal	Klip	Natal Central	Natal Southern	Rand	Sabie	Vaal	**Totals**
1925									0·08		**0·08**
1926			0·3	160·0		0·7			0·7		**161·7**
1927			5·8	439·1		104·2			1·9		**551·0**
1928			31·0	464·3		114·2	15·6		2·8		**627·9**
1929			47·9	543·1		123·9	78·9		3·2		**797·0**
1930			49·8	619·0		117·1	99·1		4·6		**889·6**
1931			52·1	603·4		101·1	103·9		6·6		**867·1**
1932			64·2	610·3		100·3	109·8		6·1		**890·7**
1933			100·7	639·4		109·2	118·5		6·3		**974·1**
1934			73·6	648·3		124·9	131·1		7·3		**985·2**
1935			80·0	727·9		154·3	149·8		7·2		**1,119·2**
1936			85·8	696·4	557·0	171·5	170·4		6·9		**1,688·0**
1937			94·0	684·5	1,349·9	210·6	189·4		7·2		**2,535·6**
1938			98·8	768·1	1,666·9	234·9	209·5		7·2		**2,985·4**
1939			106·5	767·7	2,193·2	266·2	233·7		6·4		**3,573·7**
1940			119·8	853·3	2,566·6	281·1	242·7		6·7		**4,070·2**
1941			136·2	862·6	2,675·9	302·4	270·3		6·6		**4,254·0**
1942			151·8	873·4	2,707·8	307·7	273·8		6·3		**4,320·8**
1943			145·7	849·1	2,669·1	312·4	293·4		5·9		**4,275·6**
1944			158·7	889·2	2,703·6	336·0	321·6		6·7		**4,415·8**
1945			165·9	830·7	2,643·0	333·2	348·8		6·6	377·9	**4,706·1**
1946			184·6	896·9	2,614·3	347·0	369·7		7·4	582·5	**5,002·4**
1947	56·2		198·6	887·7	2,547·2	346·0	402·6		7·6	668·6	**5,114·5**
1948	69·2		222·4	633·2	1,207·4	367·9	448·7	2,185·7	7·3	435·1	**5,576·9**
1949	68·7		249·5	358·3		371·8	513·0	4,653·9	7·0		**6,222·2**
1950	79·9	53·9	271·9	378·5		406·5	561·8	5,151·8	6·3		**6,910·6**
1951	88·0	58·5	303·5	386·8		433·4	617·0	5,563·2	6·1		**7,456·5**
1952	97·7	61·3	341·2	425·0		454·0	655·6	6,039·6	6·1		**8,080·5**
1953	107.8	67.1	375.5	409.9		492.3	713.2	6,560·0	6.4		**8,732.2**
1954	118·2	70·7	436·2	270·5		532·5	777·7	7,465·2	5·6		**9,676·6**
1955	130·8	73·2	527·1	394·6		546·4	870·0	8,416·3	5·6		**10,964·0**

Notes.—(1) The units sold at Cape Western since 1934 do not include the units supplied to Cape Town City Council under the Pooling Agreement.

(2) The units purchased from Durban Corporation for sale down the South Coast and up the North Coast are included in the Durban Undertaking figures above.

(3) The decreases of Klip, Vaal and Witbank are due to the E.S.C. taking over the V.F.P. at 00.00 hours on 1st July, 1948, since when Klip and Vaal became part of the Rand Undertaking.

(4) From 1/1/55 the Durban Undertaking was designated the Natal Southern Undertaking; the boundaries between N.S.U. and N.C.U. were adjusted by the transfer of consumers from N.C.U. to N.S.U.

STATEMENT No. 4

By use:—
ELECTRICITY

UNITS SOLD AND NUMBER OF CONSUMERS, 1955 (Electricity, Air and Steam)

