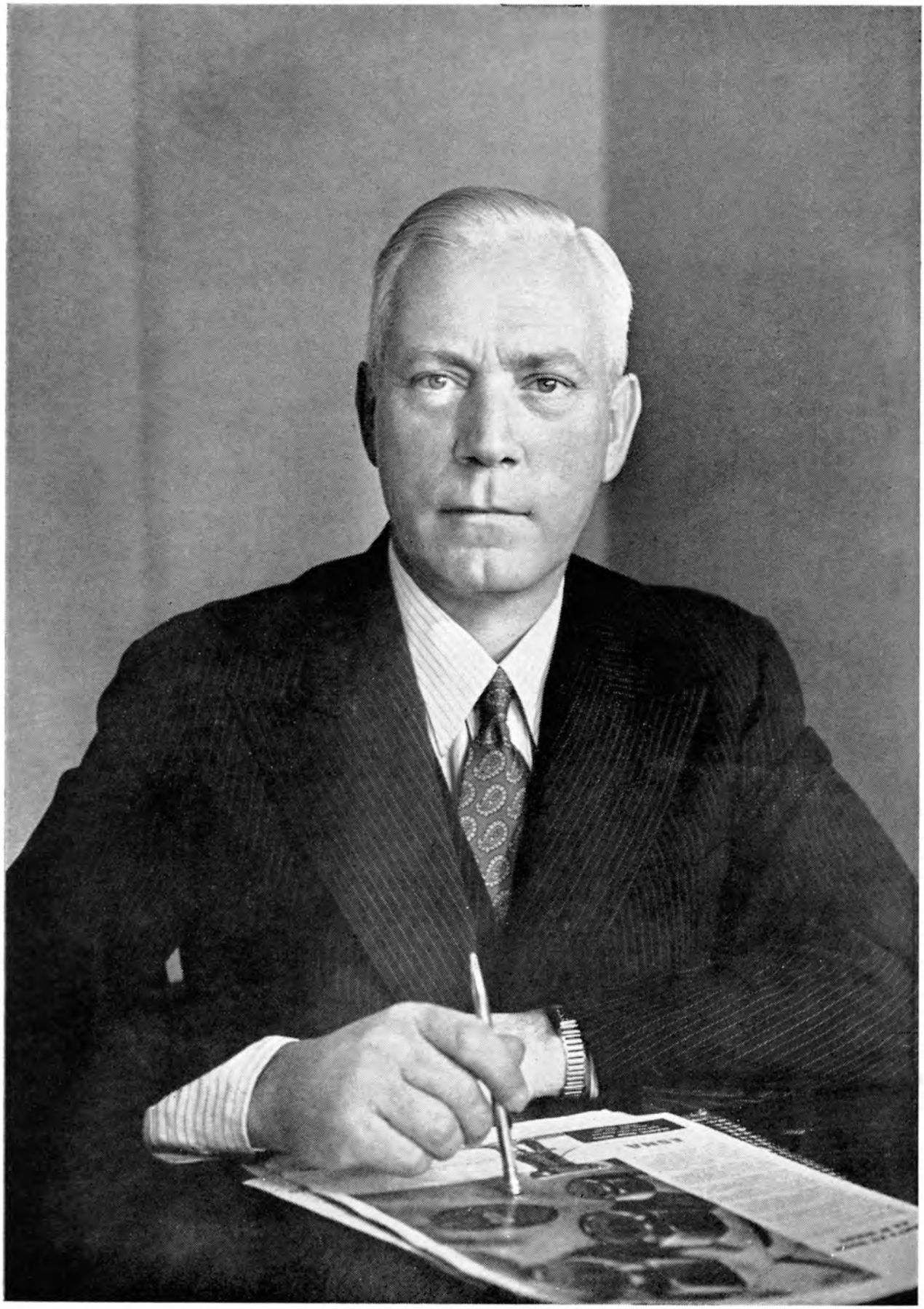

The Late DR. H. J. VAN DER BIJL, Chairman, 1923-1948.

[Photo Leon Levson.

MEMBERS OF THE

Electricity Supply Commission

ALBERT MICHAEL JACOBS (Chairman)

ROBERT BURNS WATERSTON

WILLIAM PLOWMAN MOYESE HENDERSON

CALVIN STOWE McLEAN

JOHANNES THEOBALD HATTINGH

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Electricity Supply Commission

Escom House,
Rissik Street,
Johannesburg,

21st June, 1949.

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-sixth Annual Report, covering its operations for the year ended 31st December, 1948, together with a brief review of its activities up to 30th April, 1949.

GENERAL

Death of Chairman

The Commission records, with sorrow and a deep sense of loss, the death of its Chairman on 2nd December, 1948.

Dr. Hendrik Johannes van der Bijl, Ph.D., F.R.S., LL.D., D.Sc., M.Am.I.E.E., and Past Pres. S.A.I.E.E., was Chairman of the Commission from its establishment in 1923 until his death, and to him, more than to any other man, is due the Commission's successful and efficient development.

Dr. van der Bijl was born at Pretoria in 1887, and his outstanding educational achievements in South Africa and in Germany led to his appointment as research physicist to an important engineering group in the United States, where his work, particularly in connection with radio-telephony, established his reputation as a scientist.

In 1920 he was persuaded by the Government to return to South Africa and accept the post of Technical Adviser on Industrial Development to the Department of Mines and Industries. After being intimately associated with the framing of the Electricity Act (1922), in 1923 he became Chairman of the Commission established by the Act.

From that date the Commission's development has been recorded in these Reports, and its Chairman's faith in his country's future, and his pride in the Commission's contribution to its progress, may be read in words written shortly before his death:

> "It has been my pride and privilege for 25 years to be Chairman of the Electricity Supply Commission; to have the satisfaction of seeing it grow from the embryo of 1923 to the lusty adult of 1948; and, with my colleagues, to have borne the responsibility for its growth and development.

"Our inspiration has derived from faith in the future of our country. Still a young and vigorous land in a world grown old and perhaps weary, South Africa possesses abundant resources which her virile people will not leave undeveloped . . .

"South African industry is developing apace, but the steps that have been taken will be as the steps of infancy when compared with the strides of future years . . . As the days of the Voortrekkers appear to us, so will present times appear to South African citizens of the not distant future.

"There lies before the Electricity Supply Commission a great task and a great opportunity. It will be our endeavour to play our part not as those who follow where others lead, but as pioneers."

The Commission is his creation and his monument, but it is not only as administrator, industrialist and scientist that Hendrik Johannes van der Bijl will be remembered. His humanity, his kindness and his charm endeared him to everyone, and all who worked with him will remember him with affection.

Dr. van der Bijl is succeeded as Chairman by Mr. A. M. Jacobs, M.A., M.Am.I.E.E., M.(S.A.)I.E.E., who was the Commission's Chief Engineer from June, 1923, to June, 1948, when he was appointed Consulting Engineer. Mr. Jacobs has been a Commissioner since 1926.

Twenty-fifth Anniversary

1st March, 1948, was the twenty-fifth anniversary of the establishment of the Commission. To commemorate the event, a brochure was issued and widely distributed, recording and illustrating the Commission's expansion over a quarter of a century. This expansion may here be briefly summarised as follows:—

Year	Generating Capacity, 1,000's kW	Units Sold, Millions	Capital	Value of Assets	Revenue
1925	0·4	0·08	£389,327	£952,486	—
1930	229	890	£8,000,000	£8,554,583	£1,005,795
1935	380	1,119	£12,250,000	£14,438,087	£1,250,542
1940	783	1,070	£19,484,095	£24,739,843	£2,861,220
1945	875	1,706	£24,250,000	£34,443,648	£3,753,660
1948	1,461	5,577	£15,250,000	£61,840,084	£6,492,153

So far as can be foreseen, it is probable that progress in the future will be even more rapid than it has been in the past.

Purchase of V.F.P. Co.'s Undertaking

The close co-operation which had long existed between the Commission and The Victoria Falls and Transvaal Power Co. Ltd. reached its culmination when, with effect from 1st July, 1948, the Commission purchased the Company's electricity undertaking in the Union for £14,500,000.

The transaction, believed to be the largest of its kind in the industrial history of South Africa, was financed by the issue of a £15,000,000 3½ per cent. loan at par, which was over-subscribed on the date of issue.

Among the assets acquired by the Commission from the Company are:—

Power Stations at Rosherville, Simmerpan, Vereeniging and Brakpan, with an aggregate generating capacity of 297,600 kW and compressed-air plant aggregating 117,600 kW;

41 miles of air-pipe lines;

1,309 miles of transmission lines;

711 miles of pilot and telephone lines;

12 major and 6 minor distributing substations;

equipment in 304 consumer substations;

918 transformers aggregating 2,315,892 kVA.

Since its establishment in 1906 the V.F.P. Co. had developed into one of the most important power supply organisations in the Commonwealth, its major function being the supply of power and compressed air to the gold mines of the Rand. The close association of the Company and the Commission began with the construction of Witbank Power Station in 1925/26. This station, and subsequently the Klip and Vaal stations, were constructed and operated by the V.F.P. Co. on behalf of the Commission.

The organisation of this new acquisition within the Rand Undertaking is described later in this Report.

Each post-war year has brought the hope of speedier deliveries from overseas of equipment urgently needed for the Commission's planned expansion to meet constantly increasing demands from all classes of consumers, but each year the hope has turned to disappointment, for improvement in the rate of deliveries is very slow. Each year, however, sees the installation of some major items of equipment and a steady increase in the Commission's power resources.

During 1948 a 40,000 kW turbo-generator at Congella Power Station and a 25,000 kW set at Colenso No. 2 Station were installed, as well as two 1,000 kW Diesel sets at Worcester. It is expected that a 33,000 kW main turbo-generator, a 7,000 kW house set and four 190,000 lb/hr boilers at Vaal Power Station will be commissioned during 1949, also two 1,000 kW Diesel sets at Port Shepstone.

The following are some major items of power station equipment still on order:—

For Congella: One 40,000 kW turbo-generator, for delivery in 1949, and three 200,000 lb/hr boilers.

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

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

For Vaal: Three 33,000 kW main turbo-generators, one 7,000 kW house set and eight 190,000 lb/hr boilers.

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

Costs and Tariffs

The equipment mentioned above, and other planned extensions, will cost very considerably more than existing installations, and increases in the cost of electricity to consumers will consequently be inevitable.

From the figures on page 18 it will be seen that revenue and production costs show considerable increases in 1948, reflecting the inclusion of the former V.F.P. Co.'s undertaking within the Commission's operations during the second half of the year. Revenue increased by 42 per cent. to £6,492,153, and production costs rose by 41 per cent. to £6,425,105. The excess of revenue over production costs on all the Commission's operations in 1948 amounted to £67,048. 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 licences 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.

New Undertakings

The Rand Undertaking was inaugurated on 1st July, 1948. It incorporates the undertakings of The Victoria Falls and Transvaal Power Co. Ltd. then purchased by the Commission, and comprises an extensive grid system, fed by the following power stations:—

	Electric. kW	Air/Steam. h.p.
Brakpan	48,000	7,600
*Canada Dam	—	22,200
Klip	424,000	—
*Modder B and New Modder	—	6,850
*Robinson	—	14,000
Rosherville	60,500	18,800
Simmerpan	40,000	—
Vaal	172,000	—
Vereeniging	157,500	—

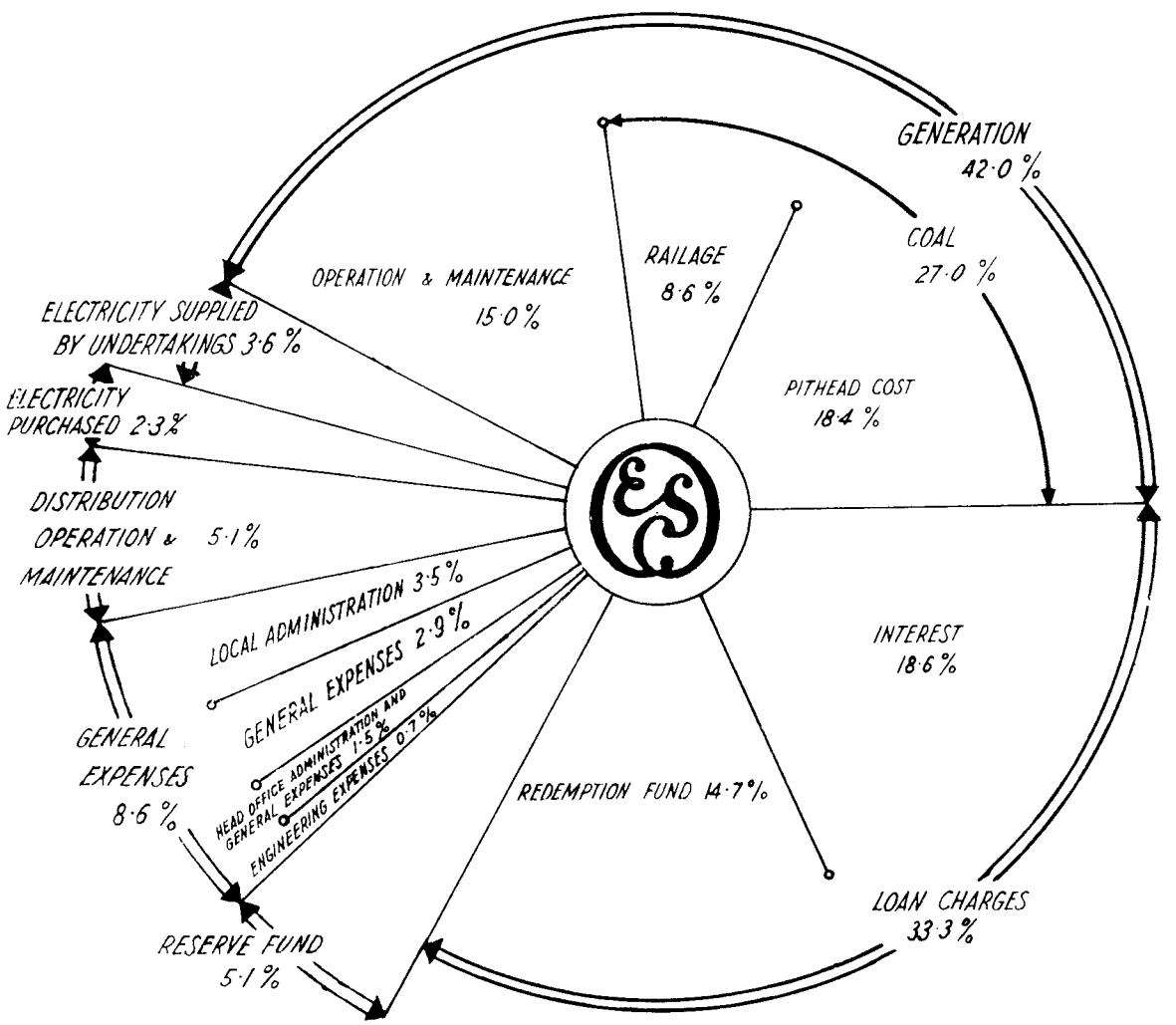
* Electrically operated.

In addition, Witbank Power Station supplies a portion of its output to the grid system.

SUB-DIVISION OF

TOTAL PRODUCTION COSTS

FOR THE YEAR 1948



The area of supply of the Rand Undertaking embraces the licensed area of the former Rand Extension and Greater Rand Extension Undertakings, and also the areas formerly included in the licences granted to The Victoria Falls and Transvaal Power Co. Ltd. and its subsidiary the Rand Mines Power Supply Co. Ltd., covering approximately 28,000 square miles of the Transvaal, Orange Free State and Northern Cape Province. The gold-mining industry is the main consumer of power from this Undertaking, but transmission lines radiate to other consumers in all parts of the area, and all traction and other requirements of the S.A.R. & H. in the Witwatersrand area are supplied from this system.

The King William's Town and Alice Municipal Undertakings, including reticulation, were acquired by the Commission with effect from 1st January, 1948, and incorporated in the Border Undertaking.

Projects

Continued expansion of demand throughout the Union from all classes of consumers—mining, industrial, traction, domestic and rural—entails a heavy programme of new construction, and plans are in hand for building a number of new power stations.

Vierfontein Power Station

With the opening up of the Free State gold mines in the next few years, the power required from the Commission's Rand Undertaking will be considerably increased, and to meet this demand it will be necessary to build a new power station of about 200,000 kW capacity. It will be sited on a coalfield near Vierfontein, about eight miles south of the Vaal River, from which make-up cooling water will be pumped. The initial installation of five turbo-generators and nine boilers is estimated to cost £7,000,000.

It is anticipated that the first unit in the station will be commissioned in the second half of 1953, and that by 1956 the installation will have been increased to 12 boilers and 7 turbo-generator units.

Hex River Power Station

The station previously described as Worcester Power Station will be known as Hex River Power Station. This will avoid the possibility of confusion between it and the Worcester municipal station.

The new station's function will be to supply the northern area of the Cape system, as well as to provide power for the electrification of the railway main line from Bellville to Touws River. It is planned for seven boilers, each 200,000 lb/hr evaporative capacity, and five turbo-generators each 20,000 kW to be completed by 1960, with four boilers and three turbo-generators in operation during 1952. The initial installation is estimated to cost £3,600,000. Meanwhile two 1,000 kW Diesel sets are operating at Worcester in parallel with the Cape system, to assist in supplying the local load. Work is proceeding on the foundations for the main buildings.

Umgeni Power Station

The new station to be constructed near Pinetown, to be known as Umgeni Power Station, is required to secure adequate supply to the electrified railway system and to meet the increasing power demands of Durban Municipality, industries and other consumers.

Electricity Supply Commission

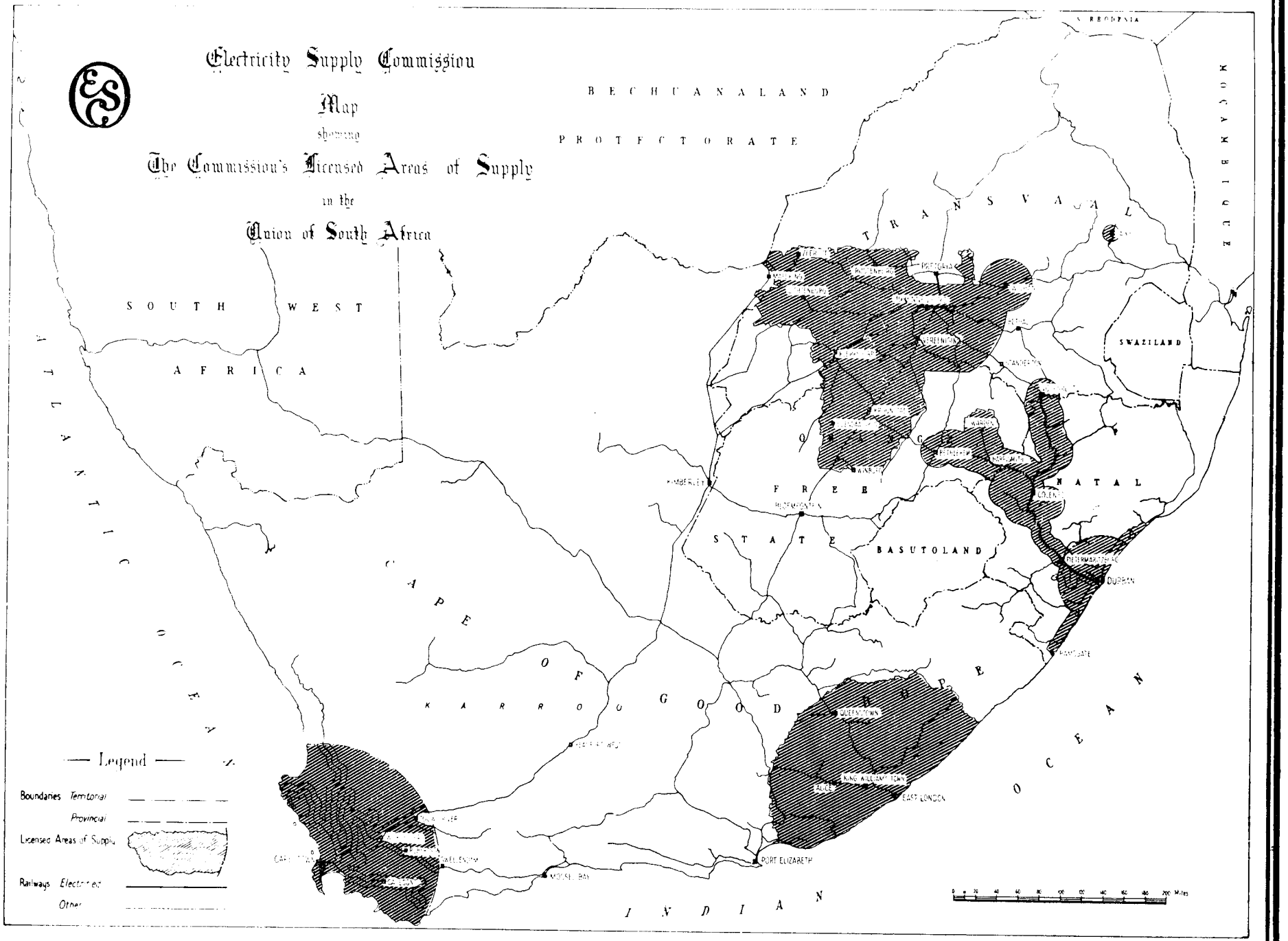
Map

showing

The Commission's Licensed Areas of Supply

in the

Union of South Africa



Initial installation will be four boilers, each 180,000 lb/hr evaporative capacity, and two turbo-generators, each 30,000 kW, at an estimated cost of £4,750,000. Ultimate plans envisage the installation of a further ten boilers and six turbo-generators of similar capacity. Tenders have been received for the steel frame building and major items of plant for the initial installation.

Salt River No. 2 Power Station

It will not be many years before demands for power on the Cape system exceed the capacity of existing power stations, and to meet the situation the Commission has under consideration the erection of a new station on a site adjoining the existing Salt River station.

The plans contemplate an initial installation of one 30,000 kW turbo-generator and two 255,000 lb/hr boilers to be in operation by mid 1954, with a second turbo-generator and two additional boilers operating in 1955. At this stage the cost is estimated at £4,134,000. The complete installation, planned to be ready in 1959, will be eight 255,000 lb/hr boilers and six 30,000 kW turbo-generators, estimated to cost over £8,000,000.

Other Projects

Other major projects envisaged by the Commission are:—

(a) A new power station at East London, on a site adioining the existing station on the west bank of the Buffalo River.

(b) An additional power station in the Southern Transvaal area.

(c) A base-load power station at Port Elizabeth, to operate in conjunction with the municipal station.

(d) The acquisition of the Kimberley Power Station of De Beers Consolidated Mines Ltd., as mentioned in last year's Report.

Railway Traction Substations

By arrangement with the Commission, ownership of the mercury arc rectifier substations on the Natal main line and on the Reef passed to the South African Railways and Harbours Administration on 1st April, 1948. They were used solely for traction supplies, and were operated by Railway staff.

It was also arranged that ownership of the rotary converter substations on the Cape electrified railway system should be transferred to the Railways Administration from 1st December, 1948. These were also used solely for traction supplies. The Administration now owns all the converting substations supplying their electrified system in the Cape.

Traction Supplies Natal

For a number of years it has been intended that the provision of power for a portion of the Natal main line should be transferred from Colenso Power Station to Congella, but until recently the desired transfer could not be effected owing to the growth of load on the latter station, and difficulties and delays in obtaining additional plant.

With the commissioning of the second new 40,000 kW turbo-generator at Congella it became possible to put the plan into operation, and on 26th December, 1948, that station commenced supplying power to the electrified section of the main line from Durban to Cato Ridge.

This transfer in source of power supply will bring some financial relief to the Durban Corporation, and entail some additional expense to the Railways Administration in respect of cost of electricity, but it is expected that the additional expense will be offset by greatly improved operating conditions on the main electrified line.

Klip Power Station burns, on an average, 4½ tons of coal every minute. As the colliery supplying the station is rapidly becoming exhausted, it has become necessary to provide for coal supplies from another source. These supplies will come from New Springfield Collieries at Grootvlei, about 12 miles from Balfour, entailing the construction by the S.A.R. & H. of approximately 40 miles of railway line, from Grootvlei to the power station at Redan, and its construction has begun.

Coal Supplies to Klip Power Station

Work has also begun on the installation of new coal-handling plant at Grootvlei and the construction at the Klip station of a new 9,000 ton reinforced concrete coal staith carrying two main line tracks and the necessary coal-conveying plant. The supply of coal under the new arrangements is expected to begin towards the end of 1951.

The aggregate installed plant capacity in the Commission's power stations at 31st December, 1948, was 1,461,261 kW, the increase of 416,071 kW over the corresponding figure for the previous year being mainly accounted for by the acquisition of The Victoria Falls and Transvaal Power Co.'s Undertaking. Plant under erection or on order will bring the total to 1,948,161 kW.

Plant Capacity

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

Largely owing to the acquisition of the V.F.P. Co.'s Undertakings, the Commission's transmission system and installed transformer capacity expanded considerably during 1948, as the following figures indicate:

	1948	1947
Transmission lines and cables, route miles	5,192	3,164
Installed transformer capacity, kVA	5,262,926	1,970,949

This acquisition also resulted in an increase of 900 square miles in the licensed area of supply, making the total 73,200 square miles.

