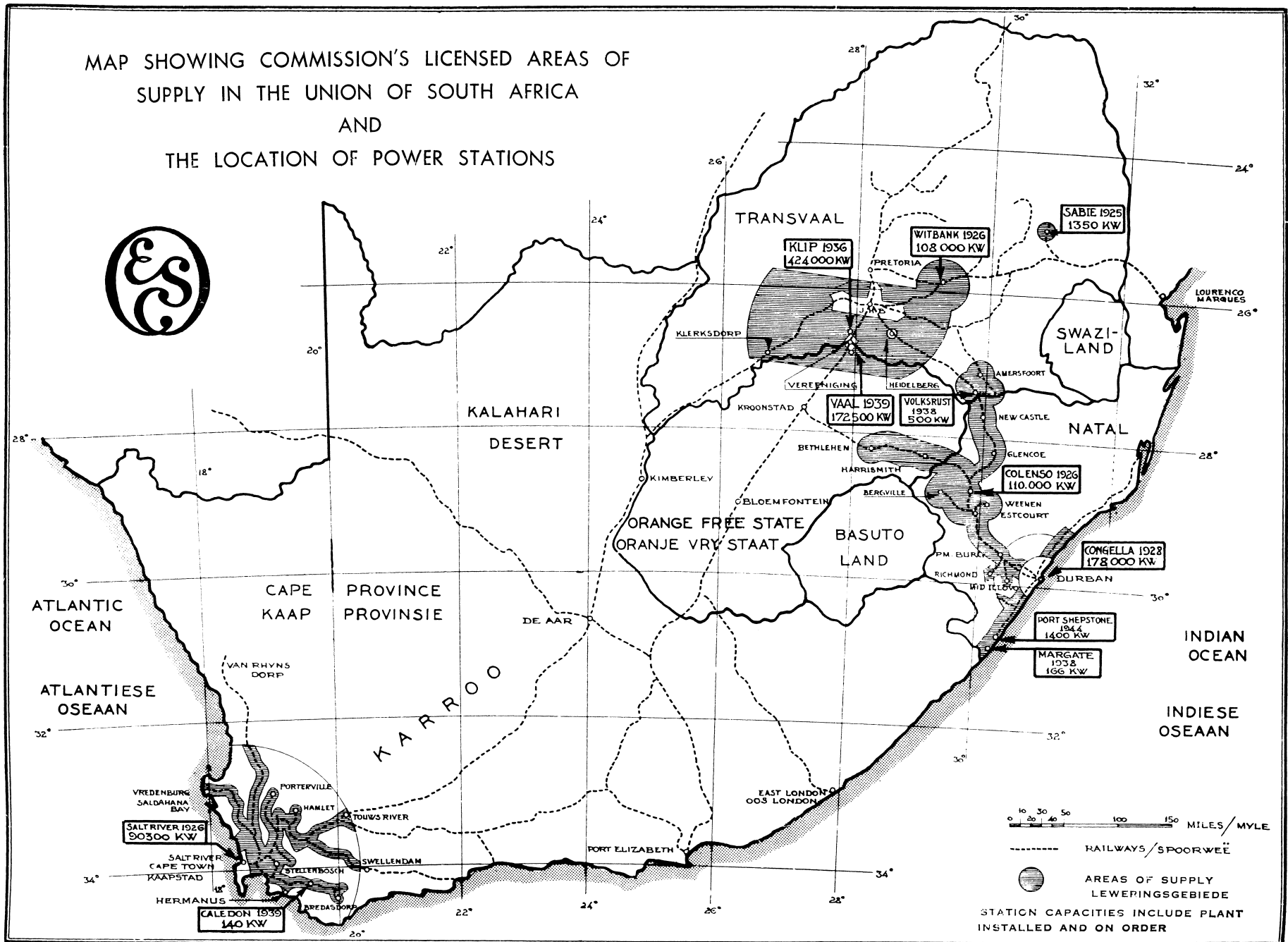


MAP SHOWING COMMISSION'S LICENSED AREAS OF
SUPPLY IN THE UNION OF SOUTH AFRICA
AND
THE LOCATION OF POWER STATIONS



MEMBERS OF THE
Electricity Supply Commission.

DR. HENDRIK JOHANNES VAN DER BIJL (Chairman).

ALBERT MICHAEL JACOBS.

ROBERT BURNS WATERSTON.

WILLIAM PLOWMAN MOYESE HENDERSON.

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Electricity Supply Commission.

Escom House,
Kissik Street,
Johannesburg,

15th June, 1945.

To the Honourable
The Minister of Economic Development,
Pretoria.

SIR,

In conformity with the provisions of Section 14 of the Electricity Act, No. 42 of 1922, the Commission has the honour to present its Twenty-second Annual Report, covering its operations for the year ended 31st December, 1944, together with a brief review of its activities up to 30th April, 1945.

GENERAL.

Contents of Report.

As the need for security silence virtually ended with the cessation of the war in Europe, this Report contains more detailed information regarding the expansion and operation of the Commission's various Undertakings than was published during the previous five years.

**Electricity
Charges.**

This is an appropriate opportunity to record the fact that, while the prices of most commodities have increased very considerably during the war period, the Commission has not increased its electricity tariffs. Increased stores and labour costs were largely offset by increased sales of electricity without corresponding increases in reserve plant capacity, the greater output having been obtained by taking the war-time risk of operating plant which would normally have been kept as standby. Involuntary economies brought about by war-time restrictions also accounted for certain savings. Maintenance work, other than that of the most essential nature, had to be deferred on account of labour and materials shortages.

Tariff increases may, however, be unavoidable in the next year or two as the result of the combined effect of several factors. Increased cost of power station and other extensions now in progress will increase capital charges. By comparison with pre-war prices, the rise in cost of some items of plant is almost 100 per cent., which seems to be excessive, even after making due allowance for war conditions. The carrying out of deferred maintenance and enlargement of staff for this purpose will increase working expenses. Labour costs have already been increased considerably by the application to certain of the Commission's Undertakings of the Factories, Machinery and Building Work Act of 1941. In addition, Cost of Living Allowances to European and non-European employees, involving a substantial sum, will probably continue for some time.

**Extensions
Programme.**

The Commission's programme of plant extensions has been considerably delayed by war conditions. Generating plant ordered in 1939 from manufacturers overseas has not yet been delivered and plant ordered subsequently is not expected to arrive before 1947.

Plans now in progress include the enlargement of some of the Commission's power stations to provide for normal growth of load and for the replacement of ageing generating sets and boilers which will be kept as standby to the more efficient new installations.

The establishment by the Commission of regional electricity supply schemes in certain rural areas has been urged by interested public bodies with the laudable objects of enabling the natural resources to be developed and attracting new industries which are expected to be established after the war. Such regional schemes, involving relatively small loads and lengthy transmission lines between supply points, are, however, not economically practicable at the present high prices of plant and materials and must, therefore, be left in abeyance until conditions are more favourable. The fact that the Commission is required by statute to operate each of its Undertakings as a separate and financially independent unit without incurring a loss even in the initial stages of development must, in the consideration by the Commission of new schemes of this nature, inevitably result in the adoption of a more cautious policy than the potential future development of such schemes might reasonably justify if they were considered purely as business propositions.

When the Railway Administration proceeds with the Cape main line electrification scheme, to which reference is made later in this Report, new possibilities will be opened up for electrical development in certain rural areas now remote from an economical source of supply.

WAR-TIME DEVELOPMENT.

The Commission's policy of restricting development as far as practicable to essential supplies during the war was decided soon after the outbreak of hostilities and was dictated by the necessity for conserving the available generating capacity to meet existing commitments and emergency demands in view of the anticipated delay in obtaining delivery of plant and materials from overseas. Such restriction was subsequently enforced by Government control regulations in terms of which the approval of the Building Controller, acting on the advice of the Municipal and Public Utilities Building Advisory Committee, must be obtained before proceeding with any scheme involving expenditure exceeding £1,000. No new projects of any magnitude were, therefore, embarked upon by the Commission during the war.

TARIFFS.

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 Section 10 of the Electricity Act of 1922, and the standard prices at present in force are set out in Annexure " B " to this Report.

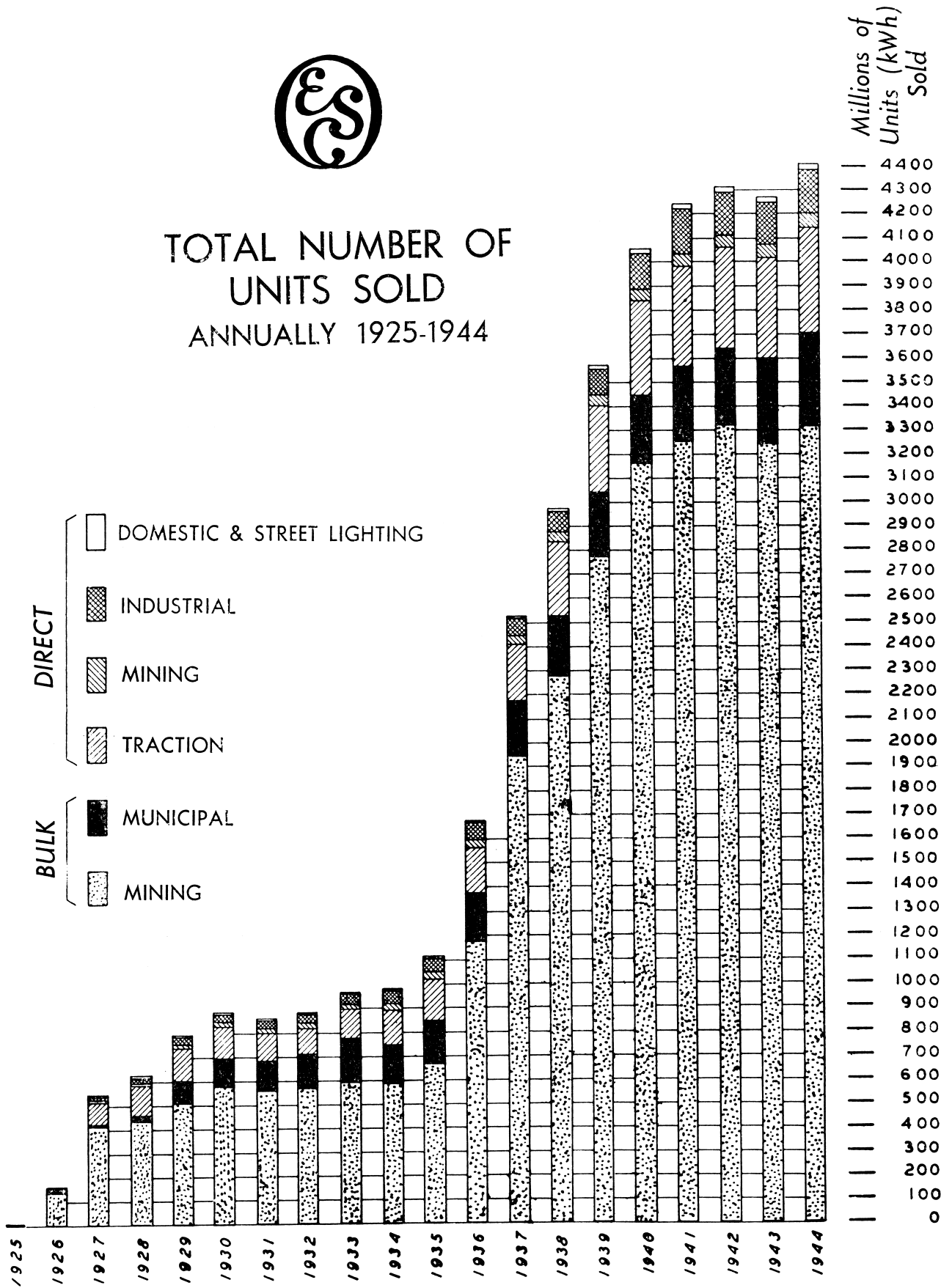
The standard prices are subject, where necessary, to variation in terms of Section 26 of the Electricity Act, 1922, dependent upon the situation, extent and characteristics of consumers' loads.

PLANT CAPACITY.

The aggregate of installed plant capacity in the main power stations owned by the Commission as at 31st December, 1944, was 806,650 kilowatts. Plant under construction or on order will increase the total to 1,084,150 kilowatts. In addition, 2,206 kilowatts of generating plant are installed in four small standby diesel stations at various centres.



TOTAL NUMBER OF UNITS SOLD ANNUALLY 1925-1944



Particulars of plant and equipment installed in each of the Commission's power stations are embodied in Annexure "C" to this Report.

TRANSMISSION SYSTEM AND AREA OF SUPPLY.

The Commission now owns approximately 2,643 route miles of transmission lines and cables, and its licensed area of supply throughout the Union covers approximately 34,369 square miles.

OUTPUT AND SALES.

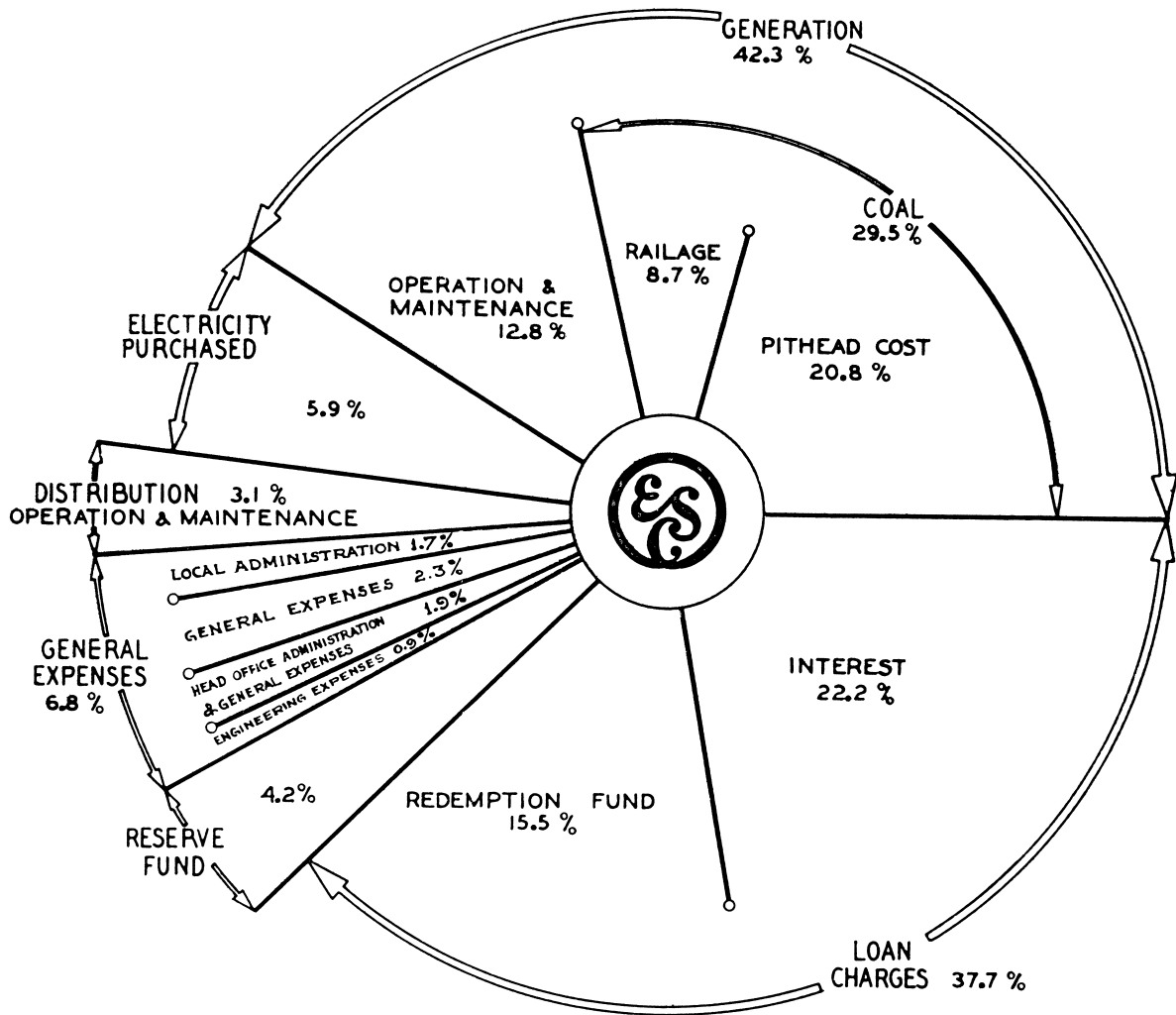
The output of electrical energy from the Commission's power stations in 1944 reached the record total of 4,543,758,253 kilowatt-hours. This exceeded the previous year's total by 123,107,144 units, or 2·78 per cent. The increase since 1939 has been 781,949,908 units, or 20·79 per cent. of the 1939 output.

Sales of electricity generated in power stations owned by the Commission and purchased from other sources for consumers supplied by the Commission in 1944 amounted to 4,415,802,727 units, which was 140,172,873 units, or 3·278 per cent. more than the sales in 1943.

Increased sales were recorded at each of the Commission's Undertakings as follows:—

Undertaking.	Units Sold during 1944.	Increase over 1943 Sales. Units.	Percentage.
Cape Town 	158,673,418	12,933,598	8·87
Durban 	321,583,537	28,217,187	9·62
Klip 	2,703,638,629	34,551,925	1·29
Natal Central 	335,977,438	23,589,778	7·55
Sabie 	6,723,791	793,702	13·38
Witbank 	889,205,914	40,086,683	4·72

SUB-DIVISION OF
TOTAL PRODUCTION COSTS
FOR YEAR 1944



Units sold in 1944 to the various classes of consumers and the corresponding increases over the previous year are shown in the following table:—

Class of Supply	1944.	Percentage Increase Over 1943.
Bulk Supplies:		
Mining, etc.	3,324,302,901	2·05
Municipal	383,712,674	9·46
Direct Supplies for:		
Traction	439,141,737	5·03
Mining	63,231,254	17·39
Industrial	180,027,921	4·40
Domestic and Street Lighting ...	25,386,240	9·41
	<hr/> 4,415,802,727 <hr/>	3·278

The total consumption of electricity on the Reef by the gold mining and other industries and municipalities, etc., exceeded 5,713,000,000 units in 1944, and approximately 64·6 per cent. was supplied from the Commission's power stations at Klip and Witbank, the balance being supplied from power stations owned by The Victoria Falls and Transvaal Power Co., Ltd., three mining companies and the Johannesburg Municipality.

A large proportion of the electricity supplied in bulk to municipalities was used for domestic and lighting purposes.

A chart showing the development of electricity sales year by year is reproduced on page 8. Units sold to all consumers during the past 20 years from the Commission's various Undertakings are shown in Statement No. 3 of Annexure "C" to this Report.

FINANCIAL.