Undertaking	TRACTION			BULK			MINING			INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number Consumers
	Units	Per cent. Traction	No. Cons.	Units	Per cent. Bulk	No. Cons.	Units	Per cent. Mining	No. Cons.	Units	Per cent. Industrial	No. Cons.	Units	Per cent. Domestic and Lighting	No. Cons.	Units	Per cent. Total Units Sold	
Border				118,175,967	5·771	6				3,997,292	0·212	101	8,410,968	5·371	2,244	130,584,227	1·215	2,351
Cape Northern ..				47,770,627	2·333	4	24,011,143	0·402	3	1,281,667	0·068	60	120,152	0·077	70	73,183,589	0·681	137
Cape Western ...	160,962,220	23·337	2	134,113,204	6·550	23				134,643,184	7·160	1,919	97,367,930	62·172	22,817	527,086,538	4·902	24,761
E. Transvaal ...	17,770,782	2·576	1	22,686,105	1·108	4	96,349,955	1·612	30	256,125,539	13·620	54	1,679,766	1·072	712	394,612,147	3·670	801
Natal Central ...	266,489,078	38·636	1	195,877,360	9·566	15	29,176,872	0·488	12	42,575,691	2·264	482	12,284,223	7·844	3,912	546,403,224	5·082	4,422
Natal Southern	65,652,748	9,519	1	756,106,054	36·926	2				27,395,747	1·457	280	20,845,264	13·310	4,650	869,999,813	8·092	4,933
Rand and O.F.S.:	178,862,994	25·932	1	772,884,328	37·746	61	5,822,159,852	97·404	105	1,414,508,370	75·219	378	15,902,589	10·154	2,047	8,204,318,133	76·306	2,592
Sabie							5,655,079	0·094	1							5,655,079	0·052	1
Total Electricity ...	689,737,822	100·000	6	2,047,613,645	100·000	115	5,977,352,901	100·000	151	1,880,527,490	100·000	3,274	156,610,892	100·000	36,452	10,751,842,750	100·000	39,998
Per cent. ...	6·415			19·044			55·594			17·490			1·457			100·000		
AIR AND STEAM																		
Border: Steam ..										216,567	2·264	2				216,567	0·102	2
Rand and O.F.S. Air				3,657,086		1	190,968,946	95·975	12	8,348,159	97·736	25				203,974,191	96·123	38
Steam ...							8,009,640	4·025	1							8,009,640	3·775	1
Total Air and Steam				3,657,086		1	198,978,586	100·000	13	9,564,726	100·000	27				212,200,398	100·000	41
Per cent. of Total				1·723			93·769			4·508						100·000		
ELECTRICITY, AIR AND STEAM																		
Grand Total, all Sales	689,737,822		6	2,051,270,731		116	6,176,331,487		164	1,890,092,216		3,301	156,610,892		36,452	10,964,043,148		40,039
Per cent. of Grand Total	6·291			18·709			56·333			17·239			1·428			100·000		
By Provinces:— ELECTRICITY, AIR AND STEAM																		
Cape	160,962,220	23·337	2	305,686,432	14·902	34	24,011,143	0·389	3	140,138,710	7·414	2,082	105,899,050	67·619	25,131	736,697,555	6·719	27,252
Natal	324,301,532	47·018	1	928,398,384	45·260	13	29,176,872	0·472	12	68,226,723	3·610	624	28,997,887	18·516	6,629	1,370,101,298	12·579	7,279
O.F.S.	7,840,294	1·137	1	103,692,671	5·055	17	1,213,639,717	19·650	15	78,723,005	4·165	83	1,244,570	0·795	601	1,405,140,257	12·816	717
Transvaal ...	196,633,776	28·508	2	713,493,344	34·783	52	4,909,503,755	79·489	134	1,603,003,778	84·811	512	20,469,385	13·070	4,091	7,443,104,038	67·886	4,791

Electricity —98·065
Air and Steam — 1·935
} per cent of total sales.

POWER STATION OPERATING STATISTICS: YEAR 1955

STEAM ELECTRIC (19 STATIONS):

Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS ½ Hour (or Hour) Sent Out kW	MAXIMUM DEMANDS Peak kW	Station Load Factor % Sent Out	Coal Burned Tons (2,000 lb)	LB OF COAL Per Unit Generated	LB OF COAL Per Unit Sent Out	Calorific Value of Coal B.Th.U. as Recd. (Weighted Average)	B.Th.U. PER UNIT Generated	B.Th.U. PER UNIT Sent Out	OVERALL THERMAL EFFICIENCY % Generated	OVERALL THERMAL EFFICIENCY % Sent Out
Brakpan	111,091,761	102,286,271	Hour 42,023	—	27·8	135,449	2·439	2·648	10,190	24,850	26,980	13·7	12·6
Central, Kimberley ...	76,523,000	70,011,696	17,118	18,100	46·8	80,462	2·103	2·299	12,050	25,340	27,700	13·46	12·32
Colenso No. 1 and No. 2 ...	554,818,420	523,242,840	109,940	127,000	54·3	407,060	1·467	1·556	11,970	17,560	18,630	19·43	18·32
Congella No. 1 and No. 2	769,093,400	711,404,210	155,285	174,500	52·3	506,163	1·316	1·423	11,870	15,620	16,890	21·84	20·20
Hex River	231,142,900	219,825,420	59,000	60,800	42·4	131,675	1·139	1·198	11,470	13,060	13,740	26·13	24·83
King William's Town ...	14,741,790	13,907,784	3,780*	3,940*	42·4	14,441	1·959	2·077	12,550	24,590	26,070	14·16*	13·39*
Klip	2,743,161,161	2,561,734,727	Hour 367,850	—	79·5	2,243,024	1·635	1·751	9,530	15,580	16,690	21·9	20·4
Rosherville	148,753,653	139,967,608	Hour 46,156	—	34·6	238,194	3·203	3·404	9,990	32,000	34,010	10·7	10·0
Salt River No. 1	128,884,001	118,320,378	62,496	68,200	21·6	82,708	1·584	1·725	11,530	18,260	19,890	18·68	17·15
Salt River No. 2 (from 2/5/55)†	131,918,208	124,523,888	57,900	62,000	36·0	93,146	1·141	1·209	11,450	13,070	13,850	26·11	24·64
Simmerpan	64,702,634	60,995,327	Hour 34,736	—	20·0	110,846	3·426	3·635	10,010	34,290	36,390	10·0	9·4
Taaibos	821,272,490	757,819,158	Hour 168,177	—	51·4	541,563	1·319	1·429	9,020	11,900	12,890	28·7	26·5
Umgeni	244,573,900	228,614,583	57,800	62,000	59·0	155,639	1·273	1·362	11,470	14,600	15,620	23·37	21·84
Vaal	2,233,665,021	2,106,479,013	Hour 301,185	—	79·8	1,748,487	1·565	1·660	9,010	14,110	14,960	24·2	22·8
Vereeniging	845,171,173	790,523,367	Hour 141,275	—	63·9	948,756	2·245	2·400	8,870	19,910	21,290	17·1	16·0
Vierfontein	1,526,073,299	1,429,127,750	Hour 226,948	—	71·9	1,149,087	1·506	1·608	9,350	14,080	15,030	24·2	22·7
West Bank No. 1, East London	123,256,750	116,307,889	25,220	27,000	52·6	121,671	1·974	2·092	12,030	23,750	25,170	14·37	13·56
Wilge	498,920,740	462,067,967	Hour 111,949	—	47·1	335,198	1·344	1·451	10,010	13,450	14,520	25·4	23·5
Witbank	813,663,846	755,472,929	Hour 117,509	—	73·4	705,935	1·735	1·869	10,940	18,980	20,450	18·0	16·7
Grand Totals	12,081,428,147	11,292,632,805				9,749,504							

*Includes Diesel Plant. †Salt River No. 2 supplies steam to No. 1.

HYDRO ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demand kW ½ Hr. Sent Out	Maximum Demand kW 2 Mins. Generated	Station Load Factor Sent Out	Rain Inches	Rain mm.
Sabie ...	6,006,900	5,837,200	1,100	1,175	60·6	48·89	2,156

STEAM GENERATION:

Station	Units Generated	Units Sent Out	Coal Burned Tons of 2,000 lb.	lb. Coal Per Units Sent Out	Max. Sustained Load over 1 Hour kW	Load Factor %
Brakpan	8,060,780	8,009,640	11,698	2·921	3,258	28·1
King William's Town	216,567	216,567	233			
Total Steam	8,277,347	8,226,207	11,931			

Statement No. 5—(continued)

POWER STATION OPERATING STATISTICS: YEAR 1955

DIESEL ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Fuel Consumed		Lub. Oil Galls.
			½ Hour	2 Mins.	Total lb	Per kWh Sent Out	
King William's Town ...	121,620	121,620	900	1,000	72,161	0·593	152
Port Shepstone	93,648	92,591	3,410	3,450	54,609	0·590	126
Volksrust	2,140	2,080	400	400	1,917	0·922	22
TOTALS	217,408	216,291			128,687		