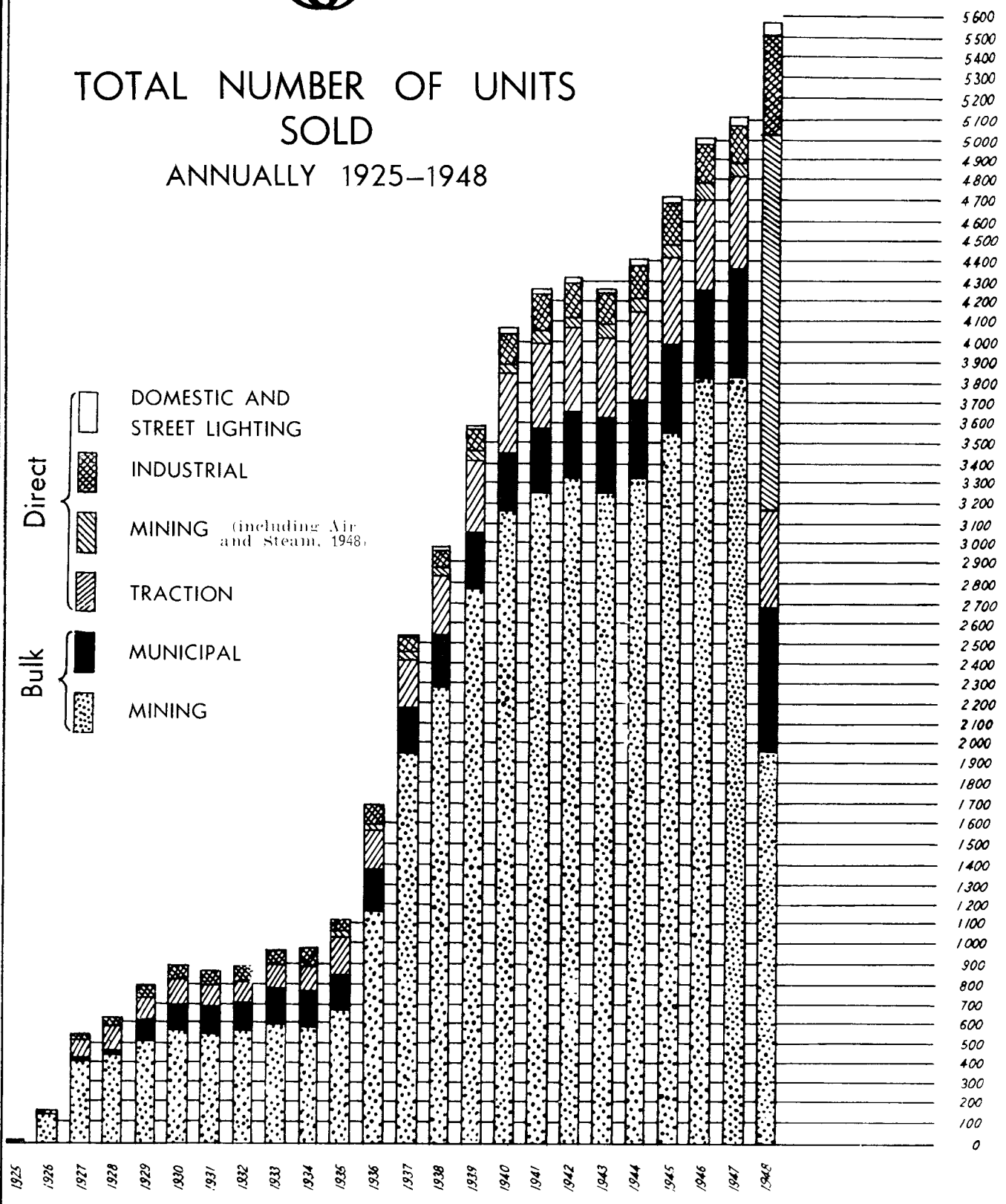
Shortage of materials and, in particular, slow deliveries of insulators from overseas, have retarded progress in construction of the many new transmission lines required to meet the growing demand for electricity in all areas. The following are some of the major lines under construction or projected at the year's end:—

Under Construction:

Colenso to Winterton and Bergville	33 kV,	34 route miles.
Oakdale to Wellington	66 kV,	20 route miles.
Wellington to Worcester	66 kV,	63 route miles.
Worcester to Robertson	66 kV,	30 route miles (duplicate).
Salt River to Oakdale	33 kV,	12 route miles (triplicate).

TOTAL NUMBER OF UNITS SOLD

ANNUALLY 1925–1948



Salt River to Elsies River	....	....	33 kV, 8 route miles (duplicate).
Witbank to Middeldrift and Bethal		....	88 kV, 48 route miles.
West Wits. to Mafeking	....	....	88 kV, 128 route miles.
West Wits. to Rustenburg	....	....	88 kV, 64 route miles.
Projected:			
Colenso to Springfield	....	....	132 kV, 140 route miles.
Congella to Port Shepstone	....	....	88 kV, 74 route miles.
Oakdale to Somerset West	....	....	66 kV, 19 route miles.
Worcester to Touws River	.....	....	66 kV or 88 kV, 42 route miles (duplicate).
Vaal to Alma (second line)	....	....	88 kV, 121 route miles.
Vaal to West Wits. (second line)		....	88 kV, 55 route miles.
Vaal to Vierfontein	....	....	132 kV, 80 route miles.
Vierfontein to Alma	....	....	132 kV, 62 route miles (duplicate).

Conversion from 33 kV to 88 kV of the 33 mile line from Glencoe to Newcastle has been completed. The projected line from Colenso to Springfield, near Durban, will connect with the new power station near Pinetown.

Units generated by and sold from the Commission's power stations again achieved new records in 1948. Aggregate figures for all stations were:

	1948	1947	Increase
Units Generated	6,106,914,109	5,298,765,123	15·252%
Units Sold	5,576,858,881	5,114,474,724	9·041%

The following figures record units sold by individual undertakings:

	1948	1947	Percentage Change
Border	69,217,120	56,170,900	+23
Cape Town	222,439,123	198,640,259	+12
Durban	448,671,496	402,561,103	+11
Natal Central	367,858,108	345,993,124	+ 6
Sabie	7,273,534	7,604,777	− 4
Klip	1,207,359,067*	2,547,186,151	
Vaal	435,094,620*	668,587,275	
Witbank	633,245,570†	887,731,135	
Rand	2,185,700,243‡	—	
Totals	5,576,858,881	5,114,474,724	+ 9

* For period from 1st January to 30th June, 1948.

† Excludes 254,800,413 units supplied to Rand Undertaking from 1st July, 1948.

‡ For period 1st July to 31st December, 1948.

Analysis of sales of electricity by classes of consumers is shown below. The re-classification of consumers, as between bulk and direct supplies, from 1st July, 1948, accounts for the apparent anomalies.

	1948	1947
Bulk Supplies:		
Mining	1,950,774,437	3,819,269,018
Municipal	742,702,843	534,161,654
Direct Supplies:		
Traction	479,360,270	454,255,098
Mining	1,714,174,174	70,105,747
Industrial	487,567,957	196,178,295
Domestic	64,591,020	39,427,599
Street Lighting	2,036,005	1,077,313
	5,441,206,706	5,114,474,724

In addition, 135,652,175 units of compressed air and steam were sold, making the 1948 total sales of electricity, air and steam 5,576,858,881 units.

Since the acquisition of the V.F.P. Co.'s undertaking the Commission's services include the provision of compressed air and steam units for the gold mines of the Rand, from stations at Rosherville, Robinson, Canada Dam, Brakpan, Modder B and New Modder.

A chart showing annual sales of electricity is on page 14 of this Report. Statement No. 3 of Annexure "B" gives units sold to all consumers by each undertaking during the past 24 years, and the distribution of units sold is shown in Statement No. 4.

FINANCIAL

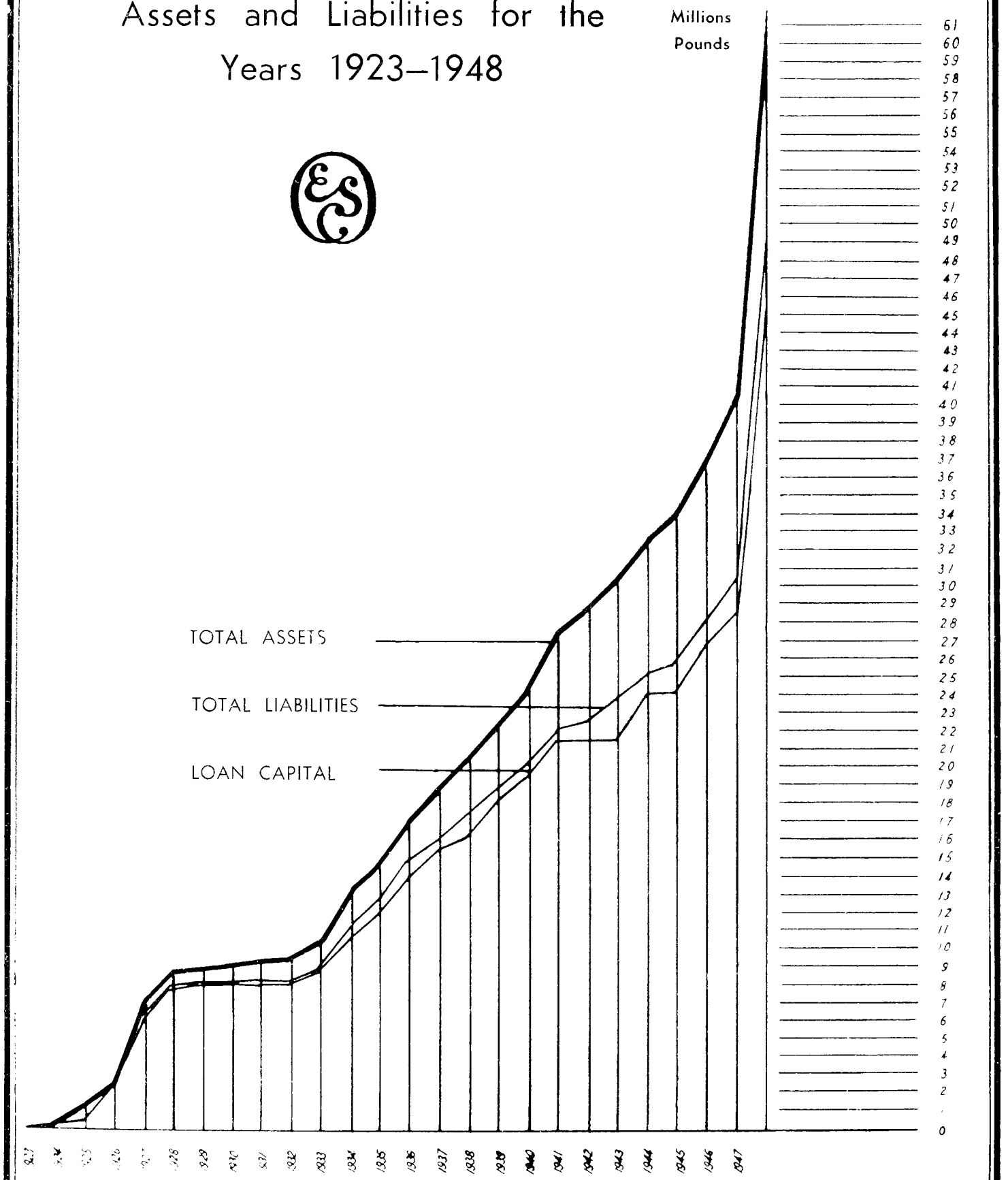
Loan Capital

A loan of £15,000,000 bearing interest at 3¼ per cent. per annum was raised at par on 10th June, 1948, redeemable on 30th June, 1968/73. The loan was over-subscribed on the date of issue. This loan increased the Commission's loan capital at the date of the Balance Sheet to £45,250,000.

Reserve and Redemption Funds

The amount in the Reserve Fund at 31st December, 1948, stood at £2,356,589, and the Redemption Fund at that date amounted to £10,249,689, which exceeded the amount required for the redemption of the loans over the periods fixed by the Commission, as referred to in the Auditors' Report. This excess includes the proceeds from sales of assets, and profits on realisation of investments. Moreover, yields on securities purchased since June, 1941, for Redemption Fund investments were lower than the rate of $3\frac{1}{2}$ per cent. stipulated in the Act, on which the valuation of the Redemption Fund must be based, and in order to provide for this deficiency the excess has been retained in the Redemption Fund.

Assets and Liabilities for the Years 1923–1948



Investments

The book value of securities, representing investments in Government, Municipal, Rand Water Board and Electricity Supply Commission stocks, and first mortgages on freehold properties, held by the Commission on behalf of the various funds at 31st December, 1948, was £13,173,660, the nominal value being £13,176,937. The market value of these investments at that date was £12,851,871. No provision has been made for the difference of £321,789 between the market and book values, as the securities will be retained until they are redeemed at par.

Capital Expenditure

Expenditure on Capital Account during the year, including assets purchased from The Victoria Falls and Transvaal Power Company Ltd., amounted to £16,583,097, which brought the total capital expenditure at 31st December, 1948, to £45,407,944. Expenditure on Capital Account will amount to approximately £65,480,000 on completion of all the works to which the Commission is at present committed.

Assets and Liabilities

The Commission's total assets at 31st December, 1948, amounted to £61,840,084 and its total liabilities to £49,001,296, the excess of assets (as shown in the Balance Sheet) over liabilities being £12,838,788. 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 important figures relating to the operation of the Commission's Undertakings during the year 1948, with the comparative figures for 1947 are as follows:—

	1948	1947	Increase
Revenue as per Revenue Accounts	£6,492,153	£4,573,125	41·96%
Total Production Costs (including interest, redemption and reserve fund charges)	£6,425,105	£4,564,419	40·77%
Excess of Revenue over Production Costs	£67,048	£8,706	£58,342
Average price per unit sold ...	0·2598d.	0·2085d.	24·59%
Average revenue per unit sold (including Sundry Revenue)	0·2636d.	0·2145d.	22·89%
Average cost per unit sold ...	0·2609d.	0·2141d.	21·85%
Total cost of coal consumed (including railage)	£1,754,840	£1,436,089	22·20%
Railage on coal consumed ...	£560,299	£158,735	22·14%
Coal consumed (in tons of 2,000 lb)	5,286,201	4,331,825	22·03%

A diagram showing the sub-division of the Commission's total production costs for the year 1948 is reproduced on page 9.

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 £60,667 at 31st December, 1948, of which amount £32,545 had been repaid at that date.

The continuance of building and materials controls and the high prices and shortage of building material and properties have restricted applications for loans under this scheme. A number of applications has, however, been received recently.

The staff employed by the Commission as at 31st December, 1948, numbered 2,692 (an increase of 523 during the year), made up as follows:

Europeans increased from	919	to	1,087
Non-Europeans increased from	1,250	to	1,605
	2,169		2,692

These figures exclude 1,693 Europeans and 3,465 Non-Europeans employed at the Commission's Klip, Witbank, Vaal, Brakpan, Simmerpan, Rosherville and Vereeniging power stations, which were operated from 1st July to 31st December, 1948, on behalf of the Commission by its wholly owned subsidiary, the Rand Mines Power Supply Co. Ltd.

The Commission 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 applicable to all Undertakings: The expression "Working Costs" includes Interest charges and Redemption Fund contributions on loan capital and amounts set aside to Reserve Fund.

NATAL CENTRAL UNDERTAKING

Operating Statistics

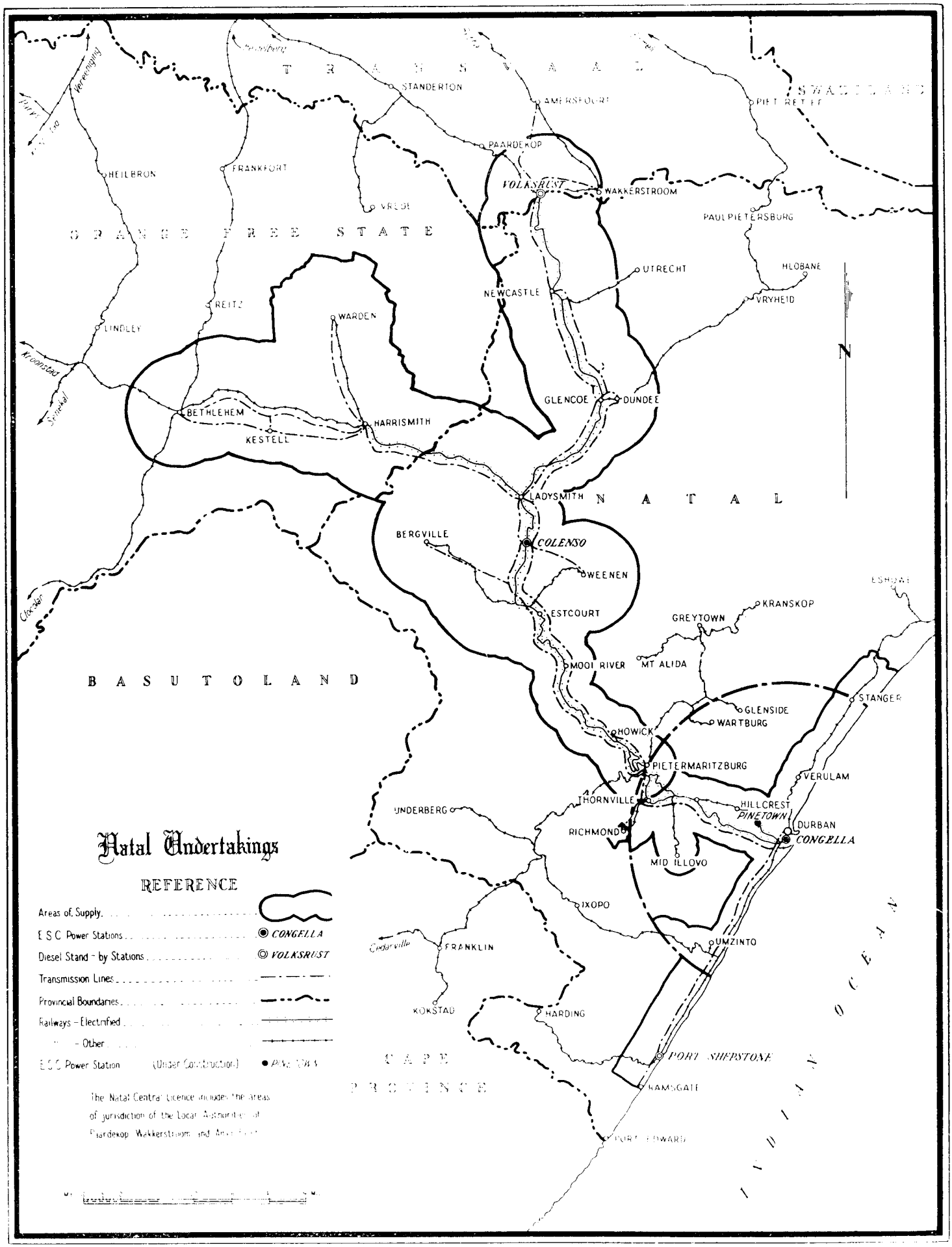
CONSUMERS.		SALES.		Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.	Increase.		1948.	1947.
			%	£	d.	d.
Traction	1	262,274,493	2·853	124,795	·3887	·4133
Bulk	11	71,192,939	13·155	151,132	·5095	·5101
Mining	8	10,533,763	33·828	24,931	·5680	·5406
Industrial	307	18,097,360	18·061	55,033	·7298	·7080
Domestic and Lighting	2,669	5,759,553	18·070	11,760	1·7401	1·7640
	2,996	367,858,108	6·319	697,651	·4552	·4659

	1948.	1947.	To 31/12/48.
Revenue	£706,045	£677,944	
Working Costs	£718,638	£686,242	
Deficit	£12,593	£8,301	£9,185
Capital Expenditure	£539,302	£541,662	£5,935,360
Units Sent Out	390,508,680	366,436,820	
Maximum half-hour Demand kW	65,780	62,590	
Station Peak kW	82,500	82,000	
Load Factor	67·6	66·8	
Thermal Efficiency	17·66	17·92	
COAL:			
Consumption tons	309,291	286,152	
Average per unit sent out—lb	1·584	1·562	
Total Cost	£177,768	£161,520	
Cost per ton	11s. 6d.	11s. 4d.	

Operating Conditions

Operating conditions at Colenso Power Station continued to be difficult during 1948. Construction of buildings for the extensions has been completed, but it will not be possible to put the new 25,000 kW turbo-generator into commercial operation until February, 1949, and the first of the two new boilers will not be operating until May, 1949. Coal shortages have presented a problem, and for long periods reserves have been extremely low.

Despite difficulties, however, no serious failure of supply occurred, and sales increased by more than 6 per cent. over the 1947 figure. As forecast last year, sales for mining and industrial purposes record notable increases.


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)
The Natal Central Licence includes the areas of jurisdiction of the Local Authorities of Paardekop Wakkerstroom and
TRANSVAAL
ORANGE FREE STATE
NATAL
BASUTOLAND
CAPE PROVINCE
INDIAN OCEAN
STANDERTON
AMERSFOORT
PIET RETIEF
SWAZILAND
PAARDEKOP
VOLKSRUST
WAKKERSTROOM
HEILBRON
FRANKFORT
VREDE
PAUL PIETERSBURG
UTRECHT
HLOBANE
NEWCASTLE
VRYHEID
REITZ
WARDEN
LINDLEY
GLENCOE
DUNDEE
BETHLEHEM
HARRISMITH
KESTELL
LADYSMITH
BERGVILLE
COLENSO
WEENEN
ESTCOURT
GREYTOWN
KRANSKOP
ESHOWE
MOOI RIVER
MT ALIDA
STANGER
GLENSIDE
WARTBURG
HOWICK
PIETERMARITZBURG
VERULAM
THORNVILLE
HILLCREST
PINETOWN
DURBAN
CONGELLA
UNDERBERG
RICHMOND
MID ILLOVO
IXOPO
UMZINTO
FRANKLIN
KOKSTAD
HARDING
PORT SHEPSTONE
HAMMOGATE
PORT EDWARD
N

Installation of the new generating set will present an opportunity for much-needed overhaul of plant; the first 25,000 kW machine, for instance, operated from 1943 to the end of 1948 without an opportunity for major overhaul.

Distribution System

Following the conversion to 88 kV of the 33 kV line from Glencoe to Newcastle and completion of the Newcastle step-down substation, negotiations have been concluded for supplying Utrecht Township and Utrecht Collieries, and the necessary plant is on order. Extensive modifications to Glencoe substation have been carried out, supply given to Northfield Collieries, and additional supplies to Burnside Collieries. The 88 kV substation at Dannhauser was almost complete at the year's end, with one 1,000 kVA transformer installed and in use.

After considerable delay the three new 9,000 kVA transformers have reached Pietermaritzburg, and these will release the 2,400 kVA transformers there for service elsewhere. One will be installed at Estcourt, where the necessary modifications have been completed to meet increased demand due to the establishment of the new hardboard factory; temporary supply is being given meanwhile from the traction transformer.

The contract has been placed for construction of the 132 kV transmission lines between Colenso and Springfield, Durban. The routes have been determined, survey has begun, and the majority of the necessary servitudes have been obtained.

Railway Traction

Railway traction supply was satisfactorily maintained throughout the year, and units supplied for traction amounted to approximately 71 per cent. of the total units sold. New arrangements for traction supplies, operative from 26th December, 1948, are recorded in page 12 of this Report.

Rural Supplies

A keen demand continues for connections in rural areas. The material position improved somewhat during 1948, but there has been difficulty in obtaining adequate and suitable field staff. More than 50 new rural consumers were connected, and about 109 miles of medium voltage transmission line remain to be erected.

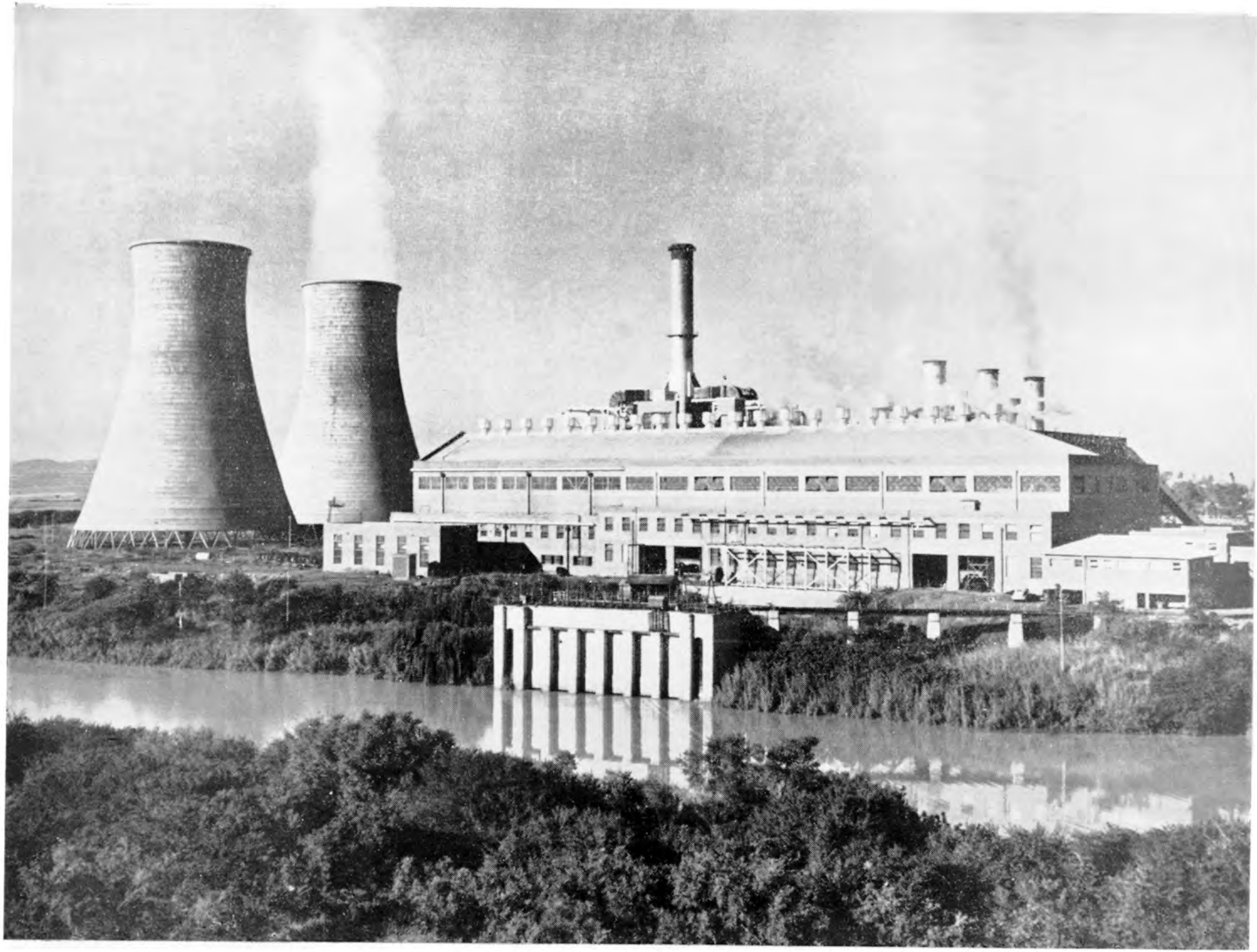
Housing

Work on the housing programme at Colenso proceeded steadily, sixteen new houses were occupied, and an order has been placed for a further twenty. Water-borne sewage has been sanctioned and is being installed at all the Commission's houses at Colenso.

The Commission supplies potable water in bulk to the Colenso Town Board, which has assumed responsibility for reticulation, and the mains in certain streets, formerly the property of the Commission, have been transferred to the Board.

Financial

The accumulated surplus at the beginning of 1948 was £3,408, and the year's operations showed an excess of expenditure over revenue amounting to £12,593. Thus the net deficit at the year's end was £9,185.



COLENSO POWER STATION, 1948.