**Total
Loan
Capital.**

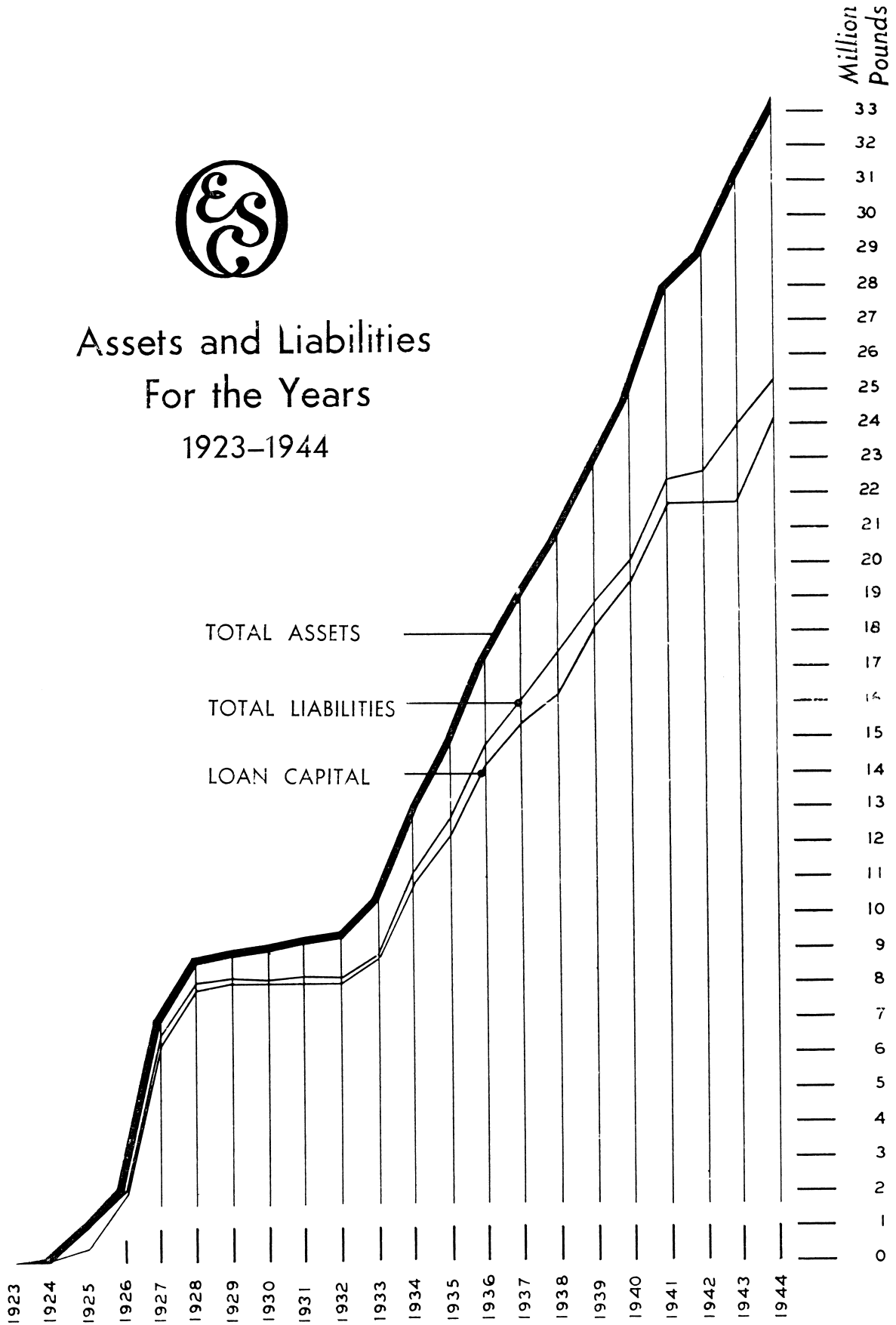
At the date of the Balance Sheet the Commission's loan capital totalled £24,250,000, all of which has been publicly subscribed in South Africa.

**New
Loan.**

A loan of £2,500,000 raised by the Commission on the 6th July, 1944, bearing interest at $3\frac{1}{4}$ per cent. per annum at an issue price of £101 per cent. and redeemable on 28th February,



Assets and Liabilities For the Years 1923-1944



1965/70, was oversubscribed on the day of issue. This loan was raised to finance expenditure on Vaal Power Station and extensions to Congella and Klip Power Stations and minor works at other Undertakings.

The amount in the Reserve Fund at 31st December, 1944, stood at £2,140,623, and the Redemption Fund at that date amounted to £5,442,074, 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.

**Invest-
ments.**

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, 1944, was £7,922,250, the nominal value being £7,934,091. The market value of these investments at that date was £8,286,645.

**Capital Ex-
penditure.**

Expenditure on Capital Account during the year amounted to £731,269, which brought the total capital expenditure at 31st December, 1944, to £24,018,023. Expenditure on Capital Account will amount to approximately £27,815,000 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, 1944, amounted to £33,105,634, and its total liabilities to £25,373,807, the excess of assets (as shown on the Balance Sheet) over liabilities being £7,731,827. A graph showing the growth of assets and liabilities since 1923 is reproduced on the opposite page.

**Summary of
Operating
Statistics.**

Revenue, production costs and other important figures relating to the operation of the Commission's Undertakings during the year 1944, with the comparative figures for 1943, are as follows:—

	1944.	1943.	Difference.
Revenue as per Revenue Accounts ...	£3,353,508	£3,189,782	+ 5.13%
Total Production Costs (including interest, redemption and reserve fund charges)	£3,345,681	£3,185,146	+ 5.04%
Excess of Revenue over Production Costs	£7,827	£4,636	+ £3,191
Net Revenue	*£3,321,870	£3,189,782	+ 4.14%
Average price per unit sold	*0.1755d.	0.1743d.	+ 0.70%
Average revenue per unit sold (including Sundry Revenue)	*0.1805d.	0.1790d.	+ 0.86%
Average cost per unit sold	0.1818d.	0.1787d.	+ 1.73%
Total cost of coal consumed, including railage	£987,141	£925,668	+ 6.64%
Railage on coal consumed	£291,942	£278,683	+ 4.76%
Coal consumed (in tons of 2,000 lbs.) ...	3,713,445	3,584,873	+ 3.59%

* After deducting a further adjustment of £31,638 shown in lower section of the Revenue Account of the Witbank Undertaking.

A diagram showing the sub-division of the Commission's total production costs for the year 1944 is reproduced on page 10.

STAFF.

Home
Ownership
Scheme.

Loans granted to employees to enable them to acquire homes under the Commission's Home Ownership Scheme, for which statutory authority was obtained in March, 1941, totalled £30,365 at 31st December, 1944, of which amount £8,169 had been repaid at that date. Owing to the enormous rise in the price of properties, the high cost of building and the building restrictions since the inception of the scheme, only 18 employees have taken advantage of the facilities available to them under the scheme.

Personnel.

The staff employed by the Commission as at 31st December, 1944, numbered 1,328, made up as follows:—

Europeans (including 48 on Active Service)	...	...	619
Non-Europeans (including 4 on Active Service)	...	...	709
			<hr/>
			1,328
			<hr/>

These figures exclude staff employed at the Commission's Klip, Witbank and Vaal Power Stations which are operated by The Victoria Falls and Transvaal Power Co., Ltd., on behalf of the Commission.

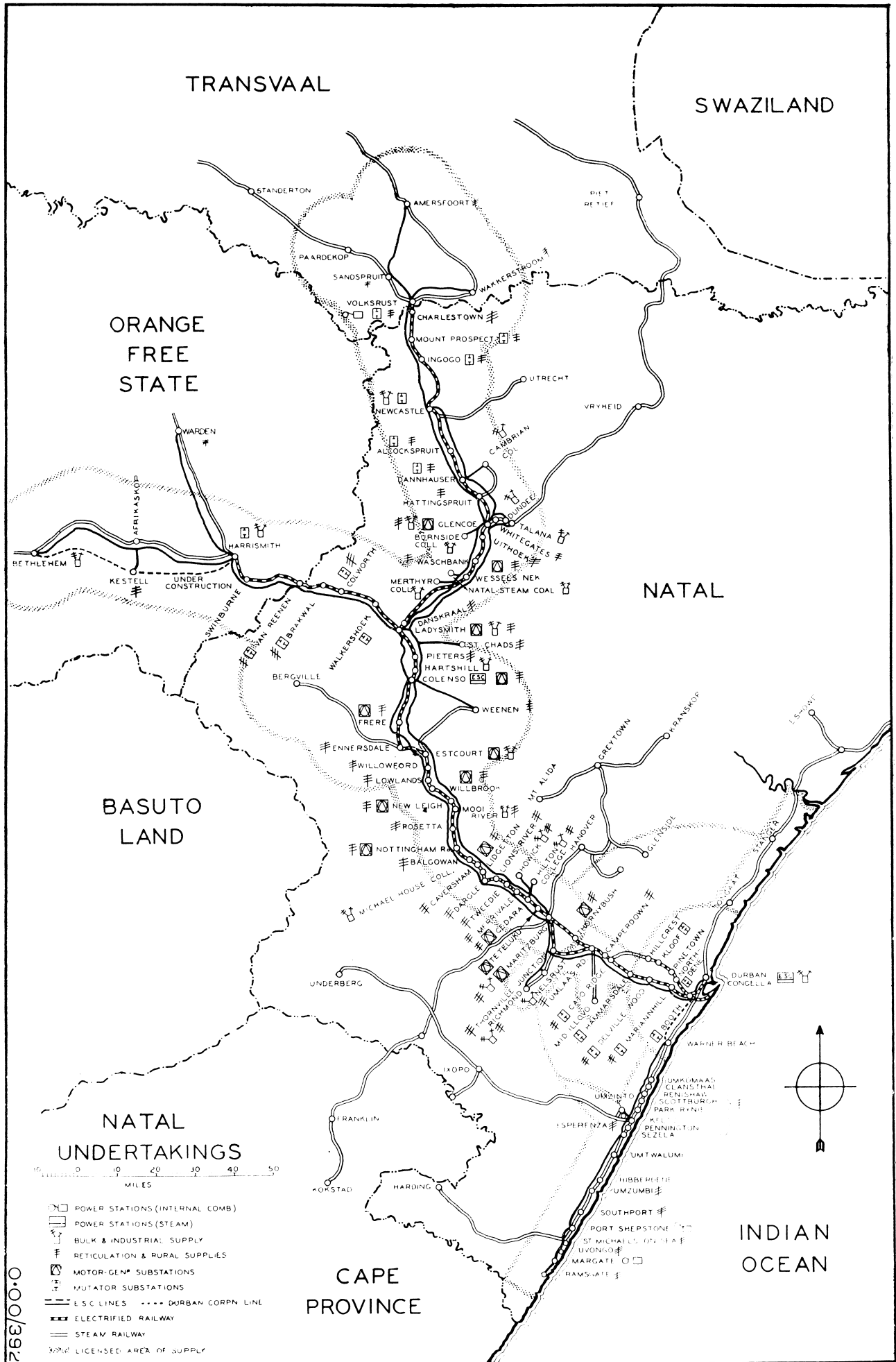
The cumulative effect of strain and curtailment of leave due to war conditions is now becoming manifest among employees and steps are being taken to provide much needed relief. It is also hoped soon to welcome back employees who are still with the Forces.

The Commission takes this opportunity of recording its keen appreciation of the efficient services rendered by all employees during another difficult year.

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.]



TRANSCVAAL

SWAZILAND

ORANGE
FREE
STATE

NATAL

BASUTO
LAND

NATAL
UNDERTAKINGS

CAPE
PROVINCE

INDIAN
OCEAN

- POWER STATIONS (INTERNAL COMB.)
- POWER STATIONS (STEAM)
- BULK & INDUSTRIAL SUPPLY
- RETICULATION & RURAL SUPPLIES
- MOTOR-GEN^s SUBSTATIONS
- MUTATOR SUBSTATIONS
- E.S.C. LINES
- DURBAN CORPN LINE
- ELECTRIFIED RAILWAY
- STEAM RAILWAY
- LICENSED AREA OF SUPPLY

75E/00.0

NATAL CENTRAL UNDERTAKING.

Colenso
Power
Station:
Plant Ex-
tensions.

Colenso Power Station, as originally planned, was completed by the installation of the 25,000 kilowatt set, which, as reported last year, went into commercial operation in July, 1943. The total installed capacity of the station is now 85,000 kilowatts, consisting of five 12,000 kW sets installed in 1925 and the new 25,000 kW set, together with twelve boilers of a total evaporative capacity of 840,000 lbs. of steam per hour.

Estimates of future demands show that further generating capacity will be required within the next two years. It has, therefore, been decided, after investigation of other alternatives, to extend Colenso Power Station by the installation of an additional 25,000 kilowatt set and two 180,000 lb. boilers to be ready for service by June, 1947, and to make provision in the new buildings for two further duplicate sets and four more similar boilers.

Cooling
Towers.

The river temperature with the existing load is frequently excessive at times of low flow and the extensions will necessitate the erection of three cooling towers, two of which will be provided initially. Each will have a normal capacity of 1,200,000 gallons per hour, with an overload rating of about 2,000,000 gallons per hour. These towers will be arranged for supplying the new extensions and also, in emergency, though at reduced cooling efficiency, the existing station in order to overcome the difficulties due to chokage of pipes at present experienced in time of flood.

New Work-
shops,
Stores, etc.

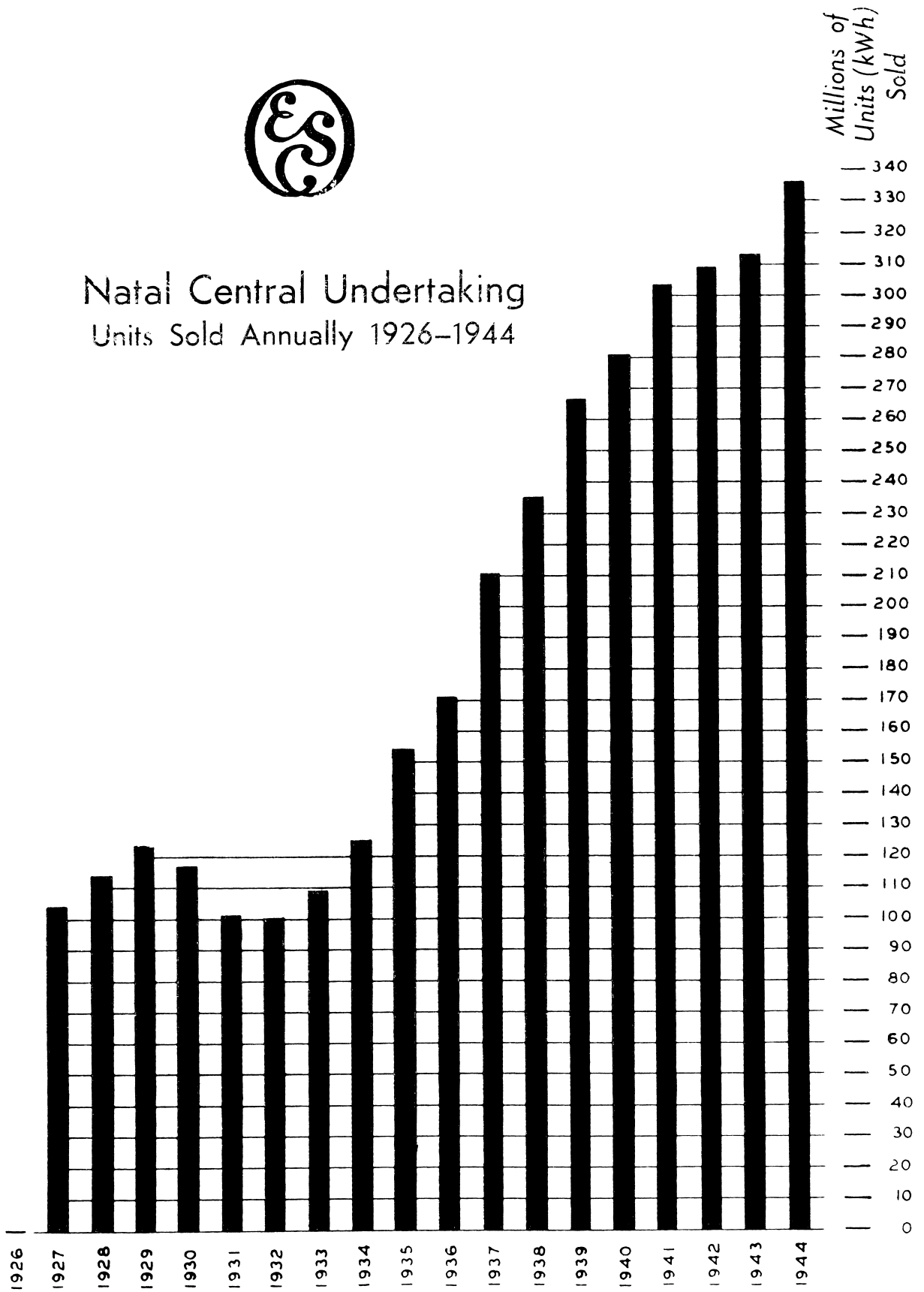
New workshops and stores buildings are under construction to replace the existing buildings which are to be demolished to make room for the new turbine and boiler houses. These buildings and an adjoining personnel block, which will include a spacious mess-room, a kitchen and a change-room with ample locker and ablution facilities, will be modernly equipped and will provide adequate accommodation for the maintenance and stores staffs.

New Con-
trol Room.

Another improvement occasioned by the power station additions is the construction of a new air-conditioned control room with a semicircular system control diagram, 60 feet long by 10 feet high.



Natal Central Undertaking
Units Sold Annually 1926-1944



special provision being made to allow for expansion or contraction of the panels. As this building will be entirely separate from the others, telephone audibility should be considerably improved—a matter of great importance to the Control Engineers supervising switching operations on such an extended system as that of the Natal Central Undertaking. A diagram showing the distribution system of this Undertaking is reproduced on page 16.

Staff
Quarters.

During the year under review the construction of twelve additional dwelling houses at Colenso was commenced as part of a larger housing programme to provide for immediate needs and for future staff required when the power station is extended.

Harrismith-
Bethlehem
88kV line re-
construction.

When a supply of electricity was first made available to the town of Bethlehem in the Orange Free State it was contemplated that electrification of the railways would be extended to that town from Harrismith in the not distant future. The 88 kV line was consequently constructed alongside the railway track in pursuance of a policy then adopted for railway electrification.

As the telephone lines, which are jointly owned by the General Post Office and the Railway Administration, follow the same route, intense interference with tele-communication was experienced due to the presence in the 88 kV circuit of harmonics originating mainly in the mercury arc rectifying equipment for railway traction supplies.

Exhaustive tests, conducted jointly by the three parties concerned, led to the conclusion that the only solution to the problem was the physical separation of the lines and, for reasons of accessibility to communication circuits, it was decided that it was more expedient to move the power line. War conditions stressed the urgency of proceeding with this work in order that use could be made of this portion of the post office route as an alternative to the main trunk line between Pretoria, Johannesburg and the coast; but eventually all 88 kV lines will be removed from their existing routes along the railway track.

Investigations are also being conducted into the incidence of the lower order harmonics with a view to finding ways and means of improving the wave form in the whole of the Natal Central Undertaking system.

In order to conserve stocks of steel and as suitable wooden poles were not available locally, the Commission decided to use reinforced concrete pylons. This is an original venture in South Africa for such a high voltage line, although such pylons have proved satisfactory in other parts of the world. The reconstruction of the line along a new route remote from communication circuits was started in September, 1944, and should be completed by the end of 1945.

**Rossburgh-Hillcrest
Electrification.**

Construction work in connection with the electrification of the Rossburgh-Hillcrest section of the Natal old main line was started in 1938, and it was anticipated that the scheme would be completed during 1940. War conditions, however, rendered this impossible.

Apart from delays in delivery of substation equipment, the scheme was held up mainly on account of the fact that the Railway Administration was unable to import the necessary rolling stock.

The substation buildings were completed and some of the equipment was installed, but the scheme was eventually abandoned for the duration of the war.

The installation of substation equipment was recommenced during the year and is now proceeding. Although the electrical equipment as a whole has been standing idle for a period of years, certain major items have proved extremely useful during the war as standby and spares for similar equipment in use on the electrified section of the Natal main line. Before the substation can be completed, items so used will have to be replaced.

Capital Expenditure.

The capital expenditure on the Natal Central Undertaking during the year amounted to £26,311, bringing the total as at 31st December, 1944, up to £4,515,113.

Output.

The units sent out from Colenso Power Station in 1944 totalled 352,738,960, an increase of 5.64 per cent. over the output for the previous year.

Sales.

The total sales of electricity from the Undertaking for the year amounted to 335,977,438 units (excluding units supplied to the Durban Undertaking under the interchange arrangement), an increase of 7.55 per cent. over the sales for 1943.