COMPRESSED AIR GENERATION:

Station	Type*	Air Units Generated	Air Units Sent Out		Coal Burned		Electric Input		Max. Sustained Load over One Hour	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	118,529,100	118,258,700	58·3	159,016	2·869	—	—	65,820	35·2
Robinson ...	Electric	45,368,600	45,368,600	22·4	—	—	57,933,280	78·31		
Canada Dam ...	Electric	39,142,500	39,142,500	19·3	—	—	46,763,332	83·70		
Air Pipe-line Totals		203,040,200	202,769,800		159,016		104,696,612			
Other Air Stations:—										
Modder B and New Modder	Electric	9,196,664	9,196,664				10,641,883	86·42		
Total Air ...		212,236,864	211,966,464		159,016		115,338,445			

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

GENERATION SUMMARY:

TOTAL COAL BURNED
= Steam Driven Generating Stations + Compressed Air Steam Driven Stations + Steam Sales.
= 9,749,504 + 159,016 + 11,931.
= 9,920,451 tons of 2,000 lb. (Increase of 1,074,501 over 1954 or 12·14%).

TOTAL UNITS GENERATED
= Electricity (Steam + Hydro) + Air Units Generated at Steam Driven Stations + Steam Units Generated.
= Steam 12,081,428,147 / Hydro 6,006,900 / Diesel 217,408 } 12,087,652,455 + 118,529,100 + 8,277,347
= 12,214,458,902. (Increase of 1,562,521,820 or 14·669% over 1954).

TOTAL UNITS SENT OUT
= 11,425,171,203. (Increase of 1,352,731,817 or 13·430% over 1954).

STATEMENT No. 6

POWER PURCHASED.

Undertaking	Purchased From	Maximum Demand	UNITS	
Border	East London, Municipality of ...	559 kVA		1,699,624
Cape Northern	Kimberley, City of	1,360 kVA		3,439,851
Eastern Transvaal	Pretoria City of—at Pinedene ...	—		17,770,782
Natal Southern	Durban, City of At Canelands ... ... At Warner Beach	 863 kW 1,590 kW	 2,294,790 797,420	3,092,210
Rand and O.F.S.	Johannesburg, City of ex Orlando at Bantjes Substation at Rosherville Switching Station	*68,800 kW	129,419,033 8,887,512	138,306,545
	Pretoria, City of at North Rand	42,000 kW		174,918,162
	Rand Water Board at Vereeniging (ceased January)	—		28,502
				313,253,209

*Simultaneous Demand.

TOTAL UNITS PURCHASED, 339,255,676
(3·094% of Units Sold)

Note re Cape Western Undertaking:

Under the Pooling Agreement, the E.S.C. received 376,177,561 Units from the Pool, which figure includes 242,844,266 Units sent out from Salt River Power Stations No. 1 and No. 2 and 19,500,347 Units sent out from Hex River Power Station.

STATEMENT No. 7

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1955

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border	24		22
Cape Northern	72		180
Cape Western	79	170	
Natal Southern	247		
Natal Central	29	203	
Rand (including Witbank Power Station)	281	9,634	586

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

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 1955.

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1955.)