(Photo courtesy S.A.R. & H

WITBANK UNDERTAKING

Operating Statistics

CONSUMERS.	SALES.			Average Price per Unit Sold.	
Class.	Number.	Units.	Increase or Decrease.	Revenue.	1948.	1947.
			%	£	d.	d.
Traction	1	152,408,751	+ 15·566	221,571	·3489	·3980
Bulk	1	310,594,375*	− 18·701	146,585	·1133	·1068
Mining	35	59,633,033	+ 9·158	103,085	·4149	·3621
Industrial	93	107,558,435	+ 15·663	94,452	·2108	·1868
Domestic and Lighting	1,258	3,050,973	+ 11·605	13,781	1·0843	1·0150
	1,388	633,245,570*	− 28·667	579,477	·2196	·1770

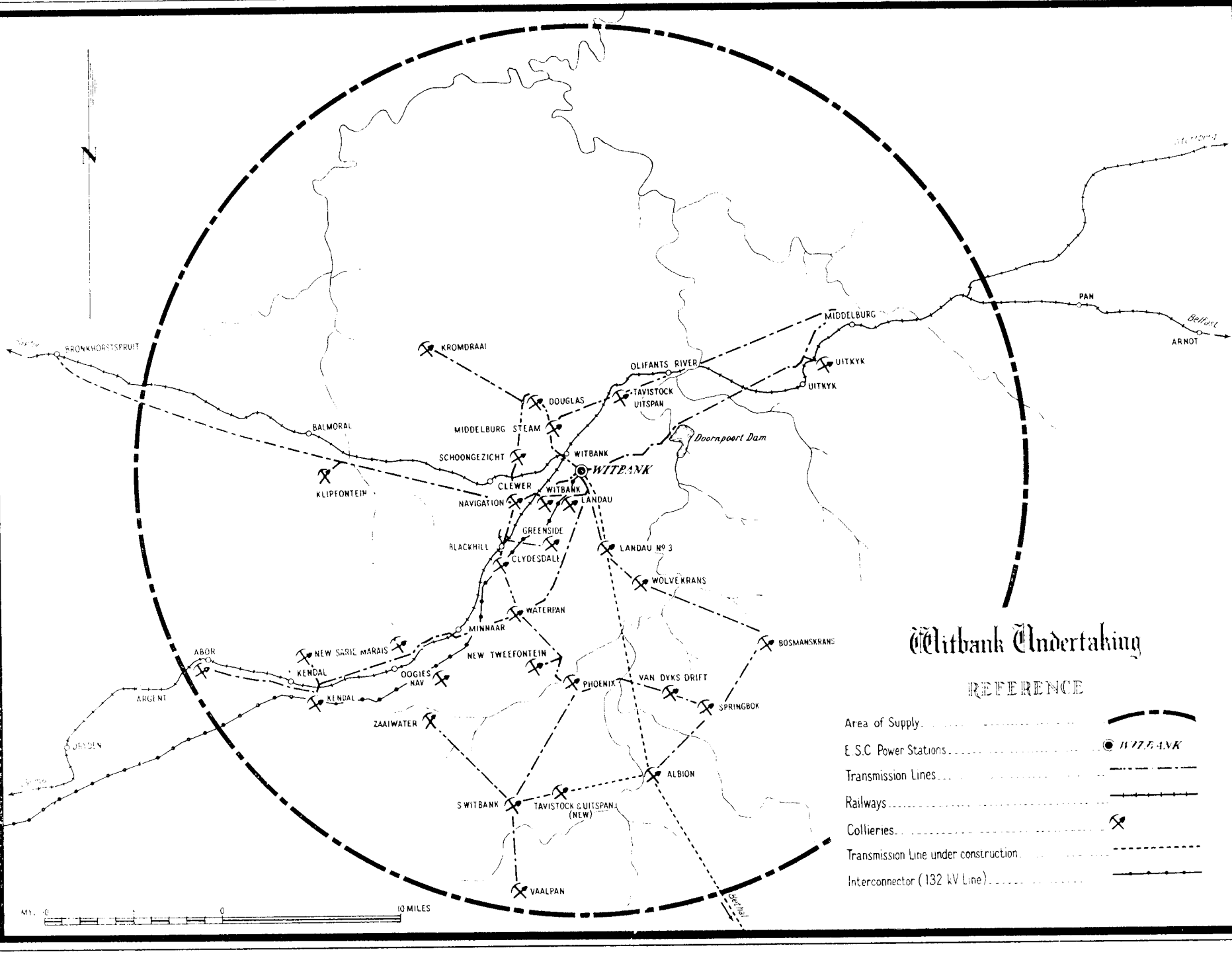
	1948.	1947.	To 31/12/48.
Revenue	£719,437	£664,202	
Working Costs	£711,459	£670,352	
Deficit	—	£6,150	
Surplus	£7,978	—	£10,605
Capital Expenditure	£71,723	£75,685	£2,941,193
Units Sent Out	738,593,299	756,926,220	
Maximum one hour Demand kW	108,042	106,157	
Load Factor %	77·8	81·4	
Thermal Efficiency %	17·04	17·02	
COAL:			
Consumption tons	671,243	688,365	
Average per unit sent out lb ...	1·818	1·819	
Total Cost	£131,902	£114,306	
Cost per ton	1s. 0d.	3s. 4d.	

* Does not include 254,800,413 supplied to Rand Undertaking from 1st July, 1948.

Output and Sales

Units sent out from Witbank Power Station decreased from 756,926,220 in 1947 to 738,593,299 in 1948.

Units sold by the Undertaking amounted to 633,245,570, compared with 887,731,135 in the previous year. The decrease is due to reorganisation following the purchase of the Commission of the V.F.P. Co.'s Undertaking. During the six months July-December, 1948, Witbank Power Station supplied 254,800,413 units into the Rand Undertaking system; thus total sales plus supplies to Rand Undertaking amount to 888,045,983 units, or an increase of 314,848 units (0·04 per cent.) over sales in 1947.


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

The number of consumers increased from 1,224 in 1947 to 1,388 in 1948.

Distribution System

Construction and development work were severely handicapped by delayed deliveries and consequent shortages of equipment and materials, particularly switchgear, transformers, insulators, steel and cement. Wherever possible temporary arrangements were made to assist consumers, but such arrangements, while they add to the final cost of works, are seldom completely satisfactory.

Despite difficulties and delays, the following construction work was carried out during 1948:

88 kV line, Middeldrift to Bethal: Approximately 14 miles were completed, after receipt of insulators.

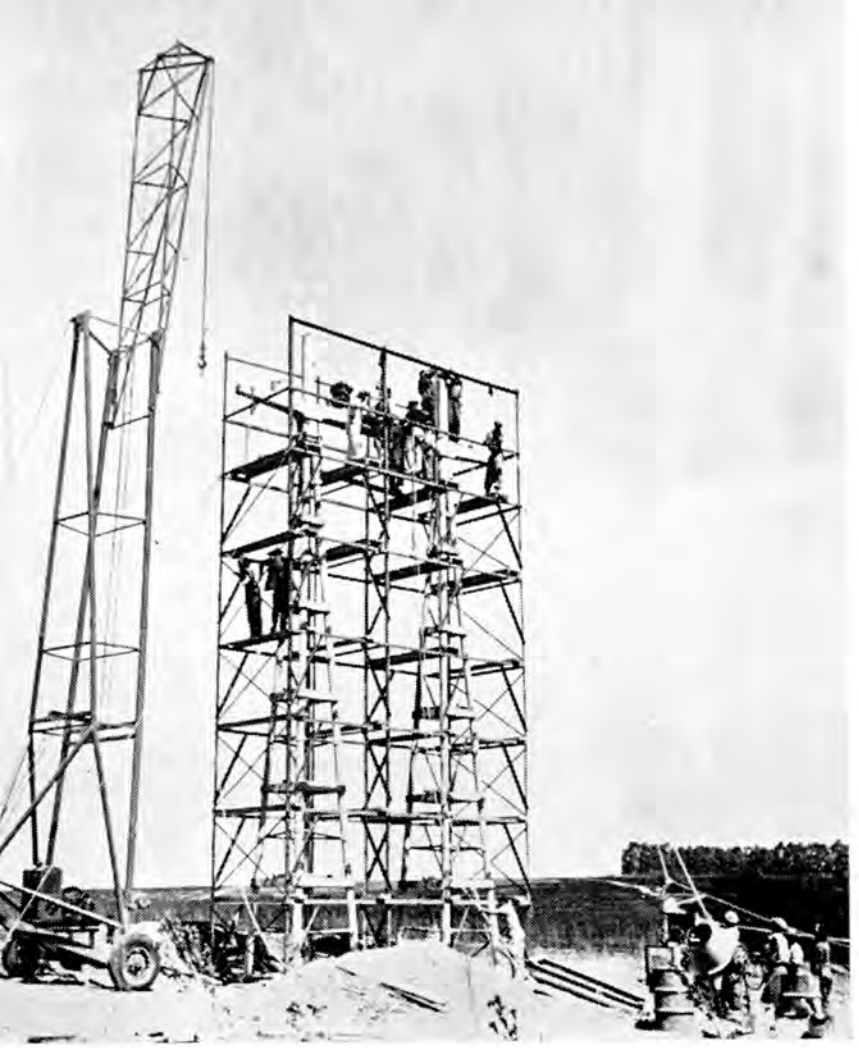
88/21 kV step-down substation, Middeldrift: Foundations, steelwork and railway siding.

21/88 kV step-up substation, Witbank: Foundations and portion of steelwork.

About 29 miles of 21 kV lines were constructed and substations partly completed for supplies to a number of collieries and to Bronkhorstspruit Township, where about 6½ miles of reticulation network were erected, to serve over 100 domestic consumers, two large mills, and the S.A.R. & H.

In the rural area 13 additional domestic consumers were added.

WITBANK-MIDDLEDRIFT-BETHAL 88kV LINE:
Prefabricated parts, ready for erection.



WITBANK-MIDDLEDRIFT-BETHAL 88kV LINE:

Erection of strain mast, showing erection structure and mobile crane.

In Witbank town additional overhead lines and cables were installed to complete the change-over to 6·6 kV primary distribution, and 56 additional consumers were connected.

Due to the late delivery of materials, it was not possible to begin supply to Bethal or to augment supplies to the rapidly developing colliery loads in the Middeldrift area. The latter loads were therefore carried direct from Witbank over the extended 21 kV network, but as protective equipment ordered four years ago began to arrive only in December, inevitably there were some outages.

The provision of portable wireless equipment, for communication between headquarters and vehicles, proved of great value in speeding up the restoration of supplies at times of breakdowns.

During the year investigations were commenced in connection with supplies to Ermelo, Breyten, Carolina and Morgenzon, and negotiations were concluded for supply to Raleigh Colliery, some 12 miles from Middelburg.

Financial

The previous Report drew attention to the increasing cost of coal at Witbank Power Station after the expiry of a supply contract at the end of 1946, necessitating discontinuance of the 10 per cent. special rebate on consumers' accounts and the imposition of a coal surcharge. These measures resulted in the conversion of a deficit of £6,150 during 1947 into a surplus of £7,978 in 1948.

CAPE TOWN UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.		Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.	Increase or Decrease.		1948.	1947.
			%	£	d.	d.
Traction	1	61,677,023	— 1·006	186,058	·6901	·6861
Bulk	9	17,616,686	+35·702	118,756	·5986	·6584
Industrial	891	75,658,468	+10·840	248,026	·7868	·7567
Domestic and Lighting	12,255	31,486,946	+23·539	176,301	1·2290	1·2527
	13,156	222,439,123	+11·981	729,141	·7870	·7851

	1948.	1947.	To 31/12/48.
Revenue	£731,349	£651,157	
Working Costs	£722,505	£624,423	
Surplus	£8,844	£26,734	£81,131
Capital Expenditure	£362,221	£179,671	£3,844,220
Units Sent Out	200,398,234	171,871,348	
Maximum half-hour Demand kW	59,300	57,200	
Station Peak kW	63,800	61,000	
Load Factor %	38·5	34·2	
Thermal Efficiency %	17·44	17·08	
COAL:			
Consumption tons	157,052	137,240	
Average per unit sent out lb ...	1·567	1·597	
Total Cost	£222,830	£192,869	
Cost per ton	28s. 5d.	28s. 1d.	

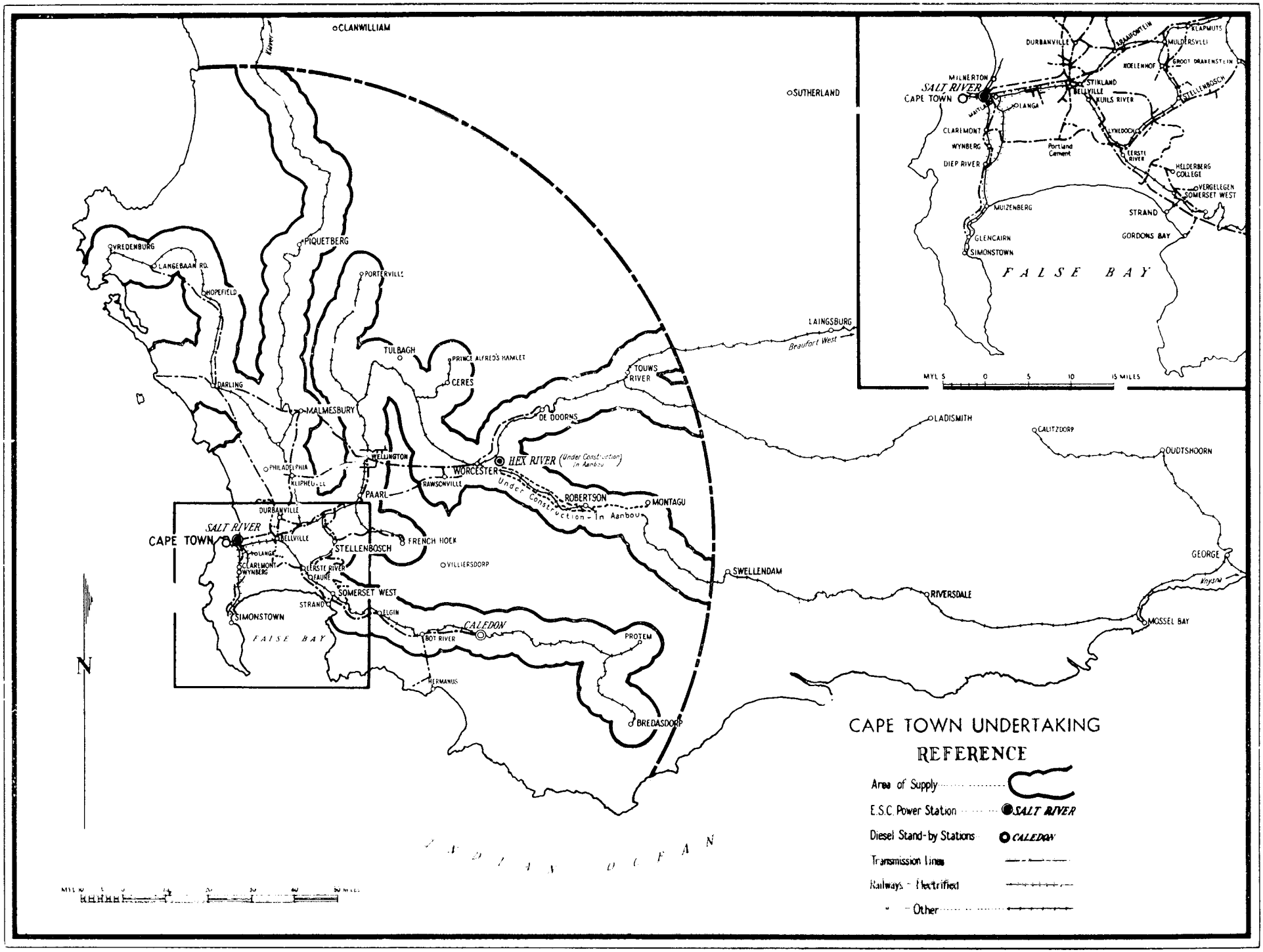
Pooled Stations

The long-standing agreement between the Commission and the Cape Town City Council, whereby their power stations operate as a single producing unit, continued to operate smoothly and beneficially during 1948.

The total number of units sent out from the pooled stations during 1948 was 738,415,143. Of this total the Commission's Salt River Power Station sent out 200,398,234 units, an increase of 16·60 per cent. over the previous year.

Electricity Demand

Operating statistics for the Undertaking clearly indicate the continued steep increase in the demand for electricity. Sales in 1948 record an increase of 12 per cent. over 1947, and the number of consumers rose from


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

11,125 to 13,156. At the year's end Industrial connections numbered 891 compared with 758, and the figure for Domestic and Lighting was 12,255 against 10,358. 137 new farm connections brought their total to 745, with the necessary agreements completed for a further 144.

So rapid an increase in demand, at a time when it is difficult to obtain new plant and deliveries thereof are very slow, inevitably caused some strain on the system, but, apart from a serious power failure on 18th March, operational continuity was satisfactorily maintained throughout the year.

Plans and Projects

There is no doubt that the power demands of the Western Cape area will continue to increase, and plans made for meeting the situation are already coming into operation. The year 1949 will see the commissioning of the fourth 40,000 kW turbo-generator at the Cape Town City Council's Table Bay Power Station, probably in time to meet winter loading conditions, and two 1,000 kW Diesel sets which were started up at Worcester in December, 1948, will be of value in relieving the strain on the main system.

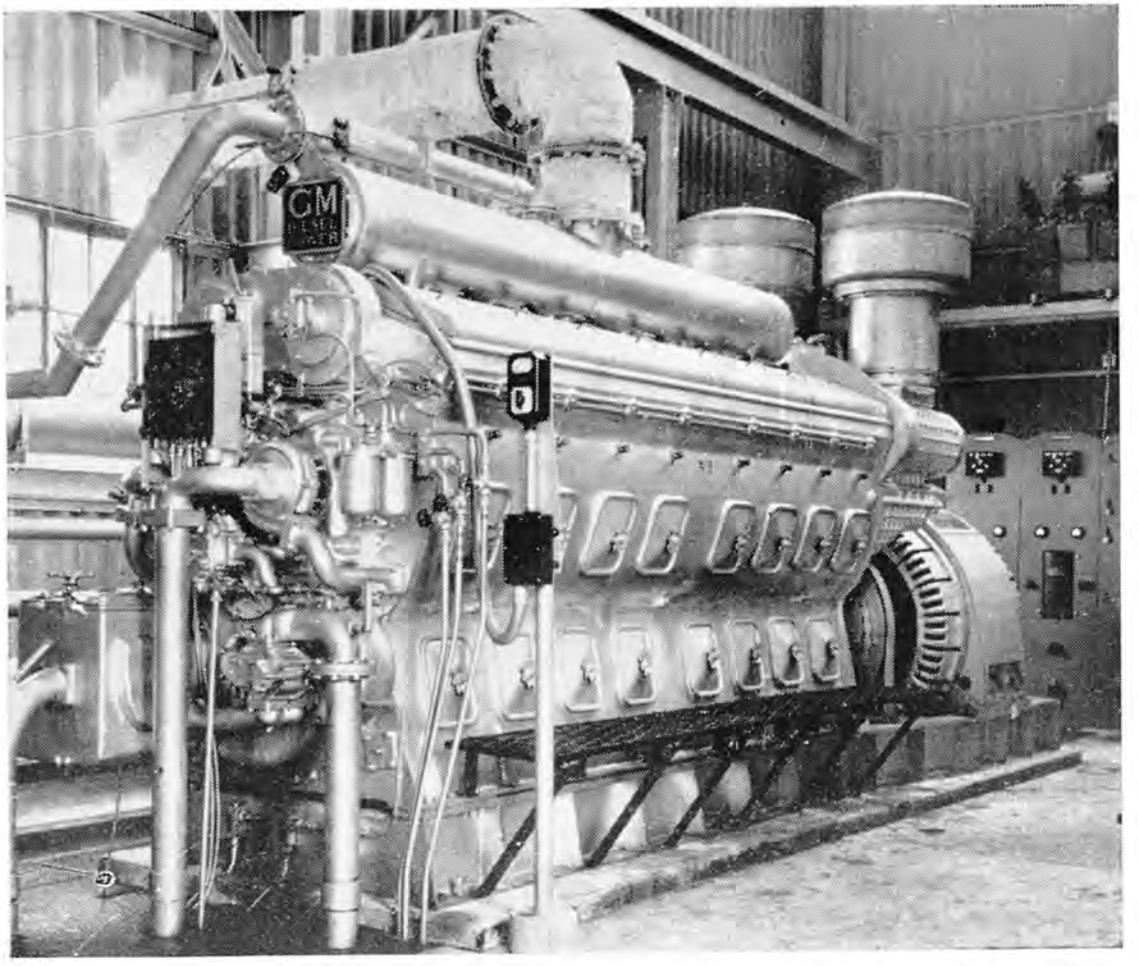
The Commission's long-term plans include the construction of a new (No. 2) power station on the Salt River site, and another, to be called the Hex River Power Station, at Worcester. The Salt River No. 2 Station will have an initial installation of 30,000 kW, to be increased later to 180,000 kW. Tenders have been received for the major items of plant, and the station should be in commercial service by April, 1954. Work has begun on the site for the Hex River Station, and contracts have been placed for all major items of plant and equipment. Initial installation will be 60,000 kW, to be increased to 100,000 kW, and the target date for commercial operation is early in 1952.

Distribution System

Work has proceeded throughout the year on the programme of reconstruction of the main transmission system, details of which were given in the Annual Report for 1947.

The laying of cables between Salt River Power Station and Oakdale substation will begin early in 1949, and it is hoped that a major portion of the cabling programme, from Salt River to Bellville and from Salt River to Elsie's River, will be in service towards the end of 1949. The same date is aimed at for operation of the Oakdale-Klipheuvel section of the 66 kV transmission system from Oakdale to the north via Wellington. Negotiations for servitudes for the 66 kV line between Oakdale and Somerset West, to serve the electrification of the Stellenbosch Loop railway line and subsequently the Strand railway electrification, will begin early in 1949. A route has been selected for the 66 kV line Wellington-Worcester via Tulbagh, and sites have been acquired, at Oakdale and Wellington, for the two major outdoor substations which are required for the new 66 kV system.

The eight additional substations, which last year's Report mentioned, to cater for the increased demands of the Goodwood, Elsie's River, Parow and Bellville areas, have been completed, but these areas continue to expand



WORCESTER DIESEL STATION:
Initial installation—No. 1 Diesel Set.

so rapidly that it is proposed to construct a number of additional new permanent substations, and to lay 11 kV and low voltage cables in a general extension of the system.

This comprehensive programme of reconstruction should result in some relief of strain on the system by the end of 1949, but complete alleviation of the existing difficult conditions cannot be expected before late in 1950.

Negotiations with a number of industrial concerns in the area served by the Langebaanweg transmission line are held up pending discussions between the Commission and the Department of Defence. Terms have been agreed for a supply to the Morreesburg Municipality, which has notified a maximum demand of 200 kVA. Supply will be furnished over a 15 mile 33 kV line tied in to the Langebaan line at Grange Kraal.

Provided that supplies of insulators are received by the date they are due, it is hoped to give supply to Robertson before the end of June, 1949. The 66 kV line will be extended to Ashton, whence 11 kV lines will connect the towns of Montagu and Bonnievale. Erection of the line to Ashton will

begin immediately on completion of the Robertson line, and thereafter erection of the line to Montagu will be undertaken. It is unlikely that the construction programme for Bonnievale can begin until early in 1950.

477 houses of the Citizen's Housing League and Utility Construction Company at Epping Garden Village were connected during the year, bringing the total to 1,354. A further 400 houses will be connected, at a rate dependent upon availability of materials and labour.

During the year the 11 kV secondary distribution system in the rural area was extended by 14 miles, extensions to the 6·6 kV system involved the construction of 22 miles of line, and 20 miles were added to the low voltage network.

Caledon

Preliminary work is well in hand for installation of the 1,000 kW Diesel set at Caledon, which is expected to be operating by July or August, 1949. The change from D.C. to A.C. was completed during 1948.

Farmers' Schemes

Apart from supplies to individual farms and small groups of farmers, the following Farmers' Schemes have been investigated and approved:

Klipheuvel, Agter Paarl: There are 42 applicants for this scheme, estimated to cost £24,490, involving the construction of 26 miles of 11 kV and 3 miles of L.V. lines. A small number of consumers were already connected by the end of the year.

Philadelphia: This scheme, to supply 46 farmers, is estimated to cost £25,500 and involves 28 miles of 11 kV and 2 miles of L.V. lines. Work is planned to commence during 1949.

Bottelary: The scheme has been subdivided into three sections. Agreement has been reached with the 16 farmers in one of these, and negotiations continue with the other two.

Worcester: The Commission took over from the Worcester Municipality responsibility for the neighbouring farmers' scheme on 1st November, 1948, and the Council has applied to the Electricity Control Board for permission to cede its Permit for the relevant areas to the Commission. 66 farms are being supplied, and there are a number of additional applications.

Traction Supplies

No serious breakdowns were experienced on the traction system during 1948, except at Diep River on 20th November, when there was a flare-up in the d.c. bus chamber similar to those experienced at Milnerton Junction during 1947, as recorded in the last Report, and on this occasion also no cause of the breakdown could be discovered.

As already mentioned, ownership of the rotary converter substations on the Cape electrified railway system passed by agreement to the Railways Administration from 1st December, 1948. Complete co-operation between the staffs of the Commission and the Administration ensured that the transfer of the substations was effected without a hitch.

Coal

The adjustment in respect of increased coal costs for the year has been made to consumers' accounts in terms of the Commission's licence. Charges during the last four years have been:

SALT RIVER POWER STATION:
Top of new circulating water intake duct, looking towards Duncan Dock.

	Additional Charge per Unit.	Total Amount of Adjustment.
1945	0·0271433d.	£16,350
1946	0·0355400d.	£23,601
1947	0·0425992d.	£29,742
1948	0·0471705d.	£36,276

The Coal Clause Adjustment figure for 1949 will show a material increase over previous years owing to the additional price charged for coal, increased railway freight, and the fact that Natal collieries will still further reduce supplies of pea coal, and will probably be required to substitute round coal for the shortfall.

The position as regards coal supplies and lack of reserve stocks still further deteriorated during 1948, and continues to constitute an extremely serious problem.

Office Accommodation

Owing to expansion of operations and consequent increase of staff, the present office accommodation has become entirely inadequate, and negotiations have been concluded for occupation of a suite of offices in a new building, which should provide adequate accommodation for some years to come.

Financial

The surplus on the year's working amounted to £8,845, against £26,734 in the previous year. The accumulated surplus at the year's end was £81,131. As pointed out in last year's Report, heavy expenditure on plant and equipment, repairs and renewals, which has been delayed by difficulty in obtaining supplies, will increase future charges to Revenue Account. It is therefore still considered that any downward revision of tariffs at present would be inadvisable.

Cape Western Undertaking

From 1st January, 1949, the former Cape Town Undertaking becomes the Cape Western Undertaking. It is felt that the new designation will better describe the Undertaking's scope, and avoid possible confusion between it and the Cape Town Municipal Undertaking.

DURBAN UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.		Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.	Increase.		1948.	1947.
			%	£	d.	d.
Bulk	2	121,272,578	11·452	633,973	·3612	·3698
Industrial	112	21,436,976	9·387	41,339	·4628	·4575
Domestic and Lighting	1,988	5,961,942	19·786	43,268	1·7418	1·8065
	2,102	148,671,496	11·454	718,580	·3844	·3918

	1948.	1947.	To 31/12/48.
Revenue	£726,821	£662,150	
Working Costs	£731,405	£673,353	
Deficit	£4,584	£11,203	£48,762
Capital Expenditure	£455,243	£506,575	£4,208,485
Units Sent Out	449,443,477	397,485,159	
Maximum half-hour Demand kW	102,267	95,060	
Station Peak kW	114,000	105,100	
Load Factor %	50·0	47·7	
Thermal Efficiency %	19·81	19·23	
COAL:			
Consumption tons	314,600	288,800	
Average per unit sent out—lb ...	1·400	1·453	
Total Cost	£256,682	£235,699	
Cost per ton	16s. 4d.	16s. 4d.	

