ESCOM EXHIBIT AT RAND SHOW.

[Photo B.R.S. Photographers.

MEMBERS OF THE

Electricity Supply Commission

ALBERT MICHAEL JACOBS (Chairman)

ROBERT BURNS WATERSTON

CALVIN STOWE McLEAN

Dr. JOHANNES THEOBALD HATTINGH

WALTER HEINRICH ANDRAG

CONTENTS

Electricity Supply Commission

Escom House,
Rissik Street,
Johannesburg.

6th June, 1951.

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 twenty-eighth Annual Report, covering its operations for the year ended 31st December, 1950, together with a brief review of its activities up to 30th April, 1951.

GENERAL

Demand for Electricity—Each post-war Report has emphasised the efforts made to meet a rapidly expanding demand for electricity with the available generating plant. The twentythird (1945) Report stated: "During the war the Allied Governments permitted the priority manufacture of plant only for projects which would further the national war effort. Consequently, when the authorities lifted the controls, overseas manufacturers were inundated with an accumulation of orders, not only from their home markets but also from abroad. When it is borne in mind that, even under normal conditions, the manufacture of generators of the size required by the Commission takes upwards of two years, it will be clear that no early improvement in the present position can be expected." In the following year consumers were reminded that even a moderate size power station cannot be completed in less than four to five years.

In spite of all the active steps taken by the Commission to meet possible demands for electricity on its systems, especially on the Rand Undertaking, the requirements were of such magnitude that it became physically impossible to satisfy them within the means and time available.

The problem of power shortage is world-wide. Besides war losses, the world went short of normal replacements during the years when every major country's energies and resources were concentrated on the manufacture of arms. At the war's end time was needed for reconversion from war to peace production, and now production is retarded by a partial reversal of this process, caused by the rearmament of the great Powers and the consequent shortage, for industrial

purposes, of plant, labour and materials. The universal shortage of power has a cumulative effect: for instance, power cuts in the United Kingdom affect the manufacture of plant for South Africa.

The search for much-needed plant has not been confined to any country or continent, and an agreement for a thirty million dollar loan, signed in Washington in January, 1951, and described in the Financial section of this Report, contains no stipulation that the proceeds must be used for purchases in the United States of America.

Early in 1951 the Commission was fortunate when opportunities arose to place orders for certain generating plant for comparatively early delivery. A British manufacturer, having a gap in its programme, put in hand a 30,000-kW turbo-generator in anticipation of an order. This set was offered to the Commission and was accepted when it was found that two suitable boilers could be obtained from the United States to match the delivery date of the set. This new plant will be installed at Rosherville Power Station and is expected to be in operation early in 1953. Unfortunately such opportunities are rare, and the delivery rate of new plant and equipment remains slow. Sometimes the commissioning of new plant is delayed by shortage of ancilliary essential equipment such as valves, etc.

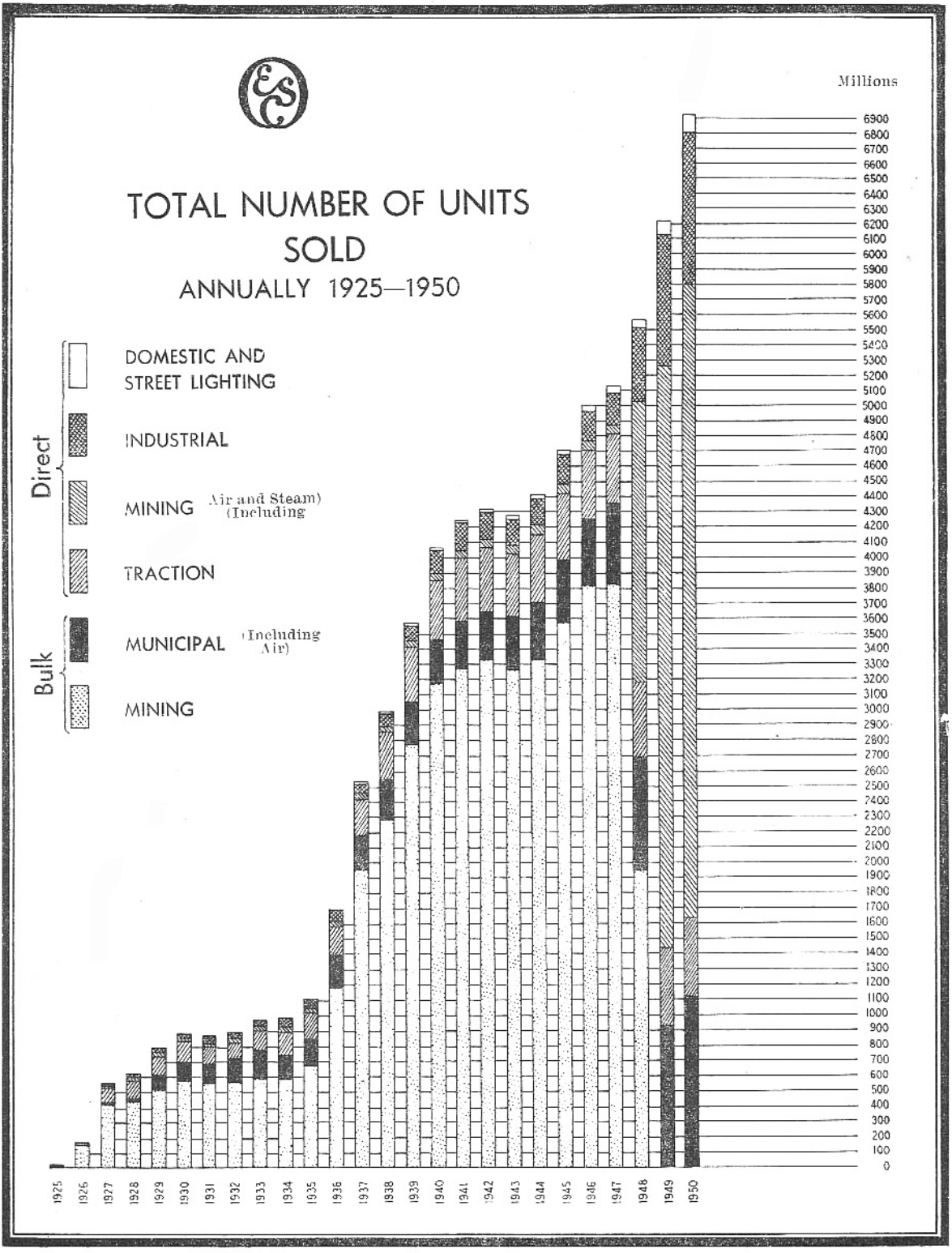
Plant and equipment installed during 1950 and on order or under construction at the year's end is detailed in pages 8 and 9. For the Rand Undertaking alone the programme of extensions involves 215,000 kW of new plant for existing stations and 570,000 kW for new stations. These figures give some indication of the measures taken to meet the ever-increasing demand for power. Details of progress on new power stations and extensions to existing stations will be found in pages 9, 10 and 12. By the time this Report is published new turbo-generators, 33,000-kW at Vaal Power Station and 40,000-kW at Congella, will be installed.

The problems involved in so large a programme of expansion do not end when, after long delays, plant at last reaches the site. The erection of new stations and the enlargement of existing ones implies rapid expansion of staff. Every power station requires three operating shifts, and it is extremely difficult to find the necessary trained personnel. To meet the situation, overseas recruitment is under consideration.

Devaluation of the South African pound in September, 1949, which could not possibly have been anticipated by the Commission, was followed by a marked increase in the demand for power for the gold mines of the Witwatersrand, in addition to which the Commission must cater for the demand from the developing mines of the Orange Free State. Consumption by the latter rose from 54 million units in 1949 to 117 million in 1950. To enable the Commission to plan ahead, major consumers notify their anticipated future load, but sometimes these forecasts require upward revision. As an example, the following figures show the anticipated load for the mines of the O.F.S. as notified in 1948 and in 1950:

	1948 forecast	1950 forecast
End 1950	35·5 MW	52·2 MW
End 1952	90·0	125·4
End 1955	133·0	240·2

The situation arising from the problems described earlier in this Report was met in 1949 and 1950 by the gold mines voluntarily submitting to a restriction in


TOTAL NUMBER OF UNITS SOLD
ANNUALLY 1925—1950
Millions
Direct
Bulk
DOMESTIC AND STREET LIGHTING
INDUSTRIAL
MINING (Including Air and Steam)
TRACTION
MUNICIPAL (Including Air)
MINING
6900
6800
6700
6600
6500
6400
6300
6200
6100
6000
5900
5800
5700
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1950

their consumption of power, and careful planning made it possible for this to be done without affecting production by the mines.

A close review, in November, 1950, of existing loads, anticipated future loads and the capacity of available generating plant, indicated that a point had been reached where it was no longer possible to confine restrictions to the gold-mining industry alone. Accordingly, a plan was put into operation early in 1951 whereby, as a general policy, applications for new connections within the area of the Rand Undertaking cannot be accepted until sufficient plant is available to carry the load, unless such new connections are for essential services or their acceptance would be in the national interest, and restrictions on load will be shared as equitably as possible by all classes of consumers. Consumers and potential consumers within the area of the Rand Undertaking must therefore take serious note that supplies of power are limited, and that these inevitable restrictions are likely to remain in operation for two or three years, dependent upon deliveries of plant and the growth of demand for power.

The Transvaal Chamber of Mines has stated that it expects that, as in 1949 and 1950, plans will be possible whereby the limitations imposed by the new scheme, as described in page 47, will not affect the output of gold, and it is hoped that other consumers will likewise be able to co-operate without loss of efficiency or production.

Last year's Report gave figures illustrating the increased cost of constructing and equipping power stations: the 424,000 kW installed at Klip up to 1940 cost £15·4 per kW, and the 150,000 kW then planned for Vierfontein by 1955 was estimated to cost £55 per kW.

The position is naturally reflected in an even worse light in those new stations, such as Hex River, Swartkops, Umgeni and Salt River No. 2, where the initial installation is only a small proportion of the planned ultimate capacity of the stations. Here the figure of cost per kW of initial installation rises as high as £80 in the case of Salt River No. 2 Power Station. This will show considerable reduction as the plant installed is increased, the reduced figure based upon the ultimate capacity of this station being estimated at £56 per kW on prices paid for plant for the initial installation. However, as the trend of prices is still upwards, the ultimate result must be increased charges to consumers.

Plant and Equipment—During 1950 a 190,000-lb hr boiler and a 7,000-kW house set were commissioned at Vaal Power Station and at the year's end No. 6 turbo-generator, 33,000-kW, was almost ready for service. It is hoped that three additional turbo-generators, each 33,000-kW, will be installed by the end of 1951, but the corresponding boiler plant will not be completed until early in 1953. A new 40,000-kW turbo-generator is expected to start operating at Congella Power Station during the first half of 1951. At the Central Power Station, Kimberley, a new 30,000-lb hr boiler went into service in November, 1950, and work proceeded on the installation of two 6,000-kW turbo-generators ex Congella.

The following major items of equipment, for the expansion of existing stations and the equipment of new ones, were on order at 31st December, 1950:—

Congella: three 200,000-lb hr boilers.

Colenso: three 180,000-lb hr boilers and one 25,000-kW turbo-generator.

Hex River: four 200,000-lb hr boilers and three 20,000-kW turbo-generators.

Kimberley Central: two 75,000-lb hr boilers.

Salt River No. 2: four 260,000-lb hr boilers and two 30,000-kW turbo-generators.

Swartkops: two 210,000-lb hr boilers and two 20,000-kW turbo-generators.

Taaibos: four 580,000-lb hr boilers and four 60,000-kW turbo-generators.

Umgeni: four 180,000-lb hr boilers and two 30,000-kW turbo-generators.

Vaal: eight 190,000-lb hr boilers and three 33,000-kW turbo-generators.

Vereeniging: one 180,000-lb hr boiler.

Vierfontein: twelve 210,000-lb hr boilers and seven 30,000-kW turbo-generators.

West Bank: two 55,000-lb hr boilers.

West Bank No. 2: two 170,000-lb hr boilers and two 15,000-kW turbo-generators.

Witbank: two 80,000-lb hr boilers and one 20,000-kW turbo-generator.

At the year's end turbo-generators, of 40,000 and 33,000 kW capacity respectively, were under erection at Congella and Vaal Power Stations. An additional two 580,000-lb hr boilers and two 60,000-kW turbo-generators have since been ordered for Taaibos, and two 150,000-lb hr boilers and one 30,000-kW turbo-generator for Rosherville

Plant Capacity—The aggregate installed capacity in the Commission's power stations at 31st December, 1950, was 1,513,975 kW, an increase of 28,000 kW over the corresponding figure for the previous year. Plant under erection or on order will bring the total to 2,487,705 kW.

Details of plant and equipment installed in each of the Commission's power stations are given in Annexure B to this Report.

New Power Stations—Work proceeded throughout the year on the heavy programme of new construction undertaken by the Commission, and the progress achieved in 1950 may be assessed by a comparison with the corresponding section of the previous Report.

The Commission's Head Office engineering staff is responsible for the design of Hex River, Swartkops, Taaibos and Vierfontein power stations, and the Commission's consulting engineers, Messrs. Merz and McLellan, are responsible for the design of Salt River No. 2, Umgeni and West Bank No. 2 stations.

Hex River: This station, at Worcester, will supply the northern area of the Cape Western system and provide the power required for electrification of the railway from Bellville to Touws River. It is planned for seven 200,000-lb/hr boilers and five 20,000-kW turbo-generators, with four boilers and three turbo-generators in operation early in 1952. The first turbo-generator ran its trials overseas in September, 1950; boilers are due for steaming towards the end of 1951 and the middle of 1952. Some delay in construction work was caused by shortage of steel, but the main turbine house was almost completed at the year's end and work on the boiler house and coal staith well advanced. The first cooling tower shell has been completed and work is proceeding on the second. The initial installation is estimated to cost £3,600,000.

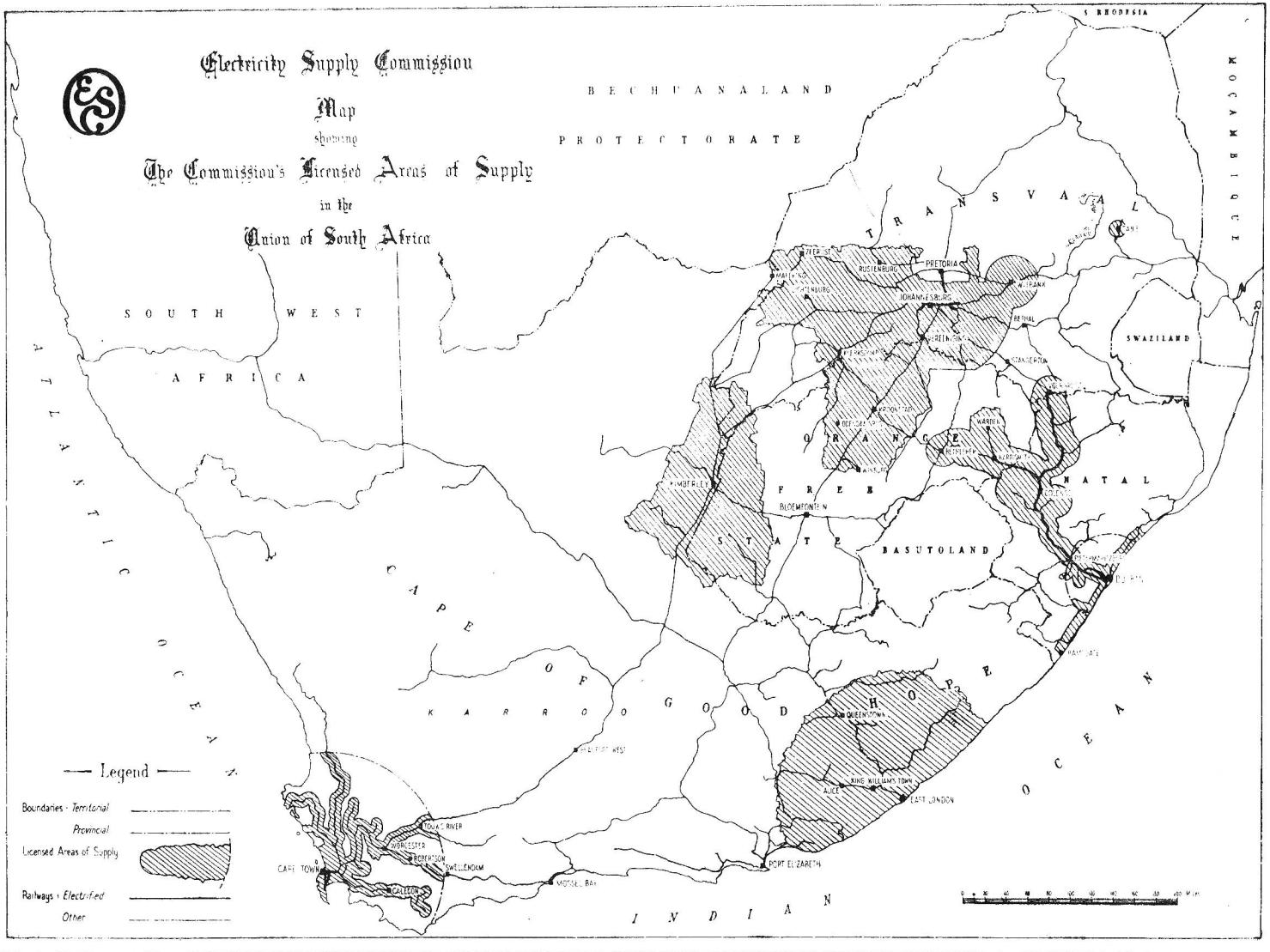
Salt River No. 2: This new station will be built on a site adjoining the existing Salt River Station, to meet the increasing demands for power on the Cape Western system. Orders have been placed for the initial installation comprising four 260,000-lb/hr boilers and two 30,000-kW turbo-generators, to be in operation by mid 1954. At this stage the cost is estimated at £5,464,100. When completed the station will contain eight 260,000-lb/hr boilers and six 30,000-kW turbo-generators.

Swartkops: This station will be constructed by the Commission to operate in conjunction with the existing municipal station to augment supplies of power for Port Elizabeth and the surrounding area. Orders have been placed for two 210,000-lb/hr boilers and two 20,000-kW turbo-generators at an estimated cost of £3,142,000 including civil works to this stage, and it is expected that this plant will be in operation about the middle of 1953. The station is designed for three 20,000-kW turbo-generators initially and thereafter 30,000-kW sets as required. Levelling and terracing of the site has begun, and contracts have been placed for the main station building steelwork.

Taaibos: With the main object of providing the additional power required for the goldfields and industry, this pulverised fuel station will be built on a site adjoining the Clydesdale Colliery, near Coalbrook in the northern Orange Free State, and will be interconnected with Vaal and Vierfontein. It will be constructed on the unit system, with one boiler to each turbo-generator, and the connected transmission system will be mostly 132-kV. Orders have been placed for six 580,000-lb/hr boilers and six 60,000-kW turbo-generators, of which two boilers and two turbo-generators were ordered since the year's end. At this stage the cost of the station is estimated at £15,959,000. It is expected to be in operation early in 1954. The weight of the stators for the turbo-generators is 110 long tons and they will be the largest yet ordered for any power station in South Africa. A special well-truck, mounted on sixteen wheels or four standard S.A.R. type bogies, is being built to transport this load from the coast to site.

Umgeni: Sited near Pinetown, the object of this station will be to meet the increasing demands of the Durban Corporation and other consumers and to ensure adequate supply for the electrified railway system. Four 180,000-lb/hr boilers and two 30,000-kW turbo-generators have been ordered, and with this plant the cost of the station is estimated at £4,918,000. Ultimate plans provide for a further ten boilers and six turbo-generators of similar capacity. The first turbo-generator is due for completion in April, 1953, and the second four months later. Over 100 acres of land have been purchased and a large number of servitudes arranged for transmission lines and railway sidings. Levelling of the site is in progress and erection of building steelwork is expected to start in May, 1951. A tarred road has been made to the station site and the railway siding is nearing completion.

Vierfontein: This station, sited on a coalfield about eight miles south of the Vaal river, will be constructed to assist in meeting the heavy demand for power which is expected from the new goldfields of the Orange Free State. Orders have been placed for twelve 210,000-lb/hr boilers and seven 30,000-kW turbo-generators, and at this stage the estimated cost of the station is £11,010,000. Plans provide for a possible extension to a total of 300,000 kW. The first turbo-generator and two boilers are due for shipment during 1951, and initial operation is expected early in 1953. At the year's end work was proceeding on excavations and


Electricity Supply Commission
Map
showing
The Commission's Licensed Areas of Supply
in the
Union of South Africa
S RHODESIA
BECHUANALAND
PROTECTORATE
MOCAMBIQUE
TRANSVAAL
SOUTH WEST
AFRICA
ATLANTIC OCEAN
SWAZILAND
ORANGE
FREE
STATE
NATAL
BASUTOLAND
CAPE OF GOOD HOPE
KARROO
PRETORIA
JOHANNESBURG
KIMBERLEY
BLOEMFONTEIN
QUEENSTOWN
KING WILLIAMS TOWN
EAST LONDON
PORT ELIZABETH
CAPE TOWN
WORCESTER
ROBERTSON
MOSSEL BAY
INDIAN OCEAN
Legend
Boundaries - Territorial
Provincial
Licensed Areas of Supply
Railways - Electrified
Other

foundations for the main buildings, and steelwork is expected to start arriving on site in March, 1951. Railway tracks from Vierfontein railway station to the site are complete except for ballasting, and a new locomotive, purchased for construction purposes, is in service on extensions to railway sidings. Of 56 dwelling houses 34 are complete, as well as one of the two blocks of single quarters, with work proceeding on the second. Work is also in hand on drainage and sewage disposal plant and on electrical installations.

West Bank No. 2: The site for this new station, which will adjoin the existing (West Bank No. 1) station at East London, is expected to be ready for the start of civil work by the middle of 1951. Orders have been placed for two 170,000-lb/hr boilers and two 15,000-kW turbo-generators, and with this installation the cost of the station is estimated at £2,363,000. It is expected to begin operating during the first half of 1955. The station is designed for an ultimate capacity of 90,000 kW.

Transmission System and Area of Supply—The transmission system was expanded considerably in 1950, as shown by the following figures:

	1950	1949
Transmission lines and cables, route miles	6,636	6,108

The inauguration of the Cape Northern Undertaking, on January 1st, 1950, increased the licensed area from 73,200 to 88,000 square miles.

The following statement shows some of the major lines completed during 1950, and under construction or projected at the year's end:

Completed in 1950:

	kV	Route Miles	
Vaal to Vanderbijl Park	88	8	
Vaal to Vereeniging (Interconnector for Nigel Line)	88	10	
Vaal to West Wits Distribution Station (second line)	88	55	
Western Reefs to Balkfontein	88	40	
Oakdale to Wellington	66	20	
Robertson to Ashton	66*	11	
Salt River to Oakdale (cables)	33	12	(triple circuit)
Salt River to Elsies River (cables)	33	7	(double circuit)
Langebaanweg to Vredenburg	33	11	
Ganzekraal to Moorreesburg	33	15	

*Temporarily operating at 33 kV

Under Construction:

Colenso to Umgeni	132	114	
Umgeni to Springfield	132	8	(double circuit)
Vaal to Dunnottar	88	50	
Montclair to Marburg	88	74	
Rustenburg to Thabazimbi	88	80	

Under Construction—(continued):

	kV	Route Miles
Wellington to Worcester via Tulbagh Kloof ...	66	63
Klip to Rosherville	40	40
Freddies North to De Erf and Wit Extensions ...	40	11

Projected:

Vaal to Vierfontein	132	80
Vierfontein to Alma	132	60 (double circuit)
Alma to Virginia Terminal	132	15
Taaibos to Libanon	132	60
Bethal to Standerton	88	45
Klip to Rosherville and North Rand	88	43
Slurry to Zeerust	88	27
Greenlands to Heilbron	88	21 (approx.)
Vierfontein to Western Reefs	88	15 (approx.)
Worcester to Touws River	66	39
King William's Town to Adelaide	33	82

Output and Sales—Units generated by and sold from the Commission's power stations again achieved new records in 1950. Drought conditions at Sabie reduced the output of the hydro-electric station there, and 1950 was the first year of operation for Cape Northern Undertaking. All other undertakings record increases in sales and there was a rise in consumption by every class of consumer.

Aggregate figures for all undertakings were:

	1950	1949	Increase
Units generated	7,773,576,519	7,075,282,135	9·869%
Units sold	6,910,583,902	6,222,163,115	11·064%

The following figures record units sold by individual undertakings:

	1950	1949
Border	79,886,071	68,691,220
Cape Northern	53,922,202	—
Cape Western	271,902,774	249,498,856
Durban	561,767,317	512,978,243
Natal Central	406,523,502	371,804,946
Rand	5,151,772,083	4,653,918,926
Sabie	6,303,229	7,030,797
Witbank	378,506,724	358,240,127
	6,910,583,902	6,222,163,115

Analysis of sales by classes of consumers is shown below:

	1950	1949
Bulk Supplies:		
Municipal	1,109,158,650	923,104,526
Direct Supplies:		
Traction	524,024,643	517,506,190
Mining	4,162,768,417	3,828,507,164
Industrial	1,000,686,054	857,975,998
Domestic	110,852,285	92,229,269
Street Lighting	3,093,853	2,839,968
	6,910,583,902	6,222,163,115

A chart showing annual sales of electricity is on page 7. Statement No. 3 of Annexure B gives units sold to all consumers for the past 26 years, and the distribution of units sold is shown in Statement No. 4.

Costs and Tariffs—As emphasised earlier in this Report, increasing operating costs must result in increased charges to consumers. During 1950 it was necessary to raise the tariff of charges at Natal Central Undertaking, as reported in page 36.

From the figures on page 16 it will be seen that while the Commission's revenue rose by over 14 per cent to £9,526,071, production costs rose by nearly 15 per cent to £9,579,968; thus the year's operations resulted in a relatively small deficit of £53,897. Working costs were increased by capital charges on the cost of plant and equipment brought into commission, and there was an increase of £433,330 in the cost of coal consumed, including railage. While consumption of coal increased by 9·5 per cent, the cost of coal, including railage, increased by 19·5 per cent.

Surpluses or deficits on the year's working at Undertakings are commented upon in the Auditors' Report and in sections of this Report dealing with the various Undertakings.

The standard prices for the supply of electricity from the Commission's Undertakings and the conditions attaching thereto are embodied in the licenses and permits granted to the Commission by the Electricity Control Board. These prices are subject to adjustment from time to time in terms of the Electricity Act, 1922, and the standard prices are subject, where necessary, to variation in terms of Section 26 of the Act, dependent upon the situation, extent and characteristics of consumers' loads.

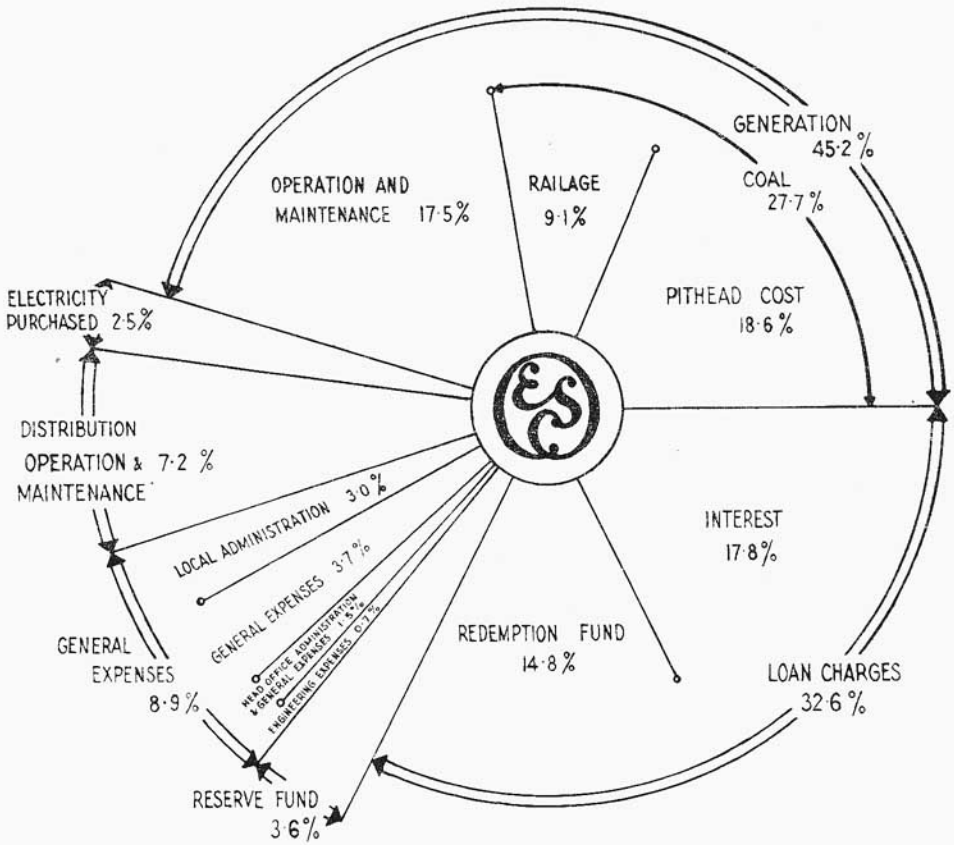
FINANCIAL

Loan Capital—A loan of £5,250,000 bearing interest at 3¾ per cent per annum, redeemable on 30th November, 1965/67, was raised at £98 per cent on 9th May, 1950. The loan was fully subscribed and the lists were closed on the day of issue. A further loan of £3,000,000 bearing interest at 3¾ per cent per annum, redeemable on 30th September, 1964/67, was raised at £99 per cent on 24th October, 1950, and was fully subscribed within one hour. In terms of the prospectus for the latter loan the final instalment was payable on 31st January, 1951, and at 31st December, 1950, the amount of £2,632,840 was received.