Sales to the various classes of consumers, the corresponding revenue and the average price per unit sold, are summarised hereunder:—

Consumers		Sales		Revenue	Average Price per Unit Sold	
Class	No.	Units	Increase		1943	1944
Traction	1	265,853,759	% 7·42	£ 433,161	d. ·4112	d. ·3910
Bulk	11	49,179,301	2·57	103,799	·5170	·5065
Industrial	180	17,609,225	27·93	47,376	·7124	·6457
Domestic and Lighting	1,902	3,335,153	4·74	27,368	1·9905	1·9694
	2,094	335,977,438	7·55	611,704	·4568	·4370

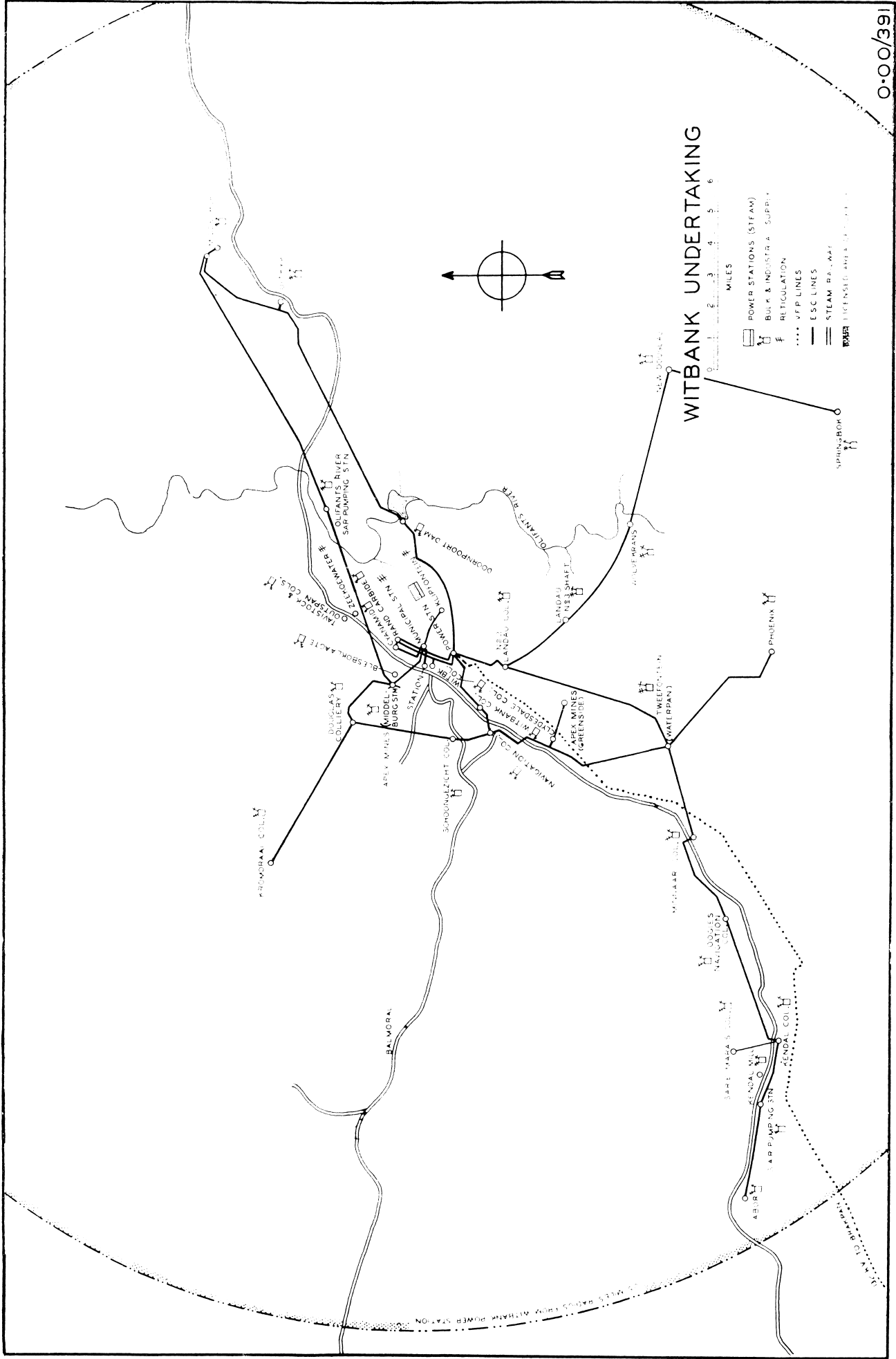
Working Results.

The total working costs for the year amounted to £616,008 and the revenue to £616,536. The surplus of £528 on the year's working of the Undertaking increased the brought forward surplus to £24,820.

The maximum half-hourly demand sent out was 65,990 kW and the load factor was 60·9 per cent. The thermal efficiency of the power station on units sent out was 18·43 per cent.

Coal Consumption.

The coal consumption for the year 1944 at Colenso Power Station amounted to 265,788 tons (or an average of 1·507 lbs. per unit sent out) at a total cost of £136,889. The average price per ton of coal delivered decreased by 6d. from 10s. 10d. in 1943 to 10s. 4d. in 1944.



WITBANK UNDERTAKING.

Colliery
Supplies.

The main feature of the extended activities of this Undertaking during recent years was the development of supplies to the coal mining industry in the Witbank area.

The considerable increase in the demand for South African coal for bunkering and export purposes during the war resulted in a steep rise in the output of the existing collieries and the opening up of several new shafts. The industry consequently required additional power and the Commission was called upon to strengthen up the 21 kV distribution network to cater for the heavier loading and also to extend the system to the new collieries.

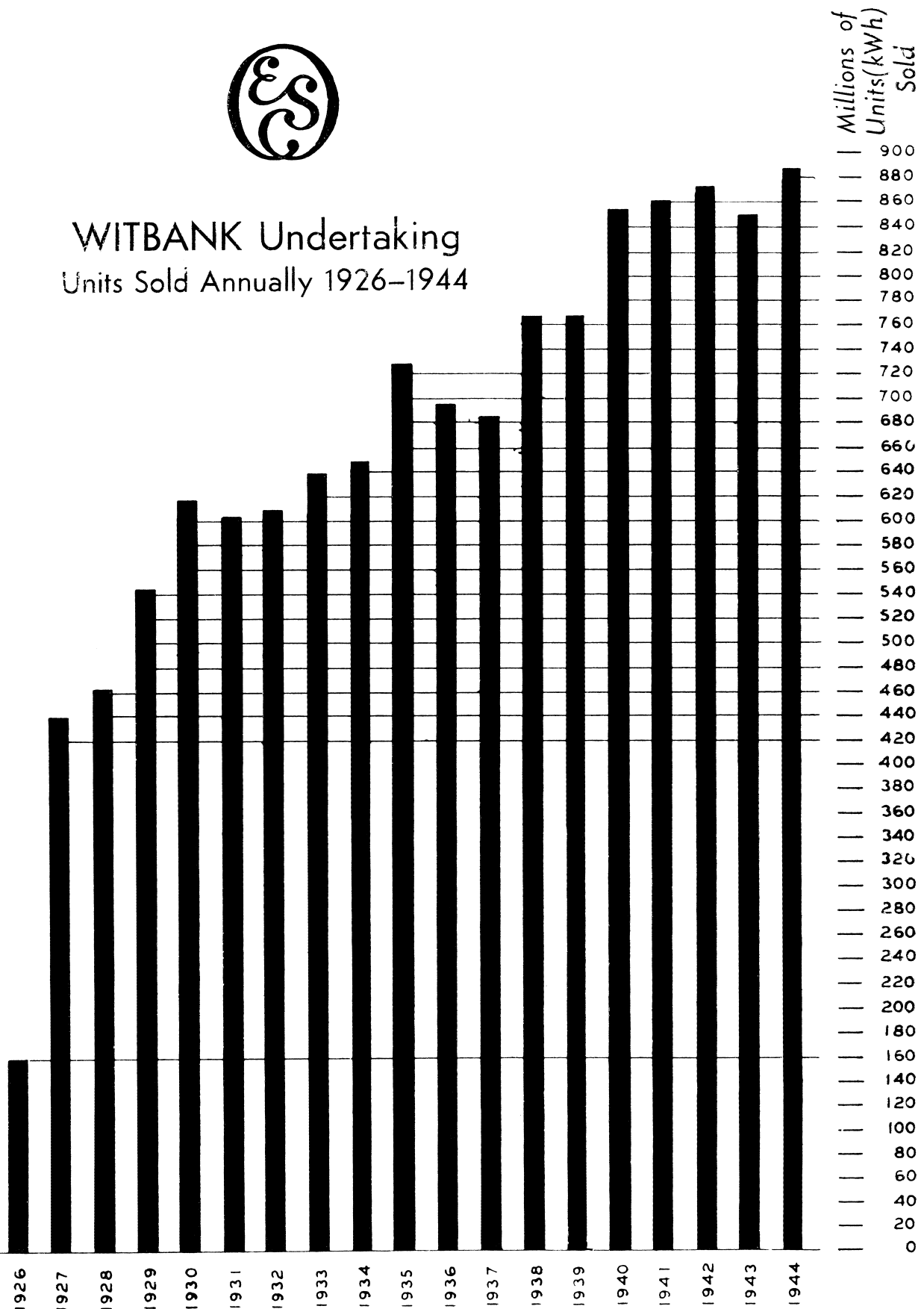
A new line was built from the Wolwekrans substation to a new colliery on the farm Bosmanskrans and extended to another on the farm Enkeldebosch. A duplicate supply line is being provided between these distant substations and the Phoenix substation.

For these lines use was made of locally manufactured steel poles. In one case the poles were of the conventional tubular type, used in H-construction due to strength limitations and, in the other case, poles of the hexagonal type fabricated from welded steel plate sections were used.

Another line, on wood poles, was completed during the period under review and runs from the existing Navigation substation to yet another new colliery on the farm Greenside. In order to make this supply available as soon as possible, the 21 kV line was energised initially at 2,200 volts, the voltage of supply, until the transformers for the higher voltage could be imported. This temporary arrangement sufficed for the smaller power requirements during the earlier stages of the colliery development. Work is in progress on another new 21 kV line, also on wooden poles, to supply a new colliery on the farm Klipfontein near Balmoral.



WITBANK Undertaking Units Sold Annually 1926-1944



In all this urgent work, transfers of insulators and transmission line fittings were made from other Undertakings of the Commission in order to expedite construction and many items were designed and manufactured locally as substitutes for the imported articles.

A diagram of the transmission system of the Witbank Undertaking is reproduced on page 22.

Although work in connection with the provision of five additional traction substations for the Reef electrified railway system was started during 1940, only those at George Goch and Boksburg East are in service. These were commissioned in August, 1941, and November, 1942, respectively.

Delay in completion of this work has been due entirely to difficulties resulting from the war.

At Krugersdorp and Maraisburg the substation buildings were completed and some items of electrical equipment were installed. The rectifier units, however, were sent to the Cape for installation at Maitland where additional converting plant was urgently needed; and work on these substations has since been held up.

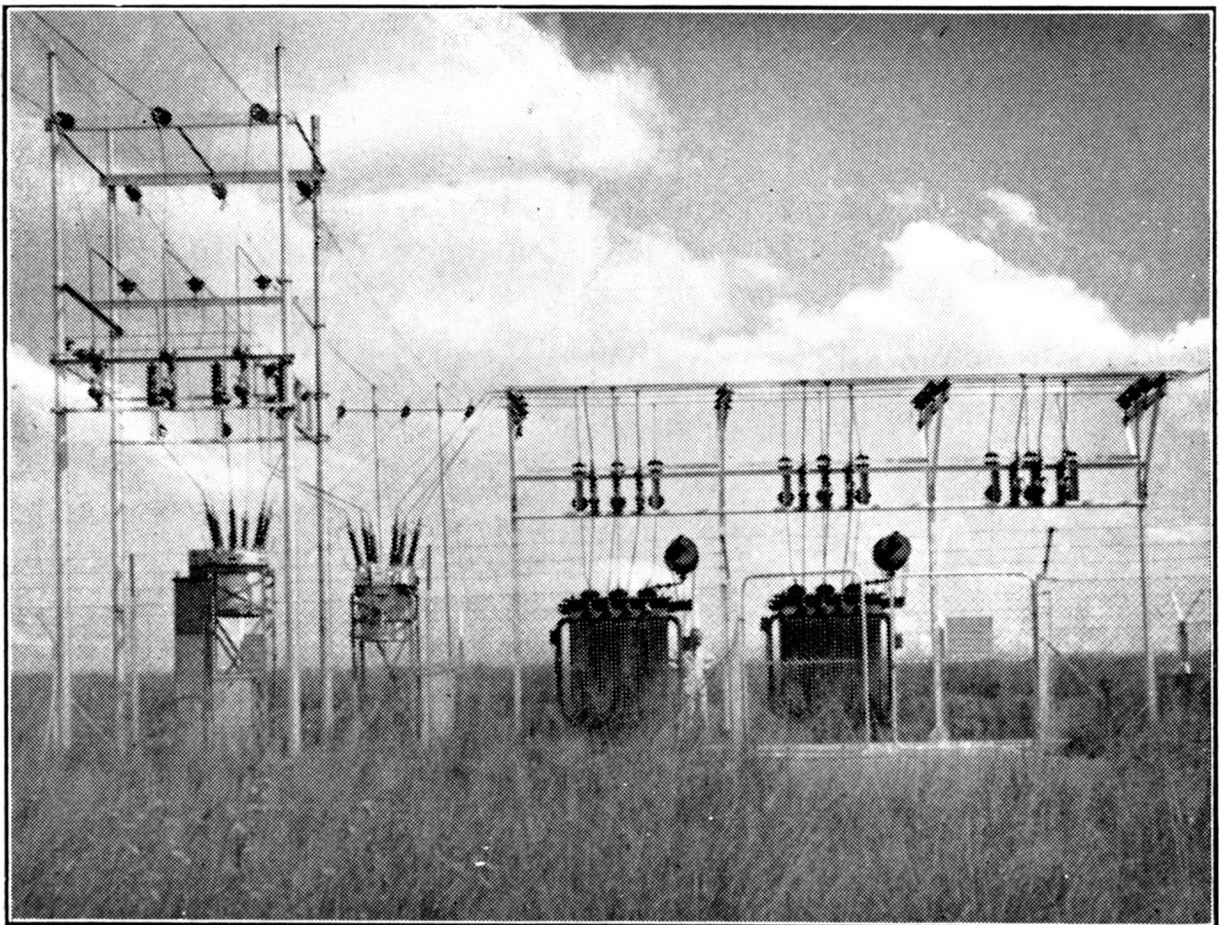
The substation building at Elandsfontein has been completed but work has been held up as the result of delay in delivery of the rectifier equipment. Considerable difficulty was experienced by manufacturers in connection with this equipment, but during the latter part of the year works tests were successfully concluded and shipment was imminent at the date of this Report. It is expected that this substation will be placed in service before the end of 1945.

The units sent out from the Witbank Power Station during 1944 totalled 769,926,928, which, compared with the previous year's output, shows an increase of 4.83 per cent.

Sales. Sales of electricity from the Witbank Undertaking amounted to 889,205,914 units for the year and exceeded the total for 1943 by 4·72 per cent.

Bulk sales to The Victoria Falls and Transvaal Power Co., Ltd., represented 69·80 per cent. of the total. The Company operates the Witbank Power Station on behalf of the Commission as an inter-connected unit of the Witwatersrand Grid system which supplies power to the gold mining industry.

Traction supplies for the Reef and Pretoria electrification systems amounted to 113,774,795 units and are included in the total sales from the Witbank Undertaking, but were purchased by the Commission from the Falls Company for this purpose.



Outdoor sub-station typical of those now being erected in the Witbank Undertaking area.

Sales to the various classes of consumers, the corresponding net revenue and the average price per unit sold, are summarised hereunder :—

Consumers				Sales		Net Revenue	Average Price per Unit Sold	
Class	No.	Units	Increase	1943	1944			
			%	£	d.	d.		
Traction	1	113,774,795	2.32	185,819	·3935	·3920		
Bulk	3	630,531,139	5.84	246,323	·0947	·0938		
Industrial	78	142,933,326	1.85	102,090	·2185	·1714		
Domestic and Lighting ...	951	1,966,654	7.35	6,809	1.0865	·8309		
	1,033	889,205,914	4.72	541,041	·1564	·1460		

Capital Ex-
penditure.

The capital expenditure on this Undertaking as at 31st December, 1944, was £2,698,282.

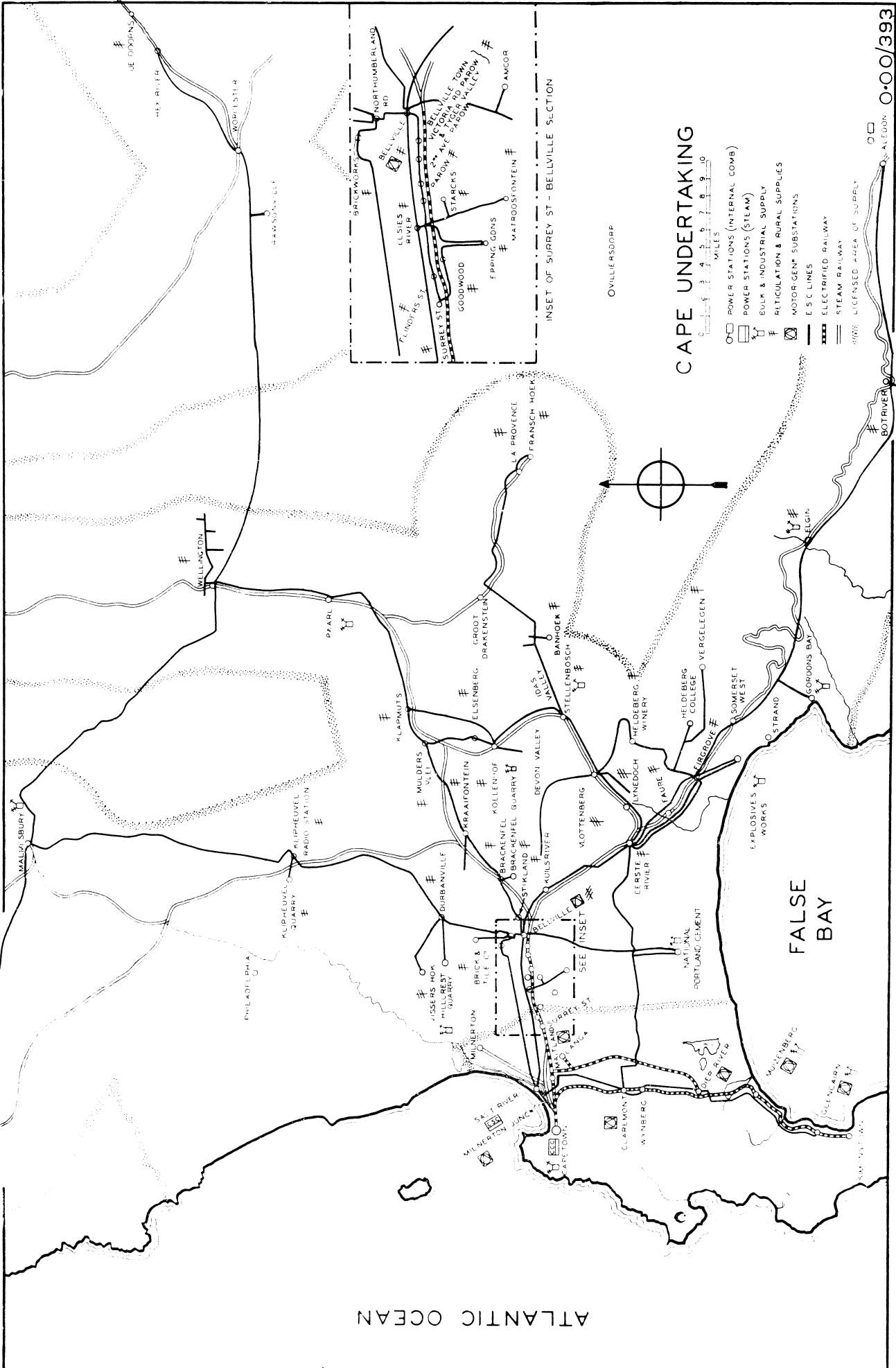
Working
Results.

The working costs for the year amounted to £578,951, and the net revenue, after allowing for one-third of the rebate to consumers in the Local and Municipal Supplies Section of the Undertaking, totalled £582,396, leaving a surplus of £3,445 on the year's working. The remaining two-thirds of the rebate, amounting to £31,638, was deducted from the accumulated surplus which was reduced to a credit balance of £37,327 at the year-end.

The maximum hourly demand sent out was 105,939 kW and the load factor, calculated on 8,785 hours, was 82.7 per cent. The thermal efficiency on units sent out was 16.82 per cent.

Coal Con-
sumption.

The coal consumption for the year 1944 at Witbank Power Station amounted to 713,567 tons (or an average of 1.854 lbs. per unit sent out) at a total cost of £81,852. The average price per ton of coal consumed increased during the year by 3d. to 2s. 4d., which includes the cost of haulage by the Commission's own locomotives and trucks from adjoining collieries.