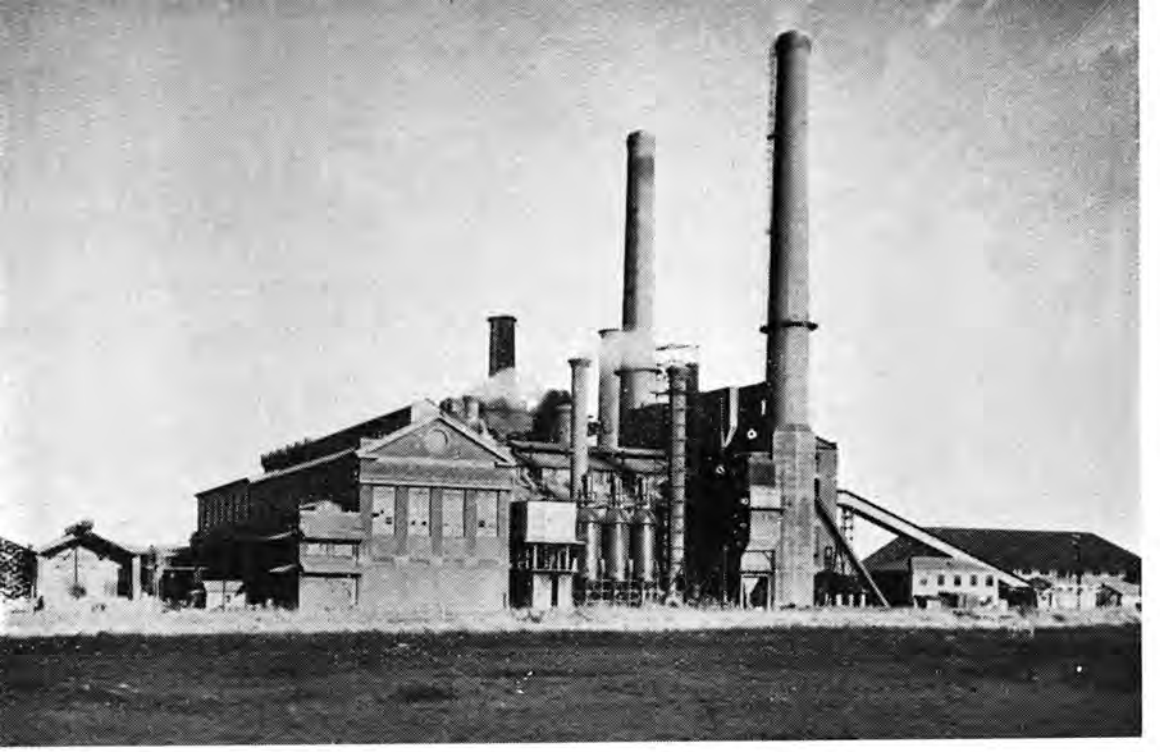
System Performance

1948 was another year of constant effort to keep pace with increased demand for electricity. Units sold recorded an increase of over 11 per cent. compared with 1947, and the following figures illustrate the expansion which has taken place since the war:—

	1948	1945
Consumers	2,102	1,452
Station Peak	114,000 kW	83,400 kW
Units sent out	449,443,477	338,012,581

Power Stations

The second 40,000 kW turbo-generator is now operating at Congella, one new boiler has been placed in commission, and it is expected that another will be in commission during March, 1949. The benefit derived



CONGELLA POWER STATION:
Showing new 300 ft. chimneys.

[Photo Whysalls.

from this new plant is partly offset by an additional 10,000 kW load arising from the supply for traction ex Congella to Cato Ridge, as mentioned earlier in this Report.

Plans for meeting the continued expansion in demand include a third 40,000 kW generating set, on order for delivery in 1949, and three additional boilers, due for completion in 1952.

The second new 300 ft. chimney at Congella has been completed and the first of the old boilers will begin discharging through it early in 1949. Work will then proceed with the installation of the new electrostatic precipitators, to eliminate the long-standing "dust nuisance" in the vicinity of the station.

The disposal of 200 tons of ash per day from Congella boilers presents a problem. Existing facilities for disposal are to be discontinued, and accordingly an order has been placed for ash-disposal plant, which should be in commission in two years.

Among other work completed in 1948 was the installation of an additional circulating-water pump at the Pump Station and the fifth pipeline, but screening plant for the intake, which was ordered in 1946, has not yet been delivered. Extensions to workshops and the native compound should be completed towards the end of 1949.

The installation of two 1,000 kW Diesel sets at Port Shepstone at the beginning of 1949, additional to the existing two 700 kW sets, will do much to ensure reliability of supply along the South Coast.

Umgeni Power Station

The new power station, to be erected near Pinetown, is referred to in page 10 hereof.

South Coast

On the South Coast 9,098,498 units were sold in 1948, an increase of nearly 20 per cent. on the 1947 figure. 10,462,349 units were purchased at Warner Beach from the Durban Corporation for supply to this area, and 821,710 units were sent out from Port Shepstone Power Station.

Distribution System

The route for the 88 kV line from Durban to Port Shepstone has been determined, the necessary servitudes obtained, and approximately 10 miles of the line surveyed.

The new line is expected to be completed by August, 1950. Until then the 33 kV line will be kept in service, but its maintenance will entail much work. As already mentioned, the new Diesel sets at Port Shepstone will improve the situation considerably.

New Connections

For a new connection to Tongaat Sugar Mill, power will be purchased from the Durban Corporation at Verulam and transmitted over approximately eight miles of 6·6 kV line designed for ultimate use at 33 kV. The line was nearing completion at the end of the year.

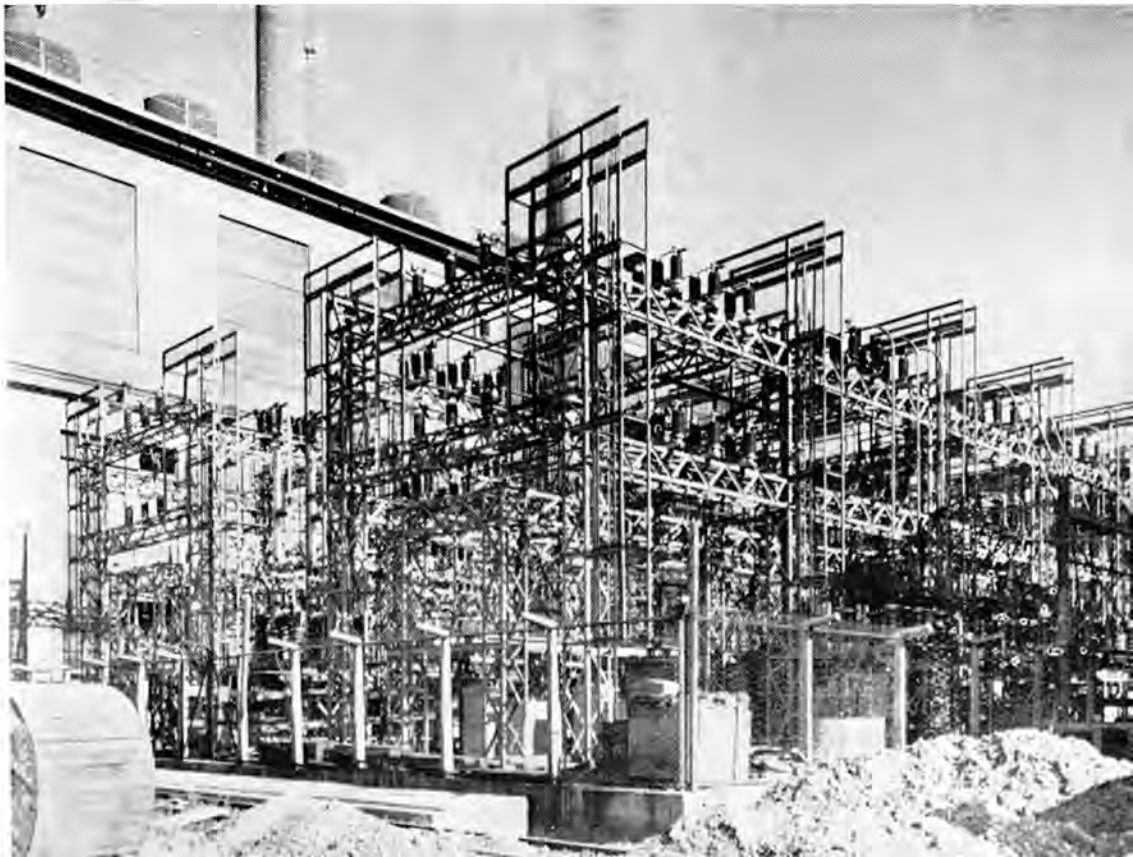
Office Accommodation

Expanding activities of the undertakings controlled from the Durban Office have entailed expansion of administrative staff. The building of new and more adequate office premises on a site in Acutt Street, as mentioned in the preceding Report, is due to begin in February, 1949.

Financial

The deficit on the year's working was reduced from £11,203 in 1947 to £4,584 in 1948, and estimates for 1949 anticipate some improvement as a result of the greater output available from additional plant installed at Congella Power Station. There was, however, an accumulated deficit of £48,762 at the year's end, and an adjustment in tariffs may be necessary to permit adequate provisions to be set aside to Reserve Fund and to reduce the accumulated deficit.

CONGELLA POWER STATION.
33kV outdoor switchgear. [Photo Lynn Acutt.



SABIE UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.		Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.	Decrease.		1948.	1947.
			%	£	d.	d.
Mining	2	7,273,534	4·356	7,984	·2634	·4230

	1948.	1947	To 31/12/48.
Revenue	£7,984	£13,404	
Working Costs	£8,044	£13,361	
Surplus	—	£43	£62
Deficit	£60	—	
Capital Expenditure	Nil	Nil	£96,170
Units Sent Out	7,587,300	7,932,400	
Maximum half-hour Demand kW	1,340	1,300	
Station Peak kW	1,500	1,540	
Load Factor %	64·5	69·7	

The three 450 kW sets installed at Sabie hydro-electric station continued to give good service.

Units sold in 1948 show a small decrease from the record figure of the previous year. The whole of the output is supplied to two gold mines, which enjoyed during 1948 a tariff reduction of approximately 38 per cent. following the amortisation of capital expenditure in respect of this undertaking, as mentioned in the previous report.

This reduction in tariffs accounts for the fall in revenue, from £13,404 in 1947 to £7,984 in 1948. The year's working resulted in a small deficit of £60, with an accumulated surplus of £62 at the year's end.

BORDER UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.		Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.	Increase.		1948.	1947.
			%	£	d.	d.
Bulk	1	62,913,290	12·003	146,277	0·5580	0·5694
Industrial	132	1,324,574	- -	9,777	1·7715	
Domestic and Lighting	1,631	4,979,256	- -	34,956	1·6849	
	1,764	69,217,120	23·226	191,010	0·6623	0·5694

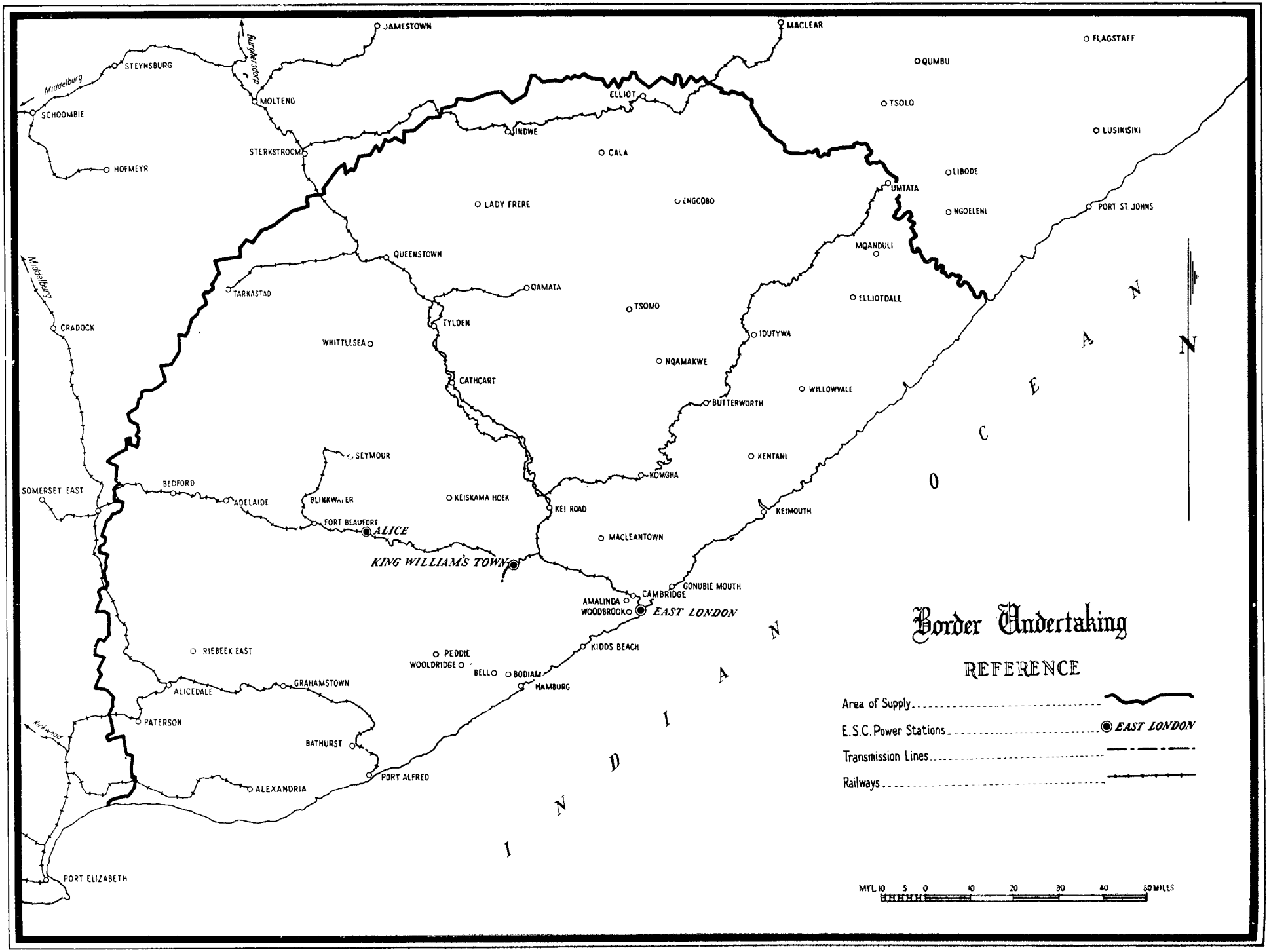
	1948	1947.	To 31/12/48.
Revenue	£191,762	£133,257	
Working Costs	£181,285	£125,674	
Surplus	£10,477	£7,583	£9,976
Capital Expenditure	£76,207	£231,153	£307,360

	East London.	1948. K.W.T.*	Alice*	1947. East London.
Units Sent Out	63,240,600	6,458,929	554,291	55,843,590
Maximum half-hour Demand kW ...	16,190	1,984	172	15,860
Load Factor %	44·2	37·3	36·7	42·0
Thermal Efficiency % ...	16·07	12·25	—	15·98
FUEL:				
Coal consumed—tons ...	53,503	6,919	—	47,248
Average per unit sent out—lb	1·692	2·142	—	1·692
Total Cost	£71,867	£9,629	—	£62,877
Cost per ton	26s. 11d.	27s. 10d.	—	26s. 7d.
Oil consumed—lb	—	—	472,194	
Oil per unit sent out—lb ...	—	—	0·852	

* Acquired 1st January, 1948.

Power Stations

The municipal power stations at King William's Town and Alice, together with their distribution and reticulation systems, were acquired by the Commission with effect from 1st January, 1948, although it was not possible to assume effective control at Alice until 1st May, 1948, when arrangements there were ratified by the Provincial Administration. The licensed area of the Undertaking, which comprises 21,500 square miles, is served by three power stations:


JAMESTOWN
MACLEAR
FLAGSTAFF
QUMBU
STEYNSBURG
Middelburg
Burgersdorp
MOLTENO
ELLIOT
TSOLO
SCHOOMBIE
INDWE
LUSIKISIKI
STERKSTROOM
CALA
HOFMEYR
LIBODE
UMTATA
LADY FRERE
ENGCOBO
NGOELENI
PORT ST JOHNS
MQANDULI
QUEENSTOWN
Middelburg
TARKASTAD
QAMATA
TSOMO
ELLIOTDALE
CRADOCK
TYLDEN
IDUTYWA
WHITTLESEA
NQAMAKWE
CATHCART
WILLOWVALE
BUTTERWORTH
SEYMOUR
KENTANI
BEDFORD
KOMGHA
SOMERSET EAST
ADELAIDE
BLINKWATER
KEISKAMA HOEK
KEI ROAD
KEIMOUTH
FORT BEAUFORT
ALICE
MACLEANTOWN
KING WILLIAM'S TOWN
GONUBIE MOUTH
CAMBRIDGE
AMALINDA
WOODBROOK
EAST LONDON
RIEBEEK EAST
KIDDS BEACH
PEDDIE
WOOLDRIDGE
BELL
BODIAM
HAMBURG
ALICEDALE
GRAHAMSTOWN
PATERSON
Kirkwood
BATHURST
PORT ALFRED
ALEXANDRIA
PORT ELIZABETH
INDIAN OCEAN
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

East London: 24,500 kW

King William's Town: 3,500 kW

Alice: 285 kW.

Extensions or additions to all three stations have been planned, to meet the expanding demand; the East London and King William's Town stations (and possibly Alice), may ultimately be interconnected.

It has been decided to proceed with the construction of a new power station at East London on a site adjoining the existing station. Work on clearing the site, which is being carried out by the Railways Administration, has unfortunately been delayed by the collapse of a section of rock face during a violent storm in April, 1948.

An additional 7,500 kW turbo-generator and two 55,000 lb/hr boilers are to be installed in the existing station on the west bank of the Buffalo River. Extensions to the circulating water system are proceeding, involving the installation of a 10,000 gallons per minute pump and the necessary ducting from the Buffalo River. Other items on order are new high voltage switchgear, control room panels, a works auxiliary transformer, and two 10,000 gallons per hour feed pumps.

For King William's Town a new 1,000 kW Diesel set has been ordered. Work proceeded during the year on the installation and erection of a new boiler and extensions to the boiler house, modifications to one of the cooling ponds were completed, and the new workshop has been erected and put into use. A proposal is under consideration for a new switchgear bay annexe to accommodate new station switchgear and step-up transformers which will change operation from 3·8 to 11 kV.

The capacity at Alice will shortly be augmented by the commissioning of a new 230 kW a.c. generator. Technical and operational improvements to the motor generator set have achieved a substantial reduction of losses, and new switchgear and step-up transformers, for 3·3 kV operation, have been ordered in anticipation of an eventual total changeover from D.C. to A.C.

At East London the demand for electricity outside the municipal area is increasing rapidly. The peri-urban districts are under licence to the Commission, but supply will have to be given via the municipal mains. Negotiations in this connection have been successfully concluded with the City Council, and the tariff to consumers has been agreed upon.

At King William's Town, and also at Alice, the change of ownership and operation was effected smoothly. The great majority of the former municipal employees elected to transfer to the Commission's service, and the new arrangements are working efficiently and economically.

EXTENSION OF SUPPLY IN BORDER UNDERTAKING AREA:
Zwelitsha Native Township, which will ultimately have 2,000 houses. New textile factory on left. [Photo Don Kallaway

The King William's Town office accommodation is inadequate, and a building is to be purchased, suitable for adaptation as administrative offices. A project has also been authorised for extending the existing accommodation for stores.

A new tariff for consumers, promulgated by the Council in 1947, was put into operation during 1948. 49 new consumers were connected, including the new mill for the Good Hope Textile Corporation, and Zwelitsha Native Township which will be built on modern lines to accommodate 10,000 inhabitants. Plans are in hand for the change-over from 3·8 to 11 kV operation and some four miles of overhead 11 kV line has been built or is in course of erection, but two or three years will be needed for completion of the scheme.

Meeting the increased demand at Alice has presented some difficulty, as the d.c. output is limited. Steps taken to augment the a.c. output have already been mentioned, and work is in hand for the change-over of the whole reticulation system to A.C. A number of minor reticulation extensions, in Ludlow Park, Garden Street, Fort Hare and the industrial area, have been completed or are in progress, and an agreement has been concluded with the South African Native College at Fort Hare for taking over the College reticulation system. Tariffs are being investigated with a view to their modernisation on the lines of those in force at King William's Town.

RAND UNDERTAKING—Operating Statistics (from 1st July, 1948)

CONSUMERS. Class.	Number.	SALES. Units.	Revenue.	Average Price per Unit Sold.
			£	d.
ELECTRICITY.				
Bulk	27	137,433,725	157,219	·2746
Mining	86	1,636,733,844	1,614,531	·2367
Industrial	172	263,492,144	312,848	·2850
Domestic and Street Lighting	9,714	12,388,355	63,678	1·2336
AIR AND STEAM.				
Mining and Industrial	37	135,652,175	245,546	·4344
	10,036	2,185,700,243	2,393,822	·2629

Revenue	£2,508,060
Working Costs	£2,451,074
Surplus	£56,986
Capital Expenditure at 31st December, 1948	£27,680,936

ELECTRICITY.	Brakpan.	Klip.	Rosherville.	Simmerpan.	Vaal.	Vereeniging.
Units Sent Out	45,414,453	1,190,730,638	40,293,921	19,975,990	434,599,822	414,877,946
Maximum Demand over one hour—kW	40,549	369,005	47,718	36,427	125,511	134,527
Load Factor %	25·8	74·3	19·4	12·6	79·7	71·0
Thermal Efficiency %	11·86	19·98	10·63	9·04	22·22	16·39
COAL.						
Consumption—tons	85,996	1,148,054	172,786	42,283	345,942	472,024
Average per unit sent out—lb						
Electricity	3·105	1·928	3·382	4·233	1·592	2·275
Air	3·708	—	2·924	...	—	—
Total Cost	£33,256	£237,601	£71,454	£17,610	£80,508	£116,917
Cost per Ton	7s. 9d.	4s. 2d.	8s. 3d.	8s. 4d.	4s. 8d.	4s. 11d.

	POWER STATIONS.		COMPRESSOR STATIONS.		
COMPRESSED AIR.	Brakpan.	Rosherville.	Canada Dam.	Robinson.	Modder B and New Modder.
Units Sent Out	8,356,721	71,567,400	25,510,200	28,646,000	5,573,386
Electric Input—kWh	—	—	29,449,509	35,900,585	6,495,604
Electric units per unit sent out	—	—	1·154	1·253	1·165

KLIP GENERATING STATION UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.	Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.		1948.	1947.
			£	d.	d.
Bulk to 30/6/48	1	1,207,359,067	592,049	·1177	·1133

	To 30/6/48.	1947.
Revenue	£595,220	£1,208,854
Working Costs	£595,220	£1,208,854
Units Sent Out	1,207,359,067	2,547,186,151
Maximum one hour Demand kW	378,180	355,410
Load Factor %	71·9	81·8
Thermal Efficiency %	19·89	20·64
COAL:		
Consumption tons	1,158,067	2,334,079
Average per unit sent out—lb	1·918	1·833
Total Cost	£237,804	£515,763
Cost per ton	4s. 1d.	4s. 5d.

From 1st July, 1948, this station became part of the Rand Undertaking, to which it supplied 1,190,730,638 units. The total output for 1948 was 2,398,089,705 units, an increase of 5·853 per cent. over 1947.

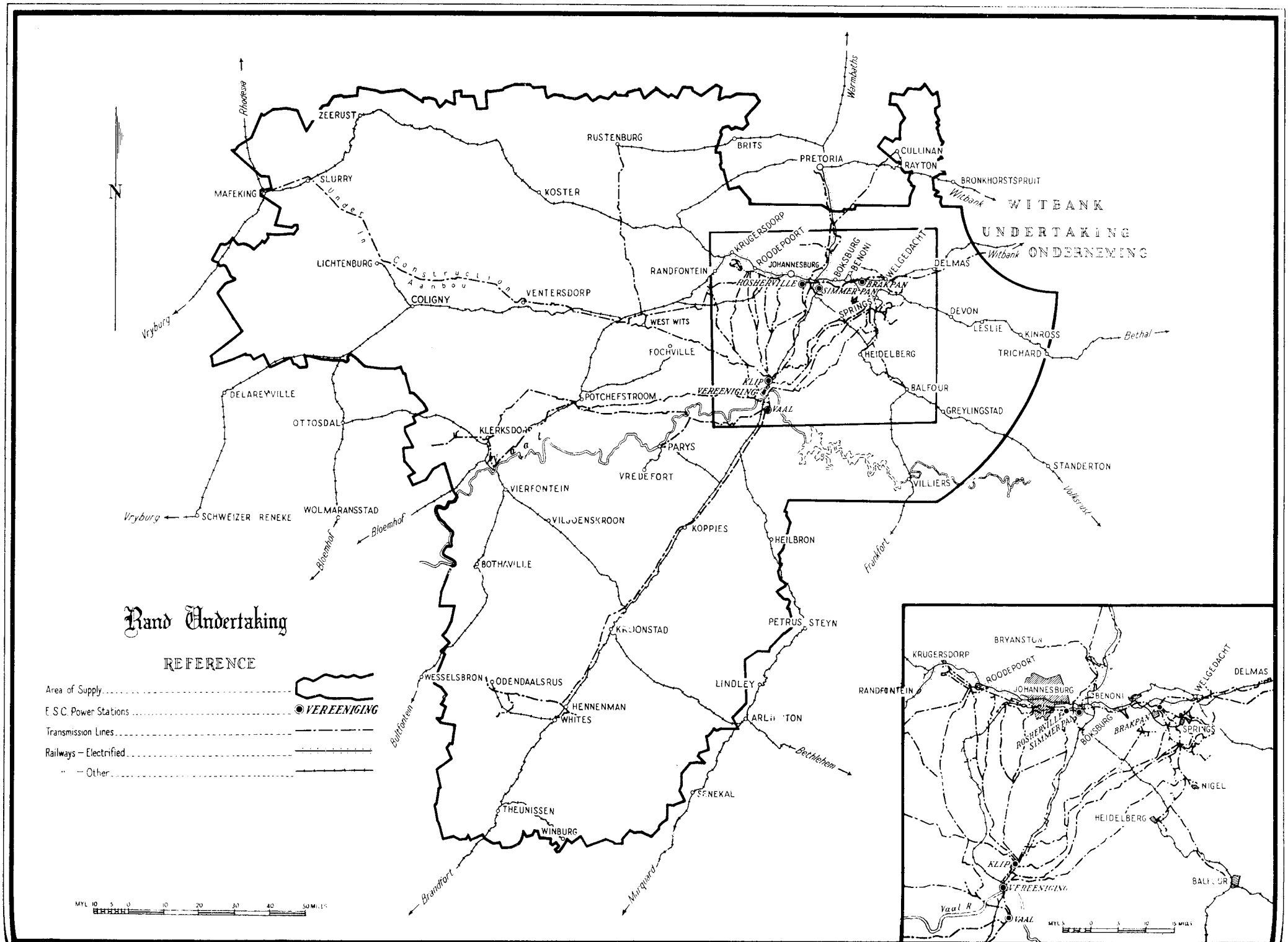
VAAL GENERATING STATION UNDERTAKING

Operating Statistics

CONSUMERS.		SALES.	Revenue.	Average Price per Unit Sold.	
Class.	Number.	Units.		1948.	1947.
			£	d.	d.
Bulk to 30/6/48	1	435,094,620	251,419	·1387	·1654

	To 30/6/48.	1947.
Revenue	£254,482	£466,611
Working Costs	£254,482	£466,611
Units Sent Out	435,094,620	668,587,275
Maximum one hour Demand kW	128,610	123,398
Load Factor %	76·2	61·9
Thermal Efficiency %	22·82	22·37
COAL:		
Consumption tons	348,441	549,941
Average per unit sent out—lb	1·602	1·645
Total Cost	£89,012	£153,055
Cost per ton	5s. 1d.	5s. 7d.