SUB-DIVISION OF

TOTAL PRODUCTION COSTS

FOR THE YEAR 1950



These loans increased the Commission's loan capital at the date of the Balance Sheet to £59,132,840.

As a result of negotiations during the latter half of 1950 between representatives of the International Bank for Reconstruction and Development and the Commission, an agreement was signed on the 23rd January, 1951, whereby the Bank has granted the Commission a loan of $30,000,000 U.S.A. at par, at 4 per cent per annum for a period of twenty years, repayable in equal half-yearly instalments, including interest, from the 15th May, 1954. The loan is to be used only for the purchase of imported materials, mainly from the United Kingdom, and is to be taken up by the 31st December, 1953. This is the Commission's first external loan, all other loans having been raised in South Africa.

Reserve and Redemption Funds—The amount in the Reserve Fund at 31st December, 1950, stood at £2,178,320, and the Redemption Fund at that date amounted to £13,713,922, which satisfies the requirements of the Electricity Act after taking into account the depreciation on the market value of investments. The amounts in the Fund include the proceeds from the sales of assets and profits on realisation of investments.

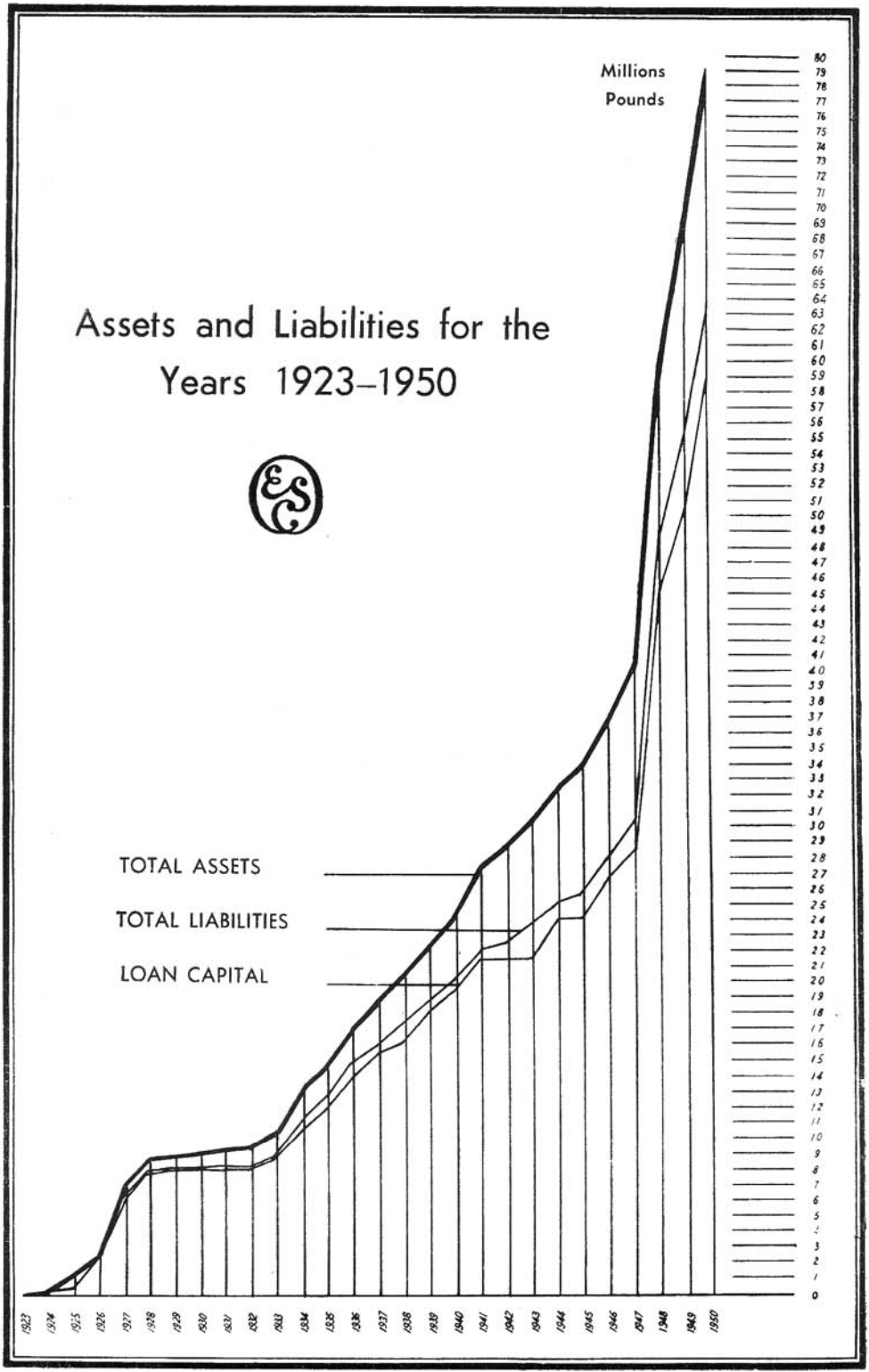
Investments—The book value of securities, representing investments in Government, Municipal and Electricity Supply Commission stocks, held by the Commission on behalf of the various funds at 31st December, 1950, was £16,221,793, the nominal value being £16,247,197. The market value of these investments at that date was £15,057,334.

Capital Expenditure—Expenditure on Capital Account during the year amounted to £7,447,219 which brought the total capital expenditure at 31st December, 1950, to £57,564,260. Expenditure on Capital Account will amount to approximately £122,200,000 on completion of all the works to which the Commission is committed.

Assets and Liabilities—The Commission's total assets at 31st December, 1950, amounted to £79,304,754, and its total liabilities to £63,215,922, the excess of assets (as shown in the Balance Sheet), over liabilities being £16,088,832. A graph showing the growth of assets and liabilities since 1923 is reproduced on page 17.

Summary of Operating Statistics—Revenue, production costs and other figures relating to the operation of the Commission's Undertakings during the year 1950, with the comparative figures for 1949, are as follows:—

	(a) 1950	(a) 1949	(a) Increase	(b) 1949
Total Revenue	£9,526,071	£8,317,263	14·53%	£8,799,486
Total Production Costs (including interest, redemption and reserve fund charges)	£9,579,968	£8,338,664	14·89%	£8,820,887
Difference between Revenue and Production Costs	Dr. £53,897	Dr. £21,401	Dr. £32,496	Dr. £21,401
Average price per unit sold	0·3289d	0·3189d	3·14%	0·3031d


Millions
Pounds
Assets and Liabilities for the
Years 1923–1950
TOTAL ASSETS
TOTAL LIABILITIES
LOAN CAPITAL
80
79
78
77
76
75
74
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1950

	(a) 1950	(a) 1949	(a) Increase	(b) 1949
Average revenue per unit sold (including Sundry Revenue)	0·3308d	0·3208d	3·12%	0·3049d
Average cost per unit sold	0·3327d	0·3216d	3·44%	0·3056d
Total cost of coal consumed (including Railage)	£2,650,963	£2,217,633	19·54%	
Railage on coal consumed	£867,042	£682,783	(c) 26·99%	
Coal consumed (in tons of 2,000 lb)	6,970,414	6,365,573	9·50%	

(a) Excluding transfers of power between undertakings.
(b) Including transfers of power between undertakings.
(c) Increase in railage rates 15·97%.

A diagram showing the subdivision of the Commission's total production costs for the year 1950 is reproduced on page 15.

STAFF

Home Ownership Scheme—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, totalled £204,912 at 31st December, 1950, of which amount £43,217 had been repaid at that date.

Personnel—The staff employed by the Commission at the 31st December, 1950, numbered 9,352, made up as follows:

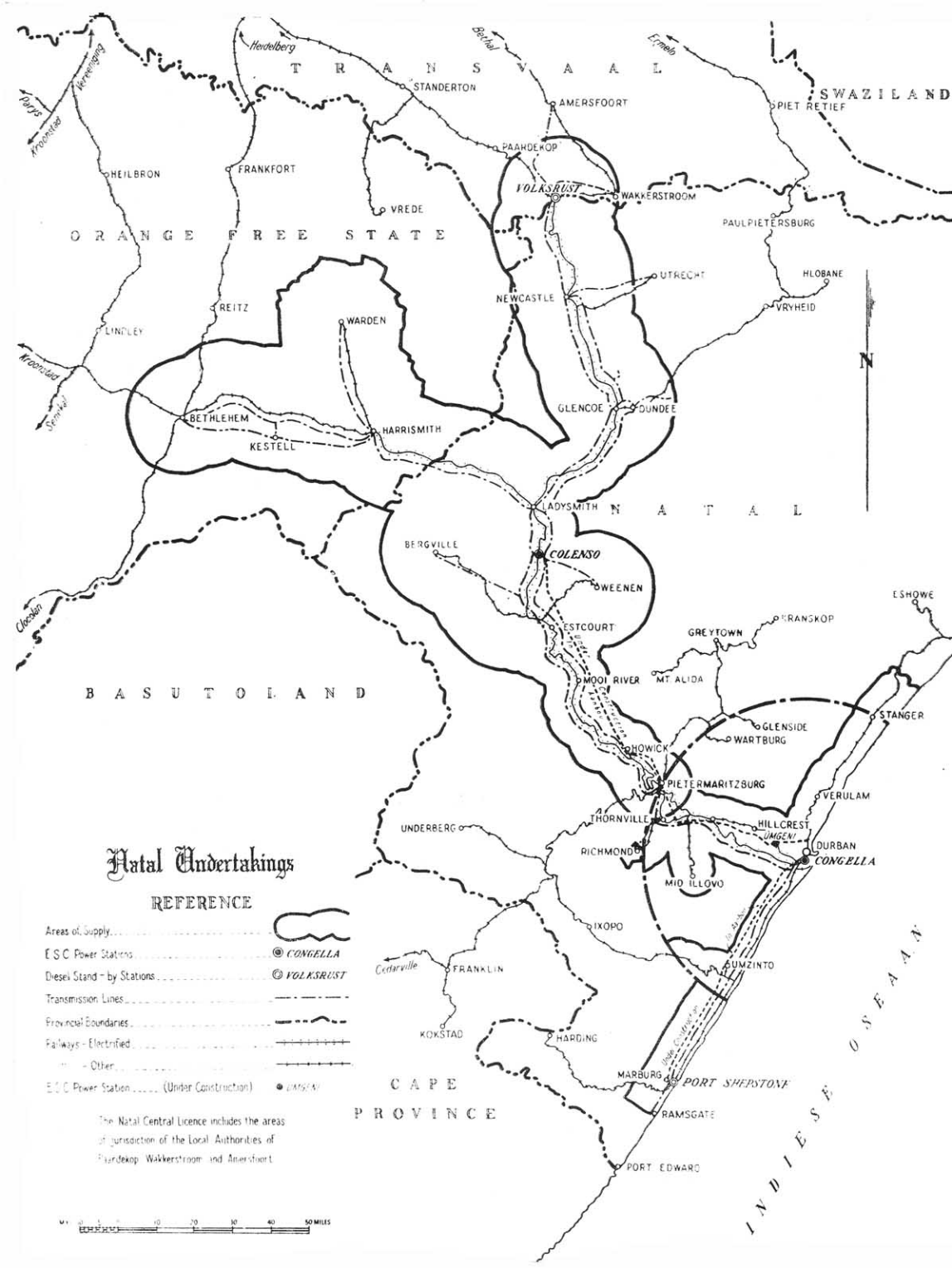
	1949		1950
Europeans increased from	3,081	to	3,286
Non-Europeans increased from	5,683	to	6,066
	8,764		9,352

The Commission here desires to express to all members of the staff its appreciation of their loyal and conscientious efforts, which have contributed so largely to the achievements recorded herein.

COMMISSION'S UNDERTAKINGS

The operations and developments of the individual 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.


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

NATAL CENTRAL UNDERTAKING

Operating Statistics

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1950	1949
			%	£	d	d
Traction	1	248,406 481	3·250	451,133	0·4359	0·4069
Bulk	12	113,161 891	21·172	251,733	0·5339	0·5123
Mining	8	15,369 064	21·427	42,403	0·6622	0·5856
Industrial	369	22,044,189	17·656	72,155	0·7856	0·7432
Domestic and Lighting	3,167	7,541,877	17·219	62,238	1·9805	1·7949
	3,557	406,523,502	9·338	879,662	0·5193	0·4804

	1950	1949	Accumulated to 31.12.50
Total Revenue	£894,218	£755,593	
Working Costs	£893,067	£757,627	
Deficit	—	£2,034	£10,068
Surplus	£1,151	—	
Capital Expenditure	£505,541	£312,602	£6,753,503
Units Sent Out	439,517,520	394,546,610	
Maximum half-hour Demand kW S.O.	85,000	70,480	
Station Peak kW	100,000	85,000	
Load Factor %	59·0	63·9	
Thermal Efficiency %	19·19	18·19	
COAL:			
Consumption tons	317,320	302,869	
Average per unit sent out—lb	1·444	1·535	
Calorific Value B.Th.U./lb ...	12,310	12,220	
Total Cost	£208,404	£193,057	
Cost per ton	13s 2d	12s 9d	

Output and Sales—There has been a continued increase in the demand for power from all classes of consumers. Sales increased by 9·3 per cent and the number of consumers rose from 3,283 in 1949 to 3,557 in 1950.

Operating Conditions—Operating conditions at Colenso Power Station have been much improved since the commissioning in 1949 of the additional 25,000-kW turbo-generator and the two new boilers.

Not only has the heavy backlog of maintenance work on boilers been overtaken, but Colenso has been able to render assistance to Congella Power Station, enabling boiler plant to be taken out of commission at the latter station for the purpose of erecting electrostatic precipitators.

Although there was some difficulty over coal supplies early in the year, there was a considerable improvement later, and the position became reasonably satisfactory. New coal storage equipment and coal tippler were placed in commission.

Distribution System—Work was begun on the 132-kV line for interconnecting Colenso and Springfield, Durban. At the year's end foundation work was about 50 per cent complete, tower erection had started and the section from Colenso to Mooi River was almost complete.

The 88-kV line from Glencoe to Newcastle was placed in commission and the substations at Newcastle and Dannhauser completed, although the tie-in at Dannhauser had not been effected. The line to Utrecht Colliery and village was initially energised at 11-kV and supply given to the Colliery in May. Early in 1951 the line was converted to 33-kV operation, for which it was designed. The two 6·6-kV lines from Glencoe to Dundee and Talana have been modified to 11-kV and were energised at that voltage early in 1951.

The third 9,000-kVA transformer was installed at Pietermaritzburg and is in commission. Two of the 2,400-kVA transformers released from Pietermaritzburg have been installed at Estcourt and the third at Ladysmith. Modifications to the Estcourt substation were completed and the modifications at Ladysmith are proceeding.

Negotiations have been completed for supply to Greytown, which will be connected to the overhead line from Cedara. This line will open up a large area of timber-growing country and assist industrial development there. Negotiations are proceeding for supply to Reitz and Vrede.

Rural Supplies—The demand for rural supplies remains very keen, but it is not possible to meet it in full, owing to shortage of materials and scarcity of skilled labour. Consequently the only large item of rural development which it is possible to undertake at present in this area is the Winterton Farmers' Scheme. A rural line from Cedara to Taylor's Halt and Quarry was commissioned in December, 1950.

99 miles of line, 6·6 to 33-kV, were erected, 14·7 miles of 6·6-kV line were converted to 11-kV, and approximately 50 new rural consumers were connected.

Housing—It again became necessary to provide more accommodation at Colenso; orders have been placed for twelve additional houses on which construction has started. The water-borne sewage system has been completed.

Financial—Tariff charges were increased from the beginning of 1950 by the application of a surcharge of ten per cent on all former tariffs approved by the Electricity Control Board.

Revenue increased from £755,593 in 1949 to £894,218 in 1950, and working costs rose from £757,627 to £893,067, due largely to increased capital charges in respect of new plant brought into commercial operation. The year's working resulted in a surplus of £1,151, compared with a deficit of £2,034 in the previous year, and the accumulated deficit was reduced from £11,219 to £10,068.

WITBANK UNDERTAKING

Operating Statistics

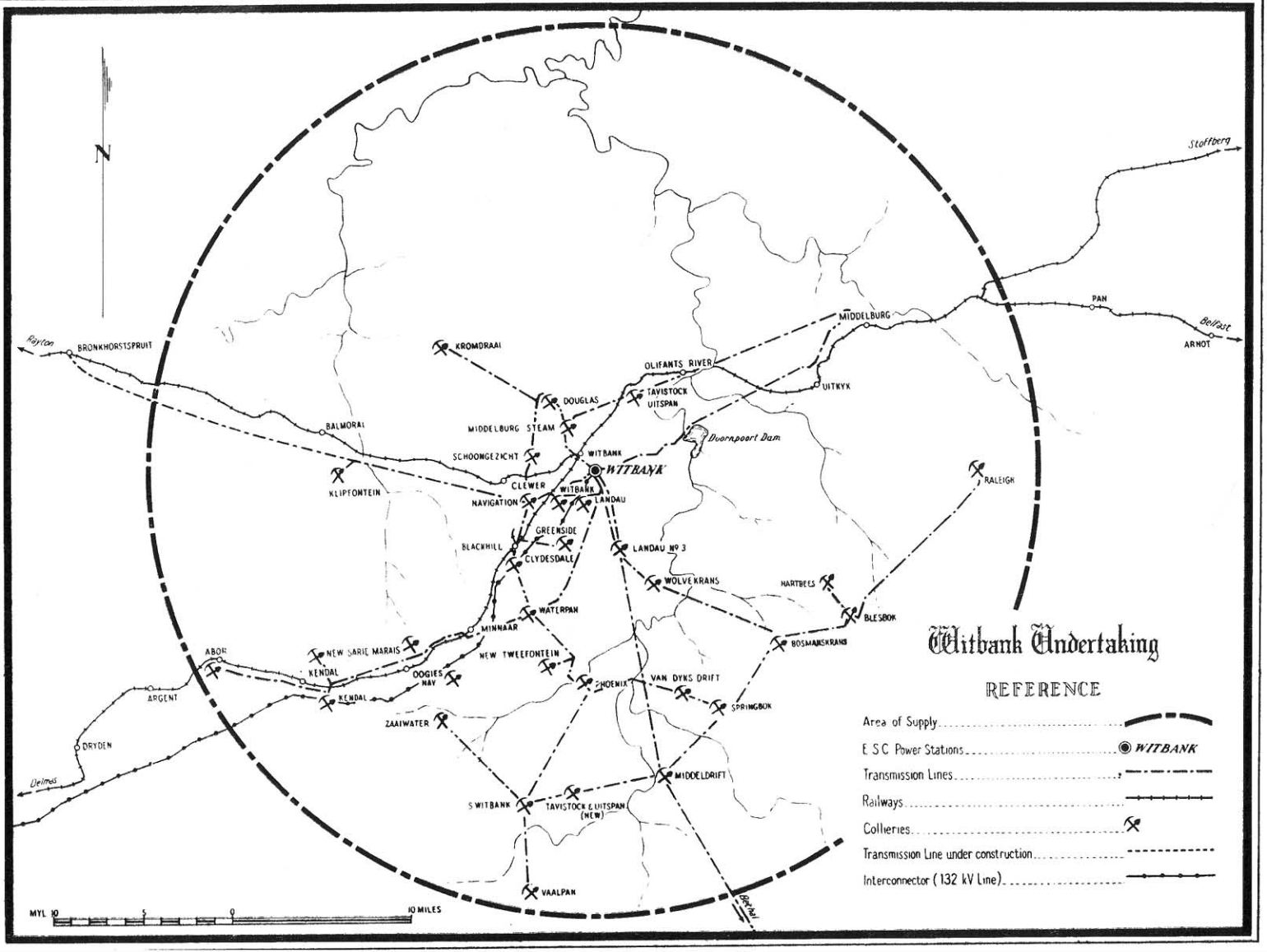
CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1950	1949
			%	£	d	d
Traction	1	175,823,207*	5·402	246,479	0·3364	0·3361
Bulk	3	5,795,470†	51·862	12,931	0·5355	0·4133
Mining	31	71,998,139	9·625	125,127	0·4171	0·4071
Industrial	91	120,586,130	1·912	112,670	0·2242	0·2098
Domestic and Lighting	1,497	4,303,778	19·188	19,710	1·0991	1·1000
	1,623	378,506,724†	5·657	516,917	0·3278	0·3159

	1950	1949	Accumulated to 31.12.50
Total Revenue	£819,311	£746,047	
Working Costs	£839,125	£755,182	
Deficit	£19,814	£9,135	£18,344
Capital Expenditure	£163,056	£155,712	£3,259,961
Units Sent Out	779,947,554	740,783,488	
Maximum one hour Demand kW S.O.	103,089	102,636	
Load Factor %	86·4	82·4	
Thermal Efficiency %	16·21	16·60	
COAL:			
Consumption tons	748,370	693,802	
Average per unit sent out—lb ...	1·919	1·873	
Calorific Value B.Th.U./lb ...	10,970	10,970	
Total Cost	£156,129	£129,159	
Cost per ton	4s 2d	3s 9d	

* Units purchased and interchanged.

† 573,141,087 units sent to Rand Undertaking are not included.

Output and Sales—The above figures record substantial increases in output and sales. Units supplied to the Rand Undertaking system rose from approximately 546 million in 1949 to 573 million in 1950. The number of consumers increased from 1,551 to 1,623, and load factor rose to 86·4 per cent. To relieve the strain on the power station a 20,000-kW turbo-generator and two 80,000-lb/hr boilers have been ordered. The new turbo-generator set is expected to be ready for commissioning early in 1952, and the corresponding boiler plant at the end of that year


N
Witbank Undertaking
REFERENCE
Area of Supply
E.S.C. Power Stations
WITBANK
Transmission Lines
Railways
Collieries
Transmission Line under construction
Interconnector (132 kV Line)
MYL 10 5 0 10 MILES
Heyton
BRONKHORSTSPRUIT
Delmas
Stoffberg
PAN
Belfast
ARNOT
MIDDELBURG
KROMDRAAI
OLIFANTS RIVER
UITKYK
DOUGLAS
TAVISTOCK UITSPAN
BALMORAL
MIDDELBURG STEAM
Doornpoort Dam
SCHOONGEZICHT
WITBANK
WITBANK
KLIPFONTEIN
CLEWER
NAVIGATION
WITBANK
LANDAU
RALEIGH
GREENSIDE
BLACKHILL
CLYDESDALE
LANDAU No 3
WOLVEKRANS
HARTBEES
BLESBOK
WATERPAN
MINNAAR
BOSMANSKRANS
ABOR
NEW SARIE MARAIS
NEW TWEEFONTEIN
KENDAL
OOGIES NAV
PHOENIX
VAN DYKS DRIFT
ARGENT
KENDAL
SPRINGBOK
ZAAIWATER
DRYDEN
MIDDELDRIFT
S WITBANK
TAVISTOCK & UITSPAN (NEW)
VAALPAN
Bethal

Distribution System—Construction of substations at Witbank, Middeldrift and Bethal was completed and the 88-kV line put into operation.

The installation at substations of oil circuit-breakers, voltage transformers, relays, etc., made it possible to operate the 21-kV ring-feed system of thirty miles supplied from Middeldrift stepdown substation as a looped system, although late delivery of some equipment made operation difficult at times.

A number of 21/2·2-kV substations for new collieries were completed and put into service, this work involving the commissioning of thirty-three 500-kVA transformers.

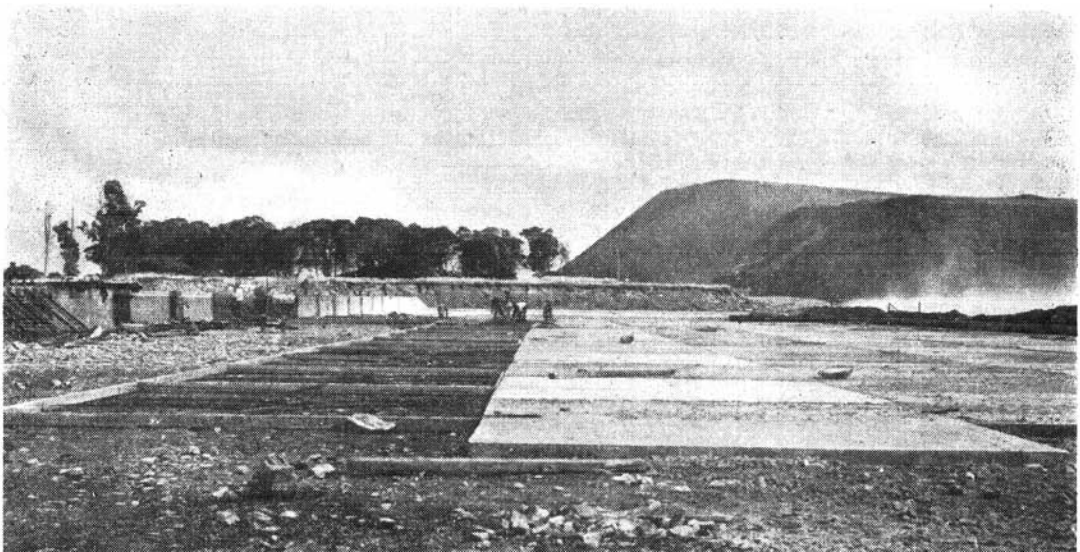
About 21 miles of 21-kV line were constructed, and two extra-heavy power cables and a pilot cable were laid from the power station through Witbank town a distance of $2\frac{1}{4}$ miles to Rand Carbide Ltd., to which supply is scheduled for early in May, 1951. Five miles of new 6·6-kV line and $\frac{1}{2}$ mile of 6·6-kV cable connected a number of new consumers, including farmers.

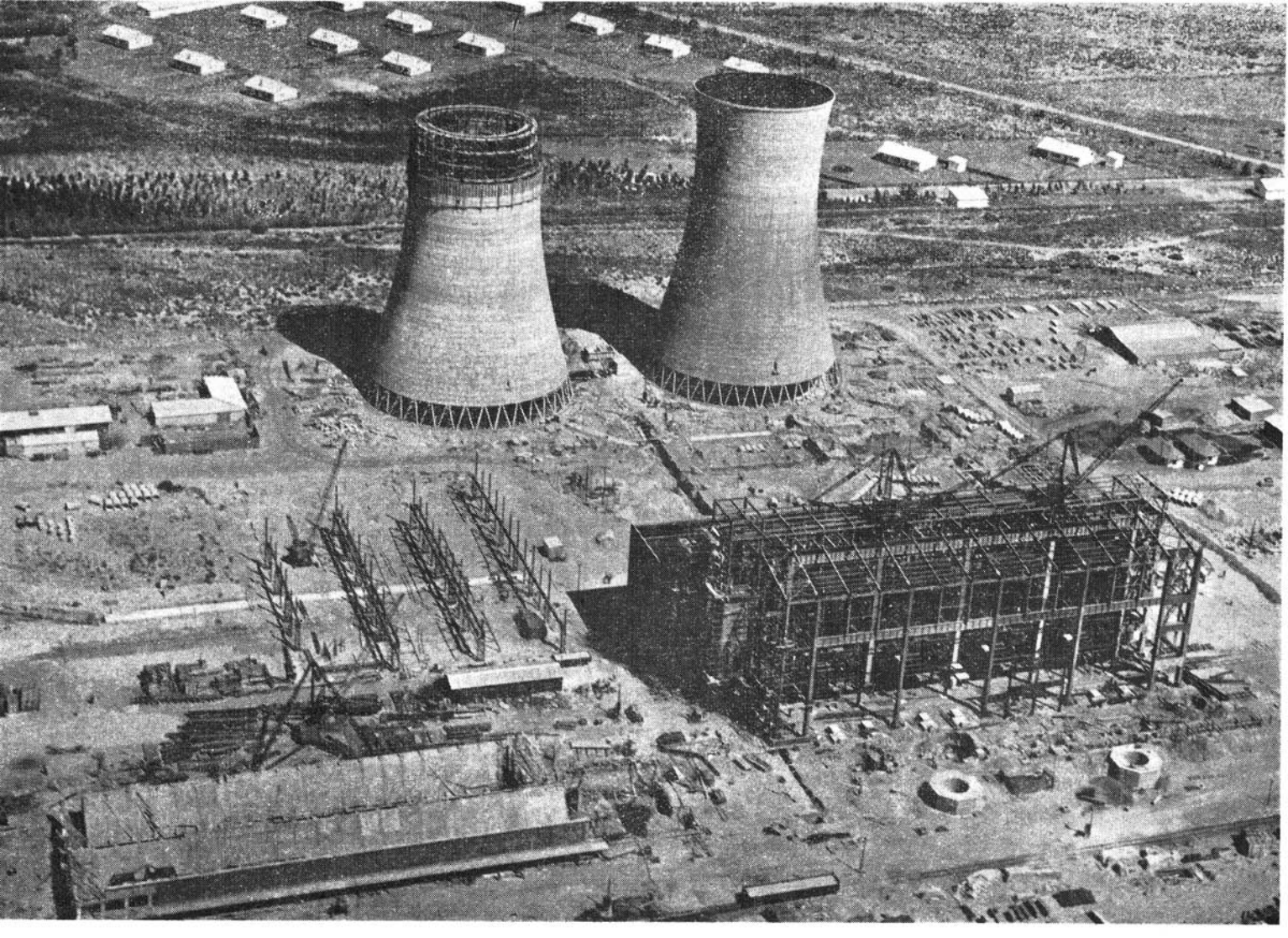
Work proceeded on survey of the route for the 88-kV line from Bethal to Standerton, and construction of the 45 miles of line will begin as soon as materials are delivered.