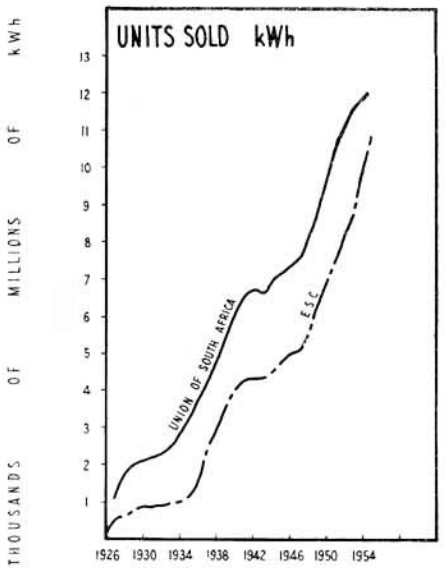
Cape Western Undertaking	
Immovable property acquired for considerations amounting to	£2,801 0 0
Servitudes acquired—capitalised payments amounting to ...	471 13 9
Natal Central Undertaking	
Immovable property acquired for considerations amounting to	125 0 0
Servitudes acquired—capitalised payments amounting to ...	2,774 16 1
Natal Southern Undertaking	
Immovable property acquired for considerations amounting to	520 0 0
Servitudes acquired—capitalised payments amounting to ...	3,980 7 7
Eastern Transvaal Undertaking	
Servitudes acquired—capitalised payments amounting to ...	159 4 9
Servitudes acquired—annual payments amounting to	4 18 0
Border Undertaking	
Property hired on lease— annual rentals amounting to ...	1,893 0 0
Cape Northern Undertaking	
Immovable property acquired for considerations amounting to	6 8 0
Rand and Orange Free State Undertaking	
Immovable property acquired for considerations amounting to	42,400 0 0
Servitudes acquired—capitalised payments amounting to ...	15,266 0 9
Servitudes acquired—option moneys paid amounting to ...	5,321 17 10
Property hired on Lease—annual rentals amounting to ...	3,450 0 0
Head Office	
Cession of Lease acquired for a consideration amounting to	7,000 0 0

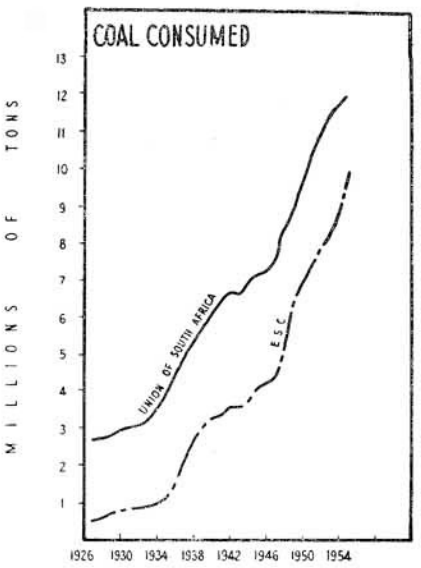
COAL USED AT COMMISSION'S STEAM-RAISING POWER STATIONS

Average Cost per ton (2,000 lb)

Power Station	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Brakpan	—	—	—	7 9	7 8	8 9	8 10	9 7	10 1	13 4	14 2
Colenso	10 8	10 11	11 4	11 6	12 9	13 2	14 3	18 6	19 11	21 6	25 2
Congella	15 4	15 7	16 4	16 4	18 0	19 5	20 0	23 6	25 4	27 2	31 4
East London ...	—	—	26 7	26 11	28 6	30 5	31 6	34 0	35 4	37 10	41 9
Hex River	—	—	—	—	—	—	—	32 10	35 4	37 0	38 11
Kimberley, Central	—	—	—	—	—	23 1	24 4	26 4	27 9	29 1	30 10
Klip	4 2	4 4	4 5	4 1	4 7	5 0	7 7	9 8	11 7	13 1	14 5
King William's Town	—	—	—	27 10	29 6	31 8	33 1	37 2	39 9	42 5	45 8
Rosherville ...	—	—	—	8 3	8 5	9 5	10 7	12 9	15 0	15 6	16 6
Salt River ...	25 4	25 9	28 1	28 5	29 6	32 5	33 10	35 3	37 5	41 0	40 9
Simmerpan ...	—	—	—	8 4	8 3	9 6	9 9	10 9	11 3	15 6	16 3
Taaibos	—	—	—	—	—	—	—	—	—	8 11	8 9
Umgeni	—	—	—	—	—	—	—	—	—	30 9	32 10
Vaal	5 10	6 0	5 7	4 11	4 9	5 4	5 11	6 8	6 10	6 10	7 2
Vereeniging ...	—	—	—	4 11	4 10	5 5	5 9	6 9	7 3	7 8	8 2
Vierfontein ...	—	—	—	—	—	—	—	—	9 5	8 2	8 4
Wilge	—	—	—	—	—	—	—	—	—	8 1	7 9
Witbank	2 4	2 9	3 4	4 0	3 9	4 2	4 6	5 10	6 11	7 0	7 7

ANNEXURE C





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