From 1st July, 1948, this station became part of the Rand Undertaking, to which it supplied 434,599,822 units. The total output for 1948 was 869,694,442 units, an increase of 30·079 per cent. over 1947.


Rhodesia
Warmbaths
ZEERUST
RUSTENBURG
BRITS
PRETORIA
CULLINAN
RAYTON
BRONKHORSTSPRUIT
Witbank
WITBANK
UNDERTAKING
ONDERNEMING
Witbank
SLURRY
MAFEKING
KOSTER
Underground Construction
Aanbou
LICHTENBURG
VENTERSDORP
COLIGNY
Vryburg
KRUGERSDORP
ROODEPOORT
JOHANNESBURG
BOKSBURG
BENONI
WELGEDACHT
DELMAS
RANDFONTEIN
ROSHERVILLE
SIMMER PAN
BRAKPAN
SPRINGS
DEVON
LESLIE
KINROSS
Bethal
TRICHARD
WEST WITS
FOCHVILLE
HEIDELBERG
KLIP
VEREENIGING
VAAL
BALFOUR
GREYLINGSTAD
DELAREYVILLE
POTCHEFSTROOM
OTTOSDAL
KLERKSDORP
PARYS
STANDERTON
VREDEFORT
VILLIERS
Volksrust
VIERFONTEIN
Vryburg
SCHWEIZER RENEKE
WOLMARANSSTAD
Bloemhof
Bloemhof
VILJOENSKROON
KOPPIES
HEILBRON
Frankfort
BOTHAVILLE
KROONSTAD
PETRUS STEYN
WESSELSBRON
ODENDAALSRUS
LINDLEY
HENNENMAN
WHITES
ARLINGTON
Bethlehem
Bultfontein
SENEKAL
THEUNISSEN
WINBURG
Brandfort
Marquard
N
Rand Undertaking
REFERENCE
Area of Supply
E.S.C. Power Stations
VEREENIGING
Transmission Lines
Railways – Electrified
" – Other
MYL 10 5 0 10 20 30 40 50 MILES
BRYANSTON
KRUGERSDORP
ROODEPOORT
RANDFONTEIN
JOHANNESBURG
BENONI
WELGEDACHT
DELMAS
ROSHERVILLE
SIMMER PAN
BOKSBURG
BRAKPAN
SPRINGS
NIGEL
HEIDELBERG
KLIP
VEREENIGING
BALFOUR
Vaal R.
VAAL
MYLS 0 5 10 15 MILES

RAND UNDERTAKING

Licences

In terms of the agreement concluded with The Victoria Falls and Transvaal Power Company, Limited, the Commission acquired, as from midnight 30th June/1st July, 1948, the whole of the power supply undertaking in the Union of the Falls Company, including the entire shareholding in Rand Mines Power Supply Company, Limited.

With the consent of the Electricity Control Board, the licences of the Falls Company and Rand Mines Power Supply Company, Limited, granted under the Power Act of the Transvaal, 1910, and amended under the Electricity Act, were transferred to the Commission, and the Control Board agreed that the operations of the Commission in the licensed areas of these licences and of the Rand Extension and the Greater Rand Extension Licences should be carried on by the Commission as one Undertaking under the name of the Rand Undertaking, and that the Klip and Vaal Power Stations be operated as part of that Undertaking. It was also agreed that the operation of Witbank Power Station by and as an interconnected generating station of the Rand Undertaking, and the provisions relating to the supply of electricity from that station to the Rand Undertaking, should continue on the basis which existed prior to 1st July, 1948.

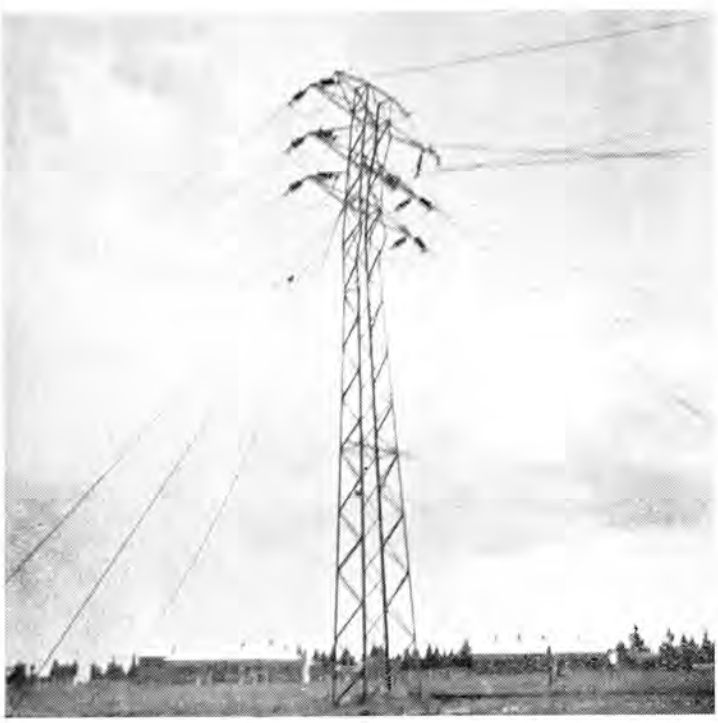
Plant Capacity

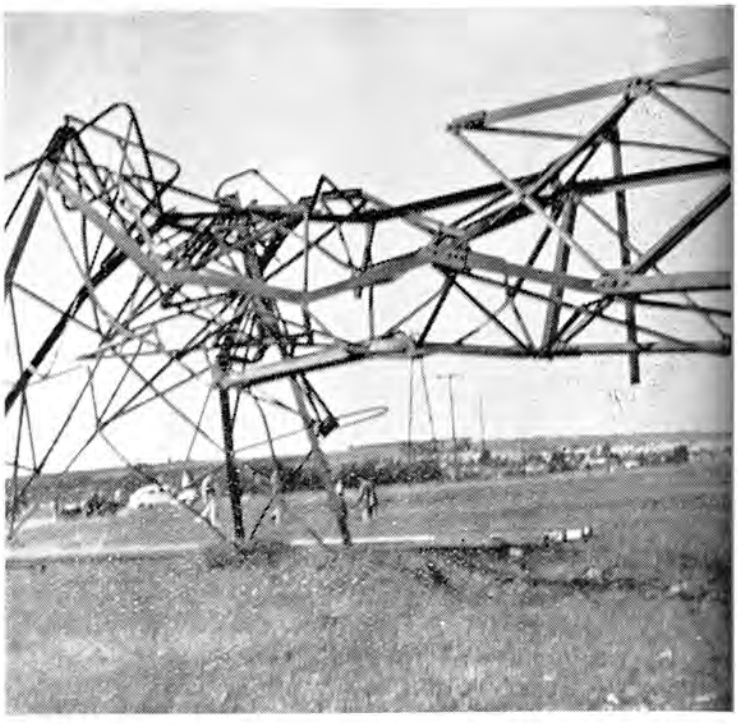
The capacity of generator and air compressor plant installed in the Rand Undertaking is shown in page 8.

As reported in the last Annual Report of the Commission, orders have been placed for 146,000 kW of additional plant for Vaal Power Station, and the establishment of the new Vierfontein Power Station (also referred to in the Commission's previous Report), is being pressed forward as rapidly as possible. It is evident, however, that the utmost effort will require to be directed during the next five years to increasing the plant capacity of the Rand Undertaking to enable it to supply the exceptionally large additional demands for electricity for the planned expansion of the gold mining industry in the Transvaal and the Orange Free State, and the growing demands for municipal development and secondary industry.

During the period under review four 190,000 lb/hr boilers for Vaal Power Station were under construction, but progress has been retarded by late deliveries of materials. Orders were placed for an additional 20,000 kW turbo-generator and two 80,000 lb/hr boilers for the Witbank Power Station, principally to supply the increase in demand on the Witbank local system. Negotiations were also initiated between the Rand Undertaking and the Johannesburg and Pretoria Municipalities with a view to extending the arrangements for exchange of power between these systems on their respective peak periods, so that the maximum use might be made of the plant capacities of the Rand Undertaking and the municipal systems.

In the light of the additional demands notified to the Undertaking it is essential that these major extensions—Vaal, Vierfontein and Witbank stations and the extensions to the Orlando station of the Johannesburg Municipality should be completed on due date, and further that plans





ROODEPOORT TORNADO—26th November, 1948:
Damage to masts, 88kV transmission system.

should be advanced for adding to the Rand grid system another new power station of a capacity of 100,000 kW—150,000 kW, the construction of this further station to be carried out simultaneously with the construction of Vierfontein Station. Although the long periods now required for the manufacture of generating and boiler plant involve the forecasting of future loading over equally long periods, with an increase in the possibilities of error, the Commission feels bound to report that present forecasts indicate that if there should be any serious curtailment or delays in the completion of the programme of generating plant and system extensions, the imposition of load restrictions and the curtailment of new supplies would be unavoidable.

Distribution System

The extension of the distribution system is being pressed forward as rapidly as the supply of materials and equipment permits. At 31st December, 1948, there were on order for this Undertaking 269 transformers of an aggregate capacity of 837,760 kVA, including seven groups of three single-phase transformers with an aggregate capacity of 140,000 kVA required for synchronous condensers.

During the period under review, much work was done towards the establishment of the West Wits Distribution Station, designed for an ultimate capacity of 90,000 kVA of 88/40 kV Coupling Transformers and two 20,000 kVA synchronous condensers, and the first half of this station was placed in service early in 1949. This distribution station was planned to go into service early in 1948, but delays in the delivery of equipment from overseas seriously retarded progress.

In consumers' substations additional plant of a capacity of 50,900 kVA has been installed, while installations of 2,300 kVA have been dismantled.

Extensive damage was caused to the transmission and distribution system by the severe tornado which swept through the Roodepoort area on the evening of 26th November, 1948. Lattice masts and poles in the path of the tornado were blown down or blown over at acute angles; guard wires, severed from their crossarms, became entangled with conductors and guard nets; corrugated iron sheets and other debris were caught and entangled in the lines. Two main 88 kV transmission lines and six 40 kV distribution lines were rendered unserviceable, but by effecting temporary repairs and by using alternative methods of supply on this interconnected network, partial supplies were resumed after an interruption of 4 hours, 7 minutes.

During 1948 the Undertaking's line construction programme was seriously affected by delays in the delivery of insulators from overseas, and also by the shortage of steel plate from local sources for the fabrication of transmission line poles. The magnitude of the line construction programme may be gauged from the figure of approximately 1,000 miles of 132 kV, 88 kV and 40 kV lines scheduled for completion within the next three years; a figure equivalent to nearly 60 per cent. of the total mileage of such lines comprised in the Rand Undertaking as it existed at the date of transfer to the Commission. Towards the end of the period under review the position in regard to the supply and delivery of insulators showed a marked improvement, but the shortage of steel plate continues to set critical limitations upon the line construction programme.

O.F.S. Goldfields

At the close of the period under review supplies of electricity were being furnished to five of the new mines in the Orange Free State goldfields. Additional supplies are required for these mines and for three further gold mines now projected, as well as for other industrial consumers and the local authorities at Odendaalsrus, Hennenman, Ventersburg and Welkom Township. In order to meet this rising load, work is proceeding at the Alma Distribution Station, and the construction of a second 88 kV transmission line from Vaal Power Station has been commenced.

At the same time, however, efforts are being made by the Mining Companies concerned to shorten the time of development of these mines and also to increase generally the expansion of mining in these fields. Since the supply of large quantities of power in this area can only be assured by the establishment of the Vierfontein Power Station, it may not be possible to meet increases in the supplies required over and above the estimates upon which the construction programme for Vierfontein was based, unless the dates for commissioning the plant ordered for the Vierfontein Station can be advanced.

Western Transvaal

Work in progress during the period under review included construction of an 88 kV transmission line from West Wits. Distribution Station via Lichtenburg and Slurry to Mafeking, and a second 88 kV transmission line from West Wits. Distribution Station to Rustenburg. When these lines are completed supplies will be given direct to important cement works,

and bulk supplies will be furnished to the Municipalities of Ventersdorp, Coligny, Lichtenburg, Mafeking and Rustenburg. Plans for the construction of a line to Zeerust are also in hand.

Rural Development

In general the development of rural electrification is being impeded by present conditions; the shortage of materials and skilled labour and the prevailing high costs of electrical equipment of all kinds, including the electrical equipment required by consumers. Extensions have been completed to the Undertaking's reticulation system in the peri-urban areas north of Johannesburg, and a rural electrification scheme covering an area around Magaliesburg has been planned and approved in principle. To carry out this work and to investigate the large number of applications now being received, a sub-department is being established to deal principally with rural electrification.

Financial

As a consequence of the acquisition of the Undertaking by the Commission an important reduction has been made in the tariffs for electricity supplied to consumers. An increase in the general discount allowed to consumers from 36 per cent. to 47 per cent., together with an allowance in lieu of the consumer's participation in "surplus profits," was introduced with effect from 1st July, 1948, and thus a general reduction of approximately 25 per cent. has been passed on to consumers. This reduction represents a lowering of charges for power supplied by the Rand Undertaking by an amount of approximately £1,500,000 per annum.

VAAL POWER STATION:

Foundation mat for No. 3 cooling tower.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES—1948

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 urban local authorities to establish electricity undertakings or to enlarge existing undertakings, were as follows:

Transvaal:

New Schemes:	Extensions:	Tenders:
Belfast	Alberton	Alberton
Fochville	Barberton	Edenvale
Hartebeestfontein	Bethal	Fochville
	Coligny	Naboomspruit
	Edenvale	Nelspruit
	Ermelo	Pietersburg
	Johannesburg	Potgietersrust
	Kempton Park	Ventersdorp
	Lichtenburg	Wolmaransstad
	Louis Trichardt	
	Middelburg	
	Nylstroom	
	Piet Retief	
	Standerton	
	Ventersdorp	
	Venterspost	

Orange Free State:

New Schemes:	Extensions:	Tenders:
Hennenman	Dewetsdorp	Harrismith
Odendaalsrus	Ficksburg	Odendaalsrus
Petrusburg	Koppies	Trompsburg
	Springfontein	Wepener
	Ventersburg	
	Villiers	
	Vrede	
	Vredefort	

Cape:

New Schemes:	Extensions:	Tenders:
Kleinmond	Alexandria	Albertinia
Lusikisiki	Calitzdorp	Calitzdorp
Port St. John's	Ceres	Ceres
	Clanwilliam	Citrusdal
	Gordon's Bay	Fort Beaufort
	Heidelberg	Graaff-Reinet
	Maclear	Heidelberg
	Middelburg	Kokstad
	Molteno	Lusikisiki
	Montagu	Maclear
	Moorreesburg	Molteno
	Riviersonderend	Montagu
	Stutterheim	Moorreesburg
	Williston	Murraysburg
		Postmasburg
		Riviersonderend
		Umtata
		Victoria West
		Williston

Natal:

Extensions:	Tenders:
Eshowe	Eshowe
Howick	
Newcastle	
Vryheid	

South-West Africa:

New Schemes:	Extensions:	Tenders:
Gobabis	Luderitz	Marienta1
Outjo		

Up to 31st December, 1948, 670 reports on Municipal Electricity Supply Schemes, of which 203 were in respect of new schemes, had been submitted by the Commission. In addition the Commission had issued at that date 332 supplementary reports on tenders.

ANNEXURES

The Commission submits for the year 1948 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 Town Undertaking

Statement of Pooled Costs, Cape Town

Account No. 6—Durban Undertaking

Account No. 7—Sabie Undertaking

Account No. 8—Klip Generating Station Undertaking

Account No. 9—Rand Extension Undertaking

Account No. 10—Vaal Generating Station Undertaking

Account No. 11—Greater Rand Extension Undertaking

Account No. 12—Border Undertaking

Account No. 13—Rand 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, 1948.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1948.

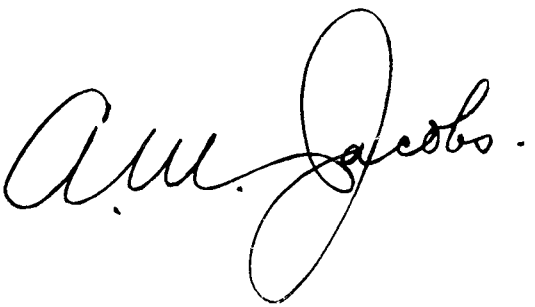
Statement No. 3—Units sold to all consumers during the past twenty-four years.

Statement No. 4	Distribution of units sold during 1948 as between the various classes of consumers.
Statement No. 5	Power Station Statistics, 1948.
Statement No. 6	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 1948.
Statement No. 7	Coal used at the Commission's Steam-raising Power Stations during 1948.

Annexure "C" Union Statistics

Union Statistics relating to the production and distribution of electricity. This information, which was extracted from the 1946/47 Industrial Census, is published in this Report by the courtesy of the Union Census and Statistics Office.

Yours faithfully,



A. M. JACOBS,

CHAIRMAN.

ANNEXURE "A"

THE REPORT OF THE AUDITORS

Johannesburg.
20th June, 1949.

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, 1948.

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 securities issued by the Commission.

For the purpose of apportioning the Redemption Fund contributions over the Undertakings the Commission has always, in its records, subdivided the Redemption Fund into sections corresponding with the loans issued by the Commission.

The Commission has invested the moneys accruing to each section of the Fund in the investments prescribed in the Schedule to the Act.

At the 31st December, 1948, the market value of these investments was, for the first time in the history of the Commission, less in the aggregate than the value at which they stood in the books.

In valuing the Fund at the 31st December, 1948, we have taken into account the market value of the investments at that date. We find that the value of the Fund at 31st December, 1948, 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.

For reasons which appear to us to be justifiable and sound the Commission has, in certain cases, caused provision to be made for the redemption of the loans over a shorter period than the maximum periods laid down in the terms of issue.

As a result of the depreciation which has occurred in the market values of the investments, brought about by the hardening of interest rates, the value of the Fund fell short of the amount required to redeem the loans over the shorter periods fixed by the Commission, the shortfall being approximately £195,000, and we are informed that in calculating future contributions to the Redemption Fund, and commencing with the contribution for the current year, the Commission proposes to provide for this shortfall over the unexpired portions of the shorter periods of redemption fixed by the Commission.

When all the works and plant financed from each of Loans Nos. 13 and 14 are in commercial operation application will require to be made to the Minister to fix the dates from which provision for redemption shall commence, in terms of Clause 16 (2) of the Schedule to the Electricity Act, in respect of these Loans. But these dates of redemption will require to be fixed not later than, in respect of Loan No. 13 the 26th September, 1949 and the 19th December, 1950 in respect of Loan No. 14. Provision has been made, however, for the redemption of moneys expended out of these loans on works and plant which had come into commercial operation prior to the 31st December, 1948. The Minister has fixed the date from which provision for redemption of Loan No. 15 commenced at 1st July, 1948.

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

During the year under review the Commission acquired from The Victoria Falls and Transvaal Power Company Limited all the Undertakings in the Union for the generation and distribution of electricity, air and steam previously operated by that Company. The consideration payable amounted to £14,500,000 and the transaction, insofar as the Fixed Assets were concerned, took the form of the purchase by the Commission of the entire Issued Share Capital of the Rand Mines Power Supply Company Limited, which was a wholly-owned subsidiary company of The Victoria Falls and Transvaal Power Company Limited. Subsequently these Fixed Assets, which comprised Land and Rights, Buildings and Civil Works and Machinery and Plant, were taken over by the Commission and the purchase consideration has been allocated by the Officials of the Commission over the respective Assets concerned. At the date of this Report the registration of the numerous documents of title covering these Assets was still in the hands of the Commission's attorneys and we have accordingly at this stage been unable to satisfy ourselves of the existence of these securities of the Commission.

The Rand Mines Power Supply Company Limited is still in existence and at the 31st December, 1948, owned assets consisting of Water and Coal Rights, valued at the nominal sum of £100, and cash on hand amounting to £500, and had no liabilities at that date. The Share Capital of the Rand Mines Power Supply Company Limited is included as an asset of the Commission at the 31st December, 1948, under the heading "Sundry Debtors and Debit Balances" at the figure of £600.

SALE OF TRACTION SUB STATIONS TO THE SOUTH AFRICAN RAILWAYS AND HARBOURS ADMINISTRATION

Certain Sub Stations used solely for the distribution of power for railway traction purposes were sold during the year to the South African Railways and Harbours Administration. The sale price of these assets was arrived at by deducting from their original cost the amount which had been accumulated in respect thereof in the Redemption Fund up to the date of sale, and amounted to £975,683 1s.

In terms of the Act, the Commission has credited the proceeds of these assets to the Redemption Fund and the original cost of the Sub Stations concerned has been shown separately in the Balance Sheet under the heading "Expenditure on Capital Account."

HEAD OFFICE ADMINISTRATION, ENGINEERING AND GENERAL EXPENSES, INCLUDING PUBLICITY

Expenditure under this heading has increased materially over that of the previous year. This increase has been accounted for principally by the great expansion in the activities of the Commission occasioned by the acquisition as from the 1st July, 1948, of the Undertakings previously operated by The Victoria Falls and Transvaal Power Company Limited, and has also been affected by the general rising trend of costs.

Against the total expenditure has been set off or credited:

(1) Fees accruing to the Commission up to the 30th June, 1948, in connection with extensions to the Rand Extension Undertaking and Greater Rand Extension Undertaking, in terms of agreements with The Victoria Falls and Transvaal Power Company Limited.

(2) Other amounts transferred to cost of capital works at Undertakings for services of Head Office Staff.

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

(4) Amounts chargeable to Revenue Accounts under other headings.

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

REVENUE ACCOUNTS

Natal Central Undertaking

The result of the year's operations at this Undertaking reflects an excess of expenditure over revenue amounting to £12,593 0s. 6d. The amount set aside to Reserve Fund during 1948 was £20,000. The accumulated surplus on operations at the beginning of the year amounted to £3,407 11s. 8d. and the result of the year's workings has occasioned a net deficit of £9,185 8s. 10d.

Witbank Undertaking

The result of the year's operations at this Undertaking reflects a surplus of revenue over expenditure amounting to £7,977 18s. 7d., increasing the accumulated surplus to £10,604 13s. 4d. The amount set aside to Reserve Fund during 1948 was £1,248 3s., which brought the total amount in the Reserve Fund in respect of this Undertaking to 10·63 per cent. of the unredeemed loan moneys outstanding, as compared with a maximum of 15 per cent. permitted under the Act.

Cape Town Undertaking

After setting aside to Reserve Fund the sum of £101,652 17s. 6d., as compared with £51,602 14s. during 1947, the year's operations at this Undertaking reflect a surplus of revenue over expenditure of £8,844 13s. 2d., resulting in an accumulated surplus of £81,130 14s. 3d. As mentioned in our Report on the previous year's Accounts, we understand that substantial sums will have to be expended both from Reserve Fund and on Capital Account at this Undertaking.

Durban Undertaking

The year's operations at this Undertaking reflect an excess of expenditure over revenue amounting to £4,583 11s. 9d., resulting in an accumulated deficit of £48,762 0s. 10d. The amount set aside to Reserve Fund during 1948 was £10,000 and the balance in the Reserve Fund in respect of this Undertaking now represents 3·55 per cent. of the unredeemed loan moneys expended. Further plant was commissioned in January, 1949, and we are informed that the estimates for 1949 show an improvement as a result of the greater output which will be obtained. It appears to us, however, that an adjustment in tariffs at this Undertaking will be necessary to permit adequate provisions to be set aside to Reserve Fund and to reduce the accumulated deficit.

Sabie Undertaking

The result of the year's operations at this Undertaking reflects an excess of expenditure over revenue of £69 7s. 5d., after crediting the Revenue Account with the sum of £3,619 3s. 6d., being a surplus on the Redemption Fund occasioned by the interest accruing to that Fund in excess of the amount required to redeem the loan moneys expended at this Undertaking. No amount was set aside to Reserve Fund during 1948 and the balance at the 31st December, 1948, in the Fund in respect of this Undertaking represented 12·78 per cent. of the unredeemed loan moneys.

Klip and Vaal Undertakings

We have accepted the Accounts rendered by The Victoria Falls and Transvaal Power Company Limited for the six months ended 30th June, 1948, during which period that Company, in terms of agreements with the Commission, operated the Stations and was the sole consumer, on a cost basis.

Rand Extension and Greater Rand Extension Undertakings

In terms of agreements between The Victoria Falls and Transvaal Power Company Limited and the Commission, the Company, up to the 30th June, 1948, was the sole user of these Undertakings and operated and maintained them at its own cost. The expenditure of the Commission in connection with these Undertakings, including Capital Charges, was recovered from the Company and the figures relating thereto are shown in the respective Revenue Accounts of the Undertakings for the six months ended 30th June, 1948.

Border Undertaking

The result of the year's operations at this Undertaking reflects a surplus of revenue over expenditure amounting to £10,476 17s. 6d., and has resulted in an accumulated surplus at the 31st December, 1948, of £9,976 2s. 7d. No amount has been set aside to Reserve Fund during 1948 as the balance in the Fund on account of this Undertaking was in excess of the maximum figure of 15 per cent. provided in the Act.

Rand Undertaking

This Undertaking, which includes the Power Stations and Distribution Systems taken over from The Victoria Falls and Transvaal Power Company Limited and also the Klip and Vaal Generating Stations, Rand Extension and Greater Rand Extension Undertakings, has been operated by the Commission from the 1st July, 1948. The result of the operations for the six months ended 31st December, 1948, reflected a surplus of revenue over expenditure of £56,986 7s. 11d. after setting aside an amount of £138,959 5s. 1d. to Reserve Fund. The amount in the Reserve Fund in respect of this Undertaking represents 3·34 per cent. of the unredeemed loan moneys expended.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1948, 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 of 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 over a period not exceeding the currency of the loans 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.

HALSEY, BUTTON & PERRY.

ALEX. AIKEN & CARTER.