Financial—While revenue in 1950 increased by £73,264 to £819,311, working costs rose by £83,943 to £839,125, largely due to increased consumption and cost of coal, resulting in a deficit of £19,814 on the year's working and an accumulated deficit of £18,344 at the year's end.

WITBANK POWER STATION:

No. 6 spraypond under construction.





HEX RIVER POWER STATION:
Aerial view, December, 1950.

[Photo Robin Summers.

CAPE WESTERN UNDERTAKING

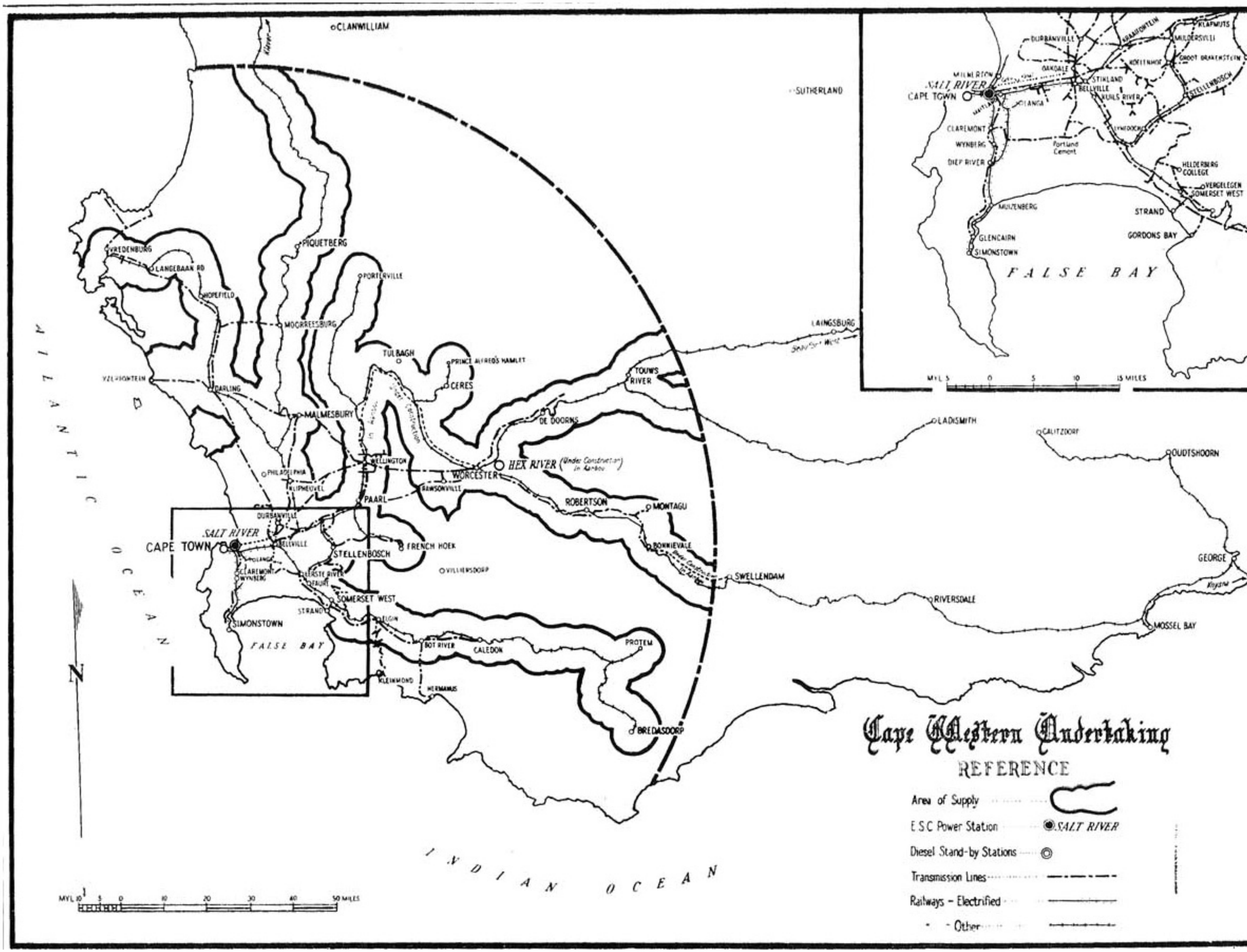
Operating Statistics

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1950	1949
			%	£	d	d
Traction	1	57,788,673	−14·404	159,389	0·6620	0·6125
Bulk	16	69,091,794	+25·193	188,701	0·6555	0·6077
Industrial	1,333	92,885,030	+10·372	331,042	0·8554	0·8202
Domestic and Lighting	15,180	52,137,277	+22·272	263,812	1·2144	1·2305
	16,530	271,902,774	+ 8·980	942,944	0·8323	0·7871

	1950	1949	Accumulated to 31.12.50
Total Revenue	£946,537	£820,399	
Working Costs	£959,395	£835,334	
Surplus	—	—	£53,337
Deficit	£12,858	£14,935	
Capital Expenditure	£1,537,392	£1,406,895	£6,788,515

	Salt River Power Station		Worcester Power Station
	1950	1949	1950
Units Sent Out	189,124,992	214,664,641	1,938,774
Maximum half-hour Demand kW S.O.	61,750	58,410	
Station Peak kW	68,000	66,000	
Load Factor %	35·0	41·7	
Thermal Efficiency %	17·96	17·42	
FUEL:			
Coal Consumed—tons	143,141	173,195	
Average per unit sent out—lb ...	1·514	1·614	
Calorific Value B.Th.U./lb ...	12,550	12,140	
Total Cost	£232,025	£255,065	
Cost per ton	32s 5d	29s 6d	
Oil consumed—lb	—	—	1,123,929
Oil per unit sent out—lb ...	—	—	0·580

General—It will be seen from the Operating Statistics that, whereas Bulk, Industrial, and Domestic and Lighting consumption all record considerable increases over the previous year, and total sales rose by nearly 9 per cent, demand for Traction decreased by over 14 per cent.



Cape Western Undertaking
REFERENCE
Area of Supply
E.S.C. Power Station
SALT RIVER
Diesel Stand-by Stations
Transmission Lines
Railways - Electrified
- Other
ATLANTIC OCEAN
INDIAN OCEAN
FALSE BAY
CAPE TOWN
SALT RIVER
HEX RIVER (Under Construction in Karbou)
CLANWILLIAM
SUTHERLAND
LAINGSBURG
LADISMITH
CALITZDORP
OUDTSHOORN
GEORGE
MOSSEL BAY
RIVERSDALE
SWELLENDAM
VREDENBURG
LANGEBAAN RD
HOPEFIELD
MOORREESBURG
PIQUETBERG
PORTERVILLE
TULBAGH
PRINCE ALFRED'S HAMLET
CERES
TOUWS RIVER
DE DOORNS
WORCESTER
RAWSONVILLE
ROBERTSON
MONTAGU
BONNIEVALE
DARLING
MALMESBURY
WELLINGTON
PAARL
PHILADELPHIA
KLIPHEUVEL
DURBANVILLE
BELLVILLE
STELLENBOSCH
FRENCH HOEK
VILLIERSDORP
CLAREMONT
WYNBERG
EERSTE RIVER
FAURE
SOMERSET WEST
STRAND
SIMONSTOWN
ELGIN
BOT RIVER
CALEDON
KLEINMOND
HERMANUS
PROTEM
BREDASDORP
MYL 10 5 0 10 20 30 40 50 MILES
MILNERTON
OAKDALE
STIKLAND
KUILS RIVER
LANGA
KOELENHOF
GROOT DRAKENSTEIN
MULDERSVLEI
KLAPMUTS
LYNEDOCH
Portland Cement
DIEP RIVER
HELDERBERG COLLEGE
VERGELEGEN
MUIZENBERG
GLENCAIRN
GORDONS BAY
MYL 5 0 5 10 15 MILES

In 1946 consumption for railway suburban traffic services exceeded that by any other class of consumer, but since then there has been a steady decline, until in 1950 Traction accounted for only 21 per cent of the total Undertaking output. The tendency is likely to be reversed when the Railways Administration begins to take additional supplies for new main line traction schemes.

Arrangements between the Commission and the Cape Town City Council continued to operate in terms of the Pooling Agreement of 1933. The total number of units sent out from the pooled stations was 865,525,822, compared with 811,488,697 in 1949. Of the 1950 total the Commission's Salt River Station sent out 189,124,992 units, or nearly 12 per cent less than in 1949. Maximum half-hour demand at Salt River rose from 58,410 to 61,750 kW, and thermal efficiency improved from 17·42 to 17·96 per cent.

Operational continuity was satisfactorily maintained, with the exception of a power failure on 19th June, when, due to the explosion of an evaporator at the City Council's Table Bay Station, that station was shut down and isolated from the system from 8 p.m. until 1 a.m. next day. During the period of the outage the Salt River Station operated to the maximum output of the plant on load, but it was necessary to isolate the Oakdale and Elsies River subsations, and the Commission's consumers outside the Peninsula were without power except at Worcester, where supply was maintained via the diesel station.

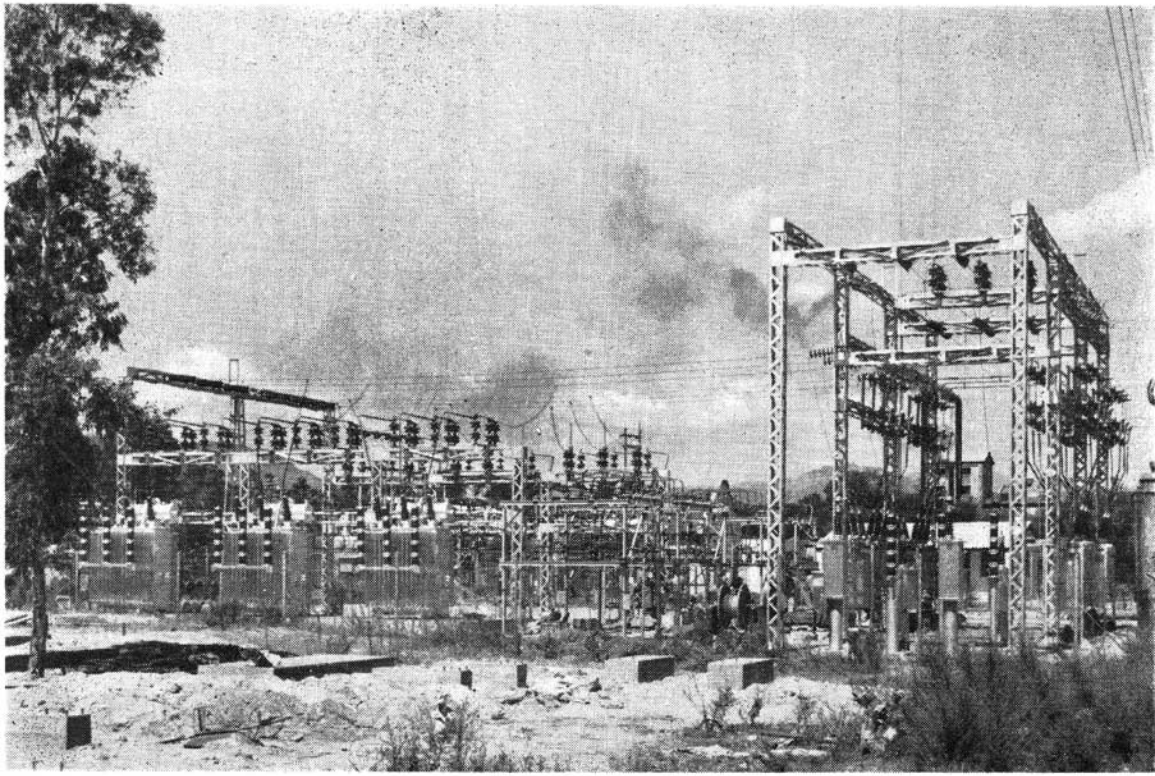
Electricity Demand—Despite continued growth of demand, progress continued towards the goal of system stability and consolidation of the main trunk network. Completion of a number of cables and transmission lines, as described later, contributed materially to easing of long-standing system voltage regulation problems.

Loading conditions on the available plant at the Pooled Stations remain difficult, and some anxiety is felt with regard to winter loading conditions in 1951, but it is hoped that the fifth 40,000-kW turbo-generator now being installed at Table Bay will be ready in time to assist in meeting the anticipated system demand.

During 1950, 1,464 additional consumers were connected, bringing the total to 16,530, which figure includes 1,089 rural connections, of which 149 were connected during the year.

Power Stations—Developments in connection with the new Hex River and Salt River No. 2 stations are recorded on pages 9 and 10. 22 plots have been purchased at Worcester for the erection of residential accommodation for the power station staff. The two 1,000-kW diesel sets at Worcester have proved invaluable in providing an alternative source of supply during extensions to, and modifications of, the transmission system in that area, as well as in normal operation in accordance with the system's requirements. It is estimated that these diesel engines will not be required in operation after completion of the 66-kV transmission line between Wellington and Worcester via Tulbagh Kloof, planned for the early part of 1951.

Coal—Coal consumption at the Salt River Power Station amounted to 143,141 tons, an average of 1·514 lb per unit sent out. The average price per ton delivered to the Pooled Stations rose from 30s. 5d. in 1949 to 33s. 1d. in 1950. Consequently the additional charge per unit under the Coal Clause Adjustment rose from 0·0680234d. in 1949 to 0·0847613d. in 1950, and the total amount of adjustment from £57,466 to £75,886.



PAARL SUBSTATION
under construction.

Despite repeated representations to the authorities concerned, coal supplies for the pooled stations remain precarious, and at the year's end stocks amounted to only 19,500 tons, or a little more than twelve days' supply.

Distribution System—A considerable amount of major transmission equipment was put into commission during the year.

Growth of load in the Bellville, Goodwood and Parow areas continues to require careful attention to meet present and future developments. In this connection work carried out in 1950 included:

Construction at Elsies River of a new outdoor 33/11-kV substation designed for an ultimate capacity of 16,000 kVA. This was brought into operation with four 2,000-kVA 33/11-kV transformers on load, and the old substation has been dismantled.

Two 5,000-kVA transformers have been ordered for Oakdale, to replace all other 33/11-kV stepdown units there. One 500-kVA 33/11-kV transformer is at present on load, but early in 1951, when additional transformer capacity will become available, the Bellville/Goodwood/Parow system will be fed from this substation.

Six brick 11,000/380-V reticulation substations and one outdoor substation have been constructed, equipped and commissioned, with a total installed transformer capacity of 3,100 kVA.

An improved type pilot cable termination has been installed in nineteen substations, telephones in sixteen, and alarm indication in fourteen.

Good progress was made with the cable-laying programme. The two 33-kV cables Salt River to Oakdale, and the first cable Salt River to Elsies River, were energised, using overhead lines temporarily on part of the route. These cables will be commissioned in their final form at short intervals during 1951. The third Oakdale and the second Elsies River cables were in operation at the year's end.

The Oakdale to Wellington line was energised at 33 kV in April, and later converted to 66 kV. At the year's end work was well in hand on reinsulating the line from Wellington to Paarl in preparation for supplying Paarl at 66 kV via the direct line from Bellville, and construction work proceeded on the 66-kV line from Oakdale to Somerset West.

Supply was given to Montagu and Moorreesburg, to the Railway Construction Depot at Eerste River, and to the Bonnievale and Kleinmond Village Management Boards.

Construction of a line to supply Swellendam is planned for completion in December, 1951, and it is expected that permanent supply to the South African Broadcasting Corporation at Brackenfel will be available by September, 1951.

Many applications have been received for supply to new townships. A distribution system has been erected to supply the Simmons-Hodge Estate on the outskirts of Durbanville, plans have been approved for supply to Gaylee Estates and to Pearl Rise Township, and a scheme for bulk supply to Blaauberg Strand is under consideration.

Construction was begun of extensions to the transmission system beyond Langebaanweg, the first section involving the erection of a 33-kV line between Langebaanweg and Vredenburg, which was completed in October. It is expected that the 11-kV line between Vredenburg and St. Helena Bay will be completed in February, 1951, and construction of the line to Saldanha Bay is planned to begin in June, 1951.

During the year the 11-kV system was extended by 53 miles, the 6·6-kV system by 11 miles, and the low voltage network by 20 miles.

Farmers' Schemes—As already mentioned, rural connections numbered 1,089 at the end of 1950, an increase of 149 over the previous year.

The Bottelary A Scheme now has 24 connections, and the B Scheme, completed during the year, 40. A scheme to supply an additional 18 farmers in the Philippi area was approved, the number of consumers under the A scheme being 51 at the end of December. The Philadelphia Scheme was completed, and 55 consumers connected. The Klipheuvel Scheme now serves 48 consumers, and the Elgin Scheme 65.

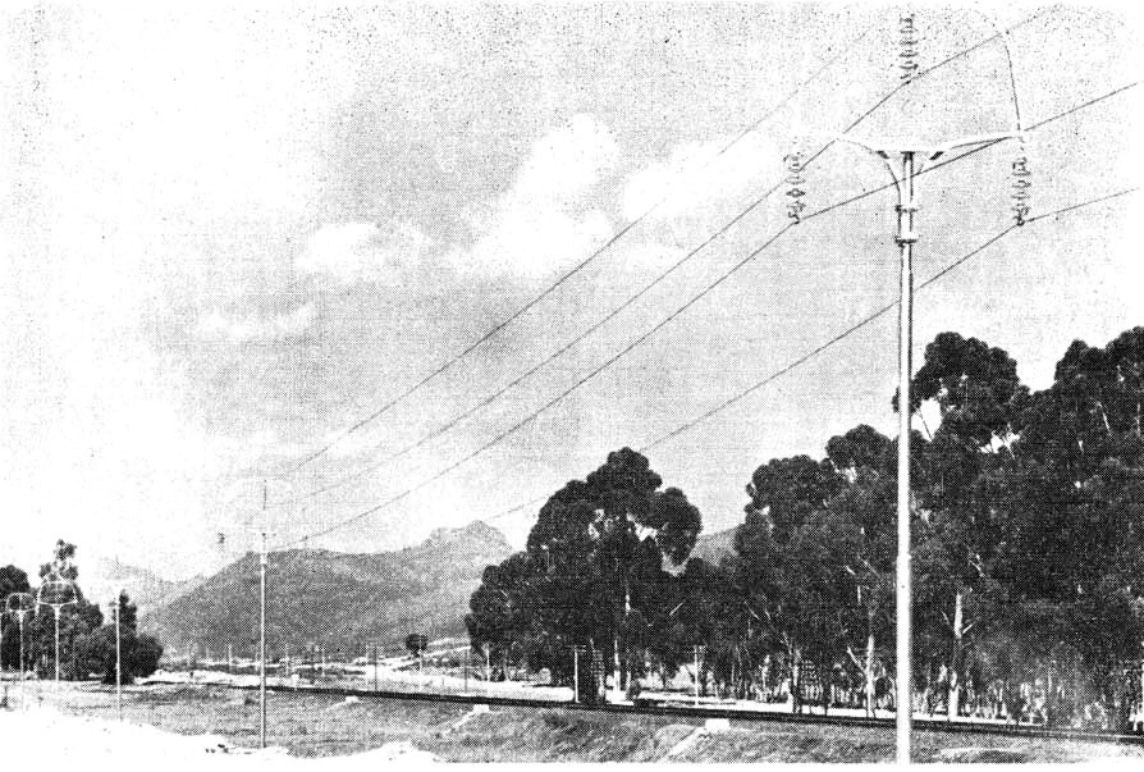
For supply in rural areas, 282 applications were received. A number of applications were outstanding from the previous year and 379 connections made in 1950.

Native Quarters—Quarters were erected for Native labourers at a number of substations, and these fill a long-felt need. Plans have been passed for the early erection of Native quarters at Stellenbosch.

Financial—Capital expenditure incurred during the two years 1949 and 1950, amounting to nearly £3 million, has resulted in a considerable increase in capital charges, which, combined with rising costs, resulted in a deficit of £12,858 on the year's working, reducing the accumulated surplus from £66,195 at the end of 1949 to £53,337 at the end of 1950. Revenue in 1950 showed an increase of £126,138, but working costs rose by £124,061. The heavy programme of capital expenditure was incurred in connection with major extensions to the transmission system, in preparation for the electrification of the railway main line from Cape Town to Touws River, and in consolidating supplies to existing and potential future consumers.

PAARL-WELLINGTON 66-kV LINE:

Using bow-type cross arms on old 33-kV poles.



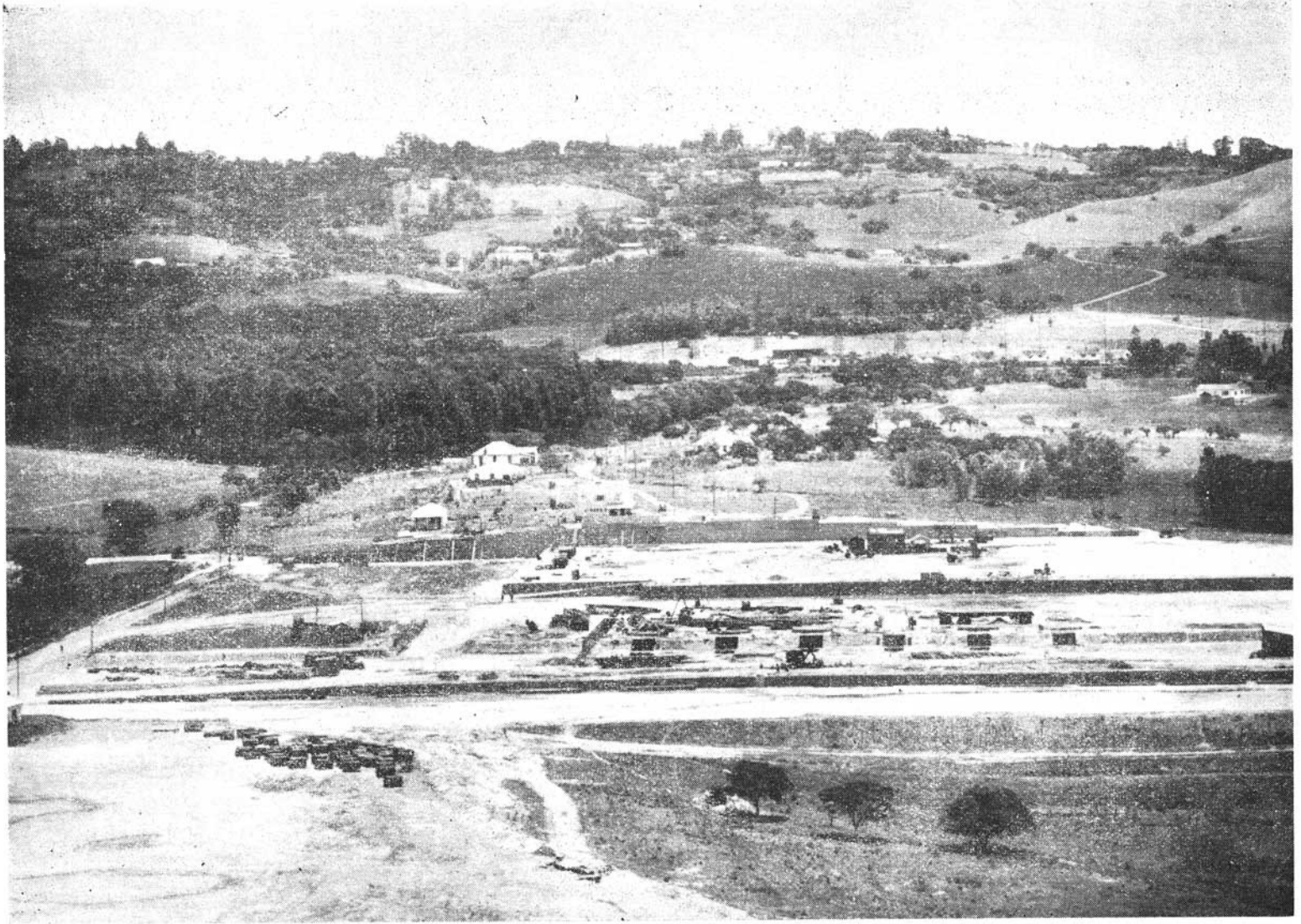
DURBAN UNDERTAKING

Operating Statistics

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1950	1949
			%	£	d	d
Traction	1	42,006,282	− 1·376	74,961	0·4283	0·4025
Bulk	2	487,236,085	+10·748	870,967	0·4192	0·4015
Industrial	202	23,133,877	+ 2·263	52,574	0·5454	0·5087
Domestic and Lighting	2,795	9,391,073	+20·165	68,539	1·7516	1·6612
	3,000	561,767,317	+ 9·511	1,047,040	0·4473	0·4155

	1950	1949	Accumulated to 31.12.50
Total Revenue	£1,048,687	£912,052	
Working Costs	£1,023,708	£910,935	
Deficit			£29,412
Surplus	£24,979	£1,117	
Capital Expenditure	£768,985	£819,924	£5,797,394

	Congella Power Station Nos. 1 and 2		Port Shepstone Power Station	
	1950	1949	1950	1949
Units Sent Out ...	542,105,800	505,357,750	989,077	1,810,647
Maximum half-hour Demand kW S.O.	120,859	115,200	2,690	3,268
Station Peak kW ...	135,400	129,400	2,800	3,400
Load Factor % ...	51·2	50·1	4·2	6·3
Thermal Efficiency %	20·67	20·55		
FUEL:				
Coal Consumed — tons	366,413	343,891		
Average per unit sent out—lb	1·352	1·361		
Calorific Value B.Th.U./lb	12,210	12,200		
Total Cost	£256,007	£309,953		
Cost per ton	19s 5d	18s 0d		
Oil consumed—lb ...			566,357	1,053,029
Oil per unit sent out—lb			0·573	0·582



UMGENI POWER STATION SITE:
December, 1950

[Photo Whysalls.

Output and Sales—The above statistics illustrate the continued increase in demand. Units sold in 1950 record an increase of 9·5 per cent over the 1949 figure, and the number of consumers rose from 2,526 to 3,000. The number of units sold has more than doubled during the last ten years, and the maximum half-hour demand (U.S.O.) rose from 115,200 kW in 1949 to 120,859 kW in 1950.

Power Station—Plant operated satisfactorily throughout the year. On two occasions it was necessary to interrupt traction supply, for periods of nine and thirteen minutes respectively, but there were no other forced interruptions.

Work proceeded throughout the year on the installation of No. 6 turbo-generator of 40,000-kW capacity, to be in service by April, 1951. Work has begun on the foundations for the three new 200,000-lb/hr boilers, and every effort is being made to have the first of these in commission by May, 1952, as without it there will be difficulty in meeting the anticipated load during the winter of that year.

Much work was carried out on installation of the precipitator plant which is being provided to obviate the dust nuisance. It is hoped to have the precipitators for boilers Nos. 5 to 8 completed by the winter of 1951. Tenders for dust extraction plant for boilers Nos. 1 to 4 are under consideration. It is pleasing to record that the dust nuisance has been so much reduced that few complaints are now received.

Screening plant at the circulating water intake was commissioned during the year. Considerable extensions were made to the new 33-kV switchgear, and sectioning switches and busbar protection were installed on the 33-kV busbars. The new workshops, stores and Native compound are in occupation. The final extension to the 2·1-kV auxiliary board was completed early in 1951.

South Coast—On the South Coast 12,736,967 units were sold in 1950, an increase of 16 per cent over the 1949 figure.

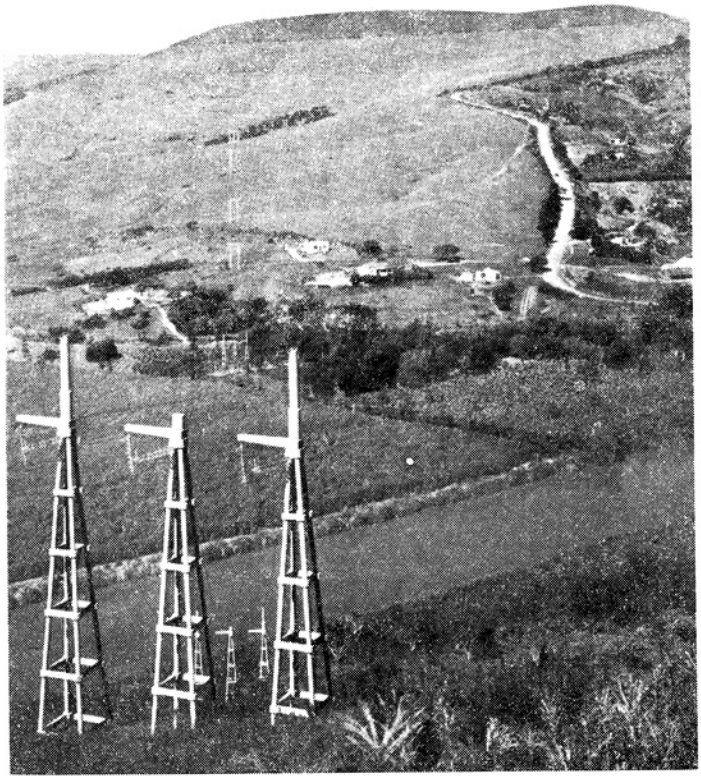
Meeting the rapidly increasing demand in this area continues to present a difficult problem, pending completion of the new 88-kV line from Montclair to Marburg, beyond Port Shepstone, which is now expected to operate late in 1951 or early in 1952. Meanwhile the existing 33-kV line is overloaded, and the 3,400-kW diesel installation at Port Shepstone is incapable of supplying the whole load. A heavy maintenance programme on the 33-kV line was carried out during the early part of 1950, the line being renovated as far as Scottburgh.