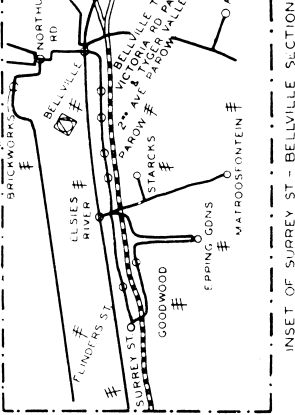


CAPE UNDERTAKING

- POWER STATIONS (INTERNAL COMB)
- POWER STATIONS (STEAM)
- ⊕ BULK & INDUSTRIAL SUPPLY
- ⊕ RETICULATION & RURAL SUPPLIES
- ⊕ MOTOR-GEN. SUBSTATIONS
- E.S.C. LINES
- ⊕ ELECTRIFIED RAILWAY
- ⊕ STEAM RAILWAY
- ⊕ LICENSED AREA OF SUPPLY

ATLANTIC OCEAN

FALSE BAY



CAPE TOWN UNDERTAKING.

Pooled Stations.

As mentioned in earlier Reports, the electricity requirements of the Commission's Cape Town Undertaking and the Cape Town Municipality are provided by the new Table Bay and the old Dock Road Power Stations belonging to the City Council and the Commission's Salt River Power Station, which are operated as a unified system under the "Pooling" Agreement.

Table Bay Extensions.

Table Bay Power Station, with an initial installation of 120,000 kilowatts was completed in 1939; but by 1943 the growth of the system load indicated that further generating capacity would have to be provided. After a careful review of the whole position, the conclusion was then reached that it would be in the best interests of both parties to extend the Corporation's Table Bay Station to its ultimate capacity of 200,000 kilowatts as originally contemplated; rather than to expand the Salt River Power Station. Restrictions on the manufacture of plant in Great Britain at that time, however, prevented any immediate action being taken. In the following year the ban was partly raised and permission was obtained from the British authorities for the manufacture of one 40,000 kW generating set and two 230,000 lbs. per hour boilers, for which orders have been placed. It is hoped that this plant will be in operation in time for the 1947 winter load.

Salt River Power Station Capacity.

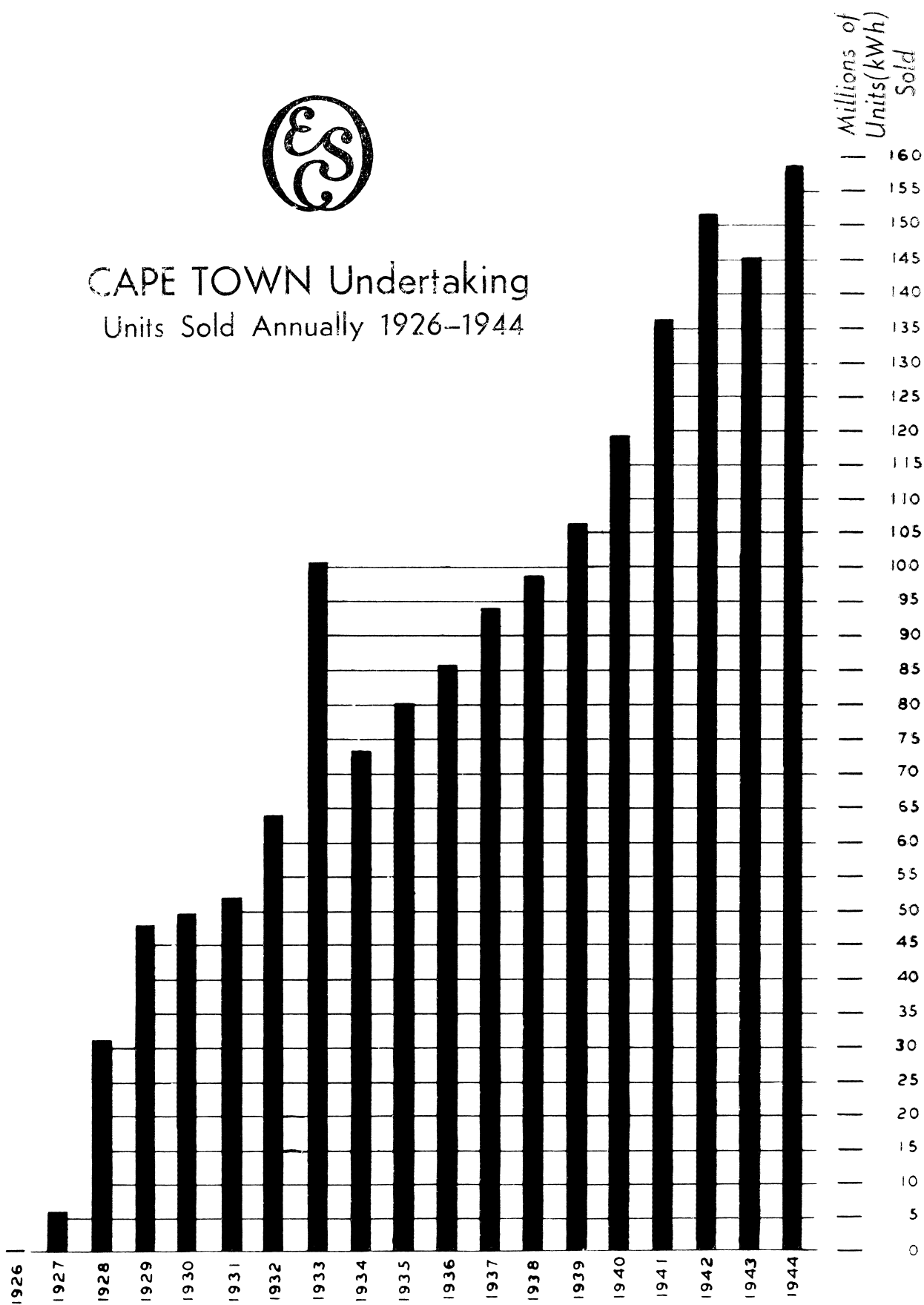
The Commission's Salt River Power Station, which has an installed capacity of 90,000 kW, operated as the base load station until 1939, when the Table Bay Station took over that role and the Commission's contribution to the pooled output has since been correspondingly reduced.

Salt River Power Station: Circulating Water System.

The continued silting up of the sea bed in the vicinity of the intake tower of the original circulating water system at Salt River Power Station and the consequent influx of large quantities of sand into the system during severe storms has caused considerable



CAPE TOWN Undertaking
Units Sold Annually 1926-1944



concern. It was, therefore, decided in 1943 to increase the pumping capacity of the safer supplementary system, referred to in previous Reports, to enable the whole of the circulating water requirements for the maximum continuous output of the station to be supplied, in emergency, from the new intake works. For this purpose, two additional 15,000 gallons per minute pumps are being transferred from the power station to the new pump house and a new 60-inch main has been constructed.

During 1943, the South African Railways and Harbours Administration approached the Commission with a request for an estimate of cost for the supply of electricity for the electrification of the Cape main line between Cape Town and Touws River, a distance of 160 miles. On the basis of these estimates, Parliamentary approval of the proposals was obtained during the period under review.

The Administration, contemplating a more ambitious scheme, asked the Commission in April, 1944, for revised estimates for the electrification of a further 179 miles of track as far as Beaufort West. Estimates have been submitted for supplying the whole load from the pooled generating stations at Cape Town via 132 kV lines or, alternatively, for a partial supply from that source and the balance of energy from a proposed new power station, transmitted at 88 kV. These alternatives were still under consideration at the date of this Report.

Owing to the heavy increase in traffic on the Cape suburban electrified railway system, it became imperative early in the year to provide additional converting equipment at Maitland traction substation. In view of the difficulty and delay in importing such equipment under war conditions, it was decided, as a temporary measure, to instal two mercury arc rectifier units already delivered for use on the Reef. These were installed in separate temporary buildings adjacent to Maitland substation and have been in service since October, 1944.

Although designed for operation at 3,000 volts D.C. on the Reef system, these rectifiers are operating very satisfactorily at 1,500 volts D.C. on the Cape system.

Supply to
Langebaan-
weg.

During the period under review, the Department of Defence requested the Commission to provide a supply of electricity to the Air Station at Langebaanweg near Saldanha Bay and a pumping station at Berg River in the vicinity. The supply will be given from the Cape Rural 33 kV distribution network at Bellville sub-station via 83 miles of 33 kV overhead line now under construction.

For economic reasons it was agreed to erect the line on locally grown wooden poles 40 feet long and the supply of over 2,000 of these poles will heavily tax the resources of the Forestry Department until September, 1945, when the last consignment is expected. This will be the longest line in the country to be carried on local wooden poles.

Capital Ex-
penditure.

Capital expenditure on the Cape Town Undertaking was increased during the year by £84,186, bringing the total as at 31st December, 1944, up to £3,092,697. This excludes capital expenditure on the Table Bay Power Station which is owned by the Cape Town Corporation.

Output.

The total number of units sent out from the pooled power stations in 1944 was 536,106,666. Of this, Salt River Power Station sent out 121,171,466 units, an increase of 3.15 per cent. over the figure for the previous year.

Sales.

Sales of electricity to all classes of consumers supplied by the Commission from this Undertaking amounted to 158,673,418 units in 1944, which reflects an increase of 8.87 per cent. compared with the sales for 1943.

A summary of sales to the various classes of consumers, the corresponding revenue and the average price per unit sold, is given below :—

Consumers				Sales		Revenue	Average Price per Unit Sold		
Class			No.	Units	Increase		1943	1944	
						£	d.	d.	
Traction	...	...	1	59,513,183	0·15	162,820	·6768	·6566
Bulk	...	...	8	24,706,783	19·70	68,154	·6748	·6620
Industrial	...	...	569	57,283,501	14·25	166,032	·7009	·6956
Domestic and Lighting	...	...	7,733	17,169,951	10·53	97,889	1·3762	1·3653
				8,311	158,673,418	8·87	494,895	·7593	·7485

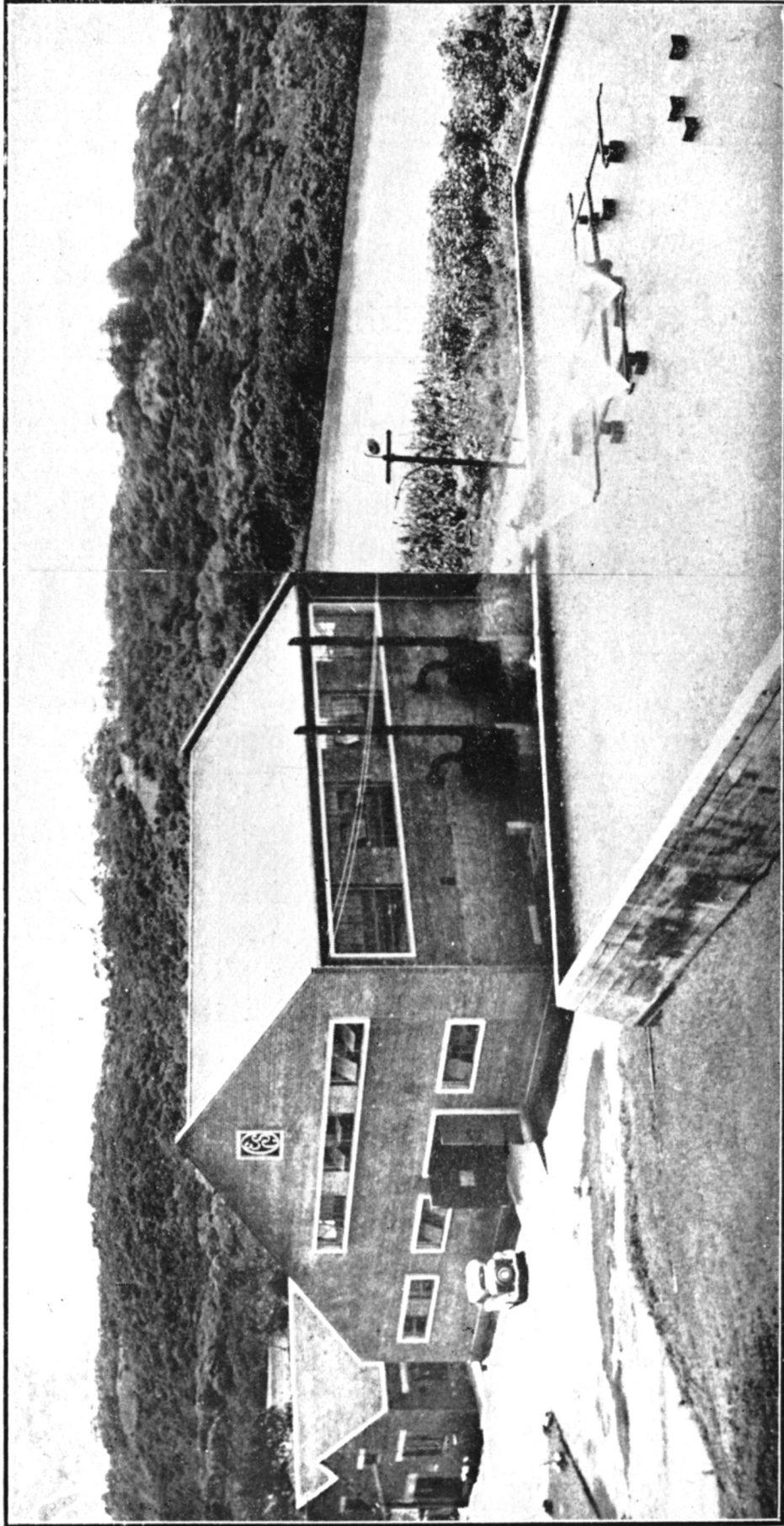
Working Results.

The working costs for the year, including the Commission's proportion of the pooled costs of the Salt River, Table Bay and Dock Road Power Stations, amounted to £484,961, and the revenue for the corresponding period totalled £497,072. The surplus of £12,111 on the year's working of the Undertaking increased the accumulated surplus to £20,454.

The maximum half-hourly demand sent out from Salt River Power Station was 55,400 kW and the load factor, calculated on 8,761 hours, was 24·97 per cent. The thermal efficiency of the power station on units sent out was 16·64 per cent.

Coal Consumption.

The coal consumption for the year 1944 at Salt River Power Station amounted to 104,264 tons (or an average of 1·721 lbs. per unit sent out) at a total cost of £121,659. The average price per ton of coal delivered decreased by 1s. 8d. from 25s. in 1943 to 23s. 4d. in 1944. The decrease was due, first, to a greater quantity of coal having been supplied from the Transvaal than from Natal, which resulted in a lower average pit-head price and, secondly, to a net reduction of 7d. per ton in the railage charges.



STANDBY DIESEL STATION AT PORT SHEPSTONE

DURBAN UNDERTAKING.

Congella
Power
Station
Extensions.

Mention has already been made in previous Reports of the fact that, while still in course of manufacture, the 40,000 kW set ordered early in 1939 for Congella Power Station was released for use in Great Britain. It has since been revealed that the set was installed in the Earley Power Station, established in 1942 by the Central Electricity Board of Great Britain, to provide power for war industries. The diversion of this plant enabled the new power station to go into commercial operation in just under two years from the commencement of building operations.

In view of the difficulties experienced in coping with the demands on Congella Power Station, it is gratifying to know that the machine was put to such an important and urgent war use.

The unfortunate loss in 1943 of the turbine and other equipment, through enemy action at sea, is still holding up completion of the replacement set. The lack of this additional capacity will be seriously felt during the incidence of the 1945 winter peak loads. It will, therefore, be necessary for the utmost economy to be observed in the consumption of electricity during the coming months.

The power station is being further extended by the installation of a second 40,000 kW turbo-alternator set and two additional 200,000 lbs. per hour boilers to supply steam at 625 lbs. per square inch and 825°F. It is hoped that this plant, which was ordered during the year, will be ready for service in 1947.

Mulsifyre
Installation.

During 1944 a fully automatic fire fighting installation was provided in Congella Power Station to protect those parts of the station in which a fire would have serious consequences.

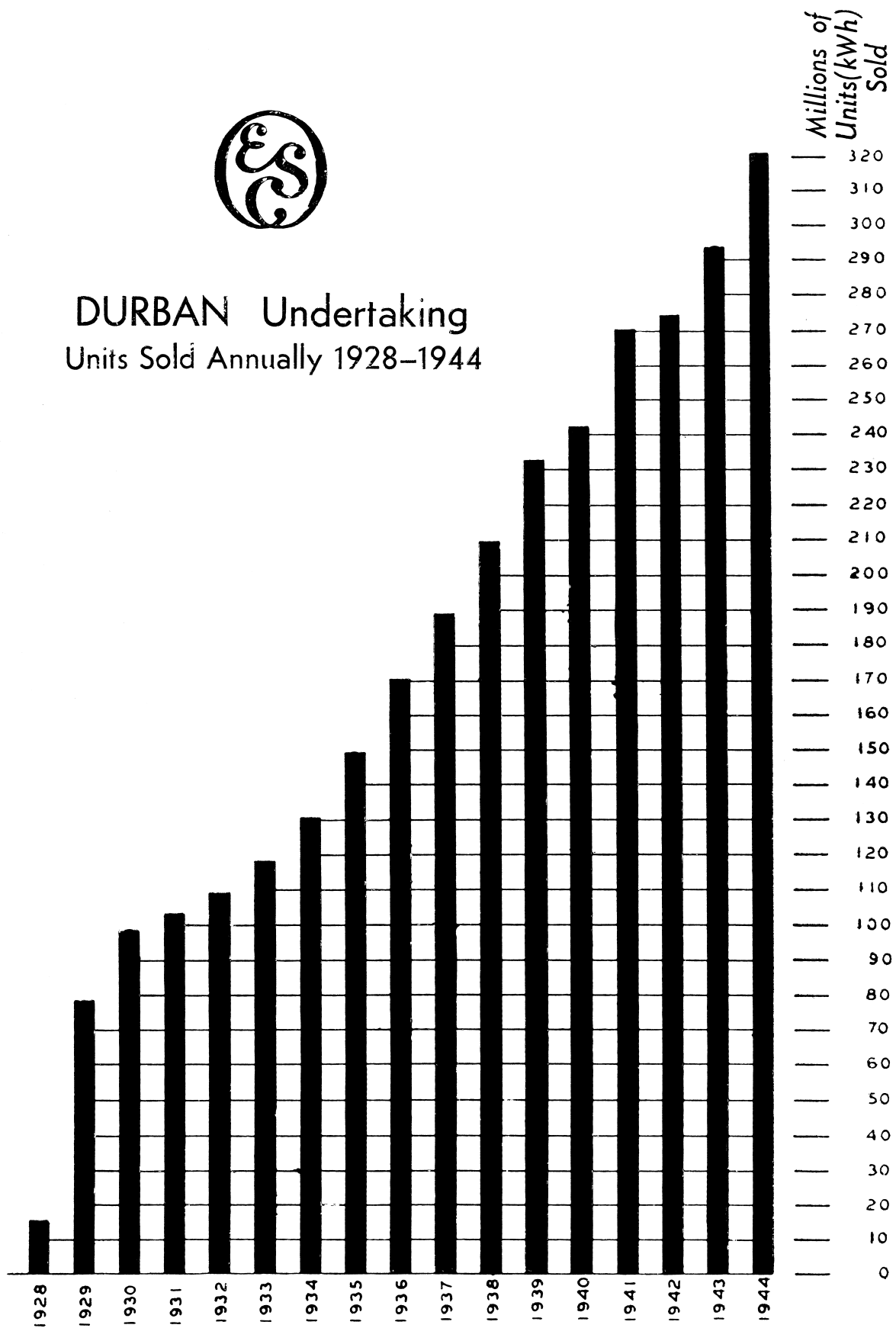
33kV
Switchgear.

The electrical side of the extensions to the station has made good progress during the period under review and the switchgear has been tested and is ready for service.

The 33 kV gear—the voltage of generation—provides for an ultimate installation of 24 feeders and is of the outdoor type, which is an innovation at this station. The circuit breakers are of the minimum oil type and have been arranged in a very compact layout to meet space limitations.



DURBAN Undertaking Units Sold Annually 1928-1944



Owing to the proximity of the station to the sea and the railway yards, considerable fouling of the outdoor insulators is expected and provision has been made for the periodical washing of this equipment. As ordinary methods of washing the insulators under "live" conditions were impracticable, the Commission's engineers devised a fixed spray washing installation whereby successive sections of the "live" switchgear can be washed by the mere opening of a series of water supply valves remote from the apparatus.

The 2,100 volt and the 380 volt switchgear for the supply to the station auxiliaries are of the air-break type, thereby eliminating the use of oil with its consequent fire hazard. To accommodate the extra control panels for the new switchgear, the power station control room has also been enlarged.