Electricity Supply

Incorporated under the

BALANCE SHEET at

Loan Capital (as per Schedule No. 3)			£45,250,000 0 0
Interest Accrued on Loan Capital			174,192 5 11
Sundry Loans and Amounts Outstanding for Rights Acquired (as per Schedule No. 3)			239,754 3 8
Sundry Creditors and Credit Balances ... ... Current Liabilities and Provisions.			1,359,837 12 1
Barclays Bank (Dominion, Colonial and Overseas) ... Temporary Advances, less Cash on Current Account.			546,233 8 6
Advances at Call			1,060,000 0 0
Pension Fund			371,278 6 0
Redemption Fund (as per Account No. 1)			10,249,689 2 4
Sinking Fund (Umkomaas Town Board Loans)			4,848 10 0
Sundry Loans Repaid			126,849 2 6
Reserve Fund (as per Account No. 2)			2,356,588 18 3
Balance on Revenue Accounts (as per Accounts Nos. 3 to 13)			100,812 5 3
Natal Central Undertaking	Dr.	£9,185 8 10	
Witbank Undertaking		10,604 13 4	
Cape Town Undertaking		81,130 14 3	
Durban Undertaking	Dr.	48,762 0 10	
Sabie Undertaking		61 16 10	
Border Undertaking		9,976 2 7	
Rand Undertaking		56,986 7 11	
			£61,840,083 14 6

Note.—In addition to the liabilities shown above, the Commission is committed to the extent of approximately £19,496,000 for expenditure on Capital Account and £916,500 chargeable against Reserve Fund.

The Commission is committed to purchase £5,000,000 Electricity Supply Commission 3¼ per cent. Local Registered Stock, 1968/73 from a stockholder at par at the rate of £1,250,000 per annum.

A. M. JACOBS, Chairman.

Johannesburg,
29th April, 1949.

J. VAN NIEKERK, Chief Accountant.

(nmission.

E city Act, 1922.

DECEMBER, 1948.

E diture on Capital Account (at Cost) (as per Schedule No. 1)			£45,407,943 19 9
and and Rights	£553,858 8 3		
Buildings and Civil Works	8,717,771 16 9		
Machinery and Plant	34,734,335 5 7		
	44,005,965 10 7		
Assets sold to South African Railways and Harbours	1,401,978 9 2		
M able Plant and Equipment (less depreciation) ...			379,066 5 3
Workshop Equipment, Instruments, Tools and Loose Plant	179,148 0 10		
Transportation Equipment	112,680 11 8		
Furniture and Office Equipment	87,237 12 9		
S s and Materials			1,985,778 11 9
Su ry Debtors and Debit Balances			893,635 7 1
urrent Debtors less Reserves	863,393 18 10		
ntire Share Capital of the Rand Mines Power Supply Company, Limited	600 0 0		
xpenditure on Investigations in terms of Section 3 (b) of the Act and Payments in Advance	29,641 8 3		
ment of Pension Fund			377,602 12 9
mount invested in Stocks and Securities of Electricity Supply Commission, Municipalities and Rand Water Board and First Mortgages on Freehold Properties.			
Less Reserve	375,405 18 11		
terest Accrued ... ... (Market Value £372,202)	2,196 13 10		
ment of Redemption Fund (as per Schedule No. 2) (Market Value £10,029,869)			10,353,742 3 10
tment of Sinking Fund			4,936 19 2
mount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	4,899 14 9		
terest Accrued ... ... (Market Value £4,842)	37 4 5		
ment of Reserve Fund			2,437,377 14 11
mount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	2,422,661 5 4		
terest Accrued ... ... (Market Value £2,111,958)	14,716 9 7		
			£61,840,083 14 6

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission.

Schedule of Expenditure on Capital Account at 31st December, 1948.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1947.	Year ended 31st December, 1948.	Total at 31st December, 1948.
RAND UNDERTAKING:			
Rand.			
Land and Rights	—	£187,166 11 9	£187,166 11 9
Buildings and Civil Works	—	1,652,545 1 2	1,652,545 1 2
Machinery and Plant	—	11,913,651 1 0	11,913,651 1 0
	—	**£13,753,362 13 11**	**£13,753,362 13 11**
Klip Generating Station.			
Land and Rights	£127,975 0 0	—	£127,975 0 0
Buildings and Civil Works	1,588,536 0 11	£671 8 8	1,589,207 9 7
Machinery and Plant	4,862,733 17 2	Cr. 1,762 14 6	4,860,971 2 8
	£6,579,244 18 1	**Cr. £1,091 5 10**	**£6,578,153 12 3**
Vaal Generating Station.			
Land and Rights	£5,768 2 3	—	£5,768 2 3
Buildings and Civil Works	1,088,664 4 3	£114,216 11 0	1,202,880 15 3
Machinery and Plant	3,184,233 19 11	366,821 19 4	3,551,055 19 3
	£4,278,666 6 5	**£481,038 10 4**	**£4,759,704 16 9**
Vierfontein Generating Station.			
Machinery and Plant	—	**£1,543 15 11**	**£1,543 15 11**
Rand Extension.			
Land and Rights	£11,569 4 7	Cr. £22 14 0	£11,546 10 7
Buildings and Civil Works	32,950 15 1	75,078 15 10	108,029 10 11
Machinery and Plant	1,407,741 14 7	445,569 15 9	1,853,311 10 4
	£1,452,261 14 3	**£520,625 17 7**	**£1,972,887 11 10**
Greater Rand Extension.			
Land and Rights	—	£35 17 2	£35 17 2
Buildings and Civil Works	£3 6 9	8,189 11 10	8,192 18 7
Machinery and Plant	295,089 17 8	311,964 18 0	607,054 15 8
	£295,093 4 5	**£320,190 7 0**	**£615,283 11 5**
TOTAL RAND UNDERTAKING:			
Land and Rights	£145,312 6 10	£187,179 14 11	£332,492 1 9
Buildings and Civil Works	2,710,154 7 0	1,850,701 8 6	4,560,855 15 6
Machinery and Plant	9,749,799 9 4	13,037,788 15 6	22,787,588 4 10
	£12,605,266 3 2	**£15,075,669 18 11**	**£27,680,936 2 1**
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£29,115 5 4	Cr. £193 6 3	£28,921 19 1
Buildings and Civil Works	1,159,601 15 7	93,995 0 8	1,253,596 16 3
Machinery and Plant	1,207,340 14 6	Cr. 19,797 16 9	1,187,542 17 9
	5,396,057 15 5	71,003 17 8	5,170,061 13 1
Assets sold to S.A.R. and H. ...	—	165,298 2 1	165,298 2 1
	£5,396,057 15 5	**£539,301 19 9**	**£5,935,359 15 2**
ITBANK UNDERTAKING:			
Land and Rights	£10,571 6 4	Cr. £584 19 9	£9,986 6 7
Buildings and Civil Works	650,359 0 9	Cr. 71,747 5 4	578,611 15 5
Machinery and Plant	2,208,538 19 5	Cr. 328,631 4 3	1,879,907 15 2
	2,869,469 6 6	Cr. 400,963 9 4	2,468,505 17 2
Assets sold to S.A.R. and H. ...	—	472,686 19 5	472,686 19 5
	£2,869,469 6 6	**£71,723 10 1**	**£2,941,192 16 7**
APE TOWN UNDERTAKING:			
Land and Rights	£35,746 5 5	Cr. £1,855 16 5	£33,890 9 0
Buildings and Civil Works	1,007,561 0 2	Cr. 36,276 11 0	971,284 9 2
Machinery and Plant	2,438,700 10 3	Cr. 63,639 10 2	2,375,061 0 1
	3,482,007 15 10	Cr. 101,771 17 7	3,380,235 18 3
Assets sold to S.A.R. and H. ...	—	463,993 7 8	463,993 7 8
	£3,482,007 15 10	**£362,221 10 1**	**£3,844,229 5 11**
RBAN UNDERTAKING:			
Land and Rights	£46,584 12 9	£35,637 16 1	£82,222 8 10
Buildings and Civil Works	901,115 9 2	43,645 0 11	944,760 10 1
Machinery and Plant	2,805,542 2 2	375,959 15 11	3,181,501 18 1
	£3,753,242 4 1	**£455,242 12 11**	**£4,208,484 17 0**
IE 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**
RDER UNDERTAKING			
Land and Rights	—	£5,600 0 0	£5,600 0 0
Buildings and Civil Works	£7,356 4 5	6,839 14 7	14,195 19 0
Machinery and Plant	223,797 0 0	63,766 14 10	287,563 14 10
	£231,153 4 5	**£76,206 9 5**	**£307,359 13 10**
AD OFFICE:			
Land	£59,585 3 0	£650 0 0	£60,235 3 0
Buildings and Equipment	331,895 2 8	2,080 17 5	333,976 0 1
	£391,480 5 8	**£2,730 17 5**	**£394,211 3 1**
MMARY:			
Land and Rights	£327,121 19 8	£226,433 8 7	£553,858 8 3
Buildings and Civil Works	6,828,533 11 0	1,889,238 5 9	8,717,771 16 9
Machinery and Plant	21,668,888 10 6	13,065,116 15 1	34,734,335 5 7
	28,824,847 1 2	15,181,118 9 5	44,005,965 10 7
Assets sold to S.A.R. and H. ...	—	1,401,978 9 2	1,401,978 9 2
	£28,824,847 1 2	**£16,583,096 18 7**	**£45,407,943 19 9**

Johannesburg,
29th April, 1949.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Schedule showing details o

	Nominal Amount.	Totals.	Loan No. 3. £500,000 4½% Local Registered Stock, 1953/63.	Loan No. 4. £2,500,000 4½ Local Registered Stock, 1953.
Local Registered Stocks.				
Electricity Supply Commission:				
4½ per cent., 1953/63	£108,275 0 0	£108,275 0 0	£12,825 0 0	—
4½ per cent., 1953	300,234 0 0	300,231 0 0	1,500 0 0	£278,731 0 0
3½ per cent., 1954/64	859,706 0 0	859,510 3 10	10,000 0 0	—
3½ per cent., 1959/64	168,597 0 0	168,597 0 0	—	—
3½ per cent., 1956/66	344,050 0 0	333,116 2 11	16,490 0 0	92,767 3 7
3½ per cent., 1957/67	355,677 0 0	347,895 15 0	24,287 10 0	85,565 5 0
3½ per cent., 1959/64	521,310 0 0	510,407 2 6	19,482 19 9	90,028 0 3
3½ per cent., 1960/65	440,900 0 0	432,230 0 0	17,640 0 0	60,270 0 0
3½ per cent., 1961/66	513,350 0 0	503,450 0 0	23,520 0 0	96,040 0 0
3½ per cent., 1965/70	550,500 0 0	550,500 0 0	17,000 0 3	87,000 0 3
3 per cent., 1967/73	626,500 0 0	623,367 10 0	19,402 10 0	92,037 10 0
3 per cent., 1968/74	1,142,000 0 0	1,142,000 0 0	13,000 0 0	94,030 0 0
3½ per cent., 1968/73	1,627,000 0 0	1,618,865 0 0	35,820 0 0	124,375 0 0
The Government of the Union of South Africa:				
3¾ per cent., 1950	21,000 0 0	21,000 0 0	—	17,000 0 0
4½ per cent., 1953	356,265 0 0	356,265 0 0	—	356,265 0 0
3½ per cent., 1953	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
3½ per cent., 1955/65	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
3 per cent., 1957/66	535,000 0 0	534,974 18 1	17,997 19 10	89,995 9 8
3 per cent., 1958/68	15,000 0 0	15,000 0 0	—	1,000 0 0
3 per cent., 1959/69	100,000 0 0	100,000 0 0	6,000 0 0	30,000 0 0
3 per cent., 1960/70	343,700 0 0	343,700 0 0	12,000 0 0	66,000 0 0
Municipal:				
Johannesburg:				
3¾ per cent., 1956/66	1,600 0 0	1,600 0 0	—	—
3¾ per cent., 1959	6,200 0 0	6,200 0 0	—	—
3¾ per cent., 1960/65	20,000 0 0	20,000 0 0	—	8,000 0 0
3¾ per cent., 1962/67	129,000 0 0	126,531 5 10	18,620 0 0	42,140 0 0
3¾ per cent., 1965	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
3 per cent., 1967/77	30,000 0 0	30,000 0 0	—	—
Cape Town:				
3¾ per cent., 1960/65	2,000 0 0	2,000 0 0	—	—
3¾ per cent., 1962/67	225,000 0 0	222,567 15 8	—	—
3 per cent., 1976	100,000 0 0	99,750 0 0	2,992 10 0	14,962 10 0
Durban:				
3¾ per cent., 1962/72	115,500 0 0	115,211 5 0	—	115,211 5 0
3¾ per cent., 1965/75	45,000 0 0	45,000 0 0	2,500 0 0	14,500 0 0
3¾ per cent., 1966/76	50,000 0 0	50,000 0 0	—	—
3 per cent., 1967/77	334,000 0 0	334,000 0 0	10,000 0 0	18,000 0 0
	£10,354,864 0 0	£10,289,777 18 10	£322.078 9 7	£1,968,891 3 7
Interest Accrued	—	63,964 5 0	2,092 11 9	12,895 19 9
	£10,351,864 0 0	£10,353,742 3 10	£324,171 1 1	£1,981,787 3 7

Johannesburg,
29th April, 1949.

Supply Commission.

Investments of the Redemption Fund at 31st December, 1948.

Loan No. 5. £6,750,000 3¾% Local Registered Stock, 1951/61.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/61.	Loan No. 7. £2,000,000 3¼% Local Registered Stock, 1956/66.	Loan No. 8. £2,000,000 3½% Local Registered Stock, 1957/67.	Loan No. 9. £2,000,000 3¾% Local Registered Stock, 1959/61.	Loan No. 10. £1,500,000 3½% Local Registered Stock, 1960/67.	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.
£65,150 0 0										
15,500 0 0	£4,500 0 0									
775,106 0 0	53,721 15 9	£17,000 0 0	£3,518 13 3		£193 11 1					
35,000 0 0	118,297 0 0	5,600 0 0	5,400 0 0	£1,300 0 0						
143,560 0 0	19,400 0 0	60,898 19 2								
77,628 10 0	60,013 0 0	21,922 0 0	77,377 0 0	1,072 10 0						
180,286 8 3	62,540 7 8	55,274 6 4	45,785 0 1	57,010 0 0						
140,630 0 0	72,030 0 0	48,020 0 0	52,430 0 0	33,810 0 0	7,400 0					
136,220 0 0	80,360 0 0	15,080 0 0	56,840 0 0	30,380 0 0	16,660 0	£18,350 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	19,000 0 0	£34,800 0 0			
189,050 0 0	72,137 10 0	52,237 10 0	45,272 10 0	43,780 0 0	31,327 10	15,272 10 0	27,362 10 0	£2,487 10 0		
334,000 0 0	26,500 0 0	215,000 0 0	73,000 0 0	55,000 0 0	93,000 0	91,000 0 0	127,000 0 0	20,500 0 0		
523,370 0 0	99,500 0 0	69,650 0 0	102,185 0 0	71,625 0 0	57,710 0	81,575 0 0	89,550 0 0	61,675 0 0	£13,930 0 0	£278,600 0 0
1,000 0 0										
—										
5,000 0 0										
11,000 0 0										
2,300 0 0										
10,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0						
159,998 19 11	79,991 9 7	56,995 19 8	16,100 0 0	51,995 19 8	16,997 9	7,998 9 11	6,600 0 0			
11,000 0 0		1,000 0 0				2,000 0 0				
44,000 0 0	20,000 0 0									
125,600 0 0	51,000 0 0	19,900 0 0	21,100 0 0	18,600 0 0	10,700 0	13,100 0 0	2,700 0 0			
		1,600 0 0								
			1,900 0 0	1,300 0 0						
12,000 0 0										
16,660 0 0	32,424 13 11	16,686 11 11								
					1,200 0					
86,000 0 0	29,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	21,000 0	22,000 0 0	6,000 0 0			
			5,000 0 0	5,000 0 0	5,000 0	5,000 0 0	5,000 0 0	5,000 0 0		
					2,000 0					
		38,998 7 11	16,838 7 11	58,108 7 11	10,122 11 1	27,000 0 0	11,500 0 0			
30,123 15 0	11,471 5 0	8,178 15 0	6,982 10 0	6,982 10 0	5,486 5	7,181 5 0	1,488 15 0			
28,000 0 0										
			10,000 0 0	10,000 0 0	10,000 0	10,000 0 0	10,000 0 0			
96,000 0 0	35,000 0 0	25,000 0 0	21,000 0 0	23,000 0 0	19,000 0	14,000 0 0	30,000 0 0	10,000 0 0		
£3,387,483 13 2	£996,920 1 11	£852,312 10 0	£722,329 1 6	£573,964 7 7	£318,797 11	£366,777 1 11	£355,001 5 0	£102,662 10 0	£13,930 0 0	£278,600 0 0
20,767 15 5	6,558 6 1	5,621 16 3	1,619 11 1	1,511 1 5	2,333 17	2,259 17 9	1,959 9 8	277 15 9	—	—
£3,408,251 8 7	£1,003,478 8 0	£857,967 6 3	£726,978 12 7	£575,508 12 0	£321,131 8	£369,037 2 8	£356,960 11 8	£102,940 5 9	£13,930 0 0	£278,600 0 0

J. VAN NIEKERK, Chief Accountant

Electricity Supply Commission.

SCHEDULE No. 3.

LOAN CAPITAL AT 31st DECEMBER, 1948.

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 4¼ 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 3½ per cent., 1968/73	...	15,000,000	0	0
			£45,250,000	0	0

SUNDRY LOANS AND AMOUNTS OUTSTANDING
for rights acquired at 31st December, 1948.

Umkomaas Town Board	£8,380	0	0
Volksrust Municipality	10,416	1	8
Rand Water Board	51,785	5	8
Caledon Municipality	3,842	14	6
Rawsonville Village Management Board	1,249	6	5
East London Municipality	156,218	19	11
Alice Municipality	4,861	15	6
	£239,754	3	8

J. VAN NIEKERK,
Chief Accountant.

Johannesburg,
29th April 1949.

Electricity Supply Commission.

ACCOUNT No. 1.

Redemption Fund Account for the Year ended 31st December, 1948.

	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 3¼% Local Registered Stock, 1954/61.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/61.	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 3¾% Local Registered Stock, 1959/61.	Loan No. 10. £1,500,000 3¾% 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.
Cr.														
By **Balance at 31st December, 1947, brought forward**—														
Natal Central Undertaking	£1,511,512 9 7	£980 10 1	£56,506 1 8	£1,336,337 17 8	—	£50,729 19 8	£15,793 2 9	£16,303 1 10	£15,367 7 1	£36,671 2 2	£11,124 13 5	£1,698 13 3	—	—
Witbank Undertaking	1,670,822 16 2	1,698 2 1	1,109,155 12 2	437,931 0 8	—	56,109 5 6	27,123 12 3	9,073 4 6	16,421 18 0	844 16 8	11,466 15 9	698 8 4	—	—
Cape Town Undertaking	1,203,168 6 5	201,908 6 9	108,945 8 10	696,853 19 1	—	11,385 11 3	14,554 4 6	80,448 11 9	30,160 10 4	11,380 11 9	11,951 3 3	2,579 15 11	—	—
Durban Undertaking	921,259 16 9	83,018 11 6	173,605 7 9	170,397 6 8	—	5,057 15 2	84,395 18 0	20,488 16 10	25,888 17 7	10,316 9 7	21,254 9 2	26,776 1 6	—	—
Sabie Undertaking	99,470 6 1	—	73,833 9 11	21,611 3 1	—	—	—	—	—	1,025 12 10	—	—	—	—
Klip Generating Station Undertaking	1,933,867 15 6	—	—	—	£823,017 9 11	383,899 17 1	335,817 10 0	309,484 4 7	98,548 10 1	655 11 3	42,315 5 1	129 4 6	—	—
Vaal Generating Station Undertaking	262,270 4 10	—	—	—	—	—	—	2,219 13 1	98,432 16 8	137,555 13 1	23,435 8 3	626 13 3	—	—
Rand Extension Undertaking	266,912 14 3	—	—	—	79,728 12 9	20,796 11 6	78,407 5 11	16,288 11 5	1,220 3 11	3,106 17 6	31,150 18 5	2,913 10 4	—	—
Greater Rand Extension Undertaking	1,268 10 0	—	—	—	—	—	—	—	—	—	—	1,268 10 0	—	—
Border Undertaking	296 16 0	—	—	—	—	—	—	—	—	—	—	296 16 0	—	—
Head Office	120,252 10 1	—	3,698 8 9	38,856 3 0	—	75,899 7 2	—	913 10 2	679 0 8	88 16 7	68 2 10	49 0 11	—	—
	£8,021,102 5 8	£287,635 10 8	£1,825,741 9 1	£2,704,987 10 5	£902,746 2 8	£607,178 6 10	£556,091 13 5	£485,219 17 5	£226,719 4 1	£231,975 17 8	£158,766 16 2	£37,036 17 0	—	—
„ **Amounts contributed during the year out of Revenue**—														
Rand Undertaking:														
Rand	£266,050 18 6	—	—	—	—	—	—	—	—	—	—	—	—	£266,050 18 6
Klip Generating Station	83,460 3 1	—	—	—	£28,983 10 10	£15,138 1 2	£15,498 5 1	£16,453 9 4	£2,304 6 8	£52 1 4	£5,137 13 0	£58 9 4	Dr. £165 16 11	—
Vaal Generating Station	73,413 15 10	—	—	—	—	—	—	363 17 10	16,949 18 8	21,530 4 2	12,844 4 5	18,439 11 10	285 15 11	—
Rand Extension	18,702 19 10	—	—	—	2,749 6 6	861 6 1	3,653 12 2	2,128 5 2	82 19 0	215 6 8	5,281 18 4	2,186 12 1	1,243 13 7	—
Greater Rand Extension	4,062 13 3	—	—	—	—	—	—	—	—	—	—	637 3 5	3,425 9 10	—
	445,690 10 6	—	—	—	31,732 17 1	15,999 10 6	19,151 17 6	19,245 12 4	19,337 4 1	21,797 12 2	23,263 15 9	21,321 19 8	4,789 2 5	266,050 18 6
Natal Central Undertaking	100,838 15 8	£52 1 11	£161 13 7	£82,199 7 1	—	2,208 10 7	1,133 8 4	1,728 17 7	877 8 10	1,156 6 9	2,207 12 1	3,438 8 10	1,774 16 10	—
Witbank Undertaking	51,877 15 8	86 11 9	37,629 1 9	17,857 2 9	—	Dr. 3,241 10 1	Dr. 1,131 1 4	Dr. 78 9 1	Dr. 76 15 7	128 11 6	3 12 9	1,062 14 3	1,603 15 5	1,336 18 10
Cape Town Undertaking	98,631 9 11	11,101 6 8	6,102 2 9	16,106 12 0	—	1,118 1 8	1,205 11 2	8,876 19 3	2,686 18 9	8,337 14 1	4,954 19 9	5,725 6 9	2,115 13 10	—
Durban Undertaking	86,918 15 10	1,261 12 0	18,849 19 9	7,725 15 10	—	111 10 8	7,881 11 3	2,252 9 3	3,681 12 9	2,268 11 4	16,113 19 8	21,583 10 6	1,524 19 10	—
Sabie Undertaking	Dr. 3,619 3 6	—	Dr. 2,735 15 0	Dr. 851 10 11	—	—	—	—	—	Dr. 31 17 7	—	—	—	—
Klip Generating Station Undertaking	82,799 3 0	—	—	—	29,158 2 5	11,973 13 5	15,329 16 3	16,274 12 5	2,269 7 11	46 11 1	1,607 0 6	58 9 0	81 10 0	—
Vaal Generating Station Undertaking	53,806 16 5	—	—	—	—	—	—	359 18 7	16,073 6 1	23,966 16 9	12,556 4 11	575 1 1	275 9 0	—
Rand Extension Undertaking	17,477 13 8	—	—	—	2,759 0 3	851 18 11	3,581 1 6	2,401 17 6	72 3 3	212 19 10	5,221 9 10	2,151 1 11	219 17 8	—
Greater Rand Extension Undertaking	874 5 7	—	—	—	—	—	—	—	—	—	—	630 4 6	244 1 1	—
Border Undertaking	2,900 11 10	—	—	—	—	—	—	—	—	—	—	1,775 5 0	1,125 6 10	—
Head Office	9,689 2 9	—	129 6 11	3,298 5 1	—	5,928 5 2	—	97 2 5	86 0 1	13 1 7	28 6 6	85 10 4	23 4 8	—
	£950,888 17 1	£15,507 18 4	£60,736 9 9	£156,335 12 1	£63,650 0 0	£38,280 3 10	£47,152 7 8	£51,159 0 0	£15,007 6 5	£61,196 10 9	£69,290 1 9	£58,107 11 10	£13,777 17 7	£267,387 17 4
„ **Net Proceeds of Sales of Fixed Property, including amounts received from the South African Railways and Harbours in respect of the unredeemed balance of cost of assets sold during the year**—														
Natal Central Undertaking	£327,720 1 8	£326 8 0	£17,173 18 9	£171,221 11 5	—	£37,050 17 10	£563 10 7	—	£21,013 3 0	£52,205 6 11	£25,135 5 2	—	—	—
Witbank Undertaking	368,302 1 6	—	—	142 0 8	—	115,727 7 10	68,725 1 10	£18,928 19 8	15,539 19 5	191 2 1	89,017 9 9	—	—	—
Cape Town Undertaking	280,210 15 2	8,936 11 5	—	238,508 18 10	—	181 16 2	25,901 5 10	113 2 3	—	1,971 10 0	—	—	£1,291 10 8	—
	£976,233 1 1	£9,262 19 5	£17,173 18 9	£112,872 13 11	—	£182,960 1 10	£95,193 1 3	£19,312 1 11	£66,583 2 5	£57,367 19 3	£114,182 14 11	—	£1,291 10 8	—
Net Interest Earned on Investments after deducting amounts appropriated in writing off premiums on investments purchased—														
Rand Undertaking:														
Rand	£1,502 8 1	—	—	—	—	—	—	—	—	—	—	—	—	£1,502 8 1
Klip Generating Station	61,766 12 3	—	—	—	£28,315 1 1	£12,376 8 5	£11,190 6 0	£10,399 18 6	£1,184 12 2	£20 1 1	£1,211 7 9	£5 0 11	£0 15 10	—
Vaal Generating Station	8,903 13 6	—	—	—	—	—	—	£1 1 2	3,276 5 7	1,518 17 5	911 11 7	76 10 10	6 6 11	—
Rand Extension	8,901 0 1	—	—	—	2,711 1 3	671 10 3	2,612 18 3	1,551 11 10	37 9 10	103 8 8	1,038 1 1	132 9 1	6 6 7	—
Greater Rand Extension	53 8 10	—	—	—	—	—	—	—	—	—	—	50 6 2	3 2 8	—
	£81,127 3 0	—	—	—	£31,089 2 7	£13,047 18 8	£13,803 4 3	£12,035 11 6	£4,498 7 7	£1,672 7 5	£3,197 3 8	£261 7 3	£16 12 0	£1,502 8 1
Natal Central Undertaking	£59,677 0 0	£31 8 7	£2,828 5 1	£18,729 12 2	—	£2,597 8 10	£537 11 6	£47 17 8	£991 18 8	£2,103 6 1	£910 13 10	£82 18 2	£12 19 2	—
Witbank Undertaking	67,622 1 2	59 13 5	10,923 3 8	11,284 15 9	—	5,171 1 11	2,165 13 7	729 1 8	1,545 17 2	30 6 1	2,365 0 1	30 18 8	5 18 0	7 10 11
Cape Town Undertaking	16,788 0 6	7,123 2 5	4,061 10 9	28,173 3 9	—	163 13 0	867 12 0	2,709 10 11	916 1 1	1,333 15 5	373 5 11	142 12 2	21 13 1	—
Durban Undertaking	32,659 7 8	2,929 10 3	17,519 0 5	5,569 10 8	—	163 12 0	2,811 6 1	689 11 10	800 3 6	325 5 1	837 19 6	1,003 18 2	75 12 11	—
Sabie Undertaking	3,619 3 6	—	2,735 15 0	£51 10 11	—	—	—	—	—	31 17 7	—	—	—	—
Border Undertaking	39 11 0	—	—	—	—	—	—	—	—	—	—	29 1 10	10 9 2	—
Head Office	3,932 5 2	—	136 18 1	1,290 8 11	—	2,146 0 11	—	30 11 2	20 18 3	2 11 3	2 2 0	2 7 3	0 1 1	—
	£298,461 15 0	£10,137 11 8	£68,201 13 3	£99,199 2 2	£31,089 2 7	£23,892 18 4	£20,188 1 8	£16,712 10 9	£8,773 6 3	£8,799 11 11	£7,688 5 3	£1,556 3 6	£83 5 8	£1,509 19 0
Grand Total	**£10,249,689 2 4**	**£322,844 3 1**	**£1,971,859 10 10**	**£3,373,394 18 7**	**£997,485 5 3**	**£852,311 10 10**	**£718,925 4 0**	**£572,463 10 1**	**£347,082 19 5**	**£362,339 19 7**	**£349,927 18 1**	**£97,000 12 4**	**£15,155 13 11**	**£268,897 16 4**
Dr.														
To **Balance as per Balance Sheet**—														
Rand Undertaking:														
Rand	£267,553 6 7	—	—	—	—	—	—	—	—	—	—	—	—	£267,553 6 7
Klip Generating Station	2,161,893 13 10	—	—	—	£909,501 1 6	£126,388 3 1	£377,835 17 7	£352,612 1 10	£44,306 16 10	£774 8 0	£53,301 6 1	£251 3 9	Dr. £83 11 1	—
Vaal Generating Station	398,391 10 7	—	—	—	—	—	—	3,021 10 11	134,732 7 0	190,601 11 8	19,750 9 2	19,718 0 0	567 11 10	—
Rand Extension	311,991 8 1	—	—	—	87,981 0 9	23,181 6 6	88,258 0 10	52,673 8 11	1,112 16 0	3,938 12 8	15,695 10 11	7,383 13 8	1,469 17 10	—
Greater Rand Extension	6,258 17 8	—	—	—	—	—	—	—	—	—	—	2,586 4 1	3,672 13 7	—
	3,149,091 16 9	—	—	—	997,485 5 3	449,569 9 7	466,093 18 5	408,310 4 8	180,151 19 10	195,314 12 4	148,750 6 5	29,939 1 6	5,626 12 2	267,553 6 7
Natal Central Undertaking	2,029,748 9 11	£1,393 11 7	£76,969 19 1	£1,641,488 11 7	—	92,586 16 11	18,327 13 2	18,579 17 1	38,279 17 7	95,736 1 11	39,378 1 6	5,220 0 3	1,787 16 0	—
Witbank Undertaking	2,161,625 0 6	1,811 10 6	1,187,707 17 7	470,214 19 10	—	204,069 8 2	96,880 9 1	28,652 16 6	63,430 19 0	1,194 15 7	102,882 18 7	1,792 1 3	1,609 13 5	—
Cape Town Undertaking	1,628,801 12 0	229,372 7 3	119,409 2 1	1,009,942 13 8	—	16,149 5 1	12,531 13 6	92,448 1 2	33,763 10 2	56,023 14 6	17,281 8 11	8,447 14 10	3,431 17 7	1,344 9 9
Durban Undertaking	1,043,838 0 3	90,233 13 9	509,974 7 11	183,692 13 2	—	5,662 17 10	95,091 9 7	23,431 0 11	30,370 13 10	12,940 9 0	11,536 8 1	49,363 13 2	1,540 12 9	—
Sabie Undertaking	99,470 6 1	—	73,833 9 11	21,611 3 1	—	—	—	—	—	1,025 12 10	—	—	—	—
Border Undertaking	3,236 18 10	—	—	—	—	—	—	—	—	—	—	2,101 2 10	1,135 16 0	—
Head Office	133,873 18 0	—	3,961 13 9	13,111 17 0	—	£1,273 13 3	—	1,011 6 9	785 19 0	101 12 5	98 11 1	136 18 6	23 6 0	—
	£10,249,689 2 4	**£322,844 3 1**	**£1,971,859 10 10**	**£3,373,394 18 7**	**£997,485 5 3**	**£852,311 10 10**	**£718,925 4 0**	**£572,463 10 1**	**£347,082 19 5**	**£362,339 19 7**	**£349,927 18 1**	**£97,000 12 4**	**£15,155 13 11**	**£268,897 16 4**