Modification from 6·6-kV to 11-kV of the system in the Scottburgh area was almost completed, but there is much to be done on construction of 11-kV lines in the Port Shepstone area in connection with the 88-kV supply. Stepdown substations are under construction at Umzinto and Marburg.

North Coast—698,169 units were sold in this area to 5 industrial and 114 domestic consumers. Almost the whole of Maidstone village is being supplied, and bulk supply is being given to the sugar factory. About 50 consumers have been connected in Tongaat village.

Rural Supplies—28·8 miles of medium-voltage lines were constructed and commissioned, and 9·6 miles of 6·6-kV line were converted to 11-kV. 44 new rural consumers were connected.

Umgeni Power Station—This new power station, being erected near Pinetown, is described in page 10.



NATAL SOUTH COAST: [Photo Whysalls.

88-kV line under construction, near Umkomaas.

Office Accommodation—The new office building, Electron House in Acutt Street, was occupied in May. The Commission's staff occupies three floors and part of a fourth; the remaining eight floors of the building have been let at satisfactory rentals.

Financial—The increased tariff charges, reported last year, resulted in a surplus of £24,979 on the year's working, which reduced the accumulated deficit from £54,391 at the end of 1949 to £29,412 at the end of 1950. Revenue and working costs both exceeded £1 million, and capital expenditure for the year was £768,985.

SABIE UNDERTAKING

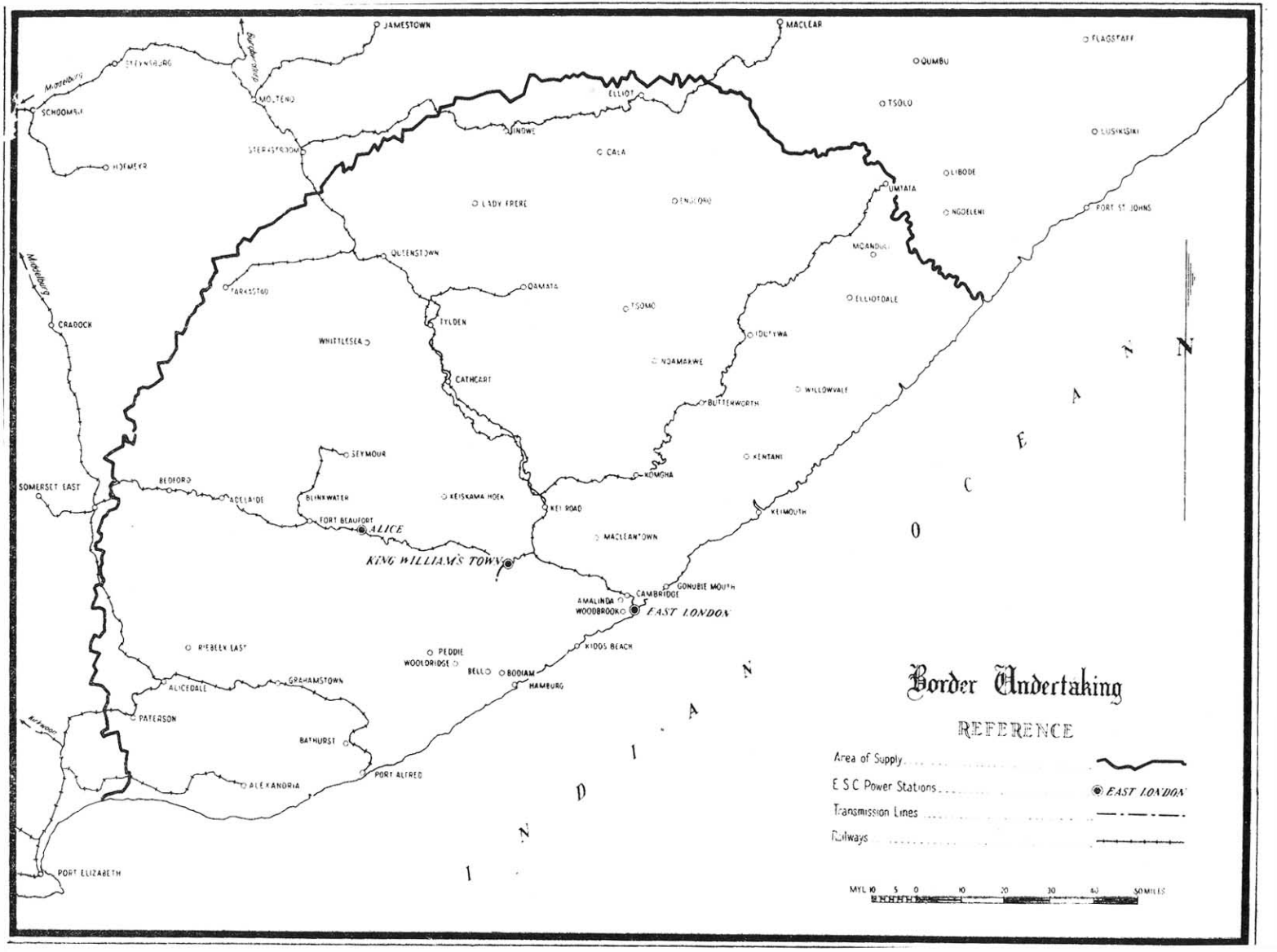
Operating Statistics

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Decrease		1950	1949
			%	£	d	d
Mining	1	6,303,229	10·348	7,971	0·3035	0·2738

	1950	1949	Accumulated to 31.12.50
Total Revenue	£7,971	£8,020	
Working Costs	£8,005	£8,003	
Surplus		£17	£45
Deficit	£34		
Capital Expenditure	—	—	£96,170
Units Sent Out	6,573,100	7,351,700	
Maximum half-hour Demand kW S.O.	1,260	1,300	
Station Peak kW	1,400	1,475	
Load Factor %	59·6	61·6	
RAINFALL:			
Inches at Power Station	47·52	48·56	

The reduction in the number of consumers, from two in 1949 to one in 1950, reflects the amalgamation of the two gold mines which have for many years been supplied by the Sabie hydro-electric power station.

The station and the transmission system operated entirely satisfactorily during the year. The reduction in units sold, amounting to 10·3 per cent, was caused by drought. For some months it was impossible to maintain a steady load of 700 kW, and during this period the mine supplemented the output of the power station by operating its diesel engine.


JAMESTOWN
MACLEAR
FLAGSTAFF
QUMBU
STEYNSBURG
MOLTENO
ELLIOT
TSOLO
SCHOOMAN
UNDWE
CALA
LUSIKISIKI
HOFMEYR
STERKSTROOM
LIBODE
UMTATA
LADY FRERE
ENGCOBO
NGQELENI
PORT ST JOHNS
QUEENSTOWN
MOANDUKI
TARKASTAD
QAMATA
TSOMO
ELLIOTDALE
CRADOCK
TYLDEN
IDUTYWA
WHITTLESEA
NQAMAKWE
CATHCART
WILLOWVALE
BUTTERWORTH
SEYMOUR
KENTANI
SOMERSET EAST
BEDFORD
KOMGHA
ADELAIDE
BLINKWATER
KEISKAMA HOEK
KEI ROAD
KEIMOUTH
FORT BEAUFORT
ALICE
MACLEANTOWN
KING WILLIAMS TOWN
GONUBIE MOUTH
CAMBRIDGE
AMALINDA
WOODBROOK
EAST LONDON
RIEBEEK EAST
PEDDIE
WOODRIDGE
KIDDS BEACH
BELLO
BODIAM
HAMBURG
GRAHAMSTOWN
ALICEDALE
PATERSON
BATHURST
ALEXANDRIA
PORT ALFRED
PORT ELIZABETH
Border Undertaking
REFERENCE
Area of Supply
E S C Power Stations
EAST LONDON
Transmission Lines
Railways
MYL 10 5 0 10 20 30 40 50 MILES

BORDER UNDERTAKING

Operating Statistics

CONSUMERS — Class	Number	SALES — Units	SALES — Increase or Decrease	Revenue from Sales	Average Price per Unit Sold — 1950	Average Price per Unit Sold — 1949
			%	£	d	d
Bulk	1	71,911,330	+17·979	187,256	0·6250	0·5992
Industrial	115	1,937,419	−21·165	14,484	1·7942	1·5483
Domestic and Lighting	1,813	5,941,008	+12·498	38,138	1·5407	1·6284
Steam—Industrial	1	96,314		153	0·3819	
	1,930	79,886,071	+16·297	240,031	0·7211	0·7123

	1950	1949	Accumulated to 31.12.50
Total Revenue	£240,728	£204,566	
Working Costs	£240,359	£204,068	
Surplus	£369	£498	£10,843
Capital Expenditure	£144,701	£126,596	£578,657

	East London 1950	East London 1949	K.W.T. 1950 Steam	K.W.T. 1949	K.W.T. 1950 Diesel	Alice 1950	Alice 1949
Units Sent Out	71,911,330	60,952,690	8,078,389	7,852,102	17,881	583,934	537,075
Maximum Half-hour Demand kW S.O.	17,400	16,760	2,384	2,600	390	197	187
Load Factor %	47·2	41·5	38·7	34·5		33·8	32·8
Thermal Efficiency %	15·97	15·37	12·84	12·23			
FUEL:							
Coal Consumed—tons	61,654	54,237	8,234*	8,275			
Average per unit sent out—lb	1·715	1·780	2·016	2·108			
Calorific Value B.Th.U./lb	12,460	12,470	13,180	13,210			
Total Cost	£93,733	£77,212	£13,030	£12,215	£109	£3,874	£3,181
Cost per ton	30s 5d	28s 6d	31s 8d	29s 6d	£15 10s 10d	£15 9s 0d	£12 14s 9d
Oil consumed—lb					14,025	501,500	499,454
Oil per unit sent out—lb					0·784	0·859	0·93

* Includes 93 tons for Steam Supply.

Output and Sales—As already indicated, sales increased by 16 per cent over the 1949 figure. Power stations operated satisfactorily and each recorded a substantial increase in output.

East London—Good progress was made with the final extensions to West Bank No. 1 Power Station, comprising two 55,000-lb/hr boilers, a 7,500-kW turbo-generator, and the addition to the cooling-water scheme of a 10,000-g.p.m. pump and new inlet and outlet. It is hoped to have one of the new boilers steaming by May, 1951, and the whole extension in commission by August.

The new turbo-generator will operate at 11 kV. No. 6 set, at present operating at 6·6-kV, will be reconnected to generate at 11-kV, and the machines will be coupled to the existing 6·6-kV system through two 10,000-kVA transformers, which, at the end of the year, were in position and awaiting cabling.

The progress of work on West Bank No. 2 Station is reported in page 12.

The 6·6-kV line, insulated for 11-kV, to Gonubie Brickfields was completed, but owing to late delivery of equipment the Brickfields will be unable to take supply until May, 1951. The line was extended to Gonubie Mouth at 3·8-kV insulated for 11-kV. Supply was given on the whole length of the line in November, and at the end of the year 35 consumers had been connected. Surveys are in hand for a two-mile extension of the line to the Modern Brickfields and for a spur line to residences on the road to Bonza Bay.

King William's Town—The new 1,000-kW diesel set was commissioned in March and is giving satisfactory service.

Units sold show a small increase over the figure for the previous year, although Good Hope Textiles, formerly a large consumer, was in 1950 operating its own generating plant from which it obtains process steam.

The new Stores Block, mentioned last year, was completed and occupied, and by the year's end civil and constructional steel work for the new switchgear bay annexe was almost finished.

In connection with the changeover of the distribution system to 11 kV, good progress was made on the renewal of cables and the construction of the necessary substations. At the end of the year the new 11-kV switchboard at the Power Station was in process of being commissioned and it will enable sections of the reticulation system to be changed over to the higher voltage.

Early in 1951 investigatory work was begun for the erection of an 82-mile 33-kV line from King William's Town to Adelaide. This line will provide bulk supply for Alice, Fort Beaufort and Adelaide.

Alice—A new 230-kW diesel set was commissioned in April and, after some initial troubles, it is now giving reliable service. A second similar set was commissioned in February, 1951. The result has been a marked improvement in power station operation and reliability.

Work proceeded satisfactorily on the changeover from direct to alternating current, and the changeover of consumers' installations has begun. As the work proceeds, the troubles experienced with the old d.c. lines will be eliminated.

Units sold in 1950 show an increase of nearly 5 per cent over 1949, and there is already evidence that the change from direct to alternating current is likely to result in a further increase in demand from consumers.

Financial—A surplus of £369 on the year's operations brought the accumulated surplus at the year's end to £10,843.

RAND UNDERTAKING—OPERATING STATISTICS

CONSUMERS		SALES			Average Price per Unit Sold	
Class	Number	Units		Revenue from Sales	1950	1949
		1950	Increase or Decrease			
ELECTRICITY:			%	£	d	d
Bulk	35	327,711,343	+22·729	390,990	0·2863	0·2869
Mining	92	3,782,574,966	+ 8·741	3,800,048	0·2411	0·2389
Industrial	648	730,053,701	+21·578	833,878	0·2741	0·2698
Domestic and Lighting	10,637	34,628,904	+18·237	166,845	1·1563	1·2021
	11,412	1,875,001,911	+11·420			
AIR AND STEAM:						
Bulk	1	2,702,556	2·136			
Mining	12	261,131,700	0·190			
Industrial	23	9,932,913	11·310			
	36	276,770,169	− 0·656	512,511	0·4111	0·4376
	11,448	5,151,772,083	+10·698	5,701,275	0·2657	0·2636

	1950	1949	Accumulated to 31.12.50
Revenue	£5,958,222	£5,352,8[illegible]9	
Working Costs	£6,011,312	£5,349,738	
Deficit	£53,090		
Surplus		£3,071	£6,967
Capital Expenditure	£4,068,291	£1,8[illegible]2,141	£33,631,368

RAND UNDERTAKING—OPERATING STATISTICS—(continued)

	Brakpan Power Station		Klip Power Station	
	1950	1949	1950	1949
ELECTRICITY:				
Units Sent Out	134,549,739	109,543,727	2,567,878,688	2,479,939,016
Maximum one-hour Demand kW S.O.	42,970	44,578	358,678	355,890
Load Factor %	35·7	28·1	81·7	79·5
Thermal Efficiency %	12·82	12·40	19·81	19·93
COAL:				
Consumption—tons	193,347	165,779	2,450,793	2,374,892
Average per unit sent out—lb	2·874	3·027	1·909	1·915
Calorific Value B.Th.U./lb	9,260	9,090	9,090	8,940
Total Cost	£97,400*	£75,514	£615,522	£550,193
Cost per Ton	8s 9d	7s 8d	5s 0d	4s 7d

* Includes cost of additional 29,888 tons—see Compressed Air section.

	Rosherville Power Station		Simmerpan Power Station	
	1950	1949	1950	1949
ELECTRICITY:				
Units Sent Out	141,854,580	90,982,650	83,764,143	19,876,686
Maximum one-hour Demand kW S.O.	55,967	49,245	39,061	38,839
Load Factor %	28·9	21·1	24·5	14·7
Thermal Efficiency %	11·01	10·94	10·07	9·35
COAL:				
Consumption—tons	225,732	154,666	158,875	103,474
Average per unit sent out—lb	3·183	3·400	3·793	4·149
Calorific Value B.Th.U./lb	9,740	9,170	8,930	8,800
Total Cost	£197,890†	£156,586	£75,311	£42,661
Cost per Ton	9s 5d	8s 5d	9s 6d	8s 3d

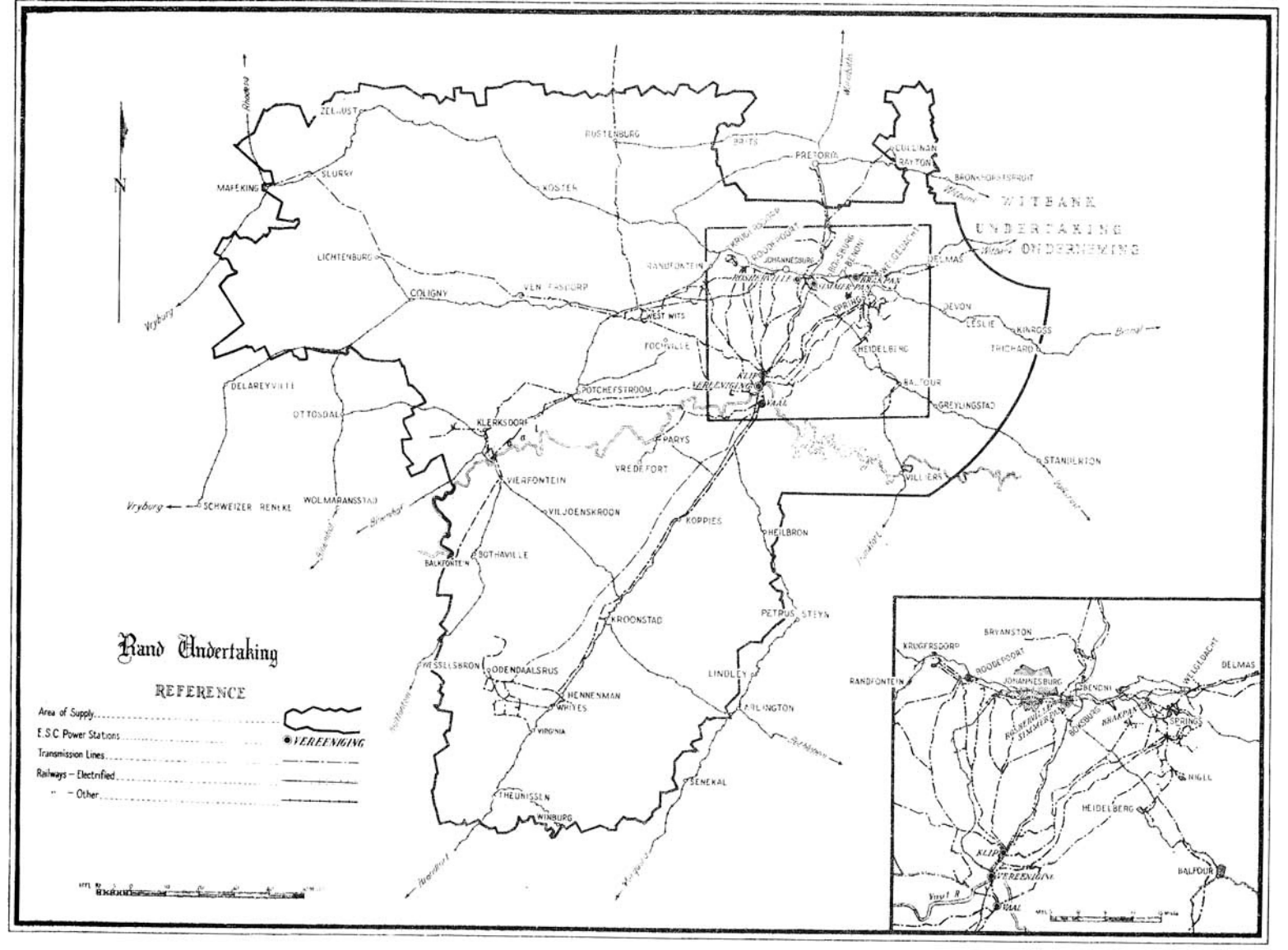
† Includes cost of additional 194,483 tons—see Compressed Air section.

RAND UNDERTAKING—OPERATING STATISTICS—(continued).

	Vaal Power Station		Vereeniging Power Station	
	1950	1949	1950	1949
ELECTRICITY:				
Units Sent Out	1,231,376,194	981,656,528	877,676,808	821,954,050
Maximum one-hour Demand kW S.O.	170,773	162,456	146,688	136,485
Load Factor %	82·3	69·0	68·3	68·7
Thermal Efficiency %	22·48	22·51	16·44	16·42
COAL:				
Consumption—tons	1,008,315	791,865	1,009,722	950,351
Average per unit sent out—lb	1·638	1·613	2·301	2·312
Calorific Value B.Th.U./lb	9,270	9,400	9,020	8,990
Total Cost	£267,959	£187,326	£274,984	£228,689
Cost per Ton	5s 4d	4s 9d	5s 5d	4s 10d

	Brakpan Power Station		Rosherville Power Station	
	1950	1949	1950	1949
COMPRESSED AIR:				
Units Sent Out	16,605,730	17,066,280	138,020,800	117,188,000
Coal Consumed—tons	29,888	31,363	194,483	216,914
Average Coal per unit sent out—lb	3·600	3·675	2·818	2·947
Coal Calorific Value B.Th.U./lb	9,230	9,090	9,740	9,170

	Canada Dam Compressor Station		Robinson Compressor Station	
	1950	1949	1950	1949
COMPRESSED AIR:				
Units Sent Out	65,315,300	52,415,600	56,547,300	61,485,900
Electric Input—kWh	77,334,731	61,660,212	71,978,977	76,920,650
Air Units Sent Out kWh per cent.	84·46	85·11	78·56	79·94


Rand Undertaking
REFERENCE
Area of Supply
E.S.C. Power Stations
VEREENIGING
Transmission Lines
Railways – Electrified
" – Other
WITBANK
UNDERTAKING
ONDERNEMING
MAFEKING
SLURRY
LICHTENBURG
COLIGNY
VEN-TERSTORP
ZEERUST
RUSTENBURG
KOSTER
BRITS
PRETORIA
CULLINAN
BRAKPAN
BENONI
DELMAS
RANDFONTEIN
JOHANNESBURG
SPRINGS
NIGEL
DEVON
LESLIE
KINROSS
TRICHARD
HEIDELBERG
BALFOUR
GREYLINGSTAD
STANDERTON
WILLIERS
WEST WITS
FOCHVILLE
POTCHEFSTROOM
VEREENIGING
VAAL
DELAREYVILLE
OTTOSDAL
KLERKSDORP
VIERFONTEIN
VREDEFORT
PARYS
VILJOENSKROON
KOPPIES
HEILBRON
WOLMARANSSTAD
SCHWEIZER RENEKE
BOTHAVILLE
BALKFONTEIN
KROONSTAD
PETRUS STEYN
LINDLEY
ARLINGTON
VIRGINIA
HENNENMAN
WHITES
MESSELSBRON
ODENDAALSRUS
THEUNISSEN
WINBURG
SENEKAL
BRYANSTON
KRUGERSDORP
ROODEPOORT
JOHANNESBURG
RANDFONTEIN
DELMAS
BENONI
SPRINGS
NIGEL
HEIDELBERG
BALFOUR
KLIP
VEREENIGING
VAAL

RAND UNDERTAKING—OPERATING STATISTICS—(continued)

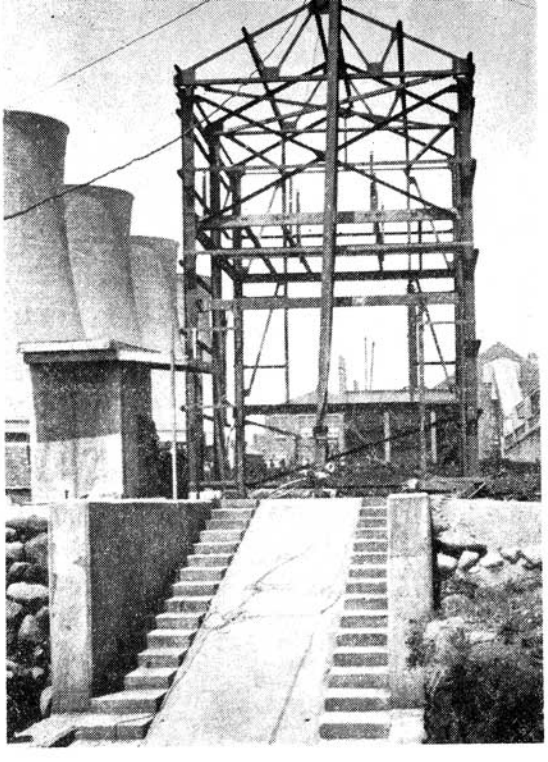
	Modder B and New Modder Compressor Stations	
	1950	1949
COMPRESSED AIR:		
Units Sent Out	10,081,978	10,086,585
Electric Input kWh	11,747,207	11,785,891
Air Units Sent Out kWh per cent.	85·82	85·62

Growth of Load—The Operating Statistics show that during 1950 there was a further marked increase in the number of units sold for all purposes, whereas there was a slight decrease in sales of compressed air and steam. The overall position, however, shows an increase of over 10 per cent in the number of units of electricity, compressed air and steam sold, compared with the corresponding figure for 1949. The highest percentage increases were in respect of bulk supplies to local authorities and supplies for industrial and domestic purposes, but on account of the preponderance of mining load the lower percentage increase in these sales is of greater significance from the point of view of demand imposed upon generating capacity. The maximum electrical demands on all stations except Brakpan, which shows a slight decrease, were substantially higher than in 1949, as were also the load factors at all stations except Klip and Vereeniging, which operated on base load. The higher load factors at Rosherville, Simmerpan and Brakpan are attributable to the extension into the afternoon and early evening of the running hours of the plant at those stations. The decrease in sales of compressed air is accounted for by material reductions of consumption by three large industrial consumers.

Apart from additional domestic and smaller industrial supplies furnished by the Germiston and Georgetown Lighting Department in Germiston, and to the north of Johannesburg where the Undertaking has established and operates township reticulation systems, supplies of electricity were furnished to 54 new consumers of which 6 were engaged in mining and 41 in other industries. The remaining 7 supplies were for municipalities in bulk and for other municipal services. 9 additional points of supply were equipped for existing mining and other industrial consumers, and for the South African Railways. During the first four months of 1951 new supplies should be furnished, among others, to 3 municipalities, 3 mining and 6 other industrial consumers.

The Undertaking continues to receive a large number of applications for new supplies and notifications of additional requirements from existing consumers.

Plant Capacity—The maximum electric load carried during 1950 was 939,000 kW, which was over 70,000 kW higher than the maximum in 1949. As this load exceeded the capacity of the installed plant it was necessary to draw to an extent some 20 per cent higher than in 1949 upon the spare plant resources of the Johannesburg and Pretoria Municipalities, under the interchange arrangements which have been entered into with them.



Above: **VIERFONTEIN POWER STATION:**
Part of married quarters, December, 1950.

Left: VAAL POWER STATION EXTENSIONS:
No. 2 coal-handling plant under erection.

The last of the four 190,000-lb/hr boilers referred to in the 1949 Report was placed in commission at Vaal Power Station but the expectation that the installation of No. 6 30,000-kW turbo-generator would be completed in June was not realised, due to late deliveries. The set was commissioned in February, 1951, but it will not be fully available for service until the installation of Nos. 11 and 12 boilers is completed in April, 1952. It is expected that installation of turbo-generators Nos. 7, 8 and 9 will be completed during 1951, but the corresponding boilers will not become available until early in 1953.

With a view to augmenting the power available until the new Vierfontein and Taaibos Power Stations are commissioned, negotiations initiated towards the end of 1950 are proceeding with the Rand Water Board and Randfontein Estates G.M. Co. Ltd., and satisfactory arrangements have been made to interconnect the Undertaking's network with the Board's Vereeniging and Zwartkopjes pumping stations and the Mining Company's generating station at Randfontein, to obtain from those sources supplies to the extent of over 26,000 kW. These additional supplies will become available during 1951.

Additional plant on order for the extension of existing power stations includes:

Vaal:	Three 33,000-kW turbo-generators.
	One 7,500-kW house set.
	Eight 190,000-lb/hr boilers.
Witbank:	One 20,000-kW turbo-generator.
	Two 80,000-lb/hr boilers.
Vereeniging:	One 180,000-lb/hr boiler.

Since the year's end a 30,000-kW turbo-generator and two 150,000-lb/hr boilers have been ordered for Rosherville.

Vierfontein Power Station will be equipped with seven 30,000-kW turbo-generators with equivalent boiler capacity, and Taaibos with six 60,000-kW turbo-generators and six boilers of 580,000-lb/hr capacity.

It must be emphasized that in general new and additional demands have for the years since World War II imposed, and will for the next two or three years continue to impose, themselves upon this Undertaking's system at a rate exceeding that at which equivalent generating and boiler plant can be installed, on account of delays in the manufacture and delivery of plant. For this reason the next two or three years will be a most difficult period, during which the greatest care will have to be exercised, to ensure that the loads imposed upon the system are not allowed to outstrip the capacity of the Undertaking to supply.