Ash Hand-
ling Arrange-
ments.

Existing arrangements for handling the pulverised coal ash from the power station had to be reconsidered during the year in view of advice from the Railway Administration that it would require the reclamation site for other purposes and therefore wished to cancel the Commission's tenure of the ground. Experiments were carried out during the latter part of the year to determine a suitable method of preparing the fly-ash for transport by rail. Plant is being designed along the lines suggested by these experiments.

Port
Shepstone
Power
Station.

In order to obviate the frequent interruptions to supply to the Natal South Coast, due mainly to causes arising from the close proximity to the sea of the 33 kV line, as mentioned in earlier Reports, the Commission decided in 1940—

- (a) to establish a power station at Port Shepstone which could supply the whole of the South Coast load, and
- (b) to provide automatic line sectionalising switchgear at strategic points between Durban and Port Shepstone.

The construction of the power station was completed during the year under review with the installation of two 1,000 horse-power diesel engines, each direct-coupled to a 700 kW alternator, and the line sectioning equipment is being installed as staff conditions permit. The station has already proved to be of great value

These combined measures should ensure a continuous supply of electricity to the consumers in this area, even when a section of the line is out of service for maintenance or under fault conditions.

Capital Expenditure.

The capital expenditure on the Durban Undertaking during the year amounted to £243,687, bringing the total as at 31st December, 1944, up to £2,772,988.

Output.

The units sent out from Congella Power Station in 1944 totalled 315,349,457, an increase of 9·27 per cent. over the output for the previous year. The diesel stations at Margate and Port Shepstone sent out 20,990 and 690,535 units, respectively, during the year.

Sales.

The total sales of electricity from the Undertaking for the year amounted to 321,583,537 units (excluding units supplied to the Natal Central Undertaking under the interchange arrangement, but including units purchased from the Durban Corporation for sale to consumers along the South Coast), an increase of 9·62 per cent. over the sales for the previous year.

Bulk sales to the Durban Corporation for supply to consumers in the municipal and peri-Durban areas increased by 9·23 per cent. to 298,979,327 units. South Coast sales for the year advanced by 9·12 per cent. to 4,927,850 units.

Sales to the various classes of consumers, the corresponding revenue and the average price per unit sold, are summarised hereunder :—

Consumers		Sales		Revenue	Average Price per Unit Sold	
Class	No.	Units	Increase		1943	1944
Bulk	2	299,959,723	9·25	£ 385,765	d. ·3235	d. ·3087
Industrial	66	18,709,332	15·89	31,127	·4113	·3993
Domestic and Lighting	1,251	2,914,482	9·84	22,030	1·9162	1·8141
	1,319	321,583,537	9·62	438,922	·3427	·3276

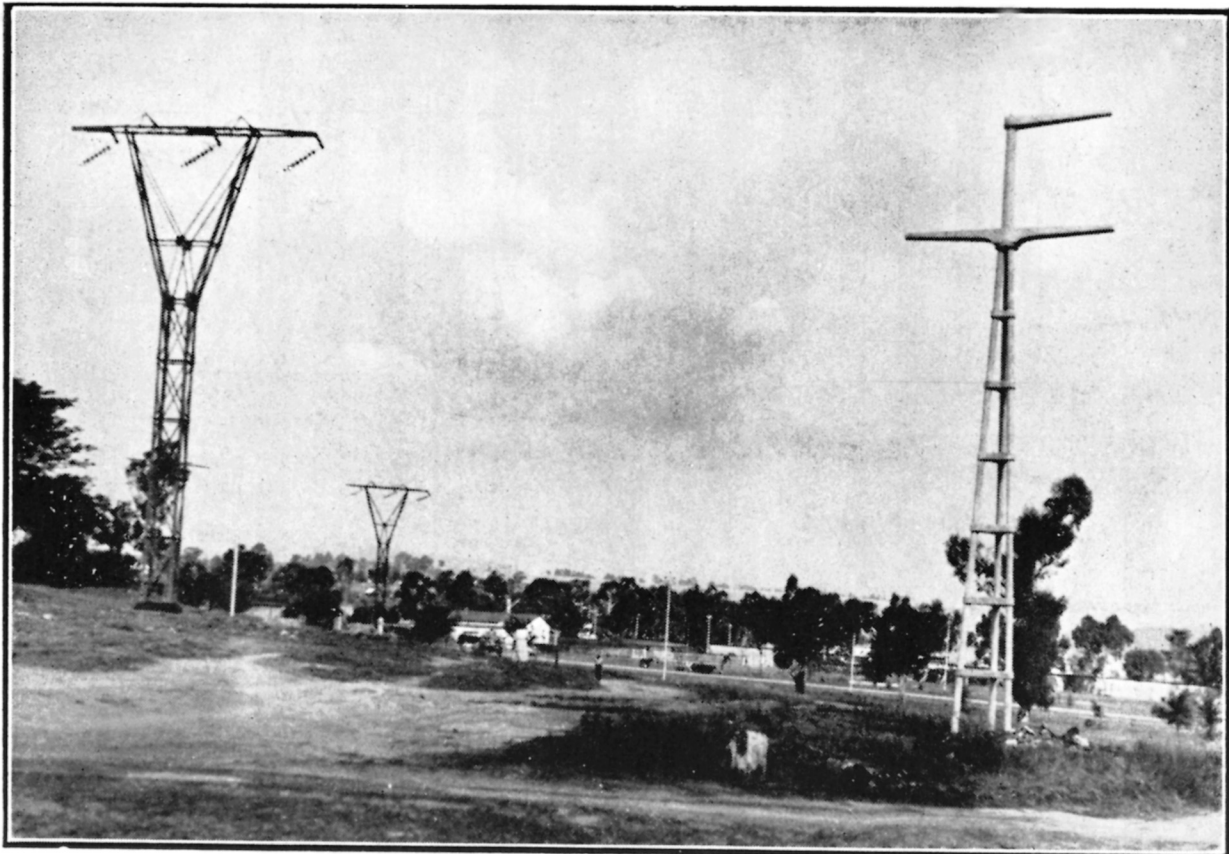
Working Results.

The total working costs for the year amounted to £450,157 and the revenue to £441,917. The deficit of £8,240 on the year's working of the Undertaking reduced the accumulated surplus to £3,821.

The maximum half-hourly demand sent out was 77,960 kW and the load factor was 46·0 per cent. The thermal efficiency of the power station on units sent out was 17·74 per cent.

Coal Consumption.

The coal consumption for the year 1944 at Congella Power Station amounted to 246,990 tons (or an average of 1·566 lbs. per unit sent out) at a total cost of £178,861. The average price per ton of coal delivered decreased by 3d. from 14s. 9d. in 1943 to 14s. 6d. in 1944.



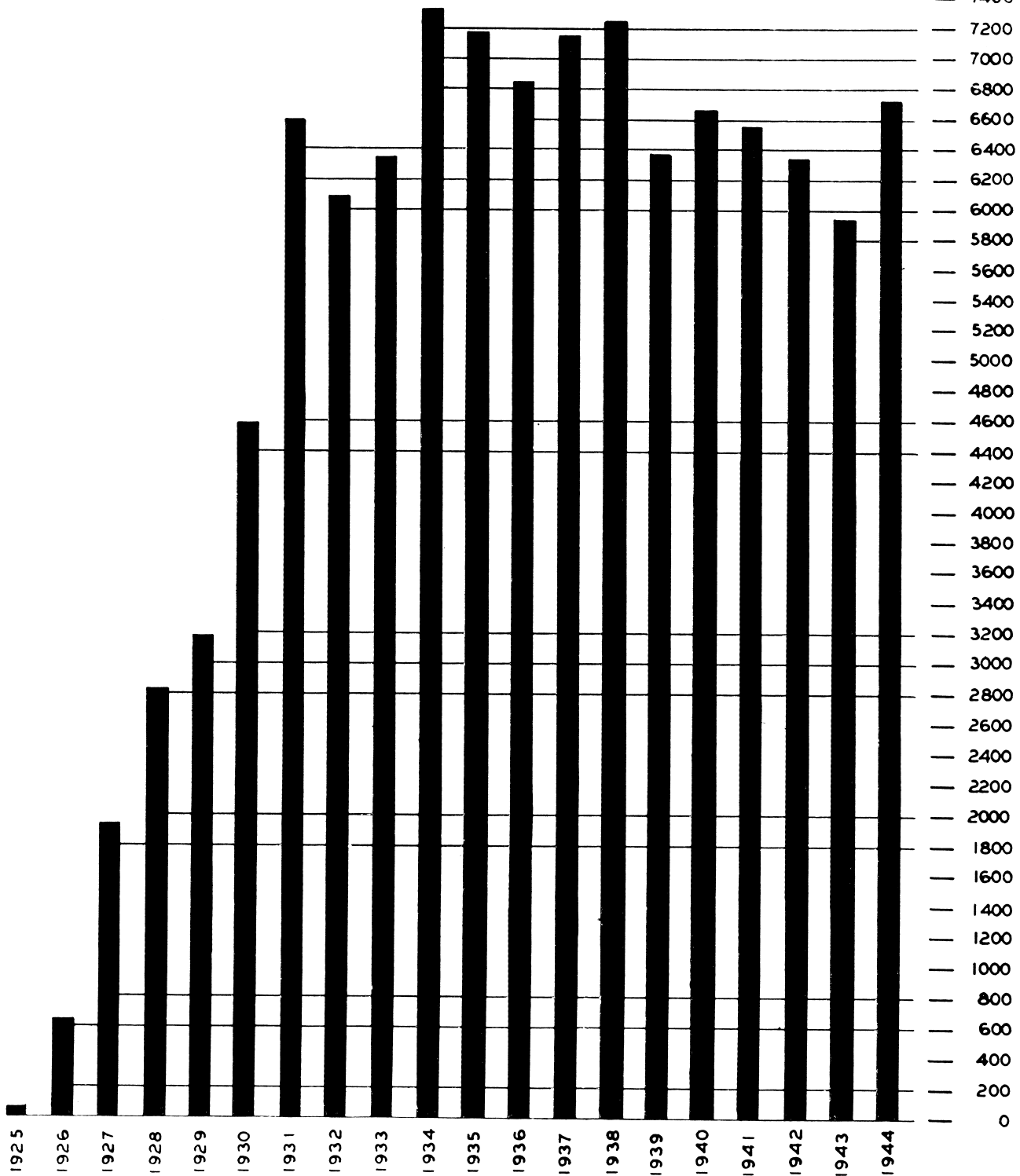
Reconstruction of the 88 kV transmission line to Bethlehem. View shows ashcrete pylons on the right replacing steel structure on the left.



SABIE Undertaking

Units Sold Annually 1925-1944

Thousands of
Units (kWh)
Sold



SABIE UNDERTAKING.

The Sabie River Gorge Power Station is the only hydro-electric station owned by the Commission and was established in 1927 to augment the requirements of the gold mines in the Sabie district. The installed capacity of the station is 1,350 kilowatts, consisting of three 450 kW sets. Formerly two sets were normally in service and the third was kept as standby; but, at the request of the mining companies, steps were taken during the period under review to enable all three sets to be run when sufficient water is available. The measures taken in this connection include the installation of forced-air cooling on the step-up transformers at the power station and the provision by the mining companies of devices for improving the power factor of their load.

The waterways, originally designed to convey water for a two-machine load, have been modified at some points.

During 1944 the mines abandoned the practice of dumping tailings into the river, resulting in a cleaner supply of water to the station and the probable prolongation of the life of the wearing parts.

Capital Expenditure.

The capital expenditure on this Undertaking as at 31st December, 1944, was £96,171.

Output and Sales.

The whole of the output of this station is supplied to two gold mining companies operating in the district and the sales for the year amounted to 6,723,791 units, an increase of 13·38 per cent. over the figure for the previous year.

Working Results.

The total working costs for the year amounted to £14,348 and the revenue to £14,331. The deficit of £17 on the year's working reduced the accumulated surplus to £178.

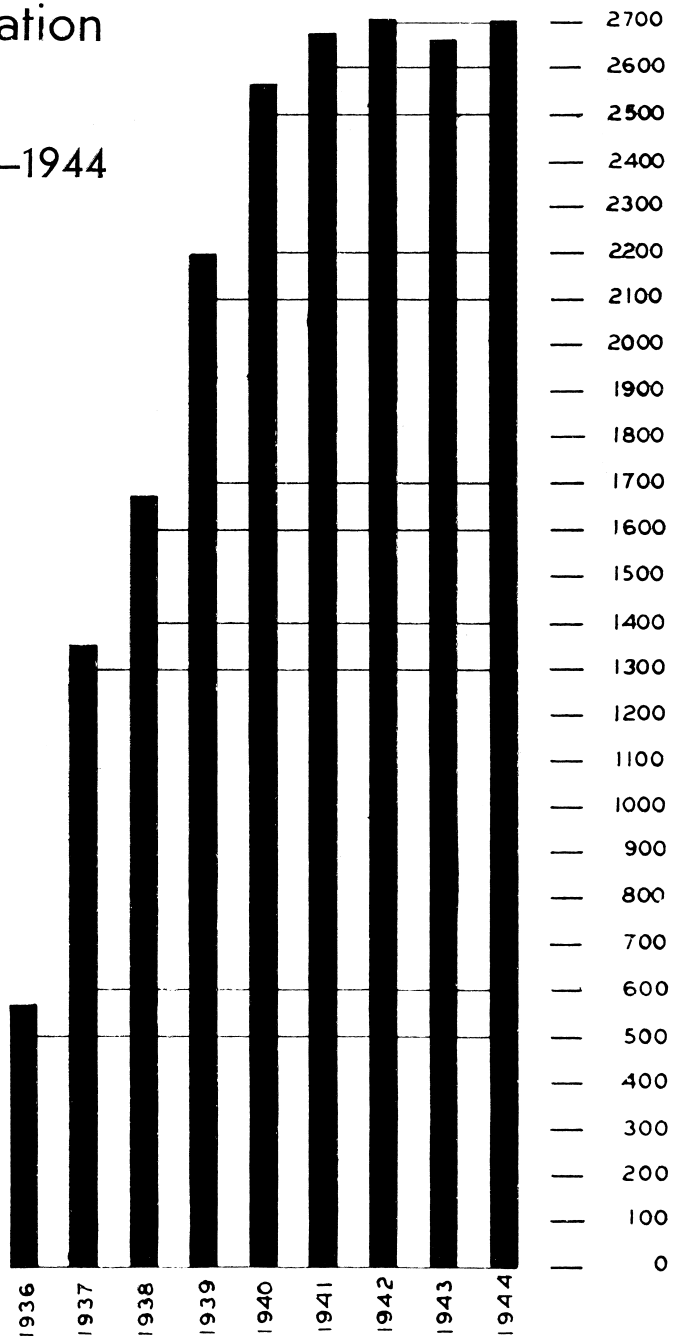
The average price per unit sold dropped by 10·00 per cent. from 0·5684d. in 1943 to 0·5115d. in 1944.

The maximum half-hourly demand sent out was 1,250 kW and the load factor was 65·2 per cent.



KLIP Generating Station
Undertaking
Units Sold Annually 1936-1944

Millions of
Units (kWh)
Sold



KLIP GENERATING STATION UNDERTAKING.

The Klip Power Station is the largest of the Commission's stations and is also the largest steam power station in the Southern Hemisphere, having a total installation of 424,000 kilowatts, consisting of twelve main generating sets of 33,000 kilowatts each, four 7,000 kilowatt house sets and 24 boilers, each of which has a normal capacity of 180,000 lbs. of steam per hour.

Output and Sales.

Energy sent out from this station during 1944 amounted to 2,703,638,629 units, an increase of 1·29 per cent. over the 1943 figure. The Victoria Falls and Transvaal Power Co., Ltd., also operates this station on behalf of the Commission as a unit of the Reef Grid system, and the whole of the output is sold to the Company for supply to the gold mining industry and other consumers on the Witwatersrand.

Capital Expenditure.

The capital expenditure on this Undertaking as at 31st December, 1944, amounted to £6,519,985.

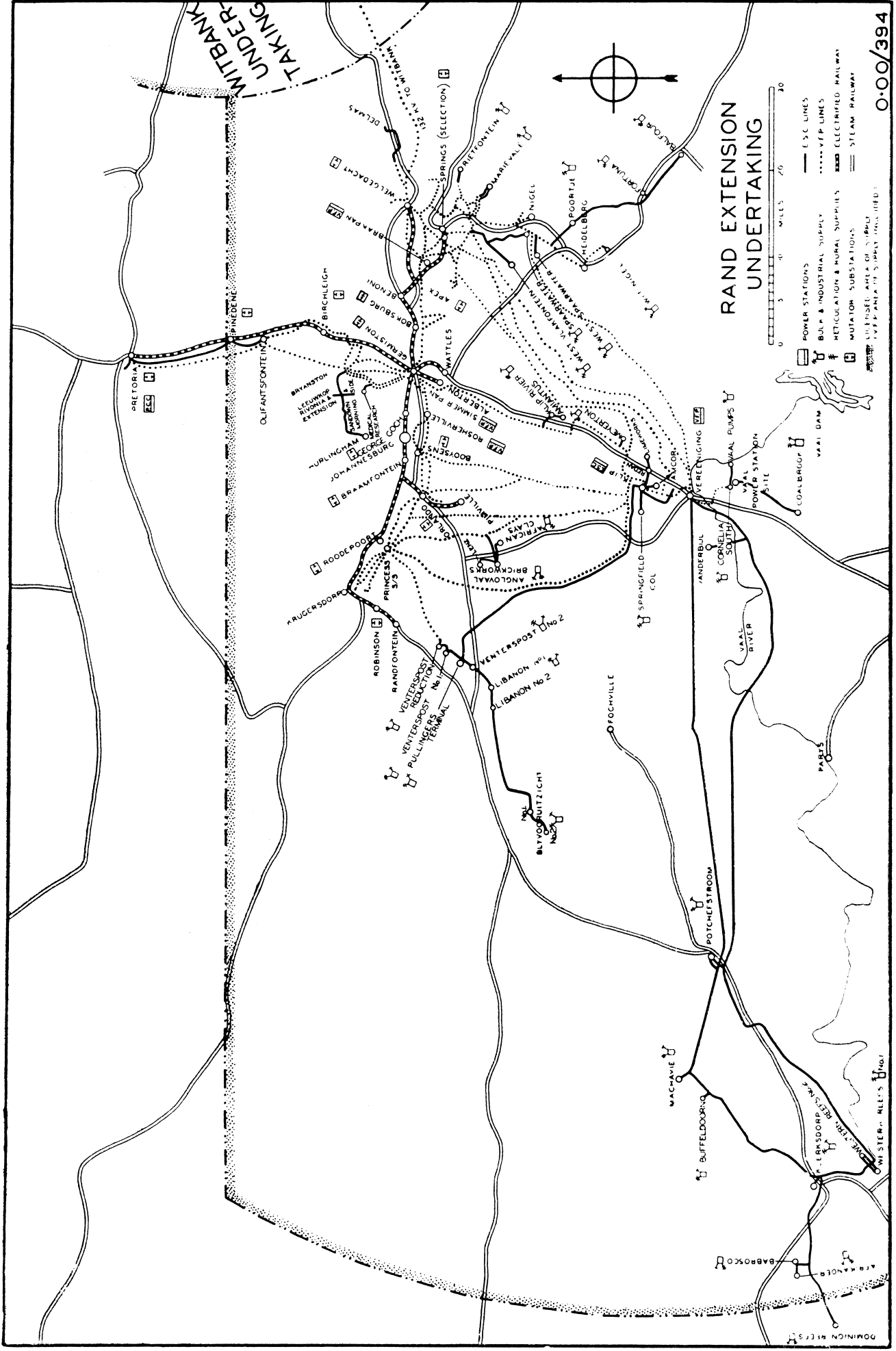
Working Results.

The operating costs and capital charges (interest, redemption and reserve) are paid by the Falls Company and in 1944 amounted to £1,133,340. The average price per unit sold increased by 4·80 per cent. from 0·0955d. in 1943 to 0·1001d. in 1944.

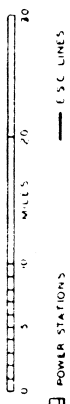
The average maximum hourly demand sent out in 1944 was 365,310 kW and the average load factor calculated on 8,785 hours, was 84·2 per cent. The thermal efficiency of the power station on units sent out was 21·22 per cent.

Coal Consumption.