J. VAN NIEKERK, Chief Accountant

Johannesburg,
29th April, 1949.

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 20th June, 1949.

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

Electricity Supply Commission.

Dr. **Reserve Fund Account for the Year ended 31st December, 1948.** Cr.

To **Expenditure during the year on Replacements and Betterment**						£335,186	9 9
Rand Undertaking:							
Rand				£4,595	16 0		
Klip Generating Station				61,528	6 10		
Vaal Generating Station				1,049	17 3		
Rand Extension				5,268	16 9		
				72,442	16 10		
Natal Central Undertaking				71,429	18 11		
Witbank Undertaking				20,786	7 9		
Cape Town Undertaking				81,428	10 4		
Durban Undertaking				78,211	11 4		
Sabie Undertaking				5,151	11 3		
Border Undertaking				6,032	7 7		
.. **Balance as per Balance Sheet**						2,356,588	18 3
Rand Undertaking:							
Rand				71,500	6 7		
Klip Generating Station				723,278	15 0		
Vaal Generating Station				51,097	6 3		
Rand Extension				95,346	7 6		
Greater Rand Extension				2,427	10 1		
				943,650	5 2		
Natal Central Undertaking				106,361	16 6		
Witbank Undertaking				319,372	7 7		
Cape Town Undertaking				184,056	11 6		
Durban Undertaking				150,303	18 5		
Sabie Undertaking				12,713	0 1		
Border Undertaking				10,128	0 6		
						£2,692,075	8 0

Johannesburg,
29th April, 1949.

By **Balance at 31st December, 1947, brought forward**						£2,267,586	0 9
Natal Central Undertaking				£142,057	10 1		
Witbank Undertaking				326,584	18 5		
Cape Town Undertaking				446,996	8 7		
Durban Undertaking				211,672	6 5		
Sabie Undertaking				17,261	1 8		
Klip Generating Station Undertaking				675,652	0 4		
Vaal Generating Station Undertaking				32,863	7 0		
Rand Extension Undertaking				81,419	6 5		
Greater Rand Extension Undertaking				496	11 5		
Border Undertaking				32,582	10 2		
.. **Amounts set aside during the year as per Revenue Accounts**						327,944	16 4
Rand Undertaking:							
Rand				75,616	8 8		
Klip Generating Station				43,062	8 8		
Vaal Generating Station				10,216	16 8		
Rand Extension				8,500	12 8		
Greater Rand Extension				1,562	18 5		
				138,959	5 1		
Natal Central Undertaking				20,000	0 0		
Witbank Undertaking				1,248	3 0		
Cape Town Undertaking				101,652	17 6		
Durban Undertaking				10,000	0 0		
Klip Generating Station Undertaking				40,630	3 1		
Vaal Generating Station Undertaking				7,607	0 11		
Rand Extension Undertaking				7,506	16 2		
Greater Rand Extension Undertaking				340	10 7		
.. **Other Contributions** (Border Undertaking)						12,150	0 0
.. **Interest Earned on Investments**						84,394	10 11
						£2,692,075	8 0

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

NATAL CENTRAL UNDERTAKING.

Dr. **Revenue Account for the Year ended 31st December, 1948.** Cr.

Generation of Electricity.									
To Operation—									
Fuel						£177,941	2	9	
Water, Oil, Waste and Stores						2,657	6	0	
Salaries and Wages						11,861	10	7	
Other Expenses						74	19	9	
,, Maintenance—									
Stores						15,713	8	11	
Salaries and Wages						26,226	0	0	
Other Expenses						3,549	1	4	
									£268,023 9 4
,, Electricity supplied by Durban Undertaking									4,574 1 4
Distribution of Electricity.									
,, Operation and Maintenance—									
Stores						15,385	18	0	
Salaries and Wages						14,567	18	7	
Other Expenses						6,876	18	4	
									66,830 14 11
General Expenses.									
,, Local Administration and Technical Management						25,204	8	11	
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, Payment to Durban Undertaking under Agreement, etc.)						29,760	3	7	
,, Head Office Administration and General Expenses, including Publicity						16,878	9	8	
,, Engineering Expenses						7,483	10	1	
									79,326 12 3
,, Deferred Payment Scheme, including Propaganda and Showroom Expenses									120 0 0
									418,874 17 10
,, Interest									176,963 5 2
,, Redemption Fund									100,838 15 8
,, Instalments paid on Volksrust Municipality Loan									1,961 7 8
,, Amount set aside to Reserve Fund									20,000 0 0
									£718,638 6 4
To Balance brought down									£12,593 0 6
									£12,593 0 6

Sales of Electricity—									
Traction Supplies						£121,795	3	0	
Bulk Supplies						151,131	18	2	
Mining Supplies						24,931	1	8	
Industrial Supplies						55,032	12	8	
Domestic and Lighting Supplies						41,760	5	2	
									£697,651 0 8
Electricity supplied to Durban Undertaking									300 9 11
Other Revenue									8,093 15 3
Balance carried down									12,593 0 6
									£718,638 6 4
Balance at 31st December, 1947, brought forward									£3,407 11 8
Balance as per Balance Sheet									9,185 8 10
									£12,593 0 6

J. VAN NIEKERK, Chief Accountant

Johannesburg,
25th April, 1949.

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission.

WITBANK UNDERTAKING.

Dr. **Revenue Account for the Year ended 31st December, 1948.** Cr.

Generation of Electricity					
To Operation—					
Fuel	£131,902	9	7		
Water, Oil, Waste and Stores	10,684	19	4		
Salaries and Wages	48,750	8	8		
Other Expenses	489	7	2		
,, Maintenance—					
Stores	21,819	15	0		
Salaries and Wages	29,935	8	1		
Other Expenses	17,873	7	10		
				£261,455	15	8
,, Electricity Purchased	111,462	2	1		
,, Electricity supplied by Rand Undertaking	101,515	8	11		
				212,977	11	0
Distribution of Electricity.					
,, Operation and Maintenance—					
Stores	4,209	9	4		
Salaries and Wages	8,302	8	9		
Other Expenses	788	15	2		
				13,300	13	3
General Expenses.					
,, Local Administration and Technical Management	16,652	3	10		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	13,091	9	1		
,, Administration, Engineering and General Expenses of Operating Party (The Victoria Falls and Transvaal Power Company, Limited)	3,500	0	0		
,, Head Office Administration and General Expenses, including Publicity	11,210	10	6		
,, Engineering Expenses	4,970	9	4		
				49,424	12	9
,, Deferred Payment Scheme, including Propaganda and Showroom Expenses				79	0	9
				537,237	13	5
,, Interest				118,095	18	6
,, Redemption Fund				54,877	15	8
,, Amount set aside to Reserve Fund				1,248	3	0
,, Balance carried down				7,977	18	7
				£719,437	9	2
To Balance as per Balance Sheet				£10,604	13	4
				£10,604	13	4

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

By Sales of Electricity—					
Traction Supplies	£221,570	16	9		
Bulk Supplies	146,585	8	11		
Mining Supplies	103,085	15	6		
Industrial Supplies	94,451	17	10		
Domestic and Lighting Supplies	13,783	9	1		
				£579,477	7	4
Electricity Supplied to Rand Undertaking				130,131	16	2
Other Revenue				9,828	5	8
				£719,437	9	2
Balance at 31st December, 1947, brought forward				£2,626	14	9
Balance brought down				7,977	18	7
				£10,604	13	4

Referred to in our Report of 20th June, 1949.
ALEX. AIKEN & CARTER,
HALSEY, BUTTON & PERRY, Auditors.

Electricity Supply

CAPE TOWN

Dr. **Revenue Account for the Year**

Generation of Electricity.			
To Proportion of Pooled Costs (as per attached Statement)	£315,514 0 5		
,, Other Operation and Maintenance Costs	705 17 11		
		£316,219 18 4	
Distribution of Electricity.			
,, Operation and Maintenance—			
Stores	10,291 7 10		
Salaries and Wages	56,028 2 9		
Other Expenses	13,863 10 6		
		80,183 1 1	
General Expenses.			
,, Local Administration and Technical Management ...	31,462 1 4		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	28,777 5 2		
,, Head Office Administration and General Expenses, including Publicity	14,065 8 1		
,, Engineering Expenses	6,236 5 1		
	80,540 19 8		
Less—Charged to Pooled Costs	6,074 5 8		
		71,466 14 0	
,, Deferred Payment Scheme, including Propaganda and Showroom Expenses		133 12 7	
		471,003 6 0	
,, Interest	134,147 2 11		
,, Redemption Fund	98,631 9 11		
,, Instalments on Caledon Municipality and Rawsonville Village Management Board Loans	944 4 9		
,, Amount set aside to Reserve Fund	101,652 17 6		
	335,378 15 1		
Less—Charged to Pooled Costs	83,876 17 4		
		251,501 17 9	
,, Balance carried down		8,844 13 2	
		£731,349 16 11	
To Balance as per Balance Sheet		£81,130 14 3	
		£81,130 14 3	

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
29th April, 1949.

ACCOUNT No. 5.

Commission.

UNDERTAKING.

ended 31st December, 1948. Cr.

By Sales of Electricity—		
Traction Supplies	£186,057 19 2	
Bulk Supplies	118,756 16 8	
Industrial Supplies	218,026 4 7	
Domestic and Lighting Supplies	176,603 17 1	
		£729,444 17 6
,, Other Revenue	2,738 6 5	
Less Credited to Pooled Costs	833 7 0	
		1,904 19 5
		£731,349 16 11
By Balance at 31st December, 1947 brought forward ...		£72,286 1 1
,, Balance brought down		8,844 13 2
		£81,130 14 3

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission and City of Cape Town.

Dr. Statement of Pooled Costs for the Year ended 31st December, 1948, and Allocation thereof. Cr.

Pooled Generation of Electricity.

To Operation and Maintenance—		
Fuel	£685,696 10 7	
Water, Oil, Waste and Stores	39,040 11 8	
Salaries, Wages and Other Expenses	174,698 17 6	
		£899,435 19 9
.. General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)		23,356 18 8
.. Interest		121,455 14 7
.. Redemption Fund		114,272 8 10
.. Reserve Fund		20,917 1 0
		£1,179,438 2 10
By Allocation of Pooled Costs in terms of Agreement—		
Electricity Supply Commission	£315,511 0 5	
City of Cape Town	861,159 15 10	
		£1,176,673 16 3
Sundry Revenue		2,764 6 7
		£1,179,438 2 10

Cape Town,
29th April, 1949.

H. A. EASTMAN,
Manager of the Pooled Stations.

Electricity Supply Commission.

DURBAN UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1948. Cr.

Generation of Electricity.					
To Operation—					
Fuel	£259,338	1	11		
Water, Oil, Waste and Stores	13,364	18	9		
Salaries and Wages	51,842	4	11		
Other Expenses	10,102	0	1		
,, Maintenance—					
Stores	22,089	7	5		
Salaries and Wages	52,380	9	5		
Other Expenses	1,837	4	10		
				£410,954	7 4
,, Operation and Maintenance, Alice Street Power Station				676	7 6
,, Electricity Purchased				19,759	14 5
,, Electricity supplied by Natal Central Undertaking				300	9 11
Distribution of Electricity.					
,, Operation and Maintenance—					
Stores	13,785	18	10		
Salaries and Wages	14,246	3	8		
Other Expenses	2,261	4	7		
				30,293	7 1
General Expenses.					
,, Local Administration and Technical Management	13,626	5	1		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	23,057	2	2		
,, Head Office Administration and General Expenses, including Publicity	12,377	11	1		
,, Engineering Expenses	5,487	18	1		
				54,548	16 5
				516,533	2 8
,, Interest				117,832	5 0
,, Redemption Fund				86,918	15 10
,, Sinking Fund				120	0 0
,, Amount set aside to Reserve Fund				10,000	0 0
				£731,404	3 6
To Balance at 31st December, 1947, brought forward				£44,178	9 1
,, Balance brought down				4,583	11 9
				£48,762	0 10

By Sales of Electricity—					
Bulk Supplies	£633,973	0	3		
Industrial Supplies	41,338	13	5		
Domestic and Lighting Supplies	43,268	1	11		
				£718,579	15 7
,, Electricity supplied to Natal Central Undertaking				4,574	1 4
,, Other Revenue				3,666	14 10
,, Balance carried down				4,583	11 9
				£731,404	3 6
By Balance as per Balance Sheet				£48,762	0 10
				£48,762	0 10

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.
ALEX. AIKEN & CARTER, }
HALSEY, BUTTON & PERRY, } Auditors.

Electricity Supply Commission.

SABIE UNDERTAKING.

Dr. Revenue Account for the Year ended 31st December, 1948. Cr.

Generation of Electricity			
To Operation—			
Water, Oil, Waste and Stores	£82 4 8		
Salaries and Wages	3,244 13 2		
,, Maintenance—			
Stores	42 1 7		
Salaries and Wages	164 10 0		
Other Expenses	300 4 0		
		£3,833 13 5	
Distribution of Electricity			
,, Operation and Maintenance—			
Stores	28 3 7		
Salaries and Wages	585 0 0		
Other Expenses	141 2 7		
		754 6 2	
General Expenses.			
,, Local Administration and Technical Management ...	307 3 7		
,, General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.) ...	861 18 5		
,, Head Office Administration and General Expenses, including Publicity	1,125 4 8		
,, Engineering Expenses	498 18 0		
		2,793 4 8	
		7,381 4 3	
,, Interest		4,281 12 10	
,, Redemption Fund		Cr. 3,619 3 6	
		£8,043 13 7	
To Balance brought down		£60 7 5	
,, Balance as per Balance Sheet		61 16 10	
		£122 4 3	

By Sales of Electricity	£7,983 6 2
Mining Supplies.	
,, Balance carried down	60 7 5
	£8,043 13 7
By Balance at 31st December, 1947, brought forward	£122 4 3
	£122 4 3

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.
ALEX. AIKEN & CARTER,
HALSEY, BUTTON & PERRY, } Auditors.

ACCOUNT No. 8.

Electricity Supply Commission.

KLIP GENERATING STATION UNDERTAKING.

Dr. **Revenue Account for the Six Months ended 30th June, 1948.** Cr.

Generation of Electricity.

To Operation—			
Fuel	£237,803 19 11		
Water, Oil, Waste and Stores	5,441 13 4		
Salaries and Wages	35,018 2 1		
Other Expenses	1,372 7 5		
,, Maintenance—			
Stores	11,953 19 2		
Salaries and Wages	22,791 15 3		
Other Expenses	6,949 17 1		
		£321,331 14 3	

General Expenses.

,, Local Administration and Technical Management	5,945 0 3		
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	11,602 4 2		
,, Administration, Engineering and General Expenses of Operating Party (The Victoria Falls and Transvaal Power Company, Limited)	8,662 10 0		
,, Head Office Administration and General Expenses, including Publicity	3,541 0 5		
,, Engineering Expenses	1,570 0 1		
		31,320 14 11	
		352,652 9 2	
,, Interest		115,890 3 0	
,, Redemption Fund		82,799 3 0	
,, Provision for Repayment of Amounts Outstanding (Rand Water Board)		3,247 11 11	
,, Amount set aside to Reserve Fund		40,630 3 1	
		£595,219 10 2	

By Sales of Electricity—	
Bulk Supplies	£592,048 8 9
,, Other Revenue	3,171 1 5
	£595,219 10 2

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission.

RAND EXTENSION UNDERTAKING.

Dr. Revenue Account for the Six Months ended 30th June, 1948. Cr.

To General Expenses (Insurance)	£120	4	4		
,, Head Office Administration and General Expenses, including Publicity	550	12	5		
,, Engineering Expenses	244	2	7		
				£914	19 4
,, Interest				22,825	19 9
,, Redemption Fund				17,477	13 8
,, Amount set aside to Reserve Fund				7,506	16 2
				£48,725	8 11

By Amount recovered from The Victoria Falls and Transvaal Power Company, Limited				£48,725	8 11
				£48,725	8 11

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.

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

ACCOUNT No. 10.

Electricity Supply Commission.

VAAL GENERATING STATION UNDERTAKING.

Dr. Revenue Account for the Six Months ended 30th June, 1948. Cr.

Generation of Electricity.

To Operation—			
Fuel	£89,012 6 1		
Water, Oil, Waste and Stores	887 0 2		
Salaries and Wages	16,594 1 5		
Other Expenses	1,111 14 3		
,, Maintenance—			
Stores	1,587 17 8		
Salaries and Wages	7,775 0 0		
Other Expenses	1,058 16 4		
		£121,029 15 11	

General Expenses.

,, Local Administration and Technical Management	4,659 0 10	
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	1,997 9 7	
,, Administration, Engineering and General Expenses of Operating Party (The Victoria Falls and Transvaal Power Company, Limited)	4,950 0 0	
,, Head Office Administration and General Expenses, including Publicity	2,439 14 2	
,, Engineering Expenses	1,081 11 1	
		15,127 15 8
		139,157 14 7
,, Interest		53,098 9 3
,, Redemption Fund		53,806 16 5
,, Provision for Repayment of Amounts Outstanding (Rand Water Board)		811 17 10
,, Amount set aside to Reserve Fund		7,607 0 11
		£254,481 19 0

By Sales of Electricity—		
Bulk Supplies		£251,119 0 10
,, Other Revenue		3,062 18 2
		£254,481 19 0

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.

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

ACCOUNT No. 11.

Electricity Supply Commission.

GREATER RAND EXTENSION UNDERTAKING.

Revenue Account for the Six Months ended 30th June, 1948.

Dr.

To General Expenses (Insurance)	£9 16 7	
,, Head Office Administration and General Expenses, including Publicity	22 16 8	
,, Engineering Expenses	10 2 6	
		£42 15 9
,, Interest		1,009 16 2
,, Redemption Fund		874 5 7
,, Amount set aside to Reserve Fund		340 10 7
		£2.267 8 1

Cr.

By Amount recovered from The Victoria Falls and Transvaal Power Company, Limited	£2.267 8 1
	£2.267 8 1

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission.

BORDER UNDERTAKING.

Dr. **Revenue Account for the Year ended 31st December, 1948.** Cr.

Generation of Electricity.					
To Operation					
Fuel	£84,159	2	2		
Water, Oil, Waste and Stores	2,077	18	7		
Salaries and Wages	22,423	17	6		
Other Expenses	1,184	16	11		
.. Maintenance					
Stores	3,653	19	4		
Salaries and Wages	10,461	11	11		
Other Expenses	1,008	12	3		
				£121,969	18 8
Distribution of Electricity.					
.. Operation and Maintenance—					
Stores	564	19	6		
Salaries and Wages	4,096	19	4		
Other Expenses	338	8	5		
				5,000	7 3
General Expenses.					
.. Local Administration and Technical Management	10,442	0	10		
.. General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	9,013	11	4		
.. Investigations and Development Expenses	50	3	2		
.. Head Office Administration and General Expenses, including Publicity	3,375	14	0		
.. Engineering Expenses	1,496	14	0		
				24,378	3 4
				154,348	9 3
.. Interest				16,816	3 0
.. Redemption Fund				2,900	11 10
.. Instalments paid on East London and Alice Municipalities' Loans				7,220	2 11
.. Balance carried down				10,476	17 6
				£191,762	4 6
To Accumulated Deficit at 31st December, 1947, taken over from Alice Municipality				£8,083	11 5
.. Balance as per Balance Sheet				9,976	2 7
				£18,059	17 0

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
29th April, 1949.

ACCOUNT No. 12.

Commission.

UNDERTAKING.

ended 31st December, 1948. Cr.

By Sales of Electricity—					
Bulk Supplies	£116,276	12	3		
Industrial Supplies	9,777	3	6		
Domestic and Lighting Supplies	34,955	19	9		
				£191,009	15 6
.. Other Revenue				752	9 0
				£191,762	4 6
By Balance at 31st December, 1947, brought forward				£7,582	19 6
.. Balance brought down				10,476	17 6
				£18,059	17 0

Referred to in our Report of 20th June, 1949.

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

Electricity Supply Commission.

RAND
(Including Klip and Vaal Generating Stations, Rand Extension and Greater Rand Extension.)

UNDERTAKING.

Dr. — **Revenue Account for the Six Months ended 31st December, 1948.** — **Cr.**

ACCOUNT No. 13.

Generation.					
To Operation—					
Fuel		£557,346 7 2			
Water, Oil, Waste and Stores		24,215 5 4			
Salaries and Wages		144,586 7 7			
Other Expenses		9,536 17 5			
,, Maintenance—					
Stores		48,251 6 4			
Salaries and Wages		113,466 14 2			
Other Expenses		15,444 19 7			
			£912,847 17 7		
,, Electricity Purchased			18,348 13 10		
,, Electricity supplied by Witbank Undertaking			130,131 16 2		
Distribution.					
,, Operation and Maintenance—					
Stores		24,487 19 9			
Salaries and Wages		97,754 9 0			
Other Expenses		12,713 7 9			
			134,955 16 6		
General Expenses.					
,, Local Administration and Technical Management		121,041 0 9			
,, General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)		66,740 15 5			
,, Head Office Administration and General Expenses, including Publicity		20,908 9 2			
,, Engineering Expenses		9,270 5 10			
			217,960 11 2		
			1,414,244 15 3		
,, Interest			448,028 9 1		
,, Redemption Fund			145,690 10 6		
,, Provision for Repayment of Amounts Outstanding (Rand Water Board)			1,150 19 3		
,, Amount set aside to Reserve Fund			138,959 5 1		
,, Balance as per Balance Sheet			56,986 7 11		
			£2,508,060 7 1		

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
29th April, 1949.

By Sales of Electricity—			
Bulk Supplies	£157,219 3 1		
Mining Supplies	1,614,530 19 1		
Industrial Supplies	312,848 4 5		
Domestic and Lighting Supplies	63,678 8 9		
		£2,148,276 15 4	
,, Sales of Air and Steam		245,545 12 1	
,, Electricity supplied to Witbank Undertaking		101,515 8 11	
,, Other Revenue		12,722 10 9	
		£2,508,060 7 1	

Referred to in our Report of 20th June, 1949.