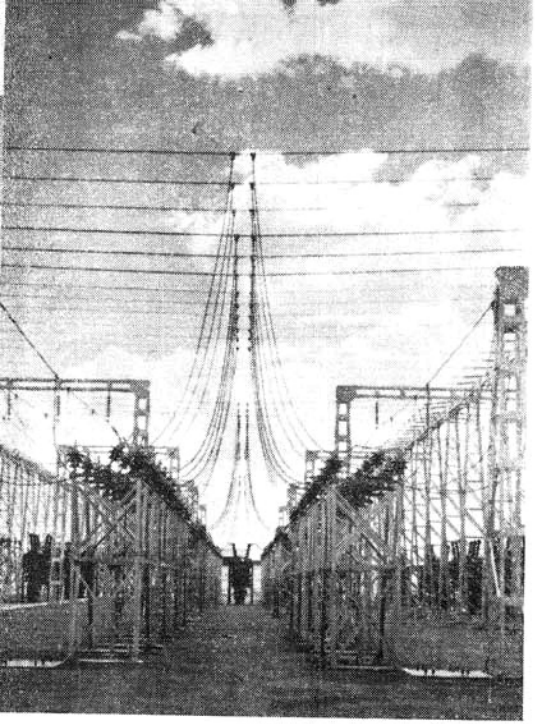
Limitation of Maximum Demands—In June, 1950, a further appeal was issued to consumers to effect voluntary restrictions of their operations during the peak load period from 8.30 a.m. to 1.30 p.m. and to collaborate with the Undertaking's operating staff in effecting, if called upon in case of need, immediate load reductions to bring about a rapid easement of the demand on the system. As in the past the gold mining industry readily co-operated by reducing mine loads on peak and, in response to requests made from time to time, by reductions of load at short notice. Such requests have on occasion involved load reductions aggregating as much as 60,000 kW.

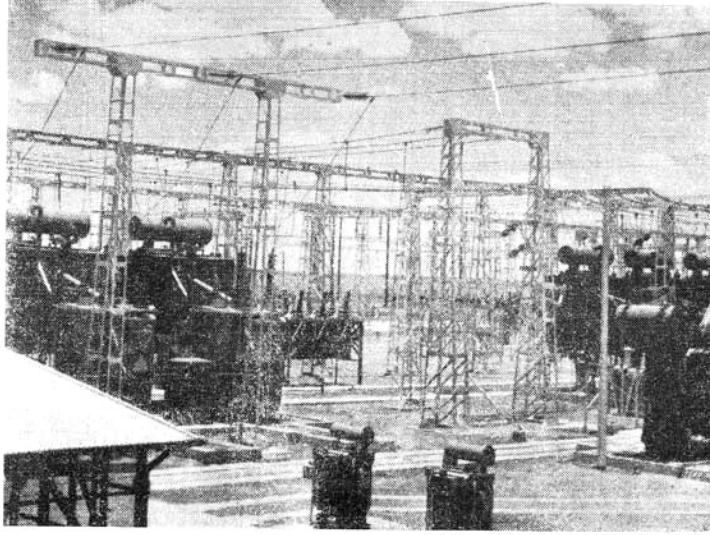
It became apparent, however, towards the end of the year that definite limitations must be placed upon the maximum demands which may be imposed upon the Undertaking's system by consumers in general, including municipalities and other local authorities, to alleviate as far as possible the critical position which will arise during 1951, especially during the winter months. For the past two years the mining industry has alone borne the burden of load restrictions, and it is inequitable and not in the national interest that this should continue.

The Electricity Control Board and the Department of Commerce and Industries were advised by the Commission of the great increase in demand for power and the consequent necessity for restrictions on loading, and the Commission's recommendations with a view to meeting the situation have received the concurrence of the Board.

The broad principles upon which the limitation of electricity supply to consumers of the Rand Undertaking will be carried out involve the allocation to the mining industry of a proportion of the total available generating capacity equivalent to the proportion of the output absorbed by that industry during 1949, the restriction of the individual maximum demands of municipalities, other local authorities and consumers of bulk supplies and industrial consumers, to specified maxima based upon the demands of each such consumer during 1950, and the postponement of the furnishing of new or additional supplies, except for essential services and purposes of national importance, until such time as the commissioning of additional generating and boiler plant has progressed to a point which will enable such new or additional supplies to be provided.

The Commission has appointed a Committee to examine and make recommendations as to the degree of priority to be accorded to all applications for new or additional supplies.





ALMA DISTRIBUTION STATION:

Above: 45-MVA 80/40-kV stepdown transformers (December, 1950)

Left: Central view of 40-kV yard.

Distribution System—During the year the erection of the two 88-kV transmission lines from Vaal Power Station to the S.A. Iron and Steel Industrial Corporation's steelworks at Vanderbijl Park was completed, as was also the second fifty-mile 88-kV line between Vaal and West Wits. Distribution Station, where the second 45-MVA coupling transformer was in process of installation at the end of the year. The 88-kV tee between Vaal and Vereeniging/Nigel Terminal transmission line was completed, and 40-kV overhead lines were constructed to, and substations equipped at three additional points of supply on the S.A. Railway electrified system at Westonaria, Bank and Randfontein. Supplies were made available at Margaret Shaft of the Stilfontein Gold Mine, Annan Shaft of the Doornfontein G.M. Co. Ltd., and the South-East Vertical Shaft, E.R.P.M., and a permanent supply was given at the S.A. Railways Prospect Goods Yard. At the close of the year the major works in hand included the erection of a 40-kV overhead line to Cason Shaft, E.R.P.M., and the equipment of a 40/3·3-kV substation at that point; the civil work of the new distribution station at Dunnottar; the installation of a 21,700-kVA booster transformer at Rustenburg Distribution Station; the erection of the 80-mile 88-kV transmission line to S.A. Iron and Steel Industrial Corporation's works at Thabazimbi and the equipment there of an 88/3·3-kV substation, and also the provision of supplies to the Union Platinum and Zwartkop Chrome Mines.

During the latter part of the year there was a marked improvement in deliveries of insulators. On the other hand prospects affecting deliveries of consumers' transformers and line fittings deteriorated, and towards the end of the year advices were received that further delays were likely as a result of the unsettlement of labour conditions overseas. Shortage of steel continues to cause difficulties.

Orange Free State Supplies—Good progress was made in the equipment of Alma Distribution Station. A 20-MVA rotary condenser, two 45-MVA 88/40-kV coupling transformers and one 2,500-kVA earthing transformer were installed. Supplies were made available to the Balkfontein Pumping Station of the Irrigation Department by the completion of the forty-mile 88-kV transmission line between Western Reefs and Balkfontein via Vierfontein, to the Municipalities of Kroonstad, Hennenman and Vredefort, and the Township of Welkom. Four additional mines in the Orange Free State gold areas were connected. The non-simultaneous load carried by the two 88-kV lines between Vaal Power Station and Alma had by the end of the year risen to nearly 35,000 kW.

Good progress was also made on the construction of the 40-kV "ring" distribution lines based on Alma, and by the end of the year twelve mining points of supply had been converted from temporary 88-kV to permanent 40-kV supply. This programme of work will continue during 1951.

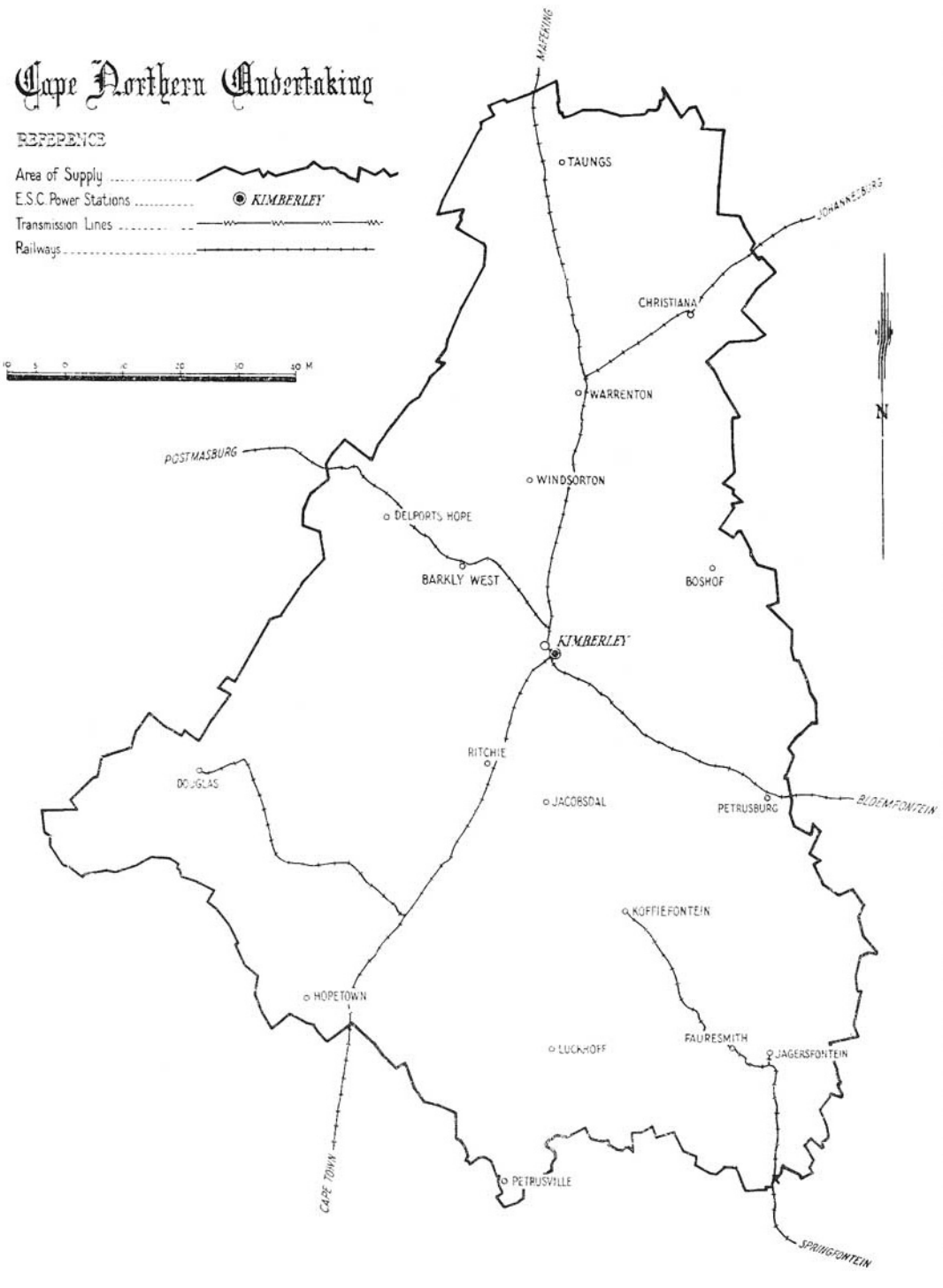
At the close of the year work was in progress on the 132-kV Vaal Vierfontein Alma transmission line, the completion of which will make practicable the transfer of greatly increased supplies of power for mining purposes from the Undertaking's Witwatersrand System to the Free State network, a 40-kV line from Freddies North Lease Area, Ltd. to the Irrigation Department's De Erf boosting station, and a further line of the same voltage from St. Helena Mine to President Brand Mine.

Licences—As stated in last year's Report, extensions of the licensed area of supply of the Rand Undertaking to the north and east are called for by the projected supplies to the South African Iron and Steel Industrial Corporation at Thabazimbi and to the Municipality of Standerton. Applications for supply which have been received from local authorities situated to the west and south-east of the existing licensed area indicate that extensions in those directions also will become necessary. The necessary applications for these extended areas of supply are being made to the Electricity Control Board.

Staff—During the year under review considerable difficulty was experienced in augmenting the engineering and other staff to the extent necessary to cope with the Undertaking's large construction and expanding maintenance programmes. Most departments have been short-staffed throughout the year.

Tariffs—Owing to the steady increase in costs experienced during the year it became necessary for the Commission to revise tariffs in respect of the year 1951. The revised tariffs are under consideration.

Financial—Working costs increased from £5,349,738 in 1949 to £6,011,312 in 1950, while revenue rose from £5,352,809 to £5,958,222. The resultant deficit of £53,090 reduced the accumulated surplus from £60,057 to £6,967. Capital expenditure in 1950 was £4,068,291


Cape Northern Undertaking
REFERENCE
Area of Supply
E.S.C. Power Stations
KIMBERLEY
Transmission Lines
Railways
10 5 0 10 20 30 40 M
N
MAFEKING
TAUNGS
JOHANNESBURG
CHRISTIANA
WARRENTON
POSTMASBURG
WINDSORTON
DELPORTS HOPE
BARKLY WEST
BOSHOF
KIMBERLEY
RITCHIE
DOUGLAS
JACOBSDAL
PETRUSBURG
BLOEMFONTEIN
KOFFIEFONTEIN
HOPETOWN
FAURESMITH
LUCKHOFF
JAGERSFONTEIN
CAPE TOWN
PETRUSVILLE
SPRINGFONTEIN

CAPE NORTHERN UNDERTAKING

Operating Statistics

CONSUMERS		SALES	Revenue from Sales	Average Price per Unit Sold
Class	Number	Units		1950
			£	d
Bulk	1	31,515,181	73,053	0·5563
Mining	1	22,388,319	58,412	0·6262
Industrial	1	16,481	51	0·7501
Domestic and Lighting	1	2,221	10	1·1081
	4	53,922,202	131,526	0·5854

	1950
Total Revenue	£131,596
Working Costs	£126,196
Surplus	£5,400
Capital Expenditure	£215,844
Units Sent Out	53,922,202
Maximum half-hour Demand kW S.O.	12,635
Load Factor %	48·7
Thermal Efficiency %	13·71
COAL:	
Consumption tons	54,127
Average per unit sent out—lb	2·008
Calorific Value B.Th.U. lb	12,390
Total Cost	£62,569
Cost per ton	23s 1d

Power Station—The Central Power Station, Kimberley, forming the nucleus of this new Undertaking, was purchased by the Commission from De Beers Consolidated Mines Ltd. with effect from 1st January, 1950, and the Company's staff operated the station on behalf of the Commission for the first two months of the year. The Commission assumed full control on 1st March.

At that time the main installation comprised two 6,000-kW, one 5,000-kW and one 3,000-kW turbo-generators, with seven 30,000-lb/hr boilers in service and the eighth under construction. Two additional 75,000-lb/hr boilers have been ordered, and two 6,000-kW turbo-generators transferred from Congella Power Station are under erection; due to local steaming conditions they will be derated to 5,500-kW each.

Operating conditions were difficult until No. 8 boiler was placed in commercial operation, since when the opportunity has been taken to carry out much-needed overhauls of the older boilers.

Units sent out, maximum half-hour demand and the station peak recorded in 1950 all constitute records for the power station; the output was 11 per cent higher than in 1949.

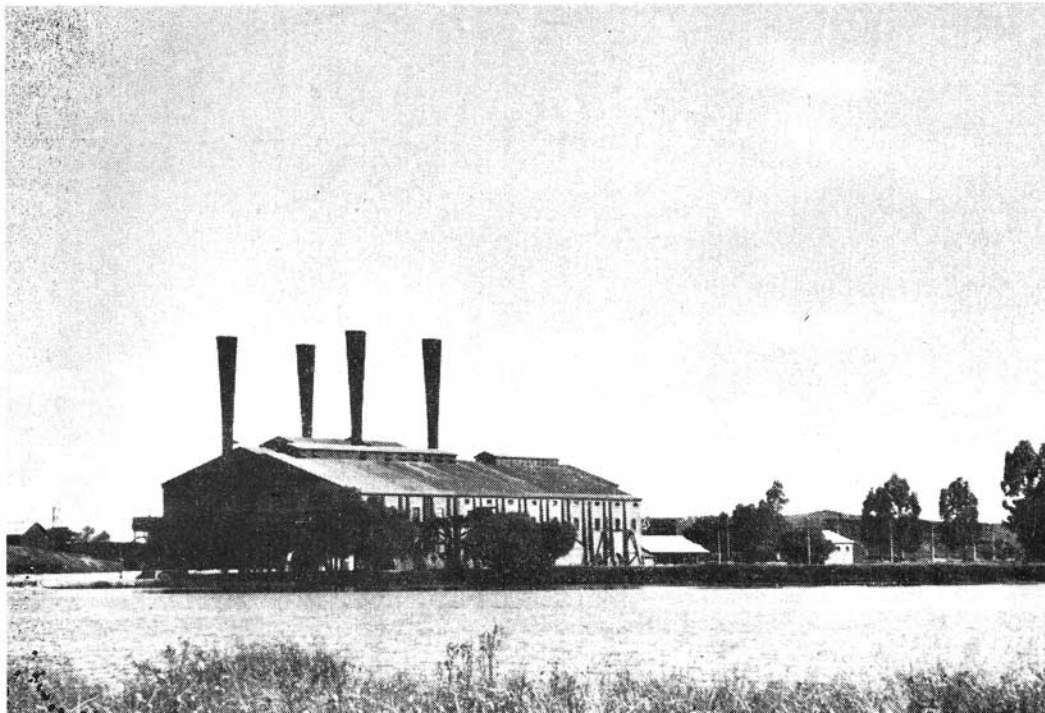
To accommodate the additional plant, it will be necessary to demolish the existing workshop and change-rooms. Accordingly, the erection of a new workshop and change-rooms, as well as a new stores building, started early in 1951.

Distribution; Rural Supplies—The Undertaking has at present no distribution system, and all supplies are given at power station busbars. Kimberley Municipality has a 33-kV line which supplies the Riverton Waterworks on the Vaal River, and an agreement has been entered into whereby the Commission will purchase 750 kVA from the Municipality at Riverton. The power will be used to supply river pumping plants on 20 farms between Riverton and Barkly West, which latter town will also be connected.

The scheme will entail constructing 25 miles of 11-kV overhead line. Work began in January, 1951, and it is expected that all farms will be connected by September. This will constitute the beginning of a distribution system for the Undertaking, which has a licensed area of 14,800 square miles.

Financial—The initial year's operations resulted in a surplus of £5,400. Capital expenditure in 1950 amounted to £215,844. Planned extensions to the power station will involve further capital expenditure estimated at £750,000.

CENTRAL POWER STATION, KIMBERLEY. [Photo Brian Eaton.



MUNICIPAL ELECTRICITY SUPPLY SCHEMES—1950

Reports submitted during the year by the Commission, in terms of Section 38 of the Electricity Act, to the Administrators of the various Provinces on the proposals of certain local authorities to establish electricity undertakings or to enlarge existing undertakings, were as follows:

TRANSVAAL:

New Schemes	*Extensions*	*Tenders*
Graskop	Balfour	Belfast
	Belfast	Christiana
	Louis Trichardt	Coligny
	Nelspruit	Graskop
	Pretoria	Lichtenburg
	Rustenburg	Middelburg
		Nelspruit (2)
		Ventersdorp

ORANGE FREE STATE:

New Schemes	*Extensions*	*Tenders*
Thaba 'Nchu	Bothaville	Bloemfontein (2)
	Brandfort	Bothaville
	Fauresmith	Dewetsdorp
	Frankfort	Edenburg
	Koffiefontein	Frankfort
	Petrusberg	Heilbron
	Philippolis	Thaba 'Nchu
	Senekal	Ventersburg
	Ventersburg	
	Wepener	
	Winburg	

NATAL:

Extensions
Howick
Stanger
Vryheid

CAPE:

New Schemes	*Extensions*	*Tenders*
Ashton	Britstown	Barkly West
Barkly West	Butterworth	Ceres
Bizana	Hopetown	Frazerburg
Bonnievale	Kuruman	Grahamstown
Saldanha	Middelburg	Kleinmond
Vredenburg	Mossel Bay	Kokstad (2)
	Porterville	Kuruman
	Queenstown	Oudtshoorn
		Port Alfred
		Port St. Johns
		Postmasburg
		Queenstown
		Saldanha
		Vredenburg

SOUTH-WEST AFRICA:

New Schemes	*Tenders*
Grootfontein (2)	Grootfontein
Karasburg	
Outjo (2)	

Up to the 31st December, 1950, 748 reports on Municipal Electricity Supply Schemes, of which 220 were in respect of new schemes, had been submitted by the Commission. In addition the Commission had issued up to that date 386 supplementary reports on tenders.

ANNEXURES

The Commission submits for the year 1950 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 and Expenditure Accounts in respect of:--

Account No. 3—Natal Central Undertaking

Account No. 4—Witbank Undertaking

Account No. 5—Cape Western Undertaking

Statement of Pooled Costs, Cape Town

Account No. 6—Durban Undertaking

Account No. 7—Sabie Undertaking

Account No. 8—Border Undertaking

Account No. 9—Rand Undertaking

Account No. 10—Cape Northern 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, 1950.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1950.

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

Statement No. 4—Distribution of units sold during 1950 as between the various classes of consumers.

Statement No. 5—Power Station Statistics, 1950.

Statement No. 6—Water consumed by power stations, 1950.

Statement No. 7—Power purchased, 1950.

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 1950.

Statement No. 9—Coal used at the Commission's Steam-raising Power Stations.

ANNEXURE "C"—UNION STATISTICS

Union Statistics relating to the production and distribution of electricity. This information, which was extracted from the 1948/49 Industrial Census, is published in this Report by the courtesy of the Department of Census and Statistics (Pretoria).

Yours faithfully,

A. M. JACOBS,

Chairman.

ANNEXURE "A"

THE REPORT OF THE AUDITORS

Johannesburg.
12th May, 1951.

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 1950.

REDEMPTION FUND

In the course of our audit we have investigated 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.

In valuing the Fund at the 31st December 1950, we have taken into account the market value of the investments at that date.

We find that in the aggregate the value of the Fund at 31st December 1950 was materially in excess of the sum required to provide for the redemption of the respective loans over the maximum periods laid down in the terms of issue.

The Minister has fixed the date from which provision for redemption of Loan No. 14 commenced at 1st April 1950.

ACQUISITION OF THE UNDERTAKINGS OF THE VICTORIA FALLS AND TRANSVAAL POWER COMPANY LIMITED

Certain documents of title relative to Fixed Assets acquired from the Victoria Falls and Transvaal Power Company Limited as at 1st July 1948 have not yet been produced to us, and we are informed that these are still in the hands of the Commission's solicitors or with relative Deeds Offices for registration.

PENSION FUND

The Commission has established, with effect from 1st January 1950, a contributory Fund known as the Electricity Supply Commission Pension and Provident Fund, in order to provide improved benefits for its employees. This Fund, which has taken over the Assets and Liabilities of the previously existing non-contributory Pension Fund of the Commission, is vested in three Trustees appointed by the Commission. We have been appointed auditors to the Fund and have completed an audit for the year ended 31st December, 1950 and have found the accounts of the Fund to be in order.

HEAD OFFICE ADMINISTRATION, ENGINEERING AND GENERAL EXPENSES, INCLUDING PUBLICITY

The total expenditure under this heading shows a considerable increase over that of the previous year. This is mainly accounted for by:

(1) the great expansion which has occurred in the operations of the Commission;

(2) the general rising trend of costs,
and
heavier expenditure on salaries, cost of living allowances and Pension Fund contributions.

Against the total expenditure has been set off or credited:

(1) Amounts transferred to costs of Capital and Reserve Fund Expenditure at Undertakings for services of Head Office staff.

(2) Fees for reporting on Power Schemes of Local Authorities.

(3) Amounts Chargeable to Revenue Accounts under other headings.

The amount remaining has been apportioned by the Commission against the Revenue Accounts of all Undertakings in commercial operation. We have no reason to disagree with the apportionment so made.

REVENUE ACCOUNTS

Natal Central Undertaking—An increase in charges to consumers took effect from January 1950, and the year's operations at this Undertaking resulted in a surplus of £1,150 19s. 1d. as compared with a deficit of £2,033 7s. 7d. in the previous year.

Witbank Undertaking—This Undertaking shows a deficit on the year's operations of £19,814 0s. 3d., resulting in a deficit carried forward of £18,344 9s. 9d. As in 1949, no amount has been set aside to Reserve Fund. An increase in charges to consumers was brought into effect on 1st November 1950.

Cape Western Undertaking—The result of the year's operations at this Undertaking reflects a deficit of £12,858 13s. 6d. compared with a deficit in the previous year of £14,935 8s. 8d., further reducing the accumulated surplus carried forward to £53,336 12s. 1d.

Durban Undertaking—Charges to consumers have been increased and the result of the year's operations, after setting aside £25,000 to Reserve Fund, is a surplus of £24,978 6s. 2d. The deficit carried forward has been reduced to £29,412 13s. 8d. While the amount set aside to Reserve Fund was £25,000 as against £12,500 in the previous year, nevertheless, owing to heavy expenditure out of Reserve Fund during the year under review the section of the Fund applicable to this Undertaking has been reduced to a figure of £81,031 19s. 10d., which is low in relation to the total capital expenditure on the undertaking.

Sabie Undertaking—The position at this undertaking calls for no special comment.

Border Undertaking—The year's operations at this Undertaking, taken as a whole, show a surplus of £369 6s. 5d., but losses have been incurred at Kingwilliamstown and Alice Sections. In the former case a small surplus remains to be carried forward, but in the latter there is now a material accumulated deficit. We are advised that revisions of tariffs are being made at both of these centres.

Rand Undertaking—This undertaking shows a deficit on the year's operations of £53,090 1s. 4d. after setting aside to the Reserve Fund an amount of £258,077 3s. 10d., as compared with £282,648 4s. 7d. in the previous year. Expenditure out of the Reserve Fund on this Undertaking has exceeded accruals thereto in respect of the Undertaking during the year. The accumulated surplus has now been reduced to £6,967 5s. 10d. and steps have now been taken to revise tariffs.

Cape Northern Undertaking—With effect from 1st January 1950 the Commission acquired a Power Station and certain other assets at Kimberley from De Beers Consolidated Mines Limited, and has been granted a licence for the surrounding area. The operations for the year resulted in a surplus of £5,400 7s. 5d. after setting aside £6,000 to Reserve Fund.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1950, 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. This expenditure is being amortised by the operation of the Redemption Fund. 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 and recommendations as Auditors have been complied with and carried out.

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

Electricity Supply Commission.

Incorporated under the Electricity Act, 1922.

BALANCE SHEET at 31st December, 1950.

Loan Capital (as per Schedule No. 3)				£59,132,840 0 0
Interest Accrued on Loan Capital				243,811 14 3
Sundry Loans and Amounts Outstanding for Rights Acquired (as per Schedule No. 3)				193,605 10 4
Sundry Creditors and Credit Balances Current Liabilities and Provisions.				2,678,127 3 5
Barclays Bank (Dominion, Colonial and Overseas) Temporary Advances, less Cash on Current Account.				492,538 3 10
Advances at Call				175,000 0 0
Redemption Fund (as per Account No. 1)				13,713,921 15 0
Sinking Fund (Umkomaas Town Board Loans)				4,824 4 4
Sundry Loans Repaid				172,997 15 10
Reserve Fund (as per Account No. 2)				2,178,320 11 4
Balance on Revenue Accounts (as per Accounts Nos. 3 to 10)				18,767 12 5
Natal Central Undertaking		...Dr.	£10,067 17 4	
Witbank Undertaking		...Dr.	18,344 9 9	
Cape Western Undertaking			53,336 12 1	
Durban Undertaking		...Dr.	29,412 13 8	
Sabie Undertaking			44 19 5	
Border Undertaking			10,843 8 5	
Rand Undertaking			6,967 5 10	
Cape Northern Undertaking			5,400 7 5	
				£79,304,754 10 9

Note.—In addition to the liabilities shown above, the Commission is committed to the extent of approximately £51,400,000 for expenditure on Capital Account and £714,000 chargeable against Reserve Fund.

The Commission is committed to purchase £2,500,000 Electricity Supply Commission 3½ per cent. Local Registered Stock, 1968/73, from a stockholder at par at the rate of £1,250,000 per annum.

In addition to the annual contributions the Commission is committed to pay £21,104 annually to the Electricity Supply Commission Pension and Provident Fund for the period ending 31st December, 1969.

A. M. JACOBS, Chairman.

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Expenditure on Capital Account (at Cost) (as per Schedule No. 1)			£57,564,260 10 3
Land and Rights	£620,922 17 9		
Buildings and Civil Works	11,887,752 3 0		
Machinery and Plant	43,653,607 0 4		
	56,162,282 1 1		
Assets sold to South African Railways and Harbours	1,401,978 9 2		
Movable Plant and Equipment (less depreciation)			471,942 6 6
Workshop Equipment, Instruments, Tools and Loose Plant	215,551 12 8		
Transportation Equipment	141,820 1 11		
Furniture and Office Equipment	114,570 11 5		
Stores and Materials			3,803,534 11 5
Sundry Debtors and Debit Balances			1,148,812 16 10
Current Debtors less Reserves	1,078,461 6 2		
Entire Share Capital of the Rand Mines Power Supply Company, Limited	600 0 0		
Expenditure on Investigations in terms of Section 3 (b) of the Act and Payments in Advance	69,751 10 8		
Investments Amount invested in First Mortgages on Freehold Properties, in terms of the Electricity Amendment Act, 1941, less Reserve.			94,411 8 2
Investment of Redemption Fund (as per Schedule No. 2) (Market Value £12,716,953)			13,801,613 12 0
Investment of Sinking Fund			4,924 6 8
Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	4,899 14 9		
Interest Accrued (Market Value £4,624)	24 11 11		
Investment of Reserve Fund			2,415,254 19 7
Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	2,399,198 16 9		
Interest Accrued (Market Value £2,335,757)	16,056 2 8		
			£79 304,754 10 9

Referred to in our Report of 12th May, 1951.

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

Electricity Supply Commission.

SCHEDULE No. 1.