Klip Power Station consumed coal at an average rate of 271 tons per hour (or an average of 1·763 lbs. per unit sent out), at an average price of 3s. 11d. per ton. The total consumption for the year was 2,382,836 tons at a cost of £467,880. No railage is involved as coal is obtained from an adjacent colliery and, after passing through screening and crushing plant, is delivered to the station bunkers by means of conveyors.



RAND EXTENSION UNDERTAKING



- POWER STATIONS
- BULK & INDUSTRIAL SUPPLY
- METICULATION & RURAL SUPPLIES
- MUTATOR SUBSTATIONS
- UTILISED AREA OF SUPPLY
- UNSERVED AREA OF SUPPLY
- E.S.C. LINES
- V.E.P. LINES
- ELECTRIFIED RAILWAY
- STEAM RAILWAY

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WITBANK TAKING UNDER

DOMINION REFS

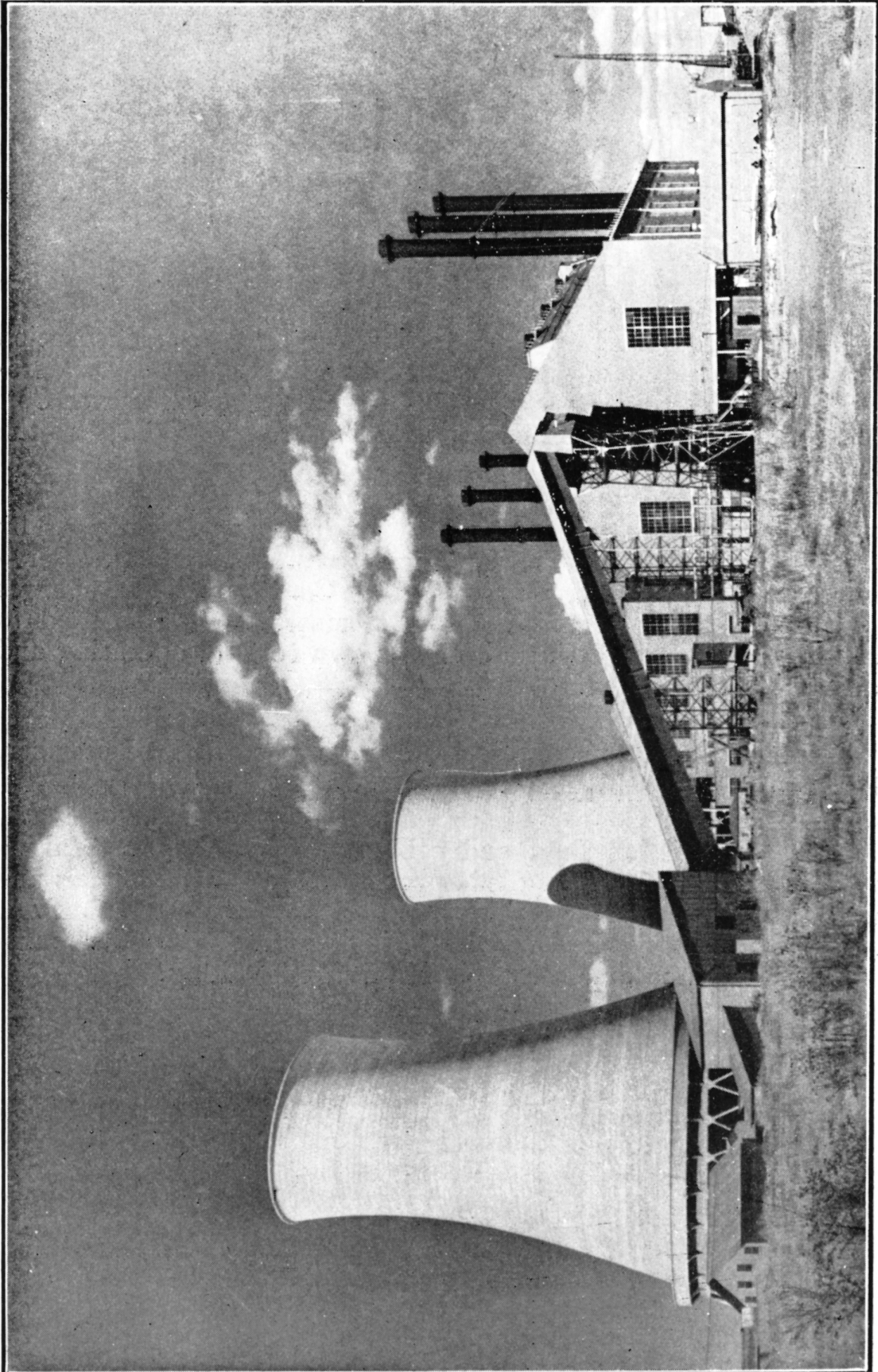
RAND EXTENSION UNDERTAKING.

The Rand Extension Undertaking comprises a transmission and distribution system and is operated as part of the Witwatersrand Grid system by The Victoria Falls and Transvaal Power Co., Ltd., under a licence granted to the Commission and ceded to the Falls Company.

All capital expenditure on this Undertaking is financed by the Commission and the charges for interest, redemption, reserve and administration are recovered from the Company. These charges in respect of the year ended 31st December, 1944, amounted to £67,916. The Company also bears its own costs of operating and maintaining the system.

Capital expenditure on the Undertaking as at 31st December, 1944, amounted to £991,883.

The transmission lines and cables serving this Undertaking at 31st December, 1944, totalled approximately 435 route miles and the installed transformer capacity at that date was 317,865 kVA. A diagram is reproduced on the facing page showing the transmission system and area of supply of this Undertaking.



VAAL POWER STATION.

VAAL GENERATING STATION UNDERTAKING.

Vaal, like Klip, is a "pit-head" power station. Like Klip also, water supplies are pumped from the Vaal River, for which purpose a pump-house has been erected some distance downstream from the great Vaalbank Dam, and a pipeline some four miles in length has been laid.

The design envisages an installed capacity of 200,000 kilowatts, though the station could be extended readily beyond this size if required.

Equipment for an output of 100,000 kilowatts was ordered in 1939, partly before the outbreak of war.

The order for the three main turbines and the house set was placed with the well-known Swedish firm, A.S.E.A., but the invasion of Denmark and Norway rendered it impossible to ship the sets from Sweden.

In 1940 two sets were ordered from Metropolitan-Vickers Electrical Export Co., Ltd. These machines were duly received and went into service in January and April, 1945.

Construction has been spread practically over the whole period of the war due partly to handicaps imposed on manufacturers by the exigencies of warfare and partly to losses at sea occasioned by enemy action.

The two cooling towers at Vaal are each of 4,000,000 gallons per hour capacity—that is, double the capacity of the Klip units—and are an arresting feature visible at a considerable distance from the power station.

Construction has been supervised, and in part carried out departmentally, by The Victoria Falls and Transvaal Power Co., Ltd., which will also operate this station on behalf of the Commission.

The capital expenditure on this Undertaking as at 31st December, 1944, amounted to £2,939,424.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES.

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.
Venterspost.

Extensions.
Elsburg.

Tenders.

NATAL.

Nil.

ORANGE FREE STATE.

Bloemfontein.
Ficksburg.
Kroonstad.
Ladybrand.
Reitz.

CAPE.

Aliwal North.
Cape Town.
Fraserburg.
Kokstad.
Montagu.
Somerset East.
Umtata.
Van Rhynsdorp.
Victoria West.

Aberdeen.
Montagu.

SOUTH-WEST AFRICA.

Keetmashoop.
Windhoek.

Keetmanshoop.

Up to 31st December, 1944, 514 reports on municipal electricity supply schemes, of which 170 were in respect of new schemes, had been submitted by the Commission. In addition, the Commission had issued at that date 249 supplementary reports on tenders.

ANNEXURES.

The Commission submits for the year 1944, with this Report :

ANNEXURE "A"—AUDITORS' REPORT AND ACCOUNTS.

The Report of the Auditors.

Balance Sheet.

Schedule of Expenditure on Capital Account.

Statement showing the Investments of the Redemption Fund.

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.

ANNEXURE " B "—TARIFFS.

Statements showing the standard prices in force in respect of the Commission's several Undertakings.

ANNEXURE " C "—STATISTICAL AND OTHER STATEMENTS.

Statement No. 1.—Summary of principal plant and equipment installed at the Commission's several Undertakings as at 31st December, 1944.

Statement No. 2.—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1944.

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

Statement No. 4.—Distribution of units sold during 1944 as between the various classes of consumers.

Statement No. 5.—Power Station Statistics, 1944.

Statement No. 6.—Particulars of coal used at the Commission's Steam-raising Power Stations during 1944.

Statement No. 7.—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 1944.

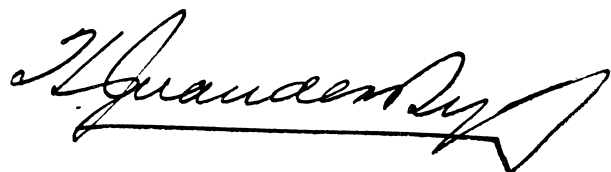
ANNEXURE " D "—UNION STATISTICS.

Union Statistics relating to the production and distribution of electricity. This information, which was extracted from the 1942/43 Industrial Census, is published in this Report by the courtesy of the Union Census and Statistics Office.

I have the honour to be

Sir,

Your obedient servant,



H. J. VAN DER BIJL,
CHAIRMAN.

INDEX TO ANNEXURE "A" (AUDITORS' REPORT AND ACCOUNTS).

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Expenditure on Capital Account	58-59
Details of Investments of Redemption Fund	60-61
Redemption Fund Account	63
Reserve Fund Account	64-65
Revenue and Expenditure Accounts:	
Natal Central Undertaking	66-67
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Statement of Pooled Costs—Cape Town	72-73
Durban Undertaking	74-75
Sabie Undertaking	76-77
Klip Generating Station Undertaking	78-79
Rand Extension Undertaking	80-81

ANNEXURE " A. "

THE REPORT OF THE AUDITORS.

Johannesburg,
18th May, 1945.

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, 1944.

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.

We find that in the aggregate the amount in the Fund at 31st December, 1944, is materially in excess of the sum required to provide for the redemption of the respective loans over the maximum periods laid down in 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 prescribed. The amount in the Fund at 31st December, 1944, is in excess of the amount required to provide for redemption of the loans over the shorter periods so fixed by the Commission. Investments purchased for the redemption fund since June, 1941, have shown an interest yield of less than $3\frac{1}{2}$ per cent. per annum, the rate prescribed by Clause 16(2) of the Schedule to the Electricity Act. The last mentioned excess is being retained as a provision for deficiencies which may occur as the result of lower interest rates.

The date from which redemption of Loan No. 11 shall commence has now been fixed by the Minister at 1st July, 1944. In the case of Loan No. 12, which was issued in July, 1944, application has not yet been made to the Minister to fix the date from which redemption shall commence in terms of Clause 16(2) of the Schedule to the Electricity Act. Provision has been made, however, for the redemption of moneys expended out of this loan on plant which had come into commercial operation prior to 31st December, 1944.

HEAD OFFICE ADMINISTRATION, ENGINEERING AND GENERAL EXPENSES, INCLUDING PUBLICITY.

The gross amount of this expenditure is more than the corresponding figure for the previous year. It includes, inter alia,

- (1) Cost of the publicity department, including the publication of the Escom Magazine;
- (2) Cost of operating Escom House, less rents received; and
- (3) Certain expenditure in connection with the London Office.

Against the total amount has been set off or credited:—

- (1) Fees accruing to the Commission in connection with extensions to the Rand Extension Undertaking in terms of the agreement 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, which is greater than the corresponding amount for 1943, has been charged against the Revenue Accounts of all the Undertakings in commercial operation. In the case of the Klip, Rand Extension and Witbank (Power Station) Undertakings, the amount is determined by agreement with The Victoria Falls and Transvaal Power Company, Limited. The expenditure charged to the other Undertakings has been apportioned by the Commission. We have no reason to disagree with the allocation so made.

WITBANK UNDERTAKING.

During the year 1944, an adjustment in terms of Section 10 of the Electricity Act, was made by way of a rebate on the charges for electricity supplied to consumers in the Local and Municipal Supplies area who were supplied with power direct from the Witbank Power Station. The remaining consumers are charged under agreements which provide that supplies of electricity shall be charged on a cost basis as determined from month to month and accordingly in the case of these consumers the adjustment is automatic.

The rebate is reflected in the Revenue Account of the Undertaking for the year 1944. One-third of the amount involved has been shown as a deduction from Sales of Electricity for the year in consequence of a reduction in the cost of power, mainly due to no amount having been set aside during the year to Reserve Fund on account of the Power Station. The remaining two-thirds of the adjustment is charged in the lower section of the Revenue Account in reduction of the surplus on this account brought forward from previous years.

KLIP UNDERTAKING.

Following previous practice, we have accepted the accounts rendered by The Victoria Falls and Transvaal Power Company, Limited, which Company, in terms of agreement with the Commission, operates the station and is the sole consumer on a cost basis. The Capital charges made by the Commission have been verified by us. The resulting figures have been summarised in the Klip Revenue Account.

RAND EXTENSION UNDERTAKING.

In terms of agreement between The Victoria Falls and Transvaal Power Company, Limited, and the Commission, the Company is the sole user of the Undertaking under cession of the licence and operates and maintains the same at its own cost. The expenditure of the Commission in connection with the Undertaking (including Capital Charges) is recovered from the Company, and the figures relating thereto are shown in the Revenue Account of the Undertaking.

GENERAL.

As the result of our audit of the books and accounts of the Commission for the year 1944, 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.

Yours faithfully,

B. HALSEY,

ALEX. AIKEN & CARTER.

ACCOUNTS.

Electricity Supply

Incorporated under the
BALANCE SHEET at

Loan Capital		£24,250,000 0 0
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	
<i>Less</i> —Repaid during 1933 and 1934	8,000,000 0 0	
	...	
Local Registered Stocks—		
Loan No. 3: 4 $\frac{3}{4}$ per cent., 1953/63	500,000 0 0	
Loan No. 4: 4 $\frac{1}{2}$ per cent., 1953	2,500,000 0 0	
Loan No. 5: 3 $\frac{3}{4}$ per cent., 1954/64	6,750,000 0 0	
Loan No. 6: 3 $\frac{1}{2}$ per cent., 1959/64	2,500,000 0 0	
Loan No. 7: 3 $\frac{1}{4}$ per cent., 1956/66	2,000,000 0 0	
Loan No. 8: 3 $\frac{1}{2}$ per cent., 1957/67	2,000,000 0 0	
Loan No. 9: 3 $\frac{3}{4}$ per cent., 1959/64	2,000,000 0 0	
Loan No. 10: 3 $\frac{3}{4}$ per cent., 1960/65	1,500,000 0 0	
Loan No. 11: 3 $\frac{1}{4}$ per cent., 1961/66	2,000,000 0 0	
Loan No. 12: 3 $\frac{1}{4}$ per cent., 1965/70	2,500,000 0 0	
	135,586 11 1	
Interest Accrued on Loan Capital		135,586 11 1
Sundry Loans and Amounts Outstanding for Rights Acquired		120,374 11 10
Umkomaas Town Board	8,380 0 0	
Volksrust Municipality	17,611 10 8	
Rand Water Board	82,738 14 8	
Caledon Municipality	6,728 10 5	
Rawsonville Village Management Board	4,915 16 1	
	620,620 16 7	
Sundry Creditors and Credit Balances		620,620 16 7
Current Liabilities and Provisions.		
Pension Fund		247,225 7 2
Redemption Fund (as per Account No. 1)		5,442,074 6 11
Sinking Fund (Umkomaas Town Board Loans)		3,749 17 10
Sundry Loans Repaid		58,779 12 9
Reserve Fund (as per Account No. 2)		2,140,622 15 2
Balance on Revenue Accounts		86,600 0 10
(As per Accounts Nos. 3 to 7)		
Natal Central Undertaking	24,819 17 2	
Witbank Undertaking	37,326 19 11	
Cape Town Undertaking	20,454 0 4	
Durban Undertaking	3,820 12 3	
Sabie Undertaking	178 11 2	
	24,819 17 2	

NOTE.—In addition to the liabilities shown above, the Commission is committed to the extent of approximately £3,654,000 for expenditure on Capital Account and £159,100 chargeable against Reserve Fund.

£33,105,634 0 2

H. J. VAN DER BIJL, Chairman.
J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Commission.

Electricity Act, 1922.

31st DECEMBER, 1944.

Expenditure on Capital Account (at Cost)		£24,018,022 16 5
(As per Schedule attached)		
Land and Rights	£300,299 11 4	
Buildings and Civil Works	6,176,538 9 9	
Machinery and Plant	17,541,184 15 4	
	76,109 16 4	
Movable Plant and Equipment (less depreciation)		76,109 16 4
Workshop Equipment, Instruments, Tools and Loose Plant	29,530 10 2	
Transportation Equipment	9,078 4 11	
Furniture and Office Equipment	37,501 1 3	
	320,146 3 11	
Stores and Materials		320,146 3 11
Sundry Debtors and Debit Balances		245,238 4 5
Current Debtors less Reserves	241,805 6 1	
Expenditure on investigations in terms of Section 3 (b) of the Act and payments in advance	3,432 18 4	
	523,867 7 11	
Cash on Current Account		523,867 7 11
Investment of Pension Fund		250,309 13 0
Amount invested in Stocks and Securities of Electricity Supply Commission, Municipalities and Rand Water Board and First Mortgages on Freehold Properties, less Reserve	249,062 13 10	
Interest Accrued	1,246 19 2	
	5,495,429 14 9	
Investment of Redemption Fund		5,495,429 14 9
(As per Schedule attached)		
Investment of Sinking Fund		3,830 18 8
Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	3,802 4 9	
Interest Accrued	28 13 11	
	2,172,679 4 9	
Investment of Reserve Fund		2,172,679 4 9
Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	2,153,851 7 8	
Interest Accrued	18,827 17 1	
	18,827 17 1	

£33,105,634 0 2

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER, }
B. HALSEY, } Auditors.

Electricity Supply

SCHEDULE OF EXPENDITURE ON CAPITAL

Expenditure in connection with Electricity Undertakings.	Total to 31st December, 1943.	Year ended 31st December, 1944.	Total to 31st December, 1944.
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£24,542 13 2	£238 13 7	£24,781 6 9
Buildings and Civil Works	802,264 17 10	7,061 11 6	809,326 9 4
Machinery and Plant	3,661,994 11 11	19,010 3 2	3,681,004 15 1
	£4,488,802 2 11	£26,310 8 3	£4,515,112 11 2
WITBANK UNDERTAKING:			
Land and Rights	£10,352 8 8	£51 10 9	£10,403 19 5
Buildings and Civil Works	640,994 19 7	7,219 8 6	648,214 8 1
Machinery and Plant	2,019,804 14 7	19,858 15 3	2,039,663 9 10
	£2,671,152 2 10	£27,129 14 6	£2,698,281 17 4
CAPE TOWN UNDERTAKING:			
Land and Rights	£28,076 17 4	£1,416 5 9	£29,493 3 1
Buildings and Civil Works	977,250 7 7	11,329 14 0	988,580 1 7
Machinery and Plant	2,003,183 14 11	71,439 18 11	2,074,623 13 10
	£3,008,510 19 10	£84,185 18 8	£3,092,696 18 6
DURBAN UNDERTAKING:			
Land and Rights	£31,143 6 6	—	£31,143 6 6
Buildings and Civil Works	809,349 9 5	£36,961 9 5	846,310 18 10
Machinery and Plant	1,688,808 4 11	206,725 10 7	1,895,533 15 6
	£2,529,301 0 10	£243,687 0 0	£2,772,988 0 10
SABIE UNDERTAKING:			
Land and Rights	£510 0 0	—	£510 0 0
Buildings and Civil Works	60,490 11 3	—	60,490 11 3
Machinery and Plant	35,169 14 10	—	35,169 14 10
	£96,170 6 1	—	£96,170 6 1

Johannesburg,
23rd April, 1945.

Commission.

ACCOUNT TO 31st DECEMBER, 1944.