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

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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, 1948

Undertaking.	Power Stations.	Type.
	CAPE	
BORDER (21,500 square miles)	Alice	Oil
	East London	Steam
	King William's Town	Steam
CAPE TOWN (5,600 square miles)	Caledon	Oil
	Salt River "A"	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
Rosherville	Steam
Robinson	Electric

Statement No. 1—(continued)

(1) STEAM STATIONS

Name of Station.	BOILER HOUSE.				TURBINE		
	Number of Boilers.	Rating. Each.	Rating. Total.	lb/sq. in.	Number of Generators.	Normal Rating each	
		lb of Steam per Hour.				MW	p.f.
Brakpan* ...	8	28,000	744,000	200	1	3·0	0·80
	10	45,000			2	12·5	0·69
	1	70,000		240	1	20·0	0·50
Colenso	8	60,000	840,000	290	5	12·0	0·9
	4	90,000			1	25·0	0·9
Congella ...	6	60,000	1,760,000	270	3	12·0	0·8
	4	100,000			1	20·0	0·8
	5	200,000		625	1	30·0	0·8
					2	40·0	0·85
East London ...	4	21,500	251,000	220	1	1·5	0·8
	2	27,500		220	2	4·0	0·85
	2	55,000		220	2	7·5	0·85
King William's Town	1	10,000	46,000	200	2	1·5	0·8
	3	12,000			1	0·5	0·8
Klip	24	180,000	4,320,000	355	12	33·0	0·825
Rosherville* ...	32	38,000	1,600,000	200	5	9·6	0·80
	8	48,000			1	12·5	0·83
Salt River ...	2	60,000	720,000	270	3	10·0	0·90
	6	100,000		425	3	20·0	0·80
Simmerpan ...	4	20,000	764,000	200	1	3·0	0·80
	12	25,000			5	3·0	0·80
	8	48,000			2	11·0	0·73
Vaal	6	190.000	1,140,000	360	5	33·0	0·825
Vereeniging ...	20	45,000	1,920,000	210	3	20·0	1·00
	2	60,000			3	32·5	0·81
	5	180,000		230			
Witbank ...	20	70,000	1,400,000	255	5	20·0	0·85
Total Steam Stations	207	—	15,505,000	—	73	—	—

* Note.—Brakpan and Rosherville Boiler Houses also supply steam to steam-driven Compressors listed below.

(2) HYDRO STATION

Sabie	—	—	—	—	3	0·45	0·75

HOUSE. Generator.	Total Rating. MW	Total Rating. MVA	Voltage of Generation.	HOUSE SETS. Number.	Rating. Each.	Total House Sets.	Station Capacity (Including House Sets).
MVA	MW	MVA	kV		MW	MW	MW
3·75			10·0				
18·0	48·0	79·75	5·0	—	—	—	48·0
20·0			5·0				
20·0							
13·33	85·0	94·45	6·6	—	—	—	85·0
27·80							
15·0	166·0	201·5	6·6	—	—	—	166·0
25·0			6·6				
37·5			33·0				
47·0			33·0				
1·875	24·5	28·925	6·6	—	—	—	24·5
4·7							
1·825							
1·875	3·5	4·375	3·8	—	—	—	3·5
0·625							
40·0	396·0	480·0	10·5	4	7·0	28·0	424·0
12·0	60·5	75·0	5·0	—	—	—	60·5
15·0							
11·0	90·0	108·0	12·0	1	0·3	0·3	90·3
25·0			33·0				
3·75	40·0	52·5	10·0	—	—	—	40·0
3·75			2·25				
15·0			5·0				
40·0	165·0	200·0	10·5	1	7·0	7·0	172·0
20·0	157·5	180·0	5·0	—	—	—	157·5
40·0			10·5				
23·5	100·0	117·5	6·6	1	8·0	8·0	108·0
—	1,336·0	1,622·0	—	7	—	43·3	1,379·3

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. Each. kW	Each. kVA	Total. kW	Total. kVA	Voltage of Generation A.C. or D.C.
Alice	1	10	—	256	—	440 220 D.C.
	2	63	—			
	1	90	—			
	1	125	140	125	140	3,300 A.C.
Caledon*	1	140	—	140	—	500 250 D.C.
Port Shepstone ...	2	700	875	3,100	4,100	380 220 A.C.
	2	1,000	1,175			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	14	—	—	6,421	7,190	—

* Stand-by Plant.

(4) COMPRESSED AIR POWER STATIONS

Name of Station.	Number of Sets.	Type.	Compressor Output, h.p. Each.	Compressor Output, h.p. Total.	Drive.
Electric Driven.					
Canada Dam	1	Turbo	3,000	22,200	Electric Motor
Compressor Station	4	Turbo	1,800		Electric Motor
Robinson Compressor Station	3	Turbo	2,000	14,000	Electric Motor
	1	Turbo	2,150		Electric Motor
	1	Turbo	2,850		Electric Motor
	1	Turbo	3,000		Electric Motor
At New Modder Mine ...	1	Recip.	270	1,350	Electric Motor
	1	Recip.	380		Electric Motor
	1	Recip.	700		Electric Motor
At Modder B Mine	1	Recip.	270	5,500	Electric Motor
	1	Recip.	380		Electric Motor
	2	Recip.	700		Electric Motor
	1	Recip.	1,300		Electric Motor
	1	Turbo	2,150		Electric Motor
Steam Driven.					
Brakpan Power Station ...	3	Recip.	800	7,600	Recip. Steam Engines
	1	Turbo	2,550		Steam Turbine
	1	Turbo	2,650		Steam Turbine
Rosherville Power Station ...	1	Turbo	2,500	18,800	Steam Turbine
	1	Turbo	1,400		Steam Turbine
	3	Turbo	6,000		Steam Turbine
	2	Turbo	7,100		Steam Turbine
	1	Turbo	9,700		Steam Turbine
Total Compressed Air Power Stations	33	—	—	99,450 = 74,190 kW	

Statement No. 1—(continued)

STEP-UP AND STEP-DOWN TRANSFORMERS

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

Undertaking.	AT POWER STATIONS.				ON TRANSMISSION AND DISTRIBUTION.				TOTAL TRANSFORMERS.	
	Number.		kVA		Number.		kVA		Working and Spare.	
	Working.	Spare.	Working.	Spare.	Working.	Spare.	Working.	Spare.	Number.	kVA
Border ...	4	—	1,600	—	55	4	4,000	290	63	5,890
Cape Town ...	15	—	59,950	—	773	126	75,052	18,926	914	153,928
Durban ...	25	1	66,620	350	107	70	6,095	2,805	203	75,870
Natal Central	25*	1*	102,840	15,000	446	185	92,815	15,595	657	226,250
Rand	257	18	1,501,061	98,990	1,537	33	2,528,612	106,128	1,845	4,234,791
Sabie	3	2	1,225	410	5	1	1,250	255	11	3,140
Witbank ...	59	6	158,925	21,949	126	71	31,500	11,730	262	224,104
At Compressor Stations.										
Rand ...	47	1	320,620	18,333	—	—	—	—	48	338,953
Totals	435	29	2,212,841	155,032	3,049	490	2,739,324	155,729	4,003	5,262,926

* Includes Interconnector.

POWER FACTOR CORRECTIVE PLANT

	Working	
	Number	kVA
Synchronous Condensers	16	292,000
Static Condensers	7,077	10,565
		302,565

CONVERTING SUBSTATIONS

Type.	Number of Substations.	Number of Units.	Total Rating.
Motor Generators ...	15	25	48,150 kW
Rotary Converters ...	1	1	150 kW
Totals	16	26	48,300 kW

Statement No. 1—(continued)

(1) Transmission Lines and Cables: Route Miles (excludes Service Connections on Reticulation Systems)
(2) Telephone and Pilot Cables: Route 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	380/220 V	Street Lighting (Series).	Totals.
Border	—	—	—	—	—	—	—	—	—	—	—	5·60A	—	—	30·56	—	36·16
Cape Town	—	—	—	—	354·51	—	—	—	171·60	—	165·33	—	0·3	—	250·60	—	942·34
Durban	—	—	—	—	56·87	—	—	—	45·84	—	29·41	0·77	—	—	71·17	—	204·06
Natal Central	—	609·71	—	—	—	69·81	—	—	195·03	—	208·10	5·65	—	—	100·23	—	1,188·53
Rand	127·05	1,057·47	—	552·55	—	—	—	109·76	—	28·58	58·52	34·62	13·77	121·83B	34·82	121·89	2,260·86
Sabie	—	—	—	—	—	7·2	—	—	—	—	—	—	—	—	1·0	—	8·20
Witbank	—	—	—	—	—	—	185·2	—	—	—	8·9	0·4	20·7	—	40·3	—	255·50
Totals	127·05	1,667·18	—	552·55	411·38	77·01	185·2	109·76	412·47	28·58	470·26	47·04	34·77	121·83	528·68	121·89	4,895·65

A includes 3·8 kV.

UNDERGROUND CABLES

Border	—	—	—	—	—	—	—	—	—	—	—	7·00	—	—	—	—	7·00
Cape Town	—	—	—	—	37·03	—	—	—	23·37	—	6·07	0·34	—	—	3·72	—	70·53
Durban	—	—	—	—	—	—	—	—	0·62	—	1·11	—	—	—	—	—	1·73
Natal Central	—	—	—	—	—	—	—	—	—	—	4·28	1·89	—	—	2·51	—	8·68
Rand	—	—	—	—	—	—	—	81·86	—	7·03	12·87	1·30	33·89	—	1·47	38·77	178·46
Witbank	—	—	—	—	—	—	14·9	—	—	—	9·33	0·2	4·5	1·27	1·36	—	30·29
Totals	—	—	—	—	37·03	—	14·9	81·86	23·99	7·03	33·66	10·73	38·39	1·27	9·06	38·77	296·69

B includes some 380/220 V.

(2) TELEPHONE AND PILOT CABLES

Cape Town	4·49	655·94 route miles.
Rand	643·85	
Witbank	7·60	

STATEMENT No. 2

SUMMARY OF PRINCIPAL PLANT AND EQUIPMENT IN COURSE OF INSTALLATION OR ON ORDER AT 31st DECEMBER, 1948

(1) STEAM STATIONS

Name of Station.	BOILER HOUSE.				TURBINE			HOUSE.				HOUSE SETS.			Station Capacity (including House Sets).
	Number of Boilers.	Rating. Each.	Rating. Total.	lb/sq. in.	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
Colenso	2 3	180,000 180,000	900,000	290 300	2	25·0	0·9	27·8	50·0	55·6	13·2	—	—	—	50·0
Congella ...	3	200,000	600,000	625	1	40·0	0·85	47·0	40·0	47·0	33·0	—	—	—	40·0
East London ...	2	55,000	110,000	220	1	7·5	0·85	8·825	7·5	8·825	11·0	—	—	—	7·5
Hex River ...	4	200,000	800,000	625	3	20·0	0·80	25·0	60·0	75·0	11·0	—	—	—	60·0
King Williams' Town	1	8,000	8,000	200	—	—	—	—	—	—	—	—	—	—	—
Pinetown ...	4	180,000	720,000	625	2	30·0	0·80	37·5	60·0	75·0	11·0	—	—	—	60·0
Vaal	12	190,000	2,280,000	360	4	33·0	0·825	40·0	132·0	160·0	10·5	2	7	14	146·0
Vereeniging ...	1	180,000	180,000	230	—	—	—	—	—	—	—	—	—	—	—
Vierfontein ...	6	210,000	1,260,000	630	3	30·0	0·85	35·3	90·0	105·0	11·0	—	—	—	90·0
Witbank ...	2	80,000	160,000	225	1	20·0	0·8	25·0	20·0	25·0	6·6	—	—	—	20·0
On Hand ...	—	—	—	—	2	6·0	0·8	7·5	12·0	15·0	6·6	—	—	—	12·0
Totals ...	40		7,018,000		19				471·5	566·425		2		14	485·5

(2) DIESEL STATIONS

Name of Station	Number of Sets.	RATING OF GENERATORS. Each. kW	Each. kVA	Total. kW	Total. kVA	Voltage of Generation A.C. or D.C.
Alice	2	230	288	460	576	440/400 A.C.
King William's Town	1	1,000	1,175	1,000	1,175	11,000 A.C.
Totals	3			1,460	1,751	

Statement No. 2—(continued)

TRANSMISSION LINES

(Route Miles)

Undertaking.	132 kV	88 kV	66 kV	40 kV	33 kV	20 kV	Totals
Cape Town ...	—	—	152	—	20	—	172·0
Durban	6·0	—	—	—	—	—	6·0
Natal Central ...	128·0	—	—	—	—	—	128·0
Rand	—	193·91	—	20·67	—	—	214·58
Witbank ..	—	48·0	—	—	—	4·8	52·8
Totals ...	134·0	241·91	152	20·67	20	4·8	573·38

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	—	—	—	—	—	—
Cape Town	20	16,150	617	30,990	637	47,140
Durban	11	166,250	8	23,200	19	189,450
Natal Central	11	86,665	104	59,075	115	145,740
Rand	32	305,590	127	909,134	459	1,214,724
Sabie	—	—	—	—	—	—
Witbank	8	35,395	30	40,405	38	75,800
Totals	82	610,050	1,186	1,062,804	1,268	1,672,854

STATEMENT No. 3

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

Year	Border Undertaking	Cape Town Undertaking	Durban Undertaking	Klip Undertaking	Natal Central Undertaking	Rand Undertaking	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	—	610,285,125	**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	1,349,853,461	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	—	768,114,272	**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	307,724,111	—	6,335,396	—	873,440,460	**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	—	889,205,914	**4,415,802,727**
1945	—	165,857,610	348,740,929	2,643,039,705	333,192,760	—	6,596,859	377,902,035	830,734,606	**4,706,064,504**
1946	—	184,618,905	369,659,142	2,614,328,036	347,006,541	—	7,408,010	582,485,354	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	668,587,275	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 Including air and steam	7,273,534	135,094,620	633,245,570	**5,576,858,881*** * Including air and steam

Notes.—The Units sold at Cape Town do not include the Units supplied to Cape Town Corporation under the Pooling Agreement. The decreases of Klip, Vaal and Witbank are due to the Electricity Supply Commission taking over The Victoria Falls and Transvaal Power Co., Ltd., 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.

DISTRIBUTION OF THE UNITS SOLD DURING 1948

AS BETWEEN THE VARIOUS CLASSES OF CONSUMERS

STATEMENT No. 4

By Undertaking: (ELECTRICITY, AIR AND STEAM)

UNITS SOLD, 1948

	TRACTION.		BULK.		MINING.	INDUSTRIAL.		DOMESTIC AND STREET LIGHTING.		TOTAL.	
	Units.	No. Cons.	Units.	No. Cons.	Units.	No. Cons.	Units.	No. Cons.	Units.	No. Cons.	Units.	No. Cons.
Border	—	—	62,913,290	1	—	—	1,324,574	132	4,979,256	1,631	69,217,120	1,764
Cape Town	64,677,023	1	47,616,686	9	—	—	75,658,468	891	34,486,946	12,255	222,439,123	13,156
Durban	—	—	421,272,578	2	—	—	21,436,976	112	5,961,942	1,988	448,671,496	2,102
Klip	—	—	1,207,359,067[a]	—	—	—	—	—	—	—	1,207,359,067	—
Natal Cenral	262,274,493	1	71,192,939	11	10,533,763	8	18,097,360	307	5,759,553	2,669	367,858,108	2,996
Rand	—	—	137,433,725	27	1,636,733,844	86	263,492,144	172	12,388,355	9,714	2,050,048,068	9,999
Sabie	—	—	—	—	7,273,534	2	—	—	—	—	7,273,534	2
Vaal	—	—	435,094,620[a]	—	—	—	—	—	—	—	435,094,620	—
Witbank[c]	152,408,754[b]	1	310,594,375	1	59,633,033	35	107,558,435	93	3,050,973	1,258	633,245,570[c]	1,388
Total:												
Electricity	479,360,270	3	2,693,477,280	51	1,714,174,174	131	487,567,957	1,707	66,627,025	29,515	5,441,206,706	31,407
Air	—	—	—	—	120,258,262	14	7,037,192	22	—	—	—	—
Steam	—	—	—	—	8,356,721	1	—	—	—	—	135,652,175	37
Total Electricity, Air and Steam ...	479,360,270	3	2,693,477,280	51	1,842,789,157	146	494,605,149	1,729	66,627,025	29,515	5,576,858,881	31,444

Notes: [a] To Midnight 30/6/48. [b] Traction Units, Rand, credited Witbank Undertaking. [c] Units to Rand Undertaking deducted.

By Province: (ELECTRICITY, AIR AND STEAM)

Cape	64,677,023	1	110,529,976	10	—	—	76,983,042	1,023	39,466,202	13,886	291,656,243	14,920
Natal	256,495,022	1	483,449,017	13	10,533,763	8	39,089,922	349	9,991,090	3,403	799,558,814	3,774
O.F.S.	5,779,471	—	9,865,145	1	15,728,121	6	5,704,508	32	290,370	311	37,367,615	350
Transvaal	152,408,754	1	2,089,633,142	27	1,816,527,273*	132	372,827,677**	325	16,879,363	11,915	4,448,276,209	12,400

* Includes Air and Steam.

** Includes Air.

POWER STATION OPERATING STATISTICS, 1948

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 BThU's (Ar. Av.) as Fired.	BThU's PER UNIT. Generated.	BThU's PER UNIT. Sent Out.	OVERALL THERMAL EFFICIENCY % Generated.	OVERALL THERMAL EFFICIENCY % Sent Out.
Brakpan*	49,972,676	45,414,453	Hour 40,549	—	25·8	70,501	2·822	3·105	9,270	26,160	28,780	13·04	11·86
Colenso	410,326,510	390,508,680	65,780	82,500	67·6	309,291	1·508	1·584	12,200	18,400	19,320	18·54	17·66
Congella No. 1 and No. 2	483,410,267	449,443,477	102,267	114,000	50·6	314,600	1·302	1·400	12,300	16,010	17,220	21·31	19·81
East London	66,344,350	63,240,600	16,190	17,000	44·2	53,503	1·613	1·692	12,550	20,240	21,230	16·86	16·07
King William's Town ...	6,946,650	6,458,929	1,984	2,200	37·3	6,919	1·992	2·142	13,020	25,910	27,860	13·17	12·25
Klip	2,565,370,127	2,398,089,705	Hour 378,180	—	72·2	2,306,121	1·798	1·923	8,900	16,000	17,110	21·33	19·94
Rosherville*	47,640,121	40,293,921	Hour 47,718	—	19·4	68,137	2·860	3·382	9,490	27,140	32,100	12·57	10·63
Salt River "A"	215,330,390	200,398,234	59,300	63,800	38·5	157,052	1·459	1·567	12,480	18,210	19,560	18·74	17·44
Simmerpan*	21,213,073	19,975,990	Hour 36,427	—	12·6	42,283	3·987	4·233	8,920	35,560	37,760	9·60	9·04
Vaal	921,308,621	869,694,442	Hour 128,610	—	77·0	694,383	1·507	1·597	9,490	14,300	15,160	23·86	22·51
Vereeniging*	441,897,878	414,877,946	Hour 134,527	—	71·0	472,021	2·136	2·275	9,150	19,540	20,820	17·46	16·39
Witbank	787,801,849	738,593,299	Hour 108,042	—	77·8	671,243	1·704	1·818	11,010	18,760	20,020	18·19	17·04
Totals	6,017,562,512	5,636,989,676				5,166,057**							

Notes: * The Rand Undertaking Power Stations (Brakpan, Rosherville, Simmer Pan and Vereeniging) were operated by E.S.C. from 00.00 hours on 1/7/48 and the Load Factors are based on 4,343 hours.

** Increase of 834,232 tons or 19·258 per cent.

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 ...	7,696,400	7,587,300	1,340	1,500	64·5	11·14

Statement No. 5—(continued)

POWER STATION OPERATING STATISTICS, 1948

DIESEL ELECTRIC:

Power Station.	Units Generated.	Units Sent Out.	Maximum Demands kW		Load Factor ½ Hour Sent Out.	Fuel Consumed.		Lube Oil Galls.
			½ Hour.	2 Mins.		Total lb.	Per kWh Sent Out.	
Alice	614,414	554,291	172	188	36·7	472,194	0·852	844
Port Shepstone	827,405	821,260	1,656	1,680	5·6	444,046	0·541	882
Volksrust	16,429	16,429	—	—	—	10,512	0·640	18
*Worcester (i/c Oct.) ...	102,105	102,105	950	1,000	—	64,670	0·634	—
TOTALS:	1,560,353	1,494,085				991,416	0·635	

* Testing October and November.

COMPRESSOR STATIONS: (from 00.00 Hours 1/7/48 to 23.00 Hours 28/12/48).

Station.	Air Units Generated.	Air Units Sent Out.	Coal Burned		Electrical Input (Without 8% Transmission Loss)		Max. Sustained Load Over 1 Hour for 1948.	Load Factor % based on 8484 Hours.
			Total Tons.	lb. Coal/ Units Sent Out.	Total kWh	kWh/Units Sent Out.		
Central Rand Compressed Air System:								
Rosherville	71,706,900	71,567,400	104,649	2·924	—	—	77,290*	38·0*
Robinson	—	28,646,000	—	—	35,900,585	1·253		
Canada Dam	—	25,510,200	—	—	29,449,509	1·151		
		125,723,600	104,649		65,350,094			
Other Air Stations:								
Brakpan	8,387,944	8,356,721	15,495	3·708	—	—	6,036	31·9
Modder B and New Modder	—	5,573,386	—	—	6,495,604	1·165		
TOTALS:		139,653,707	120,144		71,845,698			

* Annual Figure.

SUMMARY:

TOTAL COAL BURNED ALL E.S.C. STATIONS, 5,286,201 Tons (inc. 954,376 Tons or 22·032%).

TOTAL UNITS GENERATED = Units Generated at Steam Electric Stations + Hydro + Diesel + Air (Rosherville and Brakpan).
= 6,017,562,512 + 7,696,100 + 1,560,353 + (71,706,900 + 8,387,944).
= 6,106,944,409 (increase of 808,148,986 or 15·252%.

STATEMENT No. 6

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 1948

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1948)

Head Office	
Immovable Property was acquired to the value of	£2,640 0 0
Natal Central Undertaking	
Servitudes were acquired for	£692 16 1
Witbank Supply System	
Immovable Property was acquired to the value of	£38 6 3
Servitudes were acquired for	£7 6 5
Servitudes were acquired for annual rentals amounting to ...	£36 1 5
Cape Western Undertaking	
Immovable Property was acquired to the value of	£1,275 0 0
Servitudes were acquired for	£611 7 10
Rand Undertaking	
Immovable Property was acquired from the Victoria Falls and Transvaal Power Company, Limited, and Rand Mines Power Supply Company, Limited, to the value (estimated) of	£186,900 0 0
Other immovable property was acquired to the value of ...	£5,400 0 0
Surface Rights, Rights of Way and other Servitudes were acquired for	£155 0 0
Surface Rights, Rights of Way and other Servitudes were acquired for annual rentals amounting to	£7,393 0 4
Property was hired for an annual rental of	£7,642 1 4

STATEMENT No. 7

COAL USED AT COMMISSION'S STEAM-RAISING POWER STATIONS

Average Cost per Ton (2,000 lbs.)

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Brakpan	—	—	—	—	—	—	—	—	—	—	—	—	—	7 9
Colenso	10 9	11 0	10 10	10 9	10 11	10 11	11 0	10 11	10 10	10 4	10 8	10 11	11 4	11 6
Congella	15 0	15 5	15 2	15 0	15 3	15 2	15 3	15 2	14 9	14 6	15 4	15 7	16 4	16 4
East London	—	—	—	—	—	—	—	—	—	—	—	—	26 7	26 11
Klip	—	3 2	3 0	3 3	3 4	3 6	3 6	3 7	3 9	3 11	4 2	4 4	4 5	4 1
King William's Town	—	—	—	—	—	—	—	—	—	—	—	—	—	27 10
Rosherville	—	—	—	—	—	—	—	—	—	—	—	—	—	8 3
Salt River	25 4	25 4	24 8	25 1	25 6	25 7	25 7	25 3	25 0	23 4	25 4	25 9	28 1	28 5
Simmerpan	—	—	—	—	—	—	—	—	—	—	—	—	—	8 4
Vaal	—	—	—	—	—	—	—	—	—	—	5 10	6 0	5 7	4 11
Vereeniging	—	—	—	—	—	—	—	—	—	—	—	—	—	4 11
Witbank	2 3	2 2	2 2	2 1	2 1	2 0	2 0	2 1	2 1	2 4	2 4	2 9	3 4	4 0

ANNEXURE "C"

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

Extracted from the 1946-47 Industrial Census and published by courtesy of the Department of Census and Statistics (Pretoria)

UNITS GENERATED

Province.	Private Companies.	Local Authorities.
Cape	349,920,039	767,282,686
Natal	957,602,968	21,755,633
O.F.S.	743,584,585	58,184,968
Transvaal	5,035,394,416	854,047,632
Total	7,086,502,008	1,701,270,919
		8,787,772,927

CONSUMERS AND SALES

	PROVINCE				Totals and
	Cape.	Natal.	O.F.S.	Transvaal.	Averages.
Total Number of Consumers	172,349	67,228	19,407	181,019	440,003
Total Units Consumed ...	944,122,579	817,930,739	105,982,973	5,625,533,954	7,493,570,245
Number of Domestic Consumers	145,870	51,375	16,785	153,396	367,426
Units Sold and Used for Domestic Consumption	444,338,631	190,228,131	22,137,228	470,134,294	1,126,838,284
Average Units Sold per Domestic Consumer	3,046	3,703	1,319	3,065	3,067

INSTALLED CAPACITY OF PLANTS

	Number of Power Stations.	Total Installed Capacity-Kilowatts.
50,000 kilowatts and over	13	1,685,000
20,000 kilowatts and over, but below 50,000 kilowatts ...	7	253,500
10,000 kilowatts and over, but below 20,000 kilowatts ...	5	68,350
5,000 kilowatts and over, but below 10,000 kilowatts ...	8	53,352
1,000 kilowatts and over, but below 5,000 kilowatts ...	44	91,306
Below 1,000 kilowatts	236	53,591
	313	2,205,099

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	3	72	331	5	8	21	446	345	101
250 kilowatts and over, but below 1,000 kilowatts ...	35	64	23	—	8	13	143	39	104
1,000 kilowatts and over, but below 5,000 kilowatts ...	87	—	1	—	—	—	88	31	57
5,000 kilowatts and over ...	105	—	—	—	—	—	105	25	80
(2) D.C. Plant:									
Below 250 kilowatts	1	25	159	18	4	—	207	147	60
250 kilowatts and over, but below 1,000 kilowatts ...	1	9	—	—	3	—	13	1	12
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.).	Costs.
Coal	7,445,115	£3,351,348
Coke	8,572	3,806
Charcoal	—	—
Fuel Oils	—	267,394
Other Fuel (Wood, etc.)	—	3,850
Lubricating Oils	—	87,481
Total Cost		3,713,879

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.	22
2 lb. and over, but under 3 lb.	19
3 lb. and over, but under 4 lb.	17
4 lb. and over, but under 6 lb.	21
6 lb. and over, but under 8 lb.	5
8 lb. and over	17

TRANSFORMERS

Total installed capacity	8,894,766 kVA

Total value of land, buildings, machinery plant and tools ...	£75,239,924
Total average number of persons employed in the electricity industry (generation and distribution)	£19,889
Total salaries and wages and allowances paid for the year ...	£4,802,555