Schedule of Expenditure on Capital Account at 31st December, 1950.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1949.	Year ended 31st December, 1950.	Total at 31st December, 1950.
RAND UNDERTAKING:			
Rand.			
Land and Rights	£192,563 17 3	Cr. £4,002 16 11	£188,561 0 4
Buildings and Civil Works	1,731,429 1 10	£74,305 14 10	1,805,734 16 8
Machinery and Plant	12,111,096 0 11	161,623 4 0	12,272,719 4 11
	£14,035,089 0 0	**£231,926 1 11**	**£14,267,015 1 11**
Klip Power Station.			
Land and Rights	£127,975 0 0	—	£127,975 0 0
Buildings and Civil Works	1,588,020 0 1	Cr. 6 10	1,588,019 13 3
Machinery and Plant	4,865,377 5 5	£30,955 1 3	4,896 332 6 8
	£6,581,372 5 6	**£30,954 14 5**	**£6,612 326 19 11**
Vaal Power Station.			
Land and Rights	£5,768 2 3	—	£5,768 2 3
Buildings and Civil Works	1,596,810 12 0	£471,449 18 2	2,068,260 10 2
Machinery and Plant	3,949,032 15 3	847,466 14 1	4,796,499 9 4
	£5,551,611 9 6	**£1,318 916 12 3**	**£6 870,528 1 9**
Vierfontein Power Station.			
Land and Rights	£621 9 1	£457 15 0	£1,079 4 1
Buildings and Civil Works	21,994 15 9	359,470 17 11	381,465 13 8
Machinery and Plant	—	22,678 10 0	22,678 10 0
	£22,616 4 10	**£382,607 2 11**	**£405,223 7 9**
Taaibos Power Station.			
Buildings and Civil Works	—	**£8,426 16 2**	**£8,426 16 2**
Rand Extension.			
Land and Rights	£11,956 13 7	£3,715 10 0	£15,672 3 7
Buildings and Civil Works	112,118 11 8	54,530 1 0	166.648 12 8
Machinery and Plant	2,191.518 3 5	800,435 3 8	2,991,953 7 1
	£2,315,593 8 8	**£858,680 14 8**	**£3,174,274 3 4**
Greater Rand Extension.			
Land and Rights	£863 15 9	£2,013 15 11	£2,877 11 8
Buildings and Civil Works	102,313 0 1	82,198 17 4	184,511 17 5
Machinery and Plant	953,617 5 2	1,152,566 17 4	2,106,184 2 6
	£1,056,794 1 0	**£1,236,779 10 7**	**£2,293,573 11 7**
TOTAL RAND UNDERTAKING:			
Land and Rights	£339,748 17 11	£2,184 4 0	£341,933 1 11
Buildings and Civil Works	5 1?2.686 1 5	1,050.381 18 7	6,203,068 0 0
Machinery and Plant	24,070.641 10 2	3.015,725 10 4	27.086,367 0 6
	£29,563,076 9 6	**£4,068,291 12 11**	**£33,631,368 2 5**
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£30,783 18 3	£1,373 9 3	£32,157 7 6
Buildings and Civil Works	1.292,509 19 11	20,590 5 0	1,313,100 4 11
Machinery and Plant	4,459,369 7 5	483,577 11 0	4.912,946 18 5
	5,782,663 5 7	505,541 5 3	6 288.204 10 10
Assets sold to S.A.R. and H. ...	465,298 2 1	—	465,298 2 1
	£6,247,961 7 8	**£505,541 5 3**	**£6.753,502 12 11**

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1949.	Year ended 31st December, 1950.	Total at 31st December, 1950.
WITBANK UNDERTAKING:			
Land and Rights	£9,943 15 3	£3,294 14 6	£13,238 9 9
Buildings and Civil Works	608,988 6 8	3,416 0 2	6.2,404 6 10
Machinery and Plant	2,005,286 2 9	156,344 14 0	2,161,630 16 9
	2,624,218 4 8	163,055 8 8	2,787,273 13 4
Assets sold to S.A.R. and H. ...	472,686 19 5	—	472,686 19 5
	£3,096,905 4 1	**£163,055 8 8**	**£3,259,960 12 9**
CAPE WESTERN UNDERTAKING:			
Land and Rights	£38,136 5 9	£14,996 10 5	£53,132 16 2
Buildings and Civil Works	1.244.250 9 10	412,162 16 7	1,656,413 6 5
Machinery and Plant	3.504,743 8 7	1,110,232 10 4	4,614,975 18 11
	4,787,130 4 2	1,537.391 17 4	6,324,522 1 6
Assets sold to S.A.R. and H. ...	463,993 7 8	—	463,993 7 8
	£5,251,123 11 10	**£1,537,391 17 4**	**£6,788,515 9 2**
DURBAN UNDERTAKING:			
Land and Rights	£104,473 9 8	£1,690 5 4	£103,163 15 0
Buildings and Civil Works	1.194,624 9 1	370,346 19 1	1,564,971 8 2
Machinery and Plant	3,729,311 0 4	393,947 16 7	4,.23,258 16 11
	£5,028,408 19 1	**£768 985 1 0**	**£5,797,394 0 1**
SABIE UNDERTAKING			
Land and Rights	£510 0 0	—	£510 0 0
Buildings and Civil Works	60,490 11 3	—	60,490 11 3
Machinery and Plant	35,169 14 10	—	35,169 14 10
	£96,170 6 1	—	**£96,170 6 1**
BORDER UNDERTAKING			
Land and Rights	£5,919 0 0	£400 9 6	£6,319 9 6
Buildings and Civil Works	29,459 8 7	32,188 11 7	61,648 0 2
Machinery and Plant	398,577 13 4	112,111 11 8	510,689 5 0
	£433,956 1 11	**£144,700 12 9**	**£578,656 14 8**
CAPE NORTHERN UNDERTAKING:			
Land and Rights	—	£4,800 0 0	£4,800 0 0
Buildings and Civil Works	—	35,476 0 0	35,476 0 0
Machinery and Plant	—	175,568 9 0	175,568 9 0
	—	**£215,844 9 0**	**£215,844 9 0**
SWARTKOPS RIVER UNDERTAKING:			
Land and Rights	—	£1,482 14 11	£1,482 14 11
Buildings and Civil Works	£5,142 5 6	35,383 9 8	40,525 15 2
	£5,142 5 6	**£36,866 4 7**	**£42,008 10 1**
HEAD OFFICE:			
Land	£60,235 3 0	£950 0 0	£61,185 3 0
Buildings and Equipment	334,062 4 3	5,592 5 10	339,654 10 1
	£394,297 7 3	**£6,542 5 10**	**£400,839 13 1**
SUMMARY:			
Land and Rights	£589,750 9 10	£31,172 7 11	£620,922 17 9
Buildings and Civil Works	9,922,213 16 6	1,965,538 6 6	11,887,752 3 0
Machinery and Plant	38,203 098 17 5	5,450,508 2 11	43,653.607 0 4
	48,715,063 3 9	7,447,218 17 4	56,162,282 1 1
Assets sold to S.A.R. and H. ...	1,401,978 9 2	—	1,401,978 9 2
	£50,117,041 12 11	**£7,447,218 17 4**	**£57,564,260 10 3**

Johannesburg,
12th April, 1951.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Schedule showing details of Investments of the Redemption Fund at 31st December, 1950.

	Nominal Amount.	Totals.	Loan No. 3. £500,000 4¼% Local Registered Stock, 1953/63.	Loan No. 4. £2,500,000 4½% Local Registered Stock, 1953.	Loan No. 5. £6,750,000 3½% Local Registered Stock, 1954/64.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/64.	Loan No. 7. £2,000,000 3½% Local Registered Stock, 1956/66.	Loan No. 8. £2,000,000 3½% Local Registered Stock, 1957/67.	Loan No. 9. £2,000,000 3½% Local Registered Stock, 1959/64.	Loan No. 10. £1,500,000 3½% Local Registered Stock, 1960/65.	Loan No. 11. £2,000,000 3½% Local Registered Stock, 1961/66.	Loan No. 12. £2,500,000 3½% Local Registered Stock, 1965/70.	Loan No. 13. £3,000,000 3% Local Registered Stock, 1967/73.	Loan No. 14. £3,000,000 3% Local Registered Stock, 1968/74.	Loan No. 15. £15,000,000 3¼% Local Registered Stock, 1968/73.	Loan No. 16. £3,000,000 3¼% Local Registered Stock, 1969/74.	Loan No. 17. £3,000,000 3¼% Local Registered Stock, 1969/74.	Loan No. 18. £5,250,000 3¾% Local Registered Stock, 1965/67.	Future Loans. (Not yet raised)
Local Registered Stocks.																			
Electricity Supply Commission:																			
4¾ per cent., 1953/63	£108,475 0 0	£108,475 0 0	£43,025 0 0	—	£65,450 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4½ per cent., 1953	301,376 0 0	301,376 0 0	1,500 0 0	£279,876 0 0	15,500 0 0	£4,500 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—
3¾ per cent., 1954/64	860,481 0 0	860,307 2 6	10,000 0 0	—	775,872 18 8	53,721 15 9	£17,000 0 0	£3,518 13 3	—	£193 14 10	—	—	—	—	—	—	—	—	—
3½ per cent., 1959/64	168,597 0 0	168,597 0 0	—	—	35,000 0 0	118,297 0 0	5,600 0 0	5,400 0 0	£1,300 0 0	—	—	—	—	—	—	—	—	—	—
3½ per cent., 1956/66	344,750 0 0	333,788 7 11	16,490 0 0	92,767 3 9	143,560 0 0	19,400 0 0	61,551 4 2	—	—	—	—	—	—	—	—	—	—	—	—
3½ per cent., 1957/67	355,677 0 0	347,895 15 0	24,287 10 0	85,565 5 0	77,628 10 0	60,043 0 0	21,922 0 0	77,377 0 0	1,072 10 0	—	—	—	—	—	—	—	—	—	—
3¾ per cent., 1959/64	521,310 0 0	510,407 2 6	19,482 19 9	90,028 0 2	180,286 8 3	62,540 7 8	55,274 6 4	45,785 0 4	57,010 0 0	—	—	—	—	—	—	—	—	—	—
3¾ per cent., 1960/65	441,400 0 0	432,726 17 8	17,640 0 0	60,270 0 0	140,630 0 0	72,030 0 0	48,020 0 0	52,430 0 0	33,810 0 0	7,896 17 8	—	—	—	—	—	—	—	—	—
3½ per cent., 1961/66	513,350 0 0	503,450 0 0	23,520 0 0	96,040 0 0	136,220 0 0	80,360 0 0	45,080 0 0	56,840 0 0	30,380 0 0	16,660 0 0	£18,350 0 0	—	—	—	—	—	—	—	—
3½ per cent., 1965/70	550,500 0 0	550,500 0 0	17,000 0 0	87,000 0 0	129,700 0 0	61,000 0 0	62,000 0 0	67,000 0 0	65,000 0 0	8,000 0 0	19,000 0 0	£34,800 0 0	—	—	—	—	—	—	—
3 per cent., 1967/73	626,500 0 0	623,367 10 0	19,402 10 0	92,037 10 0	189,050 0 0	72,137 10 0	52,237 10 0	45,272 10 0	43,780 0 0	34,327 10 0	45,272 10 0	27,362 10 0	£2,487 10 0	—	—	—	—	—	—
3 per cent., 1968/74	1,142,000 0 0	1,142,000 0 0	13,000 0 0	94,000 0 0	334,000 0 0	26,500 0 0	215,000 0 0	73,000 0 0	55,000 0 0	93,000 0 0	91,000 0 0	127,000 0 0	20,500 0 0	—	—	—	—	—	—
3½ per cent., 1968/73	4,127,000 0 0	4,118,865 0 0	80,8.0 0 0	376,375 0 0	943,870 0 0	268,500 0 0	115,650 0 0	149,485 0 0	216,625 0 0	138,710 0 0	140,075 0 0	157,050 0 0	123,175 0 0	£24,930 0 0	£1,383,600 0 0	—	—	—	—
3½ per cent., 1969/74	296,300 0 0	291,891 2 10	6,896 16 5	33,498 17 1	57,145 2 1	21,631 10 2	15,074 9 8	15,764 3 4	16,749 8 6	13,793 12 11	17,734 13 9	18,719 18 11	20,690 9 5	15,764 3 4	—	£35,427 17 3	—	—	—
3¾ per cent., 1969/74	42,700 0 0	41,846 0 0	—	—	—	—	—	—	—	—	—	—	—	41,846 0 0	—	—	—	—	—
3¾ per cent., 1965/67	50,000 0 0	48,500 0 0	—	—	—	—	—	—	—	—	—	19,400 0 0	—	—	—	—	—	£24,250 0 0	£4,850 0 0
3¾ per cent., 1934/67	600,000 0 0	588,000 0 0	—	—	—	—	63,700 0 0	73,500 0 0	—	43,120 0 0	99,960 0 0	44,100 0 0	63,700 0 0	71,540 0 0	—	63,700 0 0	£64,680 0 0	—	—
The Government of the Union of South Africa:																			
4¼ per cent., 1953	356,265 0 0	356,265 0 0	—	356,265 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3¼ per cent., 1953	5,000 0 0	5,000 0 0	—	—	5,000 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3½ per cent., 1953/58	25,000 0 0	25,000 0 0	3,000 0 0	11,000 0 0	11,000 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3½ per cent., 1955/65	2,300 0 0	2,300 0 0	—	—	2,300 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3 per cent., 1956/61	40,000 0 0	40,000 0 0	—	10,000 0 0	10,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	—	—	—	—	—	—	—	—	—	—
3 per cent., 1957/66	535,000 0 0	534,974 18 1	17,997 19 10	89,995 9 8	159,998 19 11	79,994 9 7	56,995 19 8	46,400 0 0	51,995 19 8	16,997 9 10	7,998 9 11	6,600 0 0	—	—	—	—	—	—	—
3 per cent., 1958/68	15,000 0 0	15,000 0 0	—	1,000 0 0	11,000 0 0	—	1,000 0 0	—	—	—	2,000 0 0	—	—	—	—	—	—	—	—
3 per cent., 1959/69	100,000 0 0	100,000 0 0	6,000 0 0	30,000 0 0	44,000 0 0	20,000 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—
3 per cent., 1960/70	343,700 0 0	343,700 0 0	12,000 0 0	66,000 0 0	125,600 0 0	54,000 0 0	19,900 0 0	21,100 0 0	18,600 0 0	10,700 0 0	13,100 0 0	2,700 0 0	—	—	—	—	—	—	—
Municipal:																			
Johannesburg:																			
3¼ per cent., 1956/66	1,600 0 0	1,600 0 0	—	—	—	—	1,600 0 0	—	—	—	—	—	—	—	—	—	—	—	—
3¾ per cent., 1959	6,200 0 0	6,200 0 0	—	—	—	—	—	1,900 0 0	4,300 0 0	—	—	—	—	—	—	—	—	—	—
3¾ per cent., 1960/65	20,000 0 0	20,000 0 0	—	8,000 0 0	12,000 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3¼ per cent., 1962/67	129,000 0 0	126,531 5 10	18,620 0 0	42,140 0 0	16,660 0 0	32,424 13 11	16,686 11 11	—	—	—	—	—	—	—	—	—	—	—	—
3¼ per cent., 1965	1,200 0 0	1,200 0 0	—	—	—	—	—	—	—	1,200 0 0	—	—	—	—	—	—	—	—	—
3¼ per cent., 1965/70	294,000 0 0	294,000 0 0	8,000 0 0	44,000 0 0	86,000 0 0	29,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	21,000 0 0	22,000 0 0	6,000 0 0	—	—	—	—	—	—	—
3 per cent., 1967/77	30,000 0 0	30,000 0 0	—	—	—	—	—	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	—	—	—	—	—	—
Cape Town:																			
3¾ per cent., 1960/65	2,000 0 0	2,000 0 0	—	—	—	—	—	—	—	2,000 0 0	—	—	—	—	—	—	—	—	—
3¼ per cent., 1962/67	225,000 0 0	222,567 15 8	—	—	—	—	38,998 7 11	46,838 7 11	58,108 7 11	40,122 11 11	27,000 0 0	11,500 0 0	—	—	—	—	—	—	—
3 per cent., 1976	100,000 0 0	99,750 0 0	2,992 10 0	14,962 10 0	30,423 15 0	11,471 5 0	8,478 15 0	6,982 10 0	6,982 10 0	5,486 5 0	7,481 5 0	4,488 15 0	—	—	—	—	—	—	—
Durban:																			
3¾ per cent., 1962/72	115,500 0 0	115,211 5 0	—	115,211 5 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3¼ per cent., 1965/75	15,000 0 0	15,000 0 0	2,500 0 0	14,500 0 0	28,000 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3¼ per cent., 1966/76	50,000 0 0	50,000 0 0	—	—	—	—	—	10,000 0 0	10,000 0 0	10,000 0 0	10,000 0 0	10,000 0 0	—	—	—	—	—	—	—
3 per cent., 1967/77	334,000 0 0	334,000 0 0	10,000 0 0	48,000 0 0	96,000 0 0	35,000 0 0	25,000 0 0	24,000 0 0	23,000 0 0	19,000 0 0	14,000 0 0	30,000 0 0	10,000 0 0	—	—	—	—	—	—
	£13,826,181 0 0	£13,742,273 3 0	£374,175 6 0	£2,238,532 0 8	£3,861,895 13 11	£1,190,551 12 1	£977,769 1 8	£858,593 4 10	£732,713 16 1	£487,208 2 2	£539,971 18 8	£501,721 3 11	£245,552 19 5	£154,080 3 4	£1,383,600 0 0	£99,127 17 3	£64,680 0 0	£24,250 0 0	£4,850 0 0
Interest Accrued	—	59,340 9 0	1,964 14 0	10,100 18 10	19,328 15 10	6,254 9 3	£5,506 13 1	4,402 2 10	4,187 2 1	2,090 2 11	2,228 4 11	1,659 1 4	429 6 1	541 7 1	—	434 4 2	117 10 5	79 16 10	15 19 4
	£13,826,181 0 0	£13,801,613 12 0	£376,140 0 0	£2,248,632 19 6	£3,881,224 9 9	£1,196,806 1 4	£983,275 17 9	£862,995 7 8	£736,900 18 2	£489,298 5 1	£542,200 3 7	£506,380 5 3	£245,982 5 6	£154,621 10 5	£1,383,600 0 0	£99,562 1 5	£64,797 10 5	£24,329 16 10	£4,865 19 4
Market Values	£12,716,953	—	£351,886	£2,135,185	£3,590,847	£1,106,739	£901,523	£795,665	£667,793	£438,757	£490,661	£452,021	£224,655	£150,523	£1,218,800	£97,701	£64,797	£24,500	£4,900

Johannesburg,
12th April, 1951.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

SCHEDULE No. 3.

LOAN CAPITAL AT 31st DECEMBER, 1950.

Loan No. 1: Government of the Union of South Africa ...	£3,000,000	0	0
Loan No. 2: Government of the Union of South Africa ...	5,000,000	0	0
	8,000,000	0	0
Less—Repaid during 1933 and 1934 ...	8,000,000	0	0

LOCAL REGISTERED STOCKS.

Loan No. 3: £500,000 4¾ per cent., 1953/63	£500,000	0	0
Loan No. 4: £2,500,000 4½ per cent., 1953	2,500,000	0	0
Loan No. 5: £6,750,000 3¾ per cent., 1954/64	6,750,000	0	0
Loan No. 6: £2,500,000 3½ per cent., 1959/64	2,500,000	0	0
Loan No. 7: £2,000,000 3¼ per cent., 1956/66	2,000,000	0	0
Loan No. 8: £2,000,000 3½ per cent., 1957/67	2,000,000	0	0
Loan No. 9: £2,000,000 3¾ per cent., 1959/64	2,000,000	0	0
Loan No. 10: £1,500,000 3¾ per cent., 1960/65	1,500,000	0	0
Loan No. 11: £2,000,000 3¼ per cent., 1961/66	2,000,000	0	0
Loan No. 12: £2,500,000 3¼ per cent., 1965/70	2,500,000	0	0
Loan No. 13: £3,000,000 3 per cent., 1967/73	3,000,000	0	0
Loan No. 14: £3,000,000 3 per cent., 1968/74	3,000,000	0	0
Loan No. 15: £15,000,000 3⅛ per cent., 1968/73	15,000,000	0	0
Loan No. 16: £3,000,000 3½ per cent., 1969/74	3,000,000	0	0
Loan No. 17: £3,000,000 3¾ per cent., 1969/74	3,000,000	0	0
Loan No. 18: £5,250,000 3¾ per cent., 1965/67	5,250,000	0	0
Loan No. 19: £3,000,000 3¾ per cent., 1964/67 (Payable in full not later than the 31st January, 1951, in terms of the Prospectus)	2,632,840	0	0
Partly Paid: Instalments due and Payments in Advance	£814,270		
Less—Amounts outstanding since paid	18,330		
	795,940		
Fully Paid	1,836,900		
£59,500,000	£59,132,840	0	0

SUNDRY LOANS AND AMOUNTS OUTSTANDING FOR RIGHTS ACQUIRED AT 31st DECEMBER, 1950.

Umkomaas Town Board	£7,780	0	0
Volksrust Municipality	6,615	11	5
Rand Water Board	39,176	9	2
Caledon Municipality	2,219	1	4
Rawsonville Village Management Board	3,873	12	9
East London Municipality	130,299	1	11
Alice Municipality	3,641	13	9
	£193,605	10	4

J. VAN NIEKERK,
Chief Accountant.

Johannesburg,
12th April, 1951.

Electricity Supply Commission.

Redemption Fund Account for the Year ended 31st December, 1950.

ACCOUNT No. 1.

	Totals.	Loan No. 3. £500,000 4½% Local Registered Stock, 1953/63.	Loan No. 4. £2,500,000 4½% Local Registered Stock, 1953.	Loan No. 5. £6,750,000 3½% Local Registered Stock, 1954/64.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/64.	Loan No. 7. £2,000,000 3½% Local Registered Stock, 1956/66.	Loan No. 8. £2,000,000 3½% Local Registered Stock, 1957/67.	Loan No. 9. £2,000,000 3½% Local Registered Stock, 1959/64.	Loan No. 10. £1,500,000 3½% Local Registered Stock, 1960/65.	Loan No. 11. £2,000,000 3½% Local Registered Stock, 1961/66.	Loan No. 12. £2,500,000 3½% Local Registered Stock, 1965/70.	Loan No. 13. £3,000,000 3% Local Registered Stock, 1967/73.	Loan No. 14. £3,000,000 3% Local Registered Stock, 1968/74.	Loan No. 15. £15,000,000 3½% Local Registered Stock, 1968/73.	Loan No. 16. £3,000,000 3½% Local Registered Stock, 1969/74.	Loan No.17. £3,000,000 3½% Local Registered Stock, 1969/74.	Loan No. 18. £5,250,000 3½% Local Registered Stock, 1965/67.	Future Loans. (Not yet raised)
Cr.																		
By **Balance at 31st December, 1949, brought forward—**																		
Natal Central Undertaking	£2,176,130 0 11	£1,371 4 9	£79,199 17 11	£1,765,138 4 5	—	£97,204 5 6	£20,322 5 7	£12,426 15 2	£39,656 6 0	£101,854 17 11	£42,409 7 3	£9,895 0 4	£5,175 9 1	—	£1,474 16 8	£1 10 4	—	—
Witbank Undertaking	2,230,039 16 3	2,001 12 4	1,269,414 19 6	505,253 16 0	—	204,520 6 9	97,105 19 5	29,115 4 3	64,485 16 3	1,351 14 9	104,805 6 3	3,017 17 3	3,795 1 2	£4,052 17 2	1,112 16 4	6 8 10	—	—
Cape Western Undertaking	1,769,327 6 0	248,040 2 0	129,711 14 2	1,071,552 14 8	—	17,852 5 7	43,182 3 8	104,685 5 1	37,121 15 9	66,010 0 9	22,468 8 9	14,296 15 1	8,382 17 1	—	5,430 14 8	592 8 9	—	—
Durban Undertaking	1,222,141 17 3	98,099 0 2	547,506 6 11	212,907 4 8	—	6,404 3 0	106,586 9 11	35,134 19 2	35,330 6 5	16,383 6 2	59,930 12 2	73,429 16 9	28,964 4 1	—	1,465 7 10	—	—	—
Sabie Undertaking	99,470 6 1	—	73,833 9 11	24,611 3 4	—	—	—	—	—	1,025 12 10	—	—	—	—	—	—	—	—
Border Undertaking	6,971 9 10	—	—	—	—	—	—	—	—	—	—	3,971 1 8	2,519 9 4	—	480 18 10	—	—	—
Rand Undertaking	1,172,708 19 10	—	—	—	£1,097,610 0 2	497,862 10 8	521,357 17 5	461,605 19 1	224,660 18 11	251,787 6 3	199,312 16 3	78,014 19 10	19,106 16 3	806,773 18 10	12,654 13 3	1,931 2 11	—	—
Head Office	148,834 5 2	—	4,272 18 7	48,439 16 1	—	93,306 1 8	—	1,175 9 8	895 1 1	121 6 4	130 15 3	228 4 4	264 18 2	—	—	—	—	—
	£11,885,624 1 4	£349,511 19 3	£2,103,939 7 0	£3,627,902 13 2	£1,097,640 0 2	£917,149 13 2	£788,554 16 0	£644,143 12 5	£402,150 4 5	£438,534 5 0	£429,057 5 11	£182,853 15 3	£68,208 15 2	£810,826 16 0	£22,619 7 7	£2,531 10 10	—	—
,, **Amounts contributed during the year as per Revenue Accounts—**																		
Natal Central Undertaking	£136,892 6 7	£46 3 2	Dr. £10 0 6	£74,755 4 1	—	£3,365 2 9	£1,419 2 5	£1,648 11 11	£482 0 0	£3,721 3 11	£1,797 6 11	£4,613 7 8	£14,000 16 10	—	£27,675 2 2	£1,522 12 5	£1,855 12 10	—
Witbank Undertaking	56,391 16 7	86 14 9	37,265 1 9	17,227 2 9	—	Dr. 5,846 6 0	Dr. 2,771 15 8	516 3 6	Dr. 911 4 3	115 6 2	Dr. 1,398 10 3	1,133 1 8	2,639 3 10	£2,702 1 9	2,708 7 11	472 2 5	2,364 6 3	—
Cape Western Undertaking	107,744 12 8	7,718 10 2	9,262 2 9	23,460 9 8	—	1,818 4 8	Dr. 839 3 10	8,816 5 9	2,536 18 9	8,116 3 5	4,426 13 9	4,743 14 3	5,647 12 2	—	13,207 10 11	16,247 17 4	2,551 12 11	—
Durban Undertaking	129,919 16 0	3,570 13 9	20,994 19 9	7,994 13 6	—	447 9 0	7,877 6 0	4,218 4 4	3,479 15 3	2,519 2 0	14,869 16 6	29,083 6 1	26,390 7 2	—	3,741 6 11	3,091 7 1	1,641 8 8	—
Sabie Undertaking	Dr. 3,619 3 6	—	Dr. 2,735 15 0	Dr. 851 10 11	—	—	—	—	—	Dr. 31 17 7	—	—	—	—	—	—	—	—
Border Undertaking	5,054 16 3	—	—	—	—	—	—	—	—	—	—	1,763 7 3	1,360 10 5	—	825 4 7	1,105 14 0	—	—
Rand Undertaking	965,992 10 6	—	—	—	£60,385 0 0	28,825 2 10	21,935 18 3	54,032 0 10	67,132 1 7	67,968 19 10	43,064 17 1	10,270 18 3	32,492 5 8	528,814 1 6	24,983 0 6	18,430 11 6	7,657 12 8	—
Cape Northern Undertaking	5,026 5 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	229 14 10	£4,796 10 3
	£1,403,403 0 2	£11,422 1 10	£64,776 8 9	£122,585 19 1	£60,385 0 0	£28,609 13 3	£27,621 7 2	£69,261 6 4	£72,719 11 4	£82,408 17 9	£62,760 4 0	£51,607 15 2	£82,530 16 1	£531,516 3 3	£73,230 13 0	£40,870 4 9	£16,300 8 2	£4,796 10 3
,, **Other Contributions**	£14,705 6 2	—	£233 6 11	£3,883 6 0	—	£6,235 1 5	—	£123 2 5	£89 5 6	£13 1 7	£28 6 6	£85 10 4	£497 4 4	—	£250 7 11	£3,150 4 7	£116 8 8	—
,, **Net Proceeds of Sales of Fixed Property—**																		
Natal Central Undertaking	£831 0 0	£831 0 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Witbank Undertaking	63 4 6	—	£17 10 0	£45 14 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rand Undertaking	150 0 0	—	—	—	—	—	—	—	—	—	—	—	—	£150 0 0	—	—	—	—
	£1,044 4 6	£831 0 0	£17 10 0	£45 14 6	—	—	—	—	—	—	—	—	—	£150 0 0	—	—	—	—
,, **Net Interest Earned on Investments after deducting amounts appropriated in writing off premiums on investments purchased—**																		
Natal Central Undertaking	£75,720 1 11	£61 1 5	£2,835 0 5	£61,672 4 5	—	£3,173 19 8	£687 0 6	£477 12 5	£1,257 15 10	£3,090 11 4	£1,397 16 0	£417 8 10	£325 18 11	—	£326 6 0	£2 9 3	£24 16 11	—
Witbank Undertaking	80,918 2 6	72 6 6	47,219 14 6	17,759 12 1	—	6,299 3 5	2,996 1 10	936 6 8	1,956 9 8	40 13 6	3,180 11 6	116 10 5	144 6 1	£116 17 8	50 7 10	15 5	28 5 5	—
Cape Western Undertaking	61,361 5 6	8,929 6 0	5,008 5 10	36,715 2 10	—	617 5 8	1,388 6 4	3,540 8 5	1,161 7 11	2,010 14 0	753 11 9	328 10 6	322 5 5	—	273 15 11	39 4 9	33 0 2	—
Durban Undertaking	14,058 17 7	3,535 19 5	20,408 19 7	7,364 6 5	—	206 4 4	3,562 13 0	1,199 0 9	1,074 13 2	484 7 0	2,157 8 10	2,854 13 0	1,121 10 6	—	59 19 11	11 14 9	17 6 11	—
Sabie Undertaking	3,619 3 6	—	2,735 15 0	851 10 11	—	—	—	—	—	31 17 7	—	—	—	—	—	—	—	—
Border Undertaking	266 15 10	—	—	—	—	—	—	—	—	—	—	156 13 8	88 8 9	—	19 12 2	2 1 3	—	—
Rand Undertaking	138,028 9 5	—	—	—	£37,741 3 3	16,589 8 10	17,459 7 9	16,256 0 7	8,292 13 1	8,541 7 2	6,594 7 0	1,832 19 1	786 19 3	23,269 13 4	555 8 6	59 18 11	49 2 8	—
Cape Northern Undertaking	69 17 0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2 19 3	£66 17 9
Head Office	5,102 9 7	—	163 1 7	1,735 0 5	—	3,104 13 4	—	43 0 0	25 9 1	3 13 0	4 11 5	8 15 3	10 9 1	—	2 11 1	—	1 5 4	—
	£409,145 2 10	£12,598 13 4	£78,370 16 11	£126,097 17 1	£37,741 3 3	£29,990 15 3	£26,093 9 5	£22,452 8 10	£13,768 8 9	£14,203 3 7	£14,098 6 6	£5,915 10 9	£2,799 18 0	£23,386 11 0	£1,288 1 5	£116 4 4	£156 16 8	£66 17 9
Grand Total	**£13,713,921 15 0**	**£374,363 14 5**	**£2,247,337 9 7**	**£3,880,515 9 10**	**£1,195,766 3 5**	**£981,985 3 1**	**£842,269 12 7**	**£735,980 10 0**	**£488,727 10 0**	**£535,159 7 11**	**£505,944 2 11**	**£240,462 11 6**	**£154,036 13 7**	**£1,365,879 10 3**	**£97,388 9 11**	**£46,668 4 6**	**£16,573 13 6**	**£4,863 8 0**
Dr.																		
To **Balance as per Balance Sheet—**																		
Natal Central Undertaking	£2,389,573 9 5	£2,309 9 4	£82,024 17 10	£1,901,565 12 11	—	£103,743 7 11	£22,428 8 6	£14,552 19 6	£41,396 1 10	£108,666 13 2	£45,574 10 2	£14,925 16 10	£19,502 4 10	—	£29,476 4 10	£1,526 12 0	£1,880 9 9	—
Witbank Undertaking	2,427,412 19 10	2,160 13 7	1,353,917 5 9	540 286 5 4	—	204,973 4 2	97,330 5 7	30,567 14 5	65,531 1 8	1,507 14 5	106,587 7 6	4,267 9 4	6,578 11 1	£6,871 16 7	3,961 12 1	479 6 8	2,392 11 8	—
Cape Western Undertaking	1,938,433 4 2	264,687 18 2	143,982 2 9	1,131,728 7 2	—	20,287 15 11	43,731 6 2	117,071 19 3	40,820 2 5	76,136 18 2	27,688 14 3	19,568 19 10	14,352 14 8	—	18,912 1 6	16,879 10 10	2,584 13 1	—
Durban Undertaking	1,399,527 15 11	105,205 13 4	588,910 6 3	228,266 4 7	—	7,057 16 4	118,026 8 11	40,552 4 3	39,884 14 10	19,386 15 2	76,957 17 6	105,367 15 10	56,733 2 3	—	5,266 14 8	6,253 6 5	1,658 15 7	—
Sabie Undertaking	99,470 6 1	—	73,833 9 11	24,611 3 4	—	—	—	—	—	1,025 12 10	—	—	—	—	—	—	—	—
Border Undertaking	12,293 1 11	—	—	—	—	—	—	—	—	—	—	5,891 2 7	3,968 8 6	—	1,325 15 7	1,107 15 3	—	—
Rand Undertaking	5,276,879 19 9	—	—	—	£1,195,766 3 5	543,277 2 4	560,753 3 5	531,894 0 6	300,085 13 7	328,297 13 3	248,972 0 4	99,118 17 2	52,386 1 2	1,359,007 13 8	38,193 2 3	20,421 13 4	7,706 15 4	—
Cape Northern Undertaking	5,096 2 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	232 14 1	£4,863 8 0
Head Office	165,234 15 10	—	4,669 7 1	54,057 16 6	—	102,645 16 5	—	1,341 12 1	1,009 15 8	138 0 11	163 13 2	322 9 11	515 11 1	—	252 19 0	—	117 14 0	—
	£13,713,921 15 0	**£374,363 14 5**	**£2,247,337 9 7**	**£3,880,515 9 10**	**£1,195,766 3 5**	**£981,985 3 1**	**£842,269 12 7**	**£735,980 10 0**	**£488,727 10 0**	**£535,159 7 11**	**£505,944 2 11**	**£240,462 11 6**	**£154,036 13 7**	**£1,365,879 10 3**	**£97,388 9 11**	**£46,668 4 6**	**£16,573 13 6**	**£4,863 8 0**