Expenditure in connection with Electricity Undertakings.	Total to 31st December, 1943.	Year ended 31st December, 1944.	Total to 31st December, 1944.
KLIP GENERATING STATION UNDERTAKING:			
Land and Rights	£127,975 0 0	—	£127,975 0 0
Buildings and Civil Works	1,578,718 8 0	Cr. £1,203 5 5	1,577,515 2 7
Machinery and Plant	4,830,990 4 3	Cr. 16,494 18 8	4,814,495 5 7
	£6,537,683 12 3	Cr. £17,698 4 1	£6,519,985 8 2
RAND EXTENSION UNDERTAKING:			
Land and Rights	£10,315 12 2	£491 10 0	£10,807 2 2
Buildings and Civil Works	14,298 12 11	2,182 11 2	16,481 4 1
Machinery and Plant	898,332 11 6	66,262 0 9	964,594 12 3
	£922,946 16 7	£68,936 1 11	£991,882 18 6
VAAL GENERATING STATION UNDERTAKING:			
Land and Rights	£5,484 17 5	£115 13 0	£5,600 10 5
Buildings and Civil Works	834,033 10 10	63,691 0 6	897,724 11 4
Machinery and Plant	1,801,187 14 10	234,911 13 7	2,036,099 8 5
	£2,640,706 3 1	£298,718 7 1	£2,939,424 10 2
ESCOM HOUSE:			
Land	£59,585 3 0	—	£59,585 3 0
Building and Equipment	331,895 2 8	—	331,895 2 8
	£391,480 5 8	—	£391,480 5 8
SUMMARY:			
Land and Rights	£297,985 18 3	£2,313 13 1	£300,299 11 4
Buildings and Civil Works	6,049,296 0 1	127,242 9 8	6,176,538 9 9
Machinery and Plant	16,939,471 11 9	601,713 3 7	17,541,184 15 4
	£23,286,753 10 1	£731,269 6 4	£24,018,022 16 5

J. VAN NIEKERK, Chief Accountant.

Electricity

Schedule showing details of

	Nominal Amount.	Totals.	Loan No. 3.	Loan No. 4.
			£500,000 4½% Local Registered Stock, 1953/63.	£2,500,000 4½% Local Registered Stock, 1953.
Local Registered Stocks.				
Electricity Supply Commission:				
4½ per cent., 1953/63	£105,900 0 0	£105,900 0 0	£40,450 0 0	—
4½ per cent., 1953	267,925 0 0	267,925 0 0	1,500 0 0	£246,425 0 0
3¾ per cent., 1954/64	827,313 0 0	827,147 3 10	10,000 0 0	—
3½ per cent., 1959/64	135,060 0 0	135,060 0 0	—	—
3¼ per cent., 1956/66	335,700 0 0	324,571 3 9	16,490 0 0	92,767 3 9
3½ per cent., 1957/67	323,200 0 0	314,740 1 2	24,287 10 0	85,565 5 0
3½ per cent., 1959/64	518,200 0 0	507,297 2 6	19,482 19 9	90,028 0 2
3¾ per cent., 1960/65	439,700 0 0	430,966 13 9	17,640 0 0	60,270 0 0
3¼ per cent., 1961/66	498,200 0 0	488,300 0 0	23,520 0 0	96,040 0 0
3¼ per cent., 1965/70	532,700 0 0	532,700 0 0	17,000 0 0	87,000 0 0
The Government of the Union of South Africa:				
3¾ per cent., 1948/58	2,725 0 0	2,725 0 0	—	—
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
3¼ 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
Municipal:				
Johannesburg:				
3¼ per cent., 1956/66	1,500 0 0	1,500 0 0	—	—
3¾ per cent., 1959	5,300 0 0	5,300 0 0	—	—
3¾ per cent., 1960/65	20,000 0 0	20,000 0 0	—	8,000 0 0
3¼ per cent., 1962/67	129,000 0 0	126,531 5 10	18,620 0 0	42,140 0 0
3½ per cent., 1965	1,000 0 0	1,000 0 0	—	—
Cape Town:				
3¾ per cent., 1960/65	2,000 0 0	2,000 0 0	—	—
3¼ per cent., 1962/67	150,000 0 0	147,000 0 0	—	—
Durban:				
3¼ per cent., 1962/72	115,500 0 0	115,211 5 0	—	115,211 5 0
	£5,510,488 0 0	£5,455,414 13 11	£215,988 9 7	£1,438,707 3 7
Interest Accrued	—	40,015 0 10	1,459 14 4	9,666 16 2
	£5,510,488 0 0	£5,495,429 14 9	£217,448 3 11	£1,448,373 19 9

Johannesburg,
23rd April, 1945.

Supply Commission.

Investments of the Redemption Fund at 31st December, 1944.

	Loan No. 5.	Loan No. 6.	Loan No. 7.	Loan No. 8.	Loan No. 9.	Loan No. 10.	Loan No. 11.	Loan No. 12.
	£6,750,000 3¼% Local Registered Stock, 1954/64.	£2,500,000 3½% Local Registered Stock, 1959/64.	£2,000,000 3¼% Local Registered Stock, 1956/66.	£2,000,000 3½% Local Registered Stock, 1957/67.	£2,000,000 3¼% Local Registered Stock, 1959/64.	£1,500,000 3¼% Local Registered Stock, 1960/65.	£2,000,000 3¼% Local Registered Stock, 1961/66.	£2,500,000 3¼% Local Registered Stock, 1965/70.
	£65,450 0 0	—	—	—	—	—	—	—
	15,500 0 0	£4,500 0 0	—	—	—	—	—	—
	742,713 0 0	53,721 15 9	£17,000 0 0	£3,518 13 3	—	£193 14 10	—	—
	35,000 0 0	84,760 0 0	5,600 0 0	5,400 0 0	£4,300 0 0	—	—	—
	143,560 0 0	19,400 0 0	52,354 0 0	—	—	—	—	—
	77,628 10 0	60,043 0 0	21,922 0 0	44,221 6 2	1,072 10 0	—	—	—
	180,286 8 3	62,540 7 8	55,274 6 4	45,785 0 4	53,900 0 0	—	—	—
	140,630 0 0	72,030 0 0	48,020 0 0	52,430 0 0	33,810 0 0	6,136 13 9	—	—
	136,220 0 0	80,360 0 0	45,080 0 0	56,840 0 0	30,380 0 0	16,660 0 0	£3,200 0 0	—
	129,700 0 0	61,000 0 0	62,000 0 0	67,000 0 0	65,000 0 0	8,000 0 0	19,000 0 0	£17,000 0 0
	2,725 0 0	—	—	—	—	—	—	—
	4,000 0 0	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	5,000 0 0	—	—	—	—	—	—	—
	11,000 0 0	—	—	—	—	—	—	—
	2,300 0 0	—	—	—	—	—	—	—
	10,000 0 0	—	—	—	—	—	—	—
	159,998 19 11	79,994 9 7	56,995 19 8	46,400 0 0	51,995 19 8	16,997 9 10	7,998 9 11	6,600 0 0
	11,000 0 0	—	1,000 0 0	—	—	—	2,000 0 0	—
	44,000 0 0	20,000 0 0	—	—	—	—	—	—
	—	—	1,500 0 0	—	—	—	—	—
	—	—	—	1,000 0 0	4,300 0 0	—	—	—
	12,000 0 0	—	—	—	—	—	—	—
	16,660 0 0	32,424 13 11	16,686 11 11	—	—	—	—	—
	—	—	—	—	—	1,000 0 0	—	—
	—	—	—	—	—	—	—	—
	—	—	—	28,910 0 0	36,750 0 0	48,020 0 0	2,000 0 0	—
	—	—	—	—	—	—	24,990 0 0	6,860 0 0
	—	—	—	—	—	—	—	1,470 0 0
	£1,945,371 18 2	£635,774 6 11	£417,342 17 11	£364,344 19 9	£297,778 9 8	£75,977 18 5	£39,058 9 11	£25,070 0 0
	13,811 17 9	4,322 1 9	3,557 6 10	2,877 16 10	2,850 4 9	744 11 3	433 16 3	290 14 11
	£1,959,183 15 11	£640,096 8 8	£420,900 4 9	£367,222 16 7	£300,628 14 5	£76,722 9 8	£39,492 6 2	£25,360 14 11

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Redemption Fund Account for the Year ended 31st December, 1944.

	Totals.	Loan No. 3. £500,000 4½% Local Registered Stock, 1953/64.	Loan No. 4. £2,500,000 4½% Local Registered Stock, 1953.	Loan No. 5. £6,750,000 3½% Local Registered Stock, 1954/64.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/64.	Loan No. 7. £2,000,000 3¼% Local Registered Stock, 1956/66.	Loan No. 8. £2,000,000 3½% Local Registered Stock, 1957/67.	Loan No. 9. £2,000,000 3¼% Local Registered Stock, 1959/64.	Loan No. 10. £1,500,000 3¼% Local Registered Stock, 1960/65.	Loan No. 11. £2,000,000 3¼% Local Registered Stock, 1961/66.	Loan No. 12. £2,500,000 3¼% Local Registered Stock, 1965/70
Cr.											
By Balance at 31st December, 1943, brought forward—											
Natal Central Undertaking	£914,064 17 11	£658 5 1	£36,205 16 4	£819,898 16 6	—	£28,819 2 0	£8,431 13 2	£7,892 19 5	£6,199 16 6	£5,958 8 11	—
Witbank Undertaking	1,191,262 16 4	1,153 14 9	818,021 6 1	315,165 19 10	—	32,312 14 2	11,146 1 8	4,271 7 4	5,766 15 11	261 15 9	£163 0 10
Cape Town Undertaking	706,878 13 5	133,876 14 2	70,083 16 11	425,415 14 1	—	7,781 7 3	7,618 5 3	37,643 9 8	17,684 2 1	6,775 4 0	—
Durban Undertaking	582,788 16 4	56,331 7 9	338,297 8 11	120,006 13 5	—	2,787 7 4	44,783 2 5	9,549 6 2	10,002 17 1	1,030 13 3	—
Sabie Undertaking	74,131 4 3	—	55,800 10 10	18,286 7 2	—	—	—	—	—	44 6 3	—
Klip Generating Station Undertaking	1,078,950 1 3	—	—	—	£503,658 10 6	224,285 17 7	180,040 2 6	150,176 0 4	17,153 19 6	227 3 11	3,408 6 11
Rand Extension Undertaking	130,564 8 9	—	—	—	49,258 5 2	11,843 6 8	41,998 12 8	22,704 10 11	531 10 5	1,475 10 5	2,752 12 6
Head Office	69,446 1 11	—	2,615 19 7	21,486 11 3	—	44,589 17 11	—	441 7 1	286 6 1	26 0 0	—
	£4,748,087 0 2	£192,020 1 9	£1,321,024 18 8	£1,720,260 2 3	£552,916 15 8	£352,419 12 11	£297,017 17 8	£232,679 0 11	£57,625 7 7	£15,799 2 6	£6,324 0 3
Amounts Contributed during the Year out of Revenue—											
Natal Central Undertaking	£113,615 3 11	£52 4 11	£3,398 2 10	£92,493 6 11	—	£4,198 4 8	£1,459 5 1	£1,728 17 7	£1,986 12 6	£8,023 10 6	£274 18 11
Witbank Undertaking	67,078 16 4	86 14 9	37,689 1 9	17,857 2 9	—	4,622 12 4	2,595 16 6	994 10 7	2,332 2 4	132 3 5	768 11 11
Cape Town Undertaking	87,946 12 1	11,195 11 2	6,472 2 9	48,163 0 4	—	1,118 4 8	1,385 10 5	8,879 16 0	2,686 18 9	7,527 18 7	517 9 5
Durban Undertaking	47,352 12 8	4,264 12 0	19,064 19 9	7,805 15 10	—	441 10 8	7,871 11 3	2,277 10 10	3,451 12 9	2,151 7 5	23 12 2
Sabie Undertaking	3,568 10 10	—	2,610 16 8	870 5 7	—	—	—	—	—	87 8 7	—
Klip Generating Station Undertaking	165,402 15 4	—	—	—	£58,636 13 3	30,111 17 7	30,828 1 7	32,728 1 9	4,563 14 7	93 12 5	8,440 14 2
Rand Extension Undertaking	24,280 11 7	—	—	—	5,548 6 9	1,713 5 3	7,207 16 8	4,830 2 8	145 2 3	400 10 0	4,435 8 0
Head Office	9,552 1 3	—	159 6 11	3,313 5 1	—	5,888 5 2	—	97 2 5	81 0 1	13 1 7	—
	£518,797 4 0	£15,599 2 10	£69,394 10 8	£170,502 16 6	£61,185 0 0	£48,094 0 4	£51,348 1 6	£51,536 1 10	£15,247 3 3	£18,429 12 6	£14,460 14 7
Net Proceeds of Sales of Fixed Property—											
Natal Central Undertaking	£637 19 3	—	—	£637 19 3	—	—	—	—	—	—	—
Witbank Undertaking	73 7 5	—	£73 7 5	—	—	—	—	—	—	—	—
Cape Town Undertaking	Dr. 964 8 5	—	—	—	—	—	—	—	Dr. £964 8 5	—	—
	Dr. £253 1 9	—	£73 7 5	£637 19 3	—	—	—	—	Dr. £964 8 5	—	—
Net Interest Earned on Investments, after Deducting Amounts Appropriated in Reduction of Premiums on Investments Purchased—											
Natal Central Undertaking	£32,933 0 9	£24 13 8	£1,446 7 4	£29,330 10 0	—	£1,043 15 5	£305 7 11	£285 11 10	£213 6 7	£282 4 10	£1 3 2
Witbank Undertaking	45,275 8 5	43 5 0	32,053 5 4	11,117 3 0	—	1,169 2 1	514 5 8	155 7 1	204 8 11	9 16 7	8 14 9
Cape Town Undertaking	25,985 10 11	5,043 6 10	2,797 19 9	15,351 18 9	—	281 12 1	276 15 9	1,370 17 9	570 19 8	288 2 7	3 17 9
Durban Undertaking	22,142 8 11	2,115 6 5	13,311 8 9	4,247 9 3	—	101 8 5	1,623 7 11	348 3 6	347 5 11	47 12 10	5 11
Sabie Undertaking	2,832 4 1	—	2,187 2 7	642 13 2	—	—	—	—	—	2 8 4	—
Klip Generating Station Undertaking	39,018 2 5	—	—	—	£18,205 14 0	8,086 3 6	6,514 14 4	5,432 0 9	578 11 9	8 2 11	192 15 2
Rand Extension Undertaking	4,740 9 1	—	—	—	1,777 17 9	428 14 9	1,519 19 7	819 12 2	17 18 11	50 3 10	126 2 1
Head Office	2,515 19 11	—	103 1 6	779 19 6	—	1,606 5 8	—	15 19 9	9 15 1	18 5	—
	£175,443 4 6	£7,226 11 11	£51,899 5 3	£61,469 13 8	£19,983 11 9	£12,717 1 11	£10,754 11 2	£8,427 12 10	£1,942 6 10	£689 10 4	£332 18 10
Grand Total	£5,442,074 6 11	£214,845 16 6	£1,442,392 2 0	£1,952,870 11 8	£637,085 7 5	£413,230 15 2	£359,120 10 4	£292,642 15 7	£73,850 9 3	£34,918 5 4	£21,117 13 8
Dr.											
To Balance as per Balance Sheet—											
Natal Central Undertaking	£1,061,251 1 10	£735 3 8	£41,050 6 6	£942,360 12 8	—	£34,061 2 1	£10,196 6 2	£9,907 8 10	£8,399 15 7	£14,264 4 3	£276 2 1
Witbank Undertaking	1,303,690 8 6	1,283 14 6	887,837 0 7	344,140 5 7	—	38,104 8 7	17,256 3 10	5,421 5 0	8,303 7 2	403 15 9	940 7 6
Cape Town Undertaking	819,846 8 0	150,115 12 2	79,353 19 5	488,930 13 2	—	9,181 1 0	9,280 11 5	47,894 3 5	19,977 12 1	14,591 5 2	521 7 2
Durban Undertaking	652,283 17 11	62,711 6 2	370,673 17 5	132,059 18 6	—	3,330 6 5	54,278 1 7	12,175 0 6	13,801 15 9	3,229 13 6	23 18 1
Sabie Undertaking	80,531 19 2	—	60,598 10 1	19,799 5 11	—	—	—	—	—	134 3 2	—
Klip Generating Station Undertaking	1,283,370 19 0	—	—	—	£580,500 17 9	262,483 18 8	217,382 18 5	188,336 2 10	22,296 5 10	328 19 3	12,041 16 3
Rand Extension Undertaking	159,585 9 5	—	—	—	56,584 9 8	13,985 6 8	50,726 8 11	28,354 5 9	694 11 7	1,926 4 3	7,314 2 7
Head Office	81,514 3 1	—	2,878 8 0	25,579 15 10	—	52,084 8 9	—	554 9 3	377 1 3	40 0 0	—
	£5,442,074 6 11	£214,845 16 6	£1,442,392 2 0	£1,952,870 11 8	£637,085 7 5	£413,230 15 2	£359,120 10 4	£292,642 15 7	£73,850 9 3	£34,918 5 4	£21,117 13 8

J. VAN NIEKERK, Chief Accountant

We hereby certify that we are satisfied, both as to the correctness of the Accounts and Books of the Redemption Fund and as to the Maintenance of the Fund at the amount required by the Schedule to the Electricity Act, 1922, subject to the remarks contained in our report dated 18th May, 1945

ALEX. AIKEN & CARTER, Auditors

Electricity Supply

Dr.

Reserve Fund Account for the

To Expenditure during the Year on Replacements and Betterment	£108,451 4 6
Natal Central Undertaking	£63,163 6 2
Witbank Undertaking	15,956 10 3
Cape Town Undertaking	7,154 1 8
Durban Undertaking	4,814 8 1
Sabie Undertaking	424 13 6
Klip Generating Station Undertaking	15,599 13 8
Rand Extension Undertaking	1,338 11 2
„ Balance as per Balance Sheet	2,140,622 15 2
Natal Central Undertaking	626,609 7 11
Witbank Undertaking	333,220 0 7
Cape Town Undertaking	377,935 13 5
Durban Undertaking	262,157 16 0
Sabie Undertaking	15,433 14 4
Klip Generating Station Undertaking	472,539 16 5
Rand Extension Undertaking	52,726 6 6
	£2,249,073 19 8

Johannesburg,

23rd April, 1945

Commission.

Year ended 31st December, 1944.

Cr.

By Balance at 31st December, 1943, brought forward ...	£2,030,104 2 7
Natal Central Undertaking	£628,198 5 10
Witbank Undertaking	332,830 16 2
Cape Town Undertaking	361,294 5 3
Durban Undertaking	242,362 6 2
Sabie Undertaking	15,277 16 4
Klip Generating Station Undertaking	407,304 2 6
Rand Extension Undertaking	42,836 10 4
„ Amounts set aside during the Year as per Revenue Accounts	139,601 6 7
Natal Central Undertaking	37,000 0 0
Witbank Undertaking	3,719 16 8
Cape Town Undertaking	10,000 0 0
Durban Undertaking	15,000 0 0
Klip Generating Station Undertaking	64,424 4 8
Rand Extension Undertaking	9,457 5 3
„ Interest earned on Investments	79,368 10 6
	£2,249,073 19 8

J. VAN NIEKERK, Chief Accountant.

Electricity Supply

NATAL CENTRAL

Dr. Revenue Account for the Year

Dr.		Revenue Account for the Year	
Generation of Electricity.			
To Operation—			
Fuel	£136,945	11	4
Water, Oil, Waste and Stores	2,023	3	10
Salaries and Wages	31,563	19	2
Other Expenses	105	7	10
.. Maintenance—			
Stores	6,833	0	1
Salaries and Wages	20,138	8	0
Other Expenses	4,963	15	11
.. Electricity Purchased		£202,573	9 2
.. Electricity Interchanged		302	4 5
		70	4 5
Distribution of Electricity.			
.. Operation and Maintenance—			
Stores	6,208	11	4
Salaries and Wages	29,237	14	9
Other Expenses	5,480	9	1
		40,926	15 2
General Expenses.			
.. Local Administration and Technical Management	13,645	18	1
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, Payment to Durban Undertaking under Agreement, etc.)	16,366	3	5
.. Head Office Administration and General Expenses, including Publicity	13,125	2	3
.. Engineering Expenses	6,706	6	10
		49,843	10 7
.. Deferred Payment Scheme, including Propaganda and Showroom Expenses		234	2 9
		293,950	6 6
.. Interest		169,894	11 4
.. Redemption Fund		113,615	3 11
.. Instalments paid on Volksrust Municipality Loan		1,548	6 8
.. Amount set aside to Reserve Fund		37,000	0 0
.. Balance carried down		527	11 7
		£616,536	0 0
To Balance as per Balance Sheet		£24,819	17 2
		£24,819	17 2

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Commission.