Johannesburg,

J. VAN NIEKERK, Chief Accountant.

We hereby certify that we are satisfied, both 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 12th May, 1951.

HALSEY, BUTTON & PERRY,) . . .

Electricity Supply Commission.

Dr. Reserve Fund Account for the Year ended 31st December, 1950. Cr.

To **Expenditure during the year on Replacements and Betterment**				£517,186	0 7
Natal Central Undertaking	£10,014	16	6		
Witbank Undertaking	65,827	17	4		
Cape Western Undertaking	42,971	6	6		
Durban Undertaking	60,251	15	6		
Sabie Undertaking	772	3	10		
Border Undertaking	21,344	17	3		
Rand Undertaking	315,304	3	11		
Cape Northern Undertaking	698	19	9		
,, **Balance as per Balance Sheet**				2,178,320	11 4
Natal Central Undertaking	507,876	13	10		
Witbank Undertaking	192,867	6	8		
Cape Western Undertaking	368,995	16	6		
Durban Undertaking	81,031	19	10		
Sabie Undertaking	10,622	6	6		
Border Undertaking	18,339	6	4		
Rand Undertaking	993,207	2	10		
Cape Northern Undertaking	5,379	18	10		
				£2,695,506	11 11

By **Balance at 31st December, 1949, brought forward** ...				£2,263,310	12 7
Natal Central Undertaking	£479,906	11	10		
Witbank Undertaking	249,750	13	11		
Cape Western Undertaking	358,726	9	6		
Durban Undertaking	112,741	8	11		
Sabie Undertaking	10,992	12	1		
Border Undertaking	38,575	19	2		
Rand Undertaking	1,012,616	17	2		
,, **Amounts set aside during the year as per Revenue Accounts**				348,717	19 11
Natal Central Undertaking	20,000	0	0		
Cape Western Undertaking	39,640	16	1		
Durban Undertaking	25,000	0	0		
Rand Undertaking	258,077	3	10		
Cape Northern Undertaking	6,000	0	0		
,, **Profit on Redemption of Investment**				137	11 1
,, **Interest Earned on Investments**				83,340	8 4
				£2,695,506	11 11

Johannesburg,
12th April, 1951.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

NATAL CENTRAL UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation of Electricity.		
To Operation—		
Fuel	£208,469 11 11	
Water, Oil, Waste and Stores	3,075 4 5	
Salaries and Wages	52,985 7 5	
Other Expenses	317 7 0	
.. Maintenance—		
Stores	16,723 16 5	
Salaries and Wages	36,982 10 0	
Other Expenses	3,045 2 7	
		£321,598 19 9
,, Electricity supplied by Durban Undertaking		390 17 8
Distribution of Electricity.		
,, Operation and Maintenance—		
Stores	12,789 15 6	
Salaries and Wages	55,722 18 6	
Other Expenses	6,860 16 4	
		75,373 10 4
General Expenses.		
.. Local Administration and Technical Management	31,324 16 10	
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	43,198 6 6	
,, Head Office Administration and General Expenses, including Publicity	24,644 6 10	
.. Engineering Expenses	12,414 13 6	
		111,582 3 8
,, Deferred Payment Scheme, including Propaganda and Showroom Expenses		504 3 11
		509,449 15 4
,, Interest		225,005 3 9
.. Redemption Fund		136,892 6 7
.. Instalments paid on Volksrust Municipality Loan		1,719 13 10
.. Amount set aside to Reserve Fund		20,000 0 0
.. Balance carried down		1,150 19 1
		£894,217 18 7
To Balance at 31st December, 1949, brought forward		£11,218 16 5
		£11,218 16 5

By Sales of Electricity—		
Traction Supplies	£451,132 18 11	
Bulk Supplies	251,733 5 11	
Mining Supplies	42,403 0 0	
Industrial Supplies	72,154 17 6	
Domestic and Lighting Supplies	62,237 7 5	
		£879,661 9 9
.. Electricity supplied to Durban Undertaking		4,830 13 9
.. Other Revenue		9,725 15 1
		£894,217 18 7
By Balance brought down		£1,150 19 1
.. Balance as per Balance Sheet		10,067 17 4
		£11,218 16 5

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.
HALSEY, BUTTON & PERRY,
ALEX. AIKEN & CARTER, Auditors.

Electricity Supply Commission.

WITBANK UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation of Electricity.					
To Operation—					
Fuel			£156,128 17 2		
Water, Oil, Waste and Stores			10,236 5 3		
Salaries and Wages			56,343 14 11		
Other Expenses			2,481 18 7		
,, Maintenance—					
Stores			28,829 16 2		
Salaries and Wages			37,766 18 2		
Other Expenses			19,708 16 3		
				£311,466 6 6	
,, Electricity Purchased				21,794 2 9	
.. Electricity supplied by Rand Undertaking				224,684 10 4	
Distribution of Electricity.					
,, Operation and Maintenance—					
Stores			5,580 1 7		
Salaries and Wages			13,001 9 5		
Other Expenses			1,215 14 5		
				19,797 8 5	
General Expenses.					
,, Local Administration and Technical Management			24,030 18 11		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)			21,468 16 6		
,, Investigations and Development Expenses			16 11 9		
.. Head Office Administration and General Expenses, including Publicity			19,784 17 10		
.. Engineering Expenses			9,966 14 3		
				78,237 19 3	
				655,980 7 3	
,, Interest				126,752 8 5	
.. Redemption Fund				56,391 16 7	
				£839,124 12 3	
To Balance brought down				£19,814 0 3	
				£19,814 0 3	

By Sales of Electricity—			
Traction Supplies		£246,478 13 1	
Bulk Supplies		12,931 11 4	
Mining Supplies		125,127 2 11	
Industrial Supplies		112,669 15 2	
Domestic and Lighting Supplies		19,709 10 9	
			£516,916 13 3
.. Electricity Supplied to Rand Undertaking			291,292 17 5
,, Other Revenue			11,101 1 4
.. Balance carried down			19,814 0 3
			£839,124 12 3
By Balance at 31st December, 1949, brought forward			£1,469 10 6
,, Balance as per Balance Sheet			18,344 9 9
			£19,814 0 3

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
12th April, 1951.

Referred to in our Report of 12th May, 1951.

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

ACCOUNT No. 5.

Electricity Supply Commission.

CAPE WESTERN UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation of Electricity.					
To Proportion of Pooled Costs (as per attached Statement)	£488,646	7	3		
.. Other Operation and Maintenance Costs	10,265	16	11		
				£498,912	4 2
Distribution of Electricity.					
.. Operation and Maintenance—					
Stores	14,689	19	3		
Salaries and Wages	68,393	19	10		
Other Expenses	13,720	7	7		
				96,804	6 8
General Expenses.					
.. Local Administration and Technical Management ...	55,617	1	11		
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	44,095	4	2		
.. Head Office Administration and General Expenses, including Publicity	21,173	6	2		
.. Engineering Expenses	10,666	2	7		
	131,551	14	10		
Less—Charged to Pooled Costs	7,925	1	8		
				123,626	13 2
				719,343	4 0
.. Interest	178,296	3	0		
.. Redemption Fund	107,744	12	8		
.. Instalments on Caledon Municipality and Rawsonville Village Management Board Loans	1,021	19	7		
.. Amount set aside to Reserve Fund	39,640	16	1		
	326,703	11	4		
Less—Charged to Pooled Costs	86,650	13	4		
				240,052	18 0
				£959,396	2 0
To Balance brought down				£12,858	13 6
.. Balance as per Balance Sheet				53,336	12 1
				£66,195	5 7

By Sales of Electricity—					
Traction Supplies	£159,388	16	7		
Bulk Supplies	188,701	8	3		
Industrial Supplies	331,041	12	4		
Domestic and Lighting Supplies	263,812	7	0		
				£942,944	4 2
.. Other Revenue	4,707	17	1		
Less—Credited to Pooled Costs	1,114	12	9		
				3,593	4 4
.. Balance carried down				12,858	13 6
				£959,396	2 0
By Balance at 31st December, 1949, brought forward ...				£66,195	5 7
				£66,195	5 7

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.
HALSEY, BUTTON & PERRY.
ALEX. AIKEN & CARTER. } Auditors.

Electricity Supply Commission and City of Cape Town.

Dr. Statement of Pooled Costs for the Year ended 31st December, 1950, and Allocation thereof. Cr.

Pooled Generation of Electricity.

To Operation and Maintenance—			
Fuel	£864,602 19 5		
Water, Oil, Waste and Stores	59,495 11 4		
Salaries, Wages and Other Expenses	195,374 15 3		
		£1,111,473 9 0	
,, General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ...		27,941 17 1	
,, Interest		160,684 0 9	
,, Redemption Fund		185,631 12 1	
,, Reserve Fund		24,512 8 8	
		£1,510,243 7 7	

By Allocation of Pooled Costs in terms of Agreement—			
Electricity Supply Commission	£488,646 7 3		
City of Cape Town	1,019,048 14 6		
		£1,507,695 1 9	
,, Sundry Revenue		2,548 5 10	
		£1,510,243 7 7	

Cape Town,
12th April, 1951.

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

Electricity Supply Commission.

DURBAN UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation of Electricity.					
To Operation—					
Fuel			£360,274 16 4		
Water, Oil, Waste and Stores			21,079 18 11		
Salaries and Wages			64,183 4 1		
Other Expenses			7,284 5 2		
.. Maintenance—					
Stores			27,639 16 5		
Salaries and Wages			74,306 12 7		
Other Expenses			1,703 7 3		
				£556,472 0 9	
.. Electricity Purchased				34,888 16 5	
.. Electricity supplied by Natal Central Undertaking				4,830 13 9	
Distribution of Electricity.					
.. Operation and Maintenance—					
Stores			9,976 5 4		
Salaries and Wages			18,264 0 4		
Other Expenses			4,104 9 7		
				32,344 15 3	
General Expenses.					
.. Local Administration and Technical Management			18,419 6 11		
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)			35,955 3 8		
.. Head Office Administration and General Expenses, including Publicity			16,660 19 3		
.. Engineering Expenses			8,393 0 5		
				79,428 10 3	
				707,964 16 5	
.. Interest				160,704 8 4	
.. Redemption Fund				129,919 16 0	
.. Sinking Fund				120 0 0	
.. Amount set aside to Reserve Fund				25,000 0 0	
.. Balance carried down				24,978 6 2	
				£1,048,687 6 11	
To Balance at 31st December, 1949, brought forward				£54,390 19 10	
				£54,390 19 10	

By Sales of Electricity—					
Traction Supplies			£74,960 1 9		
Bulk Supplies			850,966 15 8		
Industrial Supplies			52,574 9 0		
Domestic and Lighting Supplies			68,539 0 4		
				£1,047,040 6 9	
.. Electricity supplied to Natal Central Undertaking				390 17 8	
.. Other Revenue				1,256 2 6	
				£1,048,687 6 11	
By Balance brought down				£24,978 6 2	
.. Balance as per Balance Sheet				29,412 13 8	
				£54,390 19 10	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.
HALSEY, BUTTON & PERRY. } Auditors.
ALEX. AIKEN & CARTER.

Electricity Supply Commission.

SABIE UNDERTAKING.

Revenue Account for the Year ended 31st December, 1950.

Dr.				Cr.		
Generation of Electricity.				By Sales of Electricity—		
To Operation—				Mining Supplies		£7,971 4 7
Water, Oil, Waste and Stores	£110 4 8			,, Balance carried down		33 14 2
Salaries and Wages	3,807 8 9					
Other Expenses	21 2 11					
,, Maintenance—						
Stores	53 12 9					
Salaries and Wages	185 0 0					
Other Expenses	111 16 0					
		£4,289 5 1				
Distribution of Electricity.						
,, Operation and Maintenance—						
Stores	13 17 1					
Salaries and Wages	580 0 0					
Other Expenses	142 12 7					
		736 9 8				
General Expenses.						
,, Local Administration and Technical Management ...	305 11 8					
,, General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.) ...	571 3 0					
,, Head Office Administration and General Expenses, including Publicity	957 12 2					
,, Engineering Expenses	482 7 10					
		2,316 14 8				
		7,342 9 5				
,, Interest		4,281 12 10				
,, Redemption Fund		Cr. 3,619 3 6				
		£8,004 18 9				£8,004 18 9
To Balance brought down		£33 14 2		By Balance at 31st December, 1949, brought forward		£78 13 7
,, Balance as per Balance Sheet		44 19 5				
		£78 13 7				£78 13 7

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.
HALSEY, BUTTON & PERRY, } Auditors.
ALEX. AIKEN & CARTER.

Electricity Supply Commission.

BORDER UNDERTAKING.

Revenue Account for the Year ended 31st December, 1950.

Dr.

Generation of Electricity.		
To Operation—		
Fuel	£110,746 10 3	
Water, Oil, Waste and Stores	3,637 1 3	
Salaries and Wages	30,390 11 0	
Other Expenses	1,091 0 1	
.. Maintenance—		
Stores	4,390 17 0	
Salaries and Wages	12,754 18 1	
Other Expenses	1,416 6 6	
		£164,427 4 2
.. Electricity Purchased		50 11 2
Distribution of Electricity.		
.. Operation and Maintenance—		
Stores	703 1 3	
Salaries and Wages	5,846 8 10	
Other Expenses	1,002 4 7	
		7,551 14 8
General Expenses.		
.. Local Administration and Technical Management	13,776 17 2	
.. General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	14,425 4 0	
.. Investigations and Development Expenses	93 18 0	
.. Head Office Administration and General Expenses, including Publicity	5,206 11 0	
.. Engineering Expenses	2,622 16 5	
		36,125 6 7
		208,154 16 7
.. Interest		19,874 18 7
.. Redemption Fund		5,054 16 3
.. Instalments paid on East London and Alice Municipalities' Loans		7,273 15 0
.. Balance carried down		369 6 5
		£240.727 12 10
To Balance as per Balance Sheet		£10,843 8 5
		£10,843 8 5

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Cr.

By Sales of Electricity—		
Bulk Supplies	£187,255 10 4	
Industrial Supplies	14 483 17 1	
Domestic and Lighting Supplies	38,138 7 11	
		£239.877 15 4
.. Sales of Steam		153 5 0
.. Other Revenue		696 12 6
		£240.727 12 10
By Balance at 31st December, 1949, brought forward		£10,474 2 0
.. Balance brought down		369 6 5
		£10,843 8 5

Referred to in our Report of 12th May, 1951.
HALSEY, BUTTON & PERRY.
ALEX. AIKEN & CARTER } Auditors.

Electricity Supply Commission.

RAND UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation.											
To Operation—											
Fuel							£1,529,065	10	7		
Water, Oil, Waste and Stores							62,005	16	0		
Salaries and Wages							400,922	15	6		
Other Expenses							20,844	12	5		
,, Maintenance—											
Stores							149,548	14	3		
Salaries and Wages							346,218	18	8		
Other Expenses							23,776	19	9		
										£2,532,383	7 2
,, Electricity Purchased										120,381	2 6
,, Electricity supplied by Witbank Undertaking										291,292	17 5
Distribution.											
,, Operation and Maintenance—											
Stores							25,945	9	1		
Salaries and Wages							354,653	13	5		
Other Expenses							9,625	18	3		
										460,225	0 9
General Expenses.											
,, Local Administration and Technical Management							136,318	0	3		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)							190,073	4	8		
,, Head Office Administration and General Expenses, including Publicity							48,331	1	9		
,, Engineering Expenses							24,346	18	11		
										399,069	5 7
										3,803,351	13 5
,, Interest										979,635	15 3
,, Redemption Fund										965,992	10 6
,, Provision for Repayment of Amounts Outstanding (Rand Water Board)										4,254	17 9
,, Amount set aside to Reserve Fund										258,077	3 10
										£6,011,312	0 9
To Balance brought down										£53,090	1 4
,, Balance as per Balance Sheet										6,967	5 10
										£60,057	7 2

By Sales of Electricity—											
Bulk Supplies							£390,989	13	1		
Mining Supplies							3,800,047	16	1		
Industrial Supplies							833,878	0	8		
Domestic and Lighting Supplies							166,845	0	11		
										£5,191,760	10 9
,, Sales of Air and Steam										512,513	17 1
,, Electricity supplied to Witbank Undertaking										224,684	10 4
,, Other Revenue										29,263	1 3
,, Balance carried down										53,090	1 4
										£6,011,312	0 9
By Balance at 31st December, 1949, brought forward										£60,057	7 2
										£60,057	7 2

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.

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

ACCOUNT No. 10.

Electricity Supply Commission.

CAPE NORTHERN UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1950. Cr.

Generation of Electricity.			
To Operation—			
Fuel	£62,568 14 4		
Water, Oil, Waste and Stores	1,296 4 10		
Salaries and Wages	19,293 15 4		
Other Expenses	4,665 19 1		
,, Maintenance—			
Stores	2,517 12 1		
Salaries and Wages	7,509 3 10		
Other Expenses	961 9 9		
		£98,812 19 3	
General Expenses.			
,, Local Administration and Technical Management	1,505 3 7		
,, General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	2,621 13 9		
,, Head Office Administration and General Expenses, including Publicity	2,082 12 5		
,, Engineering Expenses	1,049 2 6		
		10,258 12 3	
		109,071 11 6	
,, Interest		6,097 14 11	
,, Redemption Fund		5,026 5 1	
,, Amount set aside to Reserve Fund		6,000 0 0	
,, Balance as per Balance Sheet		5,400 7 5	
		£131,595 18 11	

By Sales of Electricity—		
Bulk Supplies	£73,053 3 7	
Mining Supplies	58,411 9 3	
Industrial Supplies	51 10 2	
Domestic Supplies	10 5 1	
		£131,526 8 1
.. Other Revenue		69 10 10
		£131,595 18 11

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
12th April, 1951.

Referred to in our Report of 12th May, 1951.

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

INDEX TO ANNEXURE "B" (STATISTICAL AND OTHER STATEMENTS)

ANNEXURE "B"

Electricity Supply Commission

STATEMENT No. 1

SUMMARY OF PRINCIPAL PLANT AND EQUIPMENT INSTALLED AT THE COMMISSION'S SEVERAL UNDERTAKINGS AS AT 31st DECEMBER, 1950.

Undertaking	Electric Power Stations	Type
	CAPE	
BORDER (21,500 square miles)	Alice	Oil
	East London	Steam
	King William's Town	Steam
CAPE NORTHERN (14,800 square miles)	Central, Kimberley	Steam
CAPE WESTERN (5,600 square miles)	Salt River No. 1	Steam
	Worcester	Oil
	NATAL	
DURBAN (1,900 square miles)	Congella No. 1 and No. 2	Steam (Pulverised Fuel)
	Port Shepstone	Oil
NATAL CENTRAL (11,300 square miles)	Colenso No. 1 and No. 2	Steam
	Volksrust	Oil
	O.F.S.	
RAND (28,100 square miles)	Vaal	Steam
	TRANSVAAL	
RAND (28,100 square miles)	Brakpan	Steam
	Klip	Steam
	Rosherville	Steam
	Simmerpan	Steam
	Vereeniging	Steam
SABIE (200 square miles)	Sabie Gorge	Hydro
WITBANK (4,600 square miles)	Witbank	Steam

Compressed Air Power Stations

TRANSVAAL	
Brakpan	Steam
Canada Dam	Electric
Robinson	Electric
Rosherville	Steam

(1) STEAM STATIONS

Statement No. 1—(continued)

Name of Station	BOILER HOUSE				TURBINE HOUSE					HOUSE SETS			Station Capacity (Including House Sets)
	Number of Boilers	Continuous Maximum Rating. Each	Continuous Maximum Rating. Total	lb/sq. in. gauge	Number of Generators	Normal Rating each		Generator	Total Rating	Voltage of Generation	Number	Rating Each	Total House Sets	
		lb of Steam per Hour.				MW	p.f.	MVA	MW MVA	kV		MW	MW	MW
Brakpan* ...	8	28,000	744,000	200	1	3·0	0·80	3·75		10·0				
	10	45,000		200	2	12·5	0·69	18·0		5·0				
	1	70,000		240	1	20·0	0·50	20·0 20·0	48·0 79·75	5·0	—	—	—	48·0
Central, Kimberley	8	30,000	240,000	200	1	3·0	0·8	3·75						
					1	5·0	0·7	7·15	20·0 25·02	5·0	—	—	—	20·0
					2	6·0	0·85	7·06						
Colenso	8	60,000	1,160,000	280	5	12·0	0·9	13·33		6·6				
	4	80,000		280	1	25·0	0·9	27·80	110·0 122·25	6·6	—	—	—	110·0
	2	180,000		290	1	25·0	0·9	27·80		13·2				
Congella ...	6	60,000	1,760,000	270	3	12·0	0·8	15·0		6·6				
	4	100,000		270	1	20·0	0·8	25·0	166·0 201·5	6·6	—	—	—	166·0
	5	200,000		625	1	30·0	0·8	37·5		33·0				
					2	40·0	0·85	47·0		33·0				
King William's Town	1	10,000	46,000	200	2	1·5	0·8	1·875						
	3	12,000		200	1	0·5	0·8	0·625	3·5 4·375	3·8	—	—	—	3·5
Klip	24	180,000	4,320,000	355	12	33·0	0·825	40·0	396·0 480·0	10·5	4	7·0	28·0	424·0
Rosherville* ...	32	38,000	1,600,000	200	5	9·6	0·80	12·0						
	8	48,000		200	1	12·5	0·83	15·0	60·5 75·0	5·0	—	—	—	60·5
Salt River ...	2	60,000	720,000	270	3	10·0	0·90	11·0		12·0				
	6	100,000		425	3	20·0	0·80	25·0	90·0 108·0	33·0	1	0·3	0·3	90·3
Simmerpan ...	4	20,000	764,000	200	1	3·0	0·80	3·75		10·0				
	12	25,000		200	5	3·0	0·80	3·75	40·0 52·5	2·25	—	—	—	40·0
	8	48,000		200	2	11·0	0·73	15·0		5·0				
Vaal	10	190,000	1,900,000	360	5†	33·0	0·825	40·0	165·0 200·0	10·5	2	7·0	14·0	179·0
Vereeniging ...	20	45,000	1,920,000	210										
	2	60,000		210	3	20·0	1·00	20·0	157·5 180·0	5·0	—	—	—	157·5
	5	180,000		230	3	32·5	0·81	40·0		10·5				
West Bank No. 1	4	21,500	251,000	220	1	1·5	0·8	1·875		6·6				
	2	27,500		220	2	4·0	0·85	4·7	24·5 28·925	6·6	—	—	—	24·5
	2	55,000		220	2	7·5	0·85	8·825		6·6				
Witbank ...	20	70,000	1,400,000	225	5	20·0	0·85	23·5	100·0 117·5	6·6	1	8·0	8·0	108·0
Total Steam Stations	221	—	16,825,000	—	78	—	—	—	1,381·0 1,674·8	—	8	—	50·3	1,431·3

* Brakpan and Rosherville Boiler Houses also supply steam to steam-driven Compressors.

† Sixth set only on load 15th February, 1951.

(2) HYDRO STATION

Sabie	—	—	—	—	3	0·45	0·75	0·6	1·35	1·80	3·3	—	—	—	1·35

Statement No. 1—(continued)

(3) DIESEL STATIONS

Name of Station	Number of Sets	RATING OF GENERATORS				Voltage of Generation A.C. or D.C.
		Each		Total		
		kW	kVA	kW	kVA	
Alice	1 1 1 1	25 55 125 230	— — 156 288	80 355	— 444	440/220 D.C. 440/220 D.C. 3,300 A.C. 440 A.C.
K.W.T.	1	1,000	1,175	1,000	1,175	11,00V A.C.
Port Shepstone ...	2 2	700 1,000	875 1,250	3,400	4,250	380/220 A.C. 11,000 A.C.
Volksrust	2	250	300	500	600	3,300 A.C.
Worcester	2	1,000	1,175	2,000	2,350	11,000 A.C.
Total Diesel Stations	13	—	—	7,335	8,819	—

(4) COMPRESSED AIR POWER STATIONS

Name of Station	Number of Sets	Type	Compressor Output, h.p.		Drive
			Each	Total	
Electric Driven.					
Canada Dam Compressor Station	1 4	Turbo Turbo	3,000 4,800	22,200	Electric Motor Electric Motor
Robinson Compressor Station	3 1 1 1	Turbo Turbo Turbo Turbo	2,000 2,150 2,850 3,000	14,000	Electric Motor Electric Motor Electric Motor Electric Motor
At New Modder Mine ...	1 1	Recip. Recip.	380 700	1,080	Electric Motor Electric Motor
At Modder B Mine	1 1 2 1 1	Recip. Recip. Recip. Recip. Turbo	270 380 700 1,300 2,150	5,500	Electric Motor Electric Motor Electric Motor Electric Motor Electric Motor
Steam Driven.					
Brakpan Power Station ...	3 1 1	Recip. Turbo Turbo	800 2,550 2,650	7,600	Recip. Steam Engine Steam Turbine Steam Turbine
Rosherville Power Station ...	1 1 3 2 1	Turbo Turbo Turbo Turbo Turbo	2,500 4,400 6,000 7,100 9,700	48,800	Steam Turbine Steam Turbine Steam Turbine Steam Turbine Steam Turbine
Total Compressed Air Power Stations ...	32	—	—	99,180 = 73,990 kW	

Statement No. 1—(continued)

STEP-UP AND STEP-DOWN TRANSFORMERS

(Excludes earthing compensators and transformers used exclusively for earthing; also Petersen Coils, reactors, series boosters and buffers)

Undertaking	AT POWER STATIONS				ON TRANSMISSION AND DISTRIBUTION				TOTAL TRANSFORMERS	
	Number		kVA		Number		kVA		Working, Spare and in Stock	
	Working	Spare and in Stock	Working	Spare and in Stock	Working	Spare and in Stock	Working	Spare and in Stock	Number	kVA
Border	7	—	2,075	—	50	24	5,020	4,255	81	11,350
Cape Northern ..	4	—	2,470	—	—	—	—	—	4	2,470
Cape Western ..	16	—	65,950	—	1,169	528	122,601	55,489	1,713	244,040
Durban	27	3	73,400	1,325	252*	48	11,338	2,015	330	88,078
Natal Central ...	32	2	161,550	15,500	571	266	125,068	40,737	871	342,855
Rand†	268	23	1,508,301	172,990	1,707	336	2,839,282	294,653	2,334	4,815,226
Sabie	4	2	1,225	410	6	1	1,755	250	13	3,640
Witbank ...	62	6	168,925	21,949	160	139	64,820	34,475	367	290,169
At Compressor Stations:										
Rand	47	1	320,620	18,333	—	—	—	—	48	338,953
Totals	467	37	2,304,516	230,507	3,915	1,342	3,169,884	431,874	5,761	6,136,781

Notes.—* Increase in number from 1950 due to plant previously shown under N.C.U. being now included in Durban Undertaking.
† Excludes Booster and Buffer Transformers. Rand Undertaking 12 working 187,675 kVA, 2 on order 43,400 kVA.

POWER FACTOR CORRECTIVE PLANT

RAND UNDERTAKING:	Working		Under Erection or on Order	
	Number	kVA	Number	kVA
Synchronous Condensers ...	19	338,000	7	140,000
Static Condensers	7,224	113,360	—	—
		451,360		140,000

CONVERTING SUBSTATIONS

Motor Generators

UNDERTAKING:	Number	kW
Border-Alice	1	150
Natal Central	24	48,000
	25	48,150

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

(1) TRANSMISSION LINES

Undertaking	132 kV	88 kV	66 kV	40 kV	33 kV	22 kV	21 kV	20 kV	11 kV	10 kV	6·6 kV	3·3 kV	2·0 kV 2·1 kV 2·2 kV	525 V	380/220V	Street Lighting (Series)	Totals
Border	—	—	—	—	—	—	—	—	—	—	4·0	11·90[a]	—	—	40·21[b]	—	56·11
Cape Western	—	—	27·51	—	406·82	—	—	—	374·69	—	215·56	—	0 30	—	327·35	—	1,352·23
Durban	—	—	—	—	56·87	—	—	—	74·24	—	29·81	0·99	—	—	109·75	—	271·66
Natal Central	—	596·06	—	—	28·10	71·76	—	—	387·30	—	173·56	5·95	0·95	—	116·25	—	1,379·93
Rand	127·05	1,461·98	—	652·31	—	—	—	135·99	—	47·98	79·24	35·25	11·48	168·18[c]	—	125·49	2,844·95
Sabie	—	—	—	—	—	7·20	—	—	—	—	—	—	—	—	1·00	—	8·20
Witbank	—	41·75	—	—	—	—	206·72	—	—	—	9·5	0·4	24·8	—	46·5	—	329·67
Totals	127·05	2,099·79	27·51	652·31	491·79	78·96	206·72	135·99	836·23	47·98	511·67	54·49	37·53	168·18	641·06	125·49	6,242·75

[a] Includes 3·8 kV. [b] Includes 7·6 D.C. 220V. [c] Includes some 380/220V.

UNDERGROUND CABLES

Border	—	—	—	—	—	—	—	—	—	—	—	13·30[a]	—	—	—	—	13·30
Cape Western	—	—	—	—	59·65	—	—	—	37·88	—	6·07	0·34	—	—	6·19	—	110·13
Durban	—	—	—	—	—	—	—	—	1·51	—	1·30	0·02	—	—	0·63	—	3·46
Natal Central	—	—	—	—	—	—	—	—	0·71	—	4·35	1·89	—	—	2·37	—	9·32
Rand	—	—	—	—	—	—	—	85·58	—	13·16	39·72	6·57	23·25	1·48	2·57	50·31	222·64
Witbank	—	—	—	—	—	—	19·4	—	2·1	—	9·84	0·20	1·12	—	1·49	—	34·15
Totals	—	—	—	—	59·65	—	19·4	85·58	42·2	13·16	61·28	22·32	24·37	1·48	13·25	50·31	393·00

[a] Includes 3·8 kV.

(2) TELEPHONE AND PILOT CABLES

Cape Town	83·72	813·57 circuit miles
Rand	719·55	
Witbank	10·30	

TOTAL LINES AND CABLES WORKING: 6,636 CIRCUIT MILES.

STATEMENT No. 2

SUMMARY OF PRINCIPAL PLANT AND EQUIPMENT IN COURSE OF INSTALLATION OR ON ORDER AT 31st DECEMBER, 1950

(1) STEAM STATIONS

Name of Station	BOILER HOUSE				TURBINE		
	Number of Boilers	Continuous Maximum Rating		lb/sq. in. gauge	Number of Generators	Normal Rating Each	
		Each	Total			MW	p.f.
		lb of Steam per Hour					
Central, Kimberley	2	75,000	150,000	200	2	5·5	0·8
Colenso No. 2 ...	3	180,000	540,000	290	1	25·0	0·9
Congella No. 2 ..	3	200,000	600,000	625	1[a]	40·0	0·85
Hex River ...	4	200,000	800,000	625	3	20·0	0·80
Rosherville ...	2	150,000	300,000	615	1	30·0	0·80
Salt River No. 2	4	260,000	1,040,000	600	2	30·0	0·8
Swartkops ...	2	210,000	420,000	600	2	20·0	0·8
Taaibos	4[b]	580,000	2,320,000	630	4	60·0	0·85
Umgeni	4	180,000	720,000	625	2	30·0	0·80
Vaal	8	190,000	1,520,000	360	4[c]	33·0	0·825
Vereeniging ...	1	180,000	180,000	230	—	—	—
Vierfontein ...	9[d]	210,000	1,890,000	630	7	30·0	0·85
West Bank No. 1	2	55,000	110,000	220	1	7·5	0·85
West Bank No. 2	2	170,000	340,000	440	2	15·0	0·80
Witbank ...	2	80,000	160,000	225	1	20·0	0·80
Totals ...	52	—	11,090,000	—	33	—	—

(2) DIESEL STATIONS

Name of Station	Number of Sets	RATING OF GENERATORS				Voltage of Generation A.C. or D.C.
		Each		Total		
		kW	kVA	kW	kVA	
Alice	1	230	288	230	288	400V A.C.
On Hand in Store ...	1	1,000	1,175	1,000	1,175	11,000V A.C. (Eng. Elec. Set)
Totals	2			1,230	1,463	

Notes.—[a] On Load 9/3/51. [b] Two boilers and two turbos ordered 1951, additional to four shown. [c] One Vaal set i/c 15/2/51. [d] Three additional ordered April, 1951, making twelve on order.

HOUSE				HOUSE SETS			Capacity (including House Sets)
Generator	Total Rating		Voltage of Generation	Number	Rating Each	Total House Sets	
MVA	MW	MVA	kV		MW	MW	MW
6·8	11·0	13·6	5·0	—	—	—	11·0
27·8	25·0	27·8	13·2	—	—	—	25·0
47·0	40·0	47·0	33·0	—	—	—	40·0
25·0	60·0	75·0	11·0	—	—	—	60·0
37·5	30·0	37·5	11·8	—	—	—	30·0
37·5	60·0	75·0	11·0	—	—	—	60·0
25·0	40·0	50·0	11·0	—	—	—	40·0
70·6	240·0	282·4	11·0	—	—	—	240·0
37·5	60·0	75·0	11·0	—	—	—	60·0
40·0	132·0	160·0	10·5	1	7	7	139·0
—	—	—	—	—	—	—	—
35·3	210·0	247·1	11·0	—	—	—	210·0
8·825	7·5	8·825	11·0	—	—	—	7·5
18·75	30·0	37·5	11·0	—	—	—	30·0
25·0	20·0	25·0	6·6	—	—	—	20·0
—	965·5	1,161·725	—	1	—	7	972·5

Statement No. 2—(continued)

TRANSMISSION LINES

(Circuit Miles)

Undertaking	132 kV	88 kV	66 kV	40 kV	33 kV	11 kV	Totals
Cape Northern ...	—	—	—	—	—	25·00	25·00
Cape Western ...	—	—	128·00	—	11·5	55·8	195·30
Durban	—	72·00	—	—	—	—	72·00
Natal Central ...	130·00	—	—	—	—	—	130·00
Rand	—	145·00	—	33·00	—	—	178·00
Witbank	—	—	—	—	—	—	—
Totals	130·00	217·00	128·00	33·00	11·5	80·80	600·30

STEP-UP AND STEP-DOWN TRANSFORMERS

Undertaking	AT POWER STATIONS On Order or under Construction		ON TRANSMISSION AND DISTRIBUTION On Order or under Construction		TOTAL TRANSFORMERS On Order or under Construction	
	Number	kVA	Number	kVA	Number	kVA
Border	4	20,800	—	—	4	20,800
Cape Northern	6	38,500	—	—	6	38,500
Cape Western	23	68,650	200	25,350	223	94,000
Durban	11	166,250	43	3,080	54	169,330
Natal Central	4	29,500	24	3,310	28	32,810
Rand	73	788,415	197	751,595	270	1,540,010
Sabie	—	—	—	—	—	—
Witbank	7	25,395	—	—	7	25,395
At Compressor Stations:						
Rand	1	25,000	—	—	1	25,000
Totals	129	1,162,510	464	783,335	593	1,945,845

STATEMENT No. 3

UNITS SOLD TO ALL CONSUMERS DURING THE PAST TWENTY-SIX YEARS

Year	Border Undertaking (including Steam)	Cape Northern Undertaking	Cape Western Undertaking	Durban Undertaking	Klip Undertaking	Natal Central Undertaking	Rand Undertaking (inc. Air and Steam)	Sabie Undertaking	Vaal Undertaking	Witbank Undertaking	Totals
1925								75,943			**75,943**
1926			280,242			719,666		651,458		160,031,213	**161,682,579**
1927			5,811,836			104,206,235		1,938,940		439,061,722	**551,018,733**
1928			31,038,697	15,563,460		114,213,037		2,829,888		464,267,213	**627,912,295**
1929			47,945,690	78,873,576		123,911,774		3,176,173		543,091,138	**796,998,351**
1930			49,772,016	99,228,000		117,075,484		4,585,060		618,951,364	**889,611,924**
1931			52,109,958	103,899,765		101,131,880		6,585,553		603,359,113	**867,086,269**
1932			64,268,873	109,808,223		100,292,933		6,080,010		610,285,123	**890,735,162**
1933			100,685,629	118,538,312		109,186,538		6,349,651		639,368,114	**974,128,244**
1934			73,583,974	131,104,182		124,898,129		7,329,679		648,245,530	**985,161,494**
1935			80,020,511	149,874,024		154,278,600		7,181,282		727,888,529	**1,119,242,946**
1936			85,840,383	170,493,987	556,997,155	171,476,131		6,863,253		696,376,199	**1,688,047,108**
1937			94,038,449	189,412,691	1,349,853,464	210,632,827		7,166,684		684,516,633	**2,535,620,748**
1938			98,801,619	209,495,780	1,666,852,594	234,948,157		7,240,167		768,111,272	**2,985,452,589**
1939			106,451,848	233,677,491	2,193,206,661	266,238,056		6,380,657		767,741,727	**3,573,696,440**
1940			119,770,941	242,741,129	2,566,536,197	281,121,807		6,669,552		853,317,743	**4,070,157,369**
1941			136,240,415	270,316,419	2,675,943,959	302,395,900		6,565,110		862,562,248	**4,254,024,051**
1942			151,769,902	273,748,608	2,707,829,911	307,724,141		6,335,396		873,440,160	**4,320,848,418**
1943			145,739,820	293,366,350	2,669,086,704	312,387,660		5,930,089		849,119,231	**4,275,629,854**
1944			158,673,418	321,583,537	2,703,638,629	335,977,438		6,723,791		889,225,914	**4,415,802,727**
1945			165,857,610	348,740,929	2,643,039,705	333,192,760		6,596,859	377,902,035	830,731,606	**4,706,064,504**
1946			184,618,905	369,659,142	2,614,328,036	347,006,541		7,408,010	582,485,351	896,892,060	**5,002,398,048**
1947	56,170,900		198,640,259	402,561,103	2,547,186,151	345,993,124		7,604,777	658,587,275	887,731,135	**5,114,474,724**
1948	69,217,120		222,439,123	448,671,496	1,207,359,067	367,858,108	2,185,700,243	7,273,534	435,094,620	633,245,570	**5,576,858,881**
1949	68,691,220		249,498,856	512,978,243	Now part of	371,804,946	4,653,918,926	7,030,797	Now part	358,240,127	**6,222,163,115**
1950	79,886,071	53,922,202	271,902,774	561,767,317	Rand	406,523,502	5,151,772,083	6,303,229	of Rand	378,506,724	**6,910,583,902**

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 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, whilst Witbank now interchanges to Rand Undertaking.

STATEMENT No. 4

DISTRIBUTION OF THE UNITS SOLD DURING 1950 AS BETWEEN THE VARIOUS CLASSES OF CONSUMERS

ELECTRICITY

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				71,911,330	6·499	1			—	1,937,419	0·196	115	5,941,008	5·214	1,813	79,789,757	1·202	1,929
Cape Northern ..				31,515,181	2·848	1	22,388,319	0·574	1	16,481	0·002	1	2,221	0·002	1	53,922,202	0·813	4
Cape Western ...	57,788,673	11·028	1	69,091,794	6·244	16			—	92,885,030	9·376	1,333	52,137,277	45·756	15,180	271,902,774	4·099	16,530
Durban	42,006,282	8·016	1	487,236,085	44·036	2			—	23,133,877	2·335	202	9,391,073	8·241	2,795	561,767,317	8·469	3,000
Natal Central ...	248,406,481	47·404	1	113,161,891	10·228	12	15,369,064	0·394	8	22,044,189	2·225	369	7,511,877	6·619	3,167	406,523,502	6·128	3,557
Rand				327,744,343	29·621	35	3,782,574,966	97·023	92	730,053,701	73·694	648	34,628,904	30·391	10,637	4,875,001,914	73·489	11,412
Sabie							6,303,229	0·162	1							6,303,229	0·095	1
Witbank ...	175,823,207	33·552	1	5,795,470	0·524	3	71,998,139	1·847	31	120,586,130	12·172	91	4,303,778	3·777	1,497	378,506,724	5·705	1,623
Total Electricity ...	524,024,643	100·000	4	1,106,456,094	100·000	70	3,898,633,717	100·000	133	990,656,827	100·000	2,759	113,946,138	100·000	35,090	6,633,717,419	100·000	38,056
Per cent. ...	7·899			16·679			58·770			14·934			1·718			100·000		
AIR AND STEAM																		
Border: Steam ..									—	96,314	0·960	1				96,314	0·035	1
Rand: Air				2,702,556		1	247,528,970	93·713	11	9,932,913	99·040	23				260,164,439	93·967	35
Steam ...							16,605,730	6·287	1							16,605,730	5·998	1
Total Air and Steam				2,702,556		1	264,134,700	100·000	12	10,029,227	100·000	24				276,866,483	100·000	37
Per cent. ...				0·976			95·401			3·623						100·000		
ELECTRICITY, AIR AND STEAM																		
Grand Totals ...	524,024,643		4	1,109,158,650		71	4,162,768,417		145	1,000,686,054		2,783	113,946,138		35,090	6,910,583,902		38,093
Per cent. ...	7·583			16·050			60·238			14·480			1·649			100·000		
BY PROVINCE																		
Cape	57,788,673	11·028	1	175,500,196	15·823	19	22,388,319	0·538	1	94,838,930	9·478	1,449	58,080,506	50·972	16,994	408,596,624	5·913	18,464
Natal	283,430,970	54·088	1	589,232,996	53·124	12	15,369,064	0·369	8	44,904,798	4·487	490	14,535,137	12·756	4,537	917,472,965	13·710	5,048
O.F.S.	6,981,793	1·332	1	24,691,579	2·226	8	130,178,837	3·127	11	30,834,071	3·081	45	453,280	0·398	361	193,139,560	2·795	429
Transvaal ...	175,823,207	33·552	1	319,733,879	28·827	32	3,994,832 197	95·966	125	830,108,255	82·954	799	40,877,215	35·874	13,195	5,361,374,753	77·582	14,152

Electricity — 95·994 } of total sales.
Air — 4·006 }

POWER STATION OPERATING STATISTICS, 1950

STEAM ELECTRIC:

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	146,121,747	134,549,739	Hour 42,970	—	35·7	193,347	2·646	2·874	9,260	24,500	26,610	13·93	12·82
Central, Kimberley ...	58,546,800	53,922,202	12,635	13,250	48·7	54,127	1·849	2·008	12,390	22,910	24,880	14·89	13·71
Colenso No. 1 and No. 2 ...	464,434,430	439,517,520	85,000	100,000	59·0	317,320	1·366	1·444	12,310	16,820	17,780	20·29	19·19
Congella No. 1 and No. 2 ...	582,657,400	542,105,800	120,859	135,400	51·2	366,413	1·258	1·352	12,210	15,360	16,510	22·21	20·67
King William's Town ...	8,616,640	8,078,389	2,384	2,660	38·7	8,141	1·890	2·016	13,180	24,910	26,570	13·70	12·84
Klip	2,749,809,931	2,567,878,688	Hour 358,678	—	81·7	2,450,793	1·783	1·909	9,020	16,080	17,220	21·22	19·81
Rosherville	159,497,680	141,854,580	Hour 55,967	—	28·9	225,732	2·831	3·183	9,740	27,570	31,000	12·38	11·01
Salt River No. 1	203,344,200	189,124,992	61,750	68,000	35·0	143,141	1·408	1·514	12,550	17,670	19,000	19·31	17·96
Simmerpan	88,518,176	83,764,143	Hour 39,061	—	24·5	158,875	3·590	3·793	8,930	32,060	33,870	10·61	10·07
Vaal	1,304,430,150	1,231,376,194	Hour 170,773	—	82·3	1,008,315	1·546	1·638	9,270	14,330	15,180	23·81	22·48
Vereeniging	934,757,132	877,676,808	Hour 146,688	—	68·3	1,009,722	2·160	2·301	9,020	19,480	20,760	17·52	16·44
West Bank, East London ...	75,288,190	71,911,330	17,400	18,100	47·2	61,654	1·638	1·715	12,460	20,410	21,370	16·72	15·97
Witbank	832,203,765	779,947,554	Hour 103,089	—	36·4	748,370	1·799	1·919	10,970	19,740	21,050	17·28	16·21
Totals	7,608,226,241	7,121,707,939				6,745,950							

HYDRO ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW ½ Hr. Sent Out	Maximum Demands kW 2 Min. Generated	Station Load Factor Sent Out	Inches Rain
Sabie ...	6,685,900	6,573,100	1,260	1,400	59·6	47·52

Statement No. 5—(continued)

POWER STATION OPERATING STATISTICS, 1950

DIESEL ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Load Factor ½ Hour Sent Out	Fuel Consumed		Lub. Oil Galls.
			2 Mins.	½ Hour		Total lb	Per kWh Sent Out	
Alice	682,636	583,934	202	197	33·8	501,500	0·859	1,543
King William's Town ...	17,881	17,881	543	390	0·6	14,025	0·784	18
Port Shepstone	1,000,858	989,077	2,800	2,690	1·2	566,357	0·573	750
Volksrust	15,433	15,433	—	—	—	10,318	0·669	38
Worcester	1,954,350	1,938,774	—	—	—	1,123,929	0·580	1,396
TOTALS	3,671,158	3,545,099				2,216,129	0·625	3,745

COMPRESSOR STATIONS:

Station	Air Units Generated	Air Units Sent Out		Coal Burned		Electrical Input		Max. Sustained Load over One Hour	Load Factor %
		Units	%	Total Tons	lb. Coal/ Units Sent Out	Total kWh	Units Sent Out/kWh %		
Central Rand Compressed Air System									
Rosherville ...	138,298,600	138,020,800	53·11	194,483	2·818	—	—	79,790	37·2
Robinson	56,547,300	56,547,300	21·76	—	—	71,978,977	78·56		
Canada Dam ...	65,315,300	65,315,300	25·13	—	—	77,334,731	84·46		
TOTALS	260,161,200	259,883,400				149,313,708			
Other Air Stations									
Brakpan	16,691,620	16,605,730	—	29,888	3·600	—	—	6,296	30·1
Modder B and New Modder	10,081,978	10,081,978	—	—	—	11,747,207	85·82		
TOTALS	286,937,798	286,571,108		224,371		161,060,915			

SUMMARY:

TOTAL COAL BURNED AT ALL E.S.C. STATIONS, 6,970,414* tons (increase of 604,841 tons or 9·502%).

TOTAL UNITS GENERATED = Units generated at STEAM ELECTRIC + HYDRO + DIESEL + AIR (Rosherville and Brakpan) STATIONS.

= 7,608,226,241 + 6,685,900 + 3,671,158 + 154,993,220.

= 7,773,576,519 (increase of 698,294,384 or 9·869%).

* Includes 93 tons for Steam sold at KWT.

STATEMENT No. 6

POWER PURCHASED.

From	Maximum Demand kW	Units
Johannesburg, City of		
ex Jeppe Street Power Station	16,500*	6,225,290
ex Orlando Power Station	64,800*	85,012,834
Middle Witwatersrand (Western Areas) Ltd.	3,000	4,756,260
Pretoria, City of		
for use of Rand Undertaking	13,000	20,851,149
for use of Witbank Undertaking	—	14,507,492

* Non-simultaneous.

STATEMENT No. 7

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1950

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border	9		11
Cape Northern	9		38
Cape Western	22		
Durban	84		
Natal Central	26	394	
Rand (including Witbank Power Station)	226	5,595	751

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 1950

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1950)

Cape Western Undertaking

Immovable Property was acquired to the value of	£16,324	5	11
Servitudes were acquired for	1,044	4	7

Natal Central Undertaking

Immovable Property was acquired to the value of ...	2,510	0	0
Servitudes were acquired for	178	7	6
Property was hired for an annual rental of	1	0	0

Witbank Supply System

Immovable property was acquired to the value of ...	125	0	0
Servitudes were acquired for	46	16	0
Servitudes were acquired for annual rentals amounting to ...	67	5	2

Border Undertaking

Property was hired for an annual rental of	1	0	0

Rand Undertaking

Immovable Property was acquired to the value of	6,950	0	0
Surface Rights, Rights of Way and other Servitudes were acquired for	1,261	3	2
Property was hired for an annual rental of	52	0	0

Head Office

Immovable property was acquired to the value of	5,700	0	0

COAL USED AT COMMISSION'S STEAM-RAISING POWER STATIONS

Average Cost per ton (2,000 lb)

Power Station	1944	1945	1946	1947	1948	1949	1950
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Brakpan	—	—	—	—	7 9	7 8	8 9
Colenso	10 4	10 8	10 11	11 4	11 6	12 9	13 2
Congella	14 6	15 4	15 7	16 4	16 4	18 0	19 5
East London	—	—	—	26 7	26 11	28 6	30 5
Kimberley, Central ...	—	—	—	—	—	—	23 1
Klip	3 11	4 2	4 4	4 5	4 1	4 7	5 0
King William's Town ...	—	—	—	—	27 10	29 6	31 8
Rosherville	—	—	—	—	8 3	8 5	9 5
Salt River	23 4	25 4	25 9	28 1	28 5	29 6	32 5
Simmerpan	—	—	—	—	8 4	8 3	9 6
Vaal	—	5 10	6 0	5 7	4 11	4 9	5 4
Vereeniging	—	—	—	—	4 11	4 10	5 5
Witbank	2 4	2 4	2 9	3 4	4 0	3 9	4 2

ANNEXURE "C"

STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY IN THE UNION OF SOUTH AFRICA

Extracted from the 1948-49 Industrial Census and published by courtesy of the Bureau of Census and Statistics, Pretoria

UNITS GENERATED

Province	Private Companies	Local Authorities
Cape	434,490,918	920,467,782
Natal	1,134,432,345	24,626,911
O.F.S.	1,044,207,136	76,328,742
Transvaal	6,289,778,082	1,121,569,435
Total	8,902,908,481	2,142,992,870
	11,045,901,351	

CONSUMERS AND SALES

	Cape	Natal	O.F.S.	Transvaal	Totals and Averages
Total Number of Consumers	194,399	76,228	23,310	203,673	497,619
Total Units Consumed ...	1,137,473,053	972,329,725	161,816,174	6,447,654,016	8,719,272,968
Number of Domestic Consumers	163,887	58,211	21,240	174,099	417,437
Units Sold and Used for Domestic Consumption	531,343,068	227,245,072	32,170,386	581,910,945	1,372,669,471
Average Units Sold per Domestic Consumer	3,242	3,904	1,515	3,342	3,288

INSTALLED CAPACITY OF PLANTS

	Number of Power Stations	Total Installed Capacity-Kilowatts
50,000 kilowatts and over	15	1,939,300
20,000 kilowatts and over, but below 50,000 kilowatts ...	5	161,000
10,000 kilowatts and over, but below 20,000 kilowatts ...	5	78,327
5,000 kilowatts and over, but below 10,000 kilowatts ...	5	39,350
1,000 kilowatts and over, but below 5,000 kilowatts ...	47	104,547
Below 1,000 kilowatts	243	56,143
	320	2,378,667

STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY IN THE UNION OF SOUTH AFRICA (continued)

SIZE AND TYPE OF GENERATING UNITS

Size of Generating Units	Steam Turbines	Steam: Reciprocating Engines	Diesel and Heavy Oil Engines	Petrol, Paraffin and other Light Oil Engines	Gas Engines	Water Wheels and Turbines	Total Number of Generator Sets	Division of Total	
								Local Authorities	Private Companies
(1) A.C. Plant:									
Below 250 kilowatts	—	76	391	16	8	27	512	400	112
250 kilowatts and over, but below 1,000 kilowatts ...	36	65	20	—	9	13	143	39	104
1,000 kilowatts and over, but below 5,000 kilowatts ...	82	—	6	—	—	—	88	26	62
5,000 kilowatts and over ...	111	—	—	—	—	—	111	29	82
(2) D.C. Plant:									
Below 250 kilowatts	1	23	156	9	3	—	192	140	52
250 kilowatts and over, but below 1,000 kilowatts ...	1	6	—	—	3	—	10	1	9
1,000 kilowatts and over, but below 5,000 kilowatts ...	—	—	—	—	—	—	—	—	—
5,000 kilowatts and over ...	—	—	—	—	—	—	—	—	—

FUEL CONSUMED

Type of Fuel	Quantity (Tons of 2,000 lb)	Cost
Coal	8,716,169	£4,335,957
Coke	18,206	8,627
Charcoal	—	—
Fuel Oils	33,742	156,183
Other Fuel (Wood, etc.)	—	3,440
Lubricating Oils	—	116,668
Total Cost		£4,920,875

STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY IN THE UNION OF SOUTH AFRICA (continued)

COAL CONSUMPTION

Average Coal Consumption per Unit Generated	Number of Undertakings
Under 2 lb	27
2 lb and over, but under 3 lb	18
3 lb and over, but under 4 lb	16
4 lb and over, but under 6 lb	17
6 lb and over, but under 8 lb	6
8 lb and over	16

TRANSFORMERS

Total Installed Capacity	8,715,628 kVA

Total value of land, buildings, machinery, plant and tools ...	£95,281,265
Total average number of persons employed in the Electricity Industry (Generation and Distribution)	23,264
Total Salaries and Wages and Allowances paid for the year ...	£6,031,182