UNDERTAKING.

ended 31st December, 1944.

Cr.

By Sales of Electricity—			
Traction Supplies	£133,160	18	9
Bulk Supplies	103,798	16	10
Industrial Supplies	47,376	0	6
Domestic and Lighting Supplies	27,368	3	3
Electricity Interchanged	286	5	6
		£611,990	4 10
.. Other Revenue		4,545	15 2
		£616,536	0 0
By Balance at 31st December, 1943, brought forward		£21,292	5 7
.. Balance brought down		527	11 7
		£24,819	17 2

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER, }
B. HALSEY, } Auditors.

Electricity Supply WITBANK

Revenue Account for the Year

Dr.

Generation of Electricity.			
To Operation—			
Fuel	£81,852 7 6		
Water, Oil, Waste and Stores	8,416 3 4		
Salaries and Wages	39,527 17 1		
Other Expenses	2,847 10 2		
.. Maintenance—			
Stores	10,795 17 0		
Salaries and Wages	22,329 11 8		
Other Expenses	7,859 6 11		
.. Electricity Purchased		£173,628 13 8	
		171,788 16 10	
Distribution of Electricity.			
.. Operation and Maintenance—			
Stores	1,483 1 3		
Salaries and Wages	4,478 14 5		
Other Expenses	267 3 4		
		6,228 19 0	
General Expenses.			
.. Local Administration and Technical Management	10,093 19 8		
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	13,446 0 11		
.. Administration, Engineering and General Expenses of Operating Party (The Victoria Falls and Transvaal Power Company, Limited)	7,000 0 0		
.. Head Office Administration and General Expenses, including Publicity	8,480 14 5		
.. Engineering Expenses	4,333 5 3		
		43,354 0 3	
.. Deferred Payment Scheme, including Propaganda and Showroom Expenses		51 15 6	
		395,052 5 3	
.. Interest		113,099 13 7	
.. Redemption Fund		67,078 16 4	
.. Amount set aside to Reserve Fund		3,719 16 8	
.. Balance carried down		3,444 19 1	
		£582,395 10 11	
To Further adjustment in terms of Section 10 of the Electricity Act, 1922		£31,637 8 11	
.. Balance as per Balance Sheet		37,326 19 11	
		£68,964 8 10	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Commission. UNDERTAKING.

ended 31st December, 1944.

Cr.

By Sales of Electricity—			
Traction Supplies	£185,819 7 1		
Bulk Supplies	247,120 7 1		
Industrial Supplies	145,830 15 5		
Domestic and Lighting Supplies	9,726 13 6		
	588,497 3 1		
Less—Adjustment in terms of Section 10 of the Electricity Act, 1922	15,818 14 6		
		£572,678 8 7	
.. Deferred Payment Scheme		22 3 1	
.. Other Revenue		9,694 19 3	
		£582,395 10 11	
By Balance at 31st December, 1943, brought forward		£65,519 9 9	
.. Balance brought down		3,444 19 1	
		£68,964 8 10	

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER, }
B. HALSEY, } Auditors.

Electricity Supply

CAPE TOWN

Revenue Account for the Year

Dr.				
Generation of Electricity.				
To Proportion of Pooled Costs ...	...	...	...	£260,139 7 7
(As per attached Statement)				
„ Other Operation and Maintenance Costs ...	...	...	...	168 0 8
„ Electricity Purchased ...	...	...	...	£260,307 5 3
				78 3 4
Distribution of Electricity.				
„ Operation and Maintenance—				
Stores ...	...	...	...	4,002 0 0
Salaries and Wages ...	...	...	...	30,441 4 7
Other Expenses ...	...	...	...	5,664 15 6
				40,108 0 1
General Expenses.				
„ Local Administration and Technical Management ...	...	...	...	14,909 8 8
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ...	...	...	...	15,329 9 6
„ Head Office Administration and General Expenses, including Publicity ...	...	...	...	8,385 9 9
„ Engineering Expenses ...	...	...	...	4,284 12 2
				42,909 0 1
Less—Charged to Pooled Costs ...	...	...	...	4,501 0 10
„ Deferred Payment Scheme, including Propaganda and Showroom Expenses ...	...	...	...	623 15 1
				38,407 19 3
„ Interest ...	...	...	...	118,941 12 0
„ Redemption Fund ...	...	...	...	87,946 12 1
„ Instalments on Caledon Municipality and Rawsonville Village Management Board Loans ...	...	...	...	805 10 7
„ Amount set aside to Reserve Fund ...	...	...	...	10,000 0 0
				217,693 14 8
Less—Charged to Pooled Costs ...	...	...	...	72,257 12 5
„ Balance carried down ...	...	...	...	145,436 2 3
				12,111 2 5
				£497,072 10 8
To Balance as per Balance Sheet ...	...	...	...	£20,454 0 4
				£20,454 0 4

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Commission.

UNDERTAKING.

ended 31st December, 1944.

Cr.

By Sales of Electricity—					
Traction Supplies ...	...	...	...	£162,820 6 3	
Bulk Supplies ...	...	...	...	68,154 2 1	
Industrial Supplies ...	...	...	...	166,031 15 7	
Domestic and Lighting Supplies ...	...	...	...	97,889 1 6	
				£494,895 5 5	381 7 11
„ Deferred Payment Scheme ...	...	...	...
„ Other Revenue ...	...	...	...	1,821 7 4	
Less—Credited to Pooled Costs ...	...	...	...	25 10 0	
				1,795 17 4	
				£8,342 17 11	12,111 2 5
By Balance at 31st December, 1943, brought forward ...	...	...	...
„ Balance brought down ...	...	...	...
				£20,454 0 4	

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER, { Auditors.
B. HALSEY,

Electricity Supply Commission

Dr. Statement of Pooled Costs for the Year ended

Pooled Generation of Electricity.			
To Operation and Maintenance—			
Fuel	... ..	£404,641 18 0	
Water, Oil, Waste and Stores	... ..	17,229 1 8	
Salaries, Wages and Other Expenses	... ..	96,614 3 6	
		£518,485 3 2	
„ General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	... ..		16,614 11 0
„ Interest	... ..		114,004 7 4
„ Redemption Fund	... ..		110,253 6 7
„ Reserve Fund	... ..		16,433 4 2
			£775,790 12 3
			£775,790 12 3

Cape Town,
23rd April, 1945.

and City of Cape Town.

31st December, 1944, and Allocation thereof. Cr.

By Allocation of Pooled Costs in terms of Agreement—			
Electricity Supply Commission	... ..	£260,139 7 7	
City of Cape Town	... ..	514,067 13 11	
		£774,207 1 6	
„ Sundry Revenue	... ..		1,583 10 9
			£775,790 12 3
			£775,790 12 3

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

Electricity Supply

DURBAN

Dr. Revenue Account for the Year

Generation of Electricity.			
To Operation—			
Fuel	£181,137 6 9		
Water, Oil, Waste and Stores	3,893 1 2		
Salaries and Wages	26,076 16 9		
Other Expenses	1,450 19 7		
„ Maintenance—			
Stores	11,185 16 2		
Salaries and Wages	23,146 16 0		
Other Expenses	1,321 5 8		
	£248,212 2 1		
„ Operation and Maintenance, Alice Street Power Station	12,417 6 7		
„ Electricity Purchased	9,282 5 2		
„ Electricity Interchanged	286 5 6		
	14,350 19 11		
Distribution of Electricity.			
„ Operation and Maintenance—			
Stores	4,427 18 11		
Salaries and Wages	8,428 4 1		
Other Expenses	1,494 16 11		
	14,350 19 11		
General Expenses.			
„ Local Administration and Technical Management	7,494 1 11		
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	12,283 13 10		
„ Head Office Administration and General Expenses, including Publicity	8,020 18 1		
„ Engineering Expenses	4,098 6 4		
	31,897 0 2		
„ Deferred Payment Scheme, including Propaganda and Showroom Expenses	10 9 3		
	316,456 8 8		
„ Interest	71,227 17 11		
„ Redemption Fund	47,352 12 8		
„ Sinking Fund	120 0 0		
„ Amount set aside to Reserve Fund	15,000 0 0		
	£450,156 19 3		
To Balance brought down	£8,240 0 2		
„ Balance as per Balance Sheet	3,820 12 3		
	£12,060 12 5		
	£12,060 12 5		

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Commission.

UNDERTAKING.

ended 31st December, 1944.

Cr.

By Sales of Electricity—			
Bulk Supplies	£385,764 12 5		
Industrial Supplies	31,126 11 1		
Domestic and Lighting Supplies	22,030 2 7		
Electricity Interchanged	70 4 5		
	£438,991 10 6		
„ Other Revenue	2,925 8 7		
„ Balance carried down	8,240 0 2		
	£450,156 19 3		
	£450,156 19 3		
By Balance at 31st December, 1943, brought forward	£12,060 12 5		
	£12,060 12 5		
	£12,060 12 5		

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER. } Auditors.
B. HALSEY. }

Electricity Supply

SABIE

Dr.	Revenue Account for the Year	
	Generation of Electricity.	
To Operation—		
Water, Oil, Waste and Stores	£75 14 0	
Salaries and Wages	1,794 7 2	
„ Maintenance—		
Stores	642 11 1	
Salaries and Wages	445 0 0	
Other Expenses	69 1 0	
	£3,026 13 3	
	Distribution of Electricity.	
„ Operation and Maintenance—		
Stores	424 3 1	
Salaries and Wages	748 0 0	
Other Expenses	165 19 6	
	1,338 2 7	
	General Expenses.	
„ Local Administration and Technical Management ...	265 18 3	
„ General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.) ...	214 16 8	
„ Head Office Administration and General Expenses, including Publicity	1,093 15 2	
„ Engineering Expenses	558 17 3	
	2,133 7 4	
	6,498 3 2	
„ Interest	4,281 12 10	
„ Redemption Fund	3,568 10 10	
	£14,348 6 10	
To Balance brought down	£17 1 0	
„ Balance as per Balance Sheet	178 11 2	
	£195 12 2	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Account No.7.

Commission.

UNDERTAKING.

	Cr.
ended 31st December, 1944.	
By Sales of Electricity—	
Industrial Supplies	£14,331 5 10
„ Balance carried down	17 1 0
	£14,348 6 10
By Balance at 31st December, 1943, brought forward	£195 12 2
	£195 12 2

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER, }
B. HALSEY, } Auditors.

Electricity Supply

KLIP GENERATING

Dr. Revenue Account for the Year

Generation of Electricity.				
To Operation—				
Fuel	...	...	...	£467,880 4 1
Water, Oil, Waste and Stores	...	...	...	8,048 2 7
Salaries and Wages	...	...	...	60,583 1 4
Other Expenses	...	...	...	2,056 17 8
„ Maintenance—				
Stores	...	...	...	15,443 4 3
Salaries and Wages	...	...	...	37,343 7 0
Other Expenses	...	...	...	16,526 14 8
			£607,881 11 7	
General Expenses.				
„ Local Administration and Technical Management	...	...	...	9,961 16 6
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	...	...	...	19,729 14 11
„ Administration, Engineering and General Expenses of Operating Party (The Victoria Falls and Transvaal Power Company, Limited)	...	...	...	17,325 0 0
„ Head Office Administration and General Expenses, including Publicity	...	...	...	6,760 4 11
„ Engineering Expenses	...	...	...	3,454 3 7
			57,230 19 11	
			665,112 11 6	
„ Interest	...	...	...	231,245 3 9
„ Redemption Fund	...	...	...	165,402 15 4
„ Provision for Repayment of Amounts Outstanding (Rand Water Board)	...	...	...	7,154 18 9
„ Amount set aside to Reserve Fund	...	...	...	64,424 4 8
			£1,133,339 14 0	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Account No. 8.

Commission.

STATION UNDERTAKING.

ended 31st December, 1944.

Cr.

By Sales of Electricity—									
Bulk Supplies	...	...	...	...	...	...	...	...	£1,127,618 14 5
„ Other Revenue	...	...	...	...	...	...	...	...	5,720 19 7

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER. }
B. HALSEY, } Auditors.

Electricity Supply

RAND EXTENSION

Dr. Revenue Account for the Year

To General Expenses (Insurance)	£177	15	2
„ Head Office Administration and General Expenses, including Publicity	776	16	3
„ Engineering Expenses	396	18	4
	£1,351	9	9
„ Interest	32,827	1	9
„ Redemption Fund	24,280	11	7
„ Amount set aside to Reserve Fund	9,457	5	3
	£67,916	8	4
	£67,916	8	4

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
23rd April, 1945.

Account No. 9.

Commission.

UNDERTAKING.

ended 31st December, 1944.

Cr.

By Amount recovered from The Victoria Falls and Transvaal Power Company, Limited	£67,916	8	4
	£67,916	8	4
	£67,916	8	4

Referred to in our Report of 18th May, 1945.

ALEX. AIKEN & CARTER. }
B. HALSEY, } Auditors.

ANNEXURE “ B.”

TARIFFS.

The Standard Prices in force on the Commission's Undertakings are subjoined. These prices and the conditions attaching thereto are more fully set out in the Licences and Permits granted to the Commission by the Electricity Control Board and are subject to alteration in terms of the Electricity Act, 1922:—

NATAL CENTRAL UNDERTAKING.

Consumers.

Schedule of Charges.

The Schedule of Standard Prices provides for the following charges:—

Bulk, Industrial and other users whose notified maximum demand is 25 kilovolt amperes or over.

- (a) £25 per annum, plus
- (b) 8s. 4d. for each kilovolt ampere of the maximum demand supplied in each month, plus
- (c) 0·2d. per unit for the first 250,000 units supplied in each month.
- (d) 0·15d. per unit for all additional units supplied in each month.

The charges at present in force are as follows:—

- (a) and (b) as above, plus
- (c) 0·15d. per unit for all units supplied in each month.

WITBANK UNDERTAKING.

Consumers.

Schedule of Charges.

The Schedule of Standard Prices provides for the following charges:—

Bulk, Industrial and other users whose notified maximum demand is 50 kilovolt amperes or over.

- (a) A charge of £25 per annum, plus
- (b) A charge of 8s. 4d. for each kilovolt ampere of the maximum demand supplied in each month, plus

Consumers.**Schedule of Charges.**

(c) A charge of 0·045d. for each unit supplied.

The charges at present in force are as follows:—

(a) A charge of £25 per annum, plus

(b) A charge of 7s. for each kilovolt ampere of the maximum demand supplied in each month, plus

(c) A charge of 0·04d. for each unit supplied.

CAPE TOWN UNDERTAKING.**Consumers.****Schedule of Charges.**

The Schedule of Standard Prices provides for the following charges:—

Bulk, Industrial and other users whose notified maximum demand is 25 kilovolt amperes or over.

(a) (i) 13s. 7d. per month for each of the first 250 kilovolt amperes of the maximum demand supplied in each month,

(ii) 11s. 6d. per month for each of the next 250 kilovolt amperes of the maximum demand supplied in each month,

(iii) 6s. 8d. per month for each additional kilovolt ampere of the maximum demand supplied in each month,

plus

(b) (i) 0·5d. per unit for the first 100,000 units supplied in each month.

(ii) 0·4d. per unit for the next 200,000 units supplied in each month.

(iii) 0·3d. per unit for the next 200,000 units supplied in each month.

(iv) 0·275d. per unit for all additional units supplied in each month.

The charges at present in force are as follows:—

(a) (i) 11s. 6d. per month for each of the first 250 kilovolt amperes of the maximum demand supplied in each month,

(ii) 6s. 8d. per month for each additional kilovolt ampere of the maximum demand supplied in each month,

plus

(b) (i) 0·4d. per unit for the first 200,000 units supplied in each month.

(ii) 0·275d. per unit for all additional units supplied in each month.

DURBAN UNDERTAKING.

Consumers.**Schedule of Charges.**

Bulk supply at Power
Station.

(a) The Schedule of Standard Prices provides for a charge of £4 4s. for each kilowatt of the maximum demand supplied in each year.

The charge at present in force is £2 2s. 6d. for each kilowatt of the maximum demand supplied in each year, plus

(b) A charge of 0·175d. for each unit supplied.

SABIE UNDERTAKING.

(a) A charge not exceeding £2 per month, plus

(b) A charge of £13 2s. per annum for each kilovolt ampere of the maximum demand supplied in each year, plus

(c) A charge of 0·1d. for each unit supplied.

At the request of and by arrangement with the only two consumers taking supplies of electricity from the Sabie Undertaking, the cost of operating, maintaining and administering the Undertaking, as set out in Section 10 (1) of the Electricity Act, 1922, is, for the time being, being apportioned between the consumers in proportion to the number of units supplied to each consumer month by month.

INDEX TO ANNEXURE "C" (STATISTICAL AND OTHER STATEMENTS).

	Pages
Statement No. 1. —Summary of Principal Plant and Equipment installed at the Commission's several undertakings as at 31st December, 1944	85–87
Statement No. 2. —Summary of Principal Plant and Equipment in course of installation or on order as at 31st December, 1944 ...	88
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ANNEXURE " C. "

Electricity Supply Commission.

STATEMENT No. 1.

Summary of principal plant and equipment installed at the Commission's several Undertakings as at 31st December, 1944:

POWER STATIONS.

Caledon (Cape Town Undertaking)	...	...	Oil
Colenso (Natal Central Undertaking)	...	...	Steam
Congella (Durban Undertaking)	...	...	Steam
Klip	...	...	Steam
Margate (Durban Undertaking)	...	...	Oil
Port Shepstone (Durban Undertaking)	...	...	Oil
Sabie	...	...	Hydro
Salt River (Cape Town Undertaking)	...	...	Steam
Volkstrust (Natal Central Undertaking)	...	...	Oil
Witbank	...	...	Steam

BOILER PLANT.

Power Station.	Number of Boilers.	Normal Rating of each Boiler, lb of steam per hour.	Total Rating of all Boilers, lb of steam per hour.	Pressure p s i
Colenso	{ 8 4 }	{ 60,000 90,000 }	840,000	290
Congella	{ 6 4 }	{ 60,000 100,000 }	760,000	{ 275 300 }
Klip	24	180,000	4,320,000	390
Salt River	{ 2 6 }	{ 60,000 100,000 }	720,000	{ 270 425 }
Witbank	20	70,000	1,400,000	225
Totals	74		8,040,000	

GENERATING PLANT.

Power Station.	No. of Generators	Normal Rating of each Generator.		Rating of Generator House.		Voltage of Generation.	Rating of House Sets. Kilowatts.
		Kilo-watts.	Kilovolt-amperes.	Kilo-watts.	Kilovolt-amperes.		
Caledon ...	1	140	—	140	—	500/250 D.C.	
Colenso ...	{ 5 1	12,000 25,000	13,330 27,800	85,000	94,450	6,600 A.C.	
Congella ...	{ 2 3 1 1	6,000 12,000 20,000 30,000	7,500 15,000 25,000 37,500	98,000	122,500	{ 6,600 A.C. 6,600 A.C. 6,600 A.C. 33,000 A.C.	
Klip ...	12	33,000	41,250	396,000	495,000	10,500 A.C.	28,000
Margate ...	{ 1 1	93 73	110 86	166	196	380/220 A.C.	
Port Shepstone	2	700	875	1,400	1,750	380/220 A.C.	
Sabie ...	3	450	600	1,350	1,800	3,300 A.C.	
Salt River ...	{ 3 3	10,000 20,000	11,000 25,000	90,000	108,000	{ 12,000 A.C. 33,000 A.C.	300
Volkstrust ...	2	250	300	500	600	3,300 A.C.	
Witbank ...	5	20,000	23,500	100,000	117,500	6,600 A.C.	8,000
Totals ...	46			772,556	941,796		36,300

Total Station Capacity: 808.856 kilowatts (including House Sets)

TRANSMISSION LINES AND CABLES.

UNDERTAKING.	88,000 volts. Route Miles.		40,000 volts. Route Miles.		33,000 volts. Route Miles.		22,000, 21,000 20,000 volts. Route Miles.		12,000, 11,000 volts. Route Miles.		6,600, 3,300, 2,200, 2,000 volts. Route Miles.		460/230 and 380/220 volts. Route Miles.		Route Miles. Total
		
Cape Town	305	...	147	144	191	787					
Durban (South Coast)	58	...	28	28	48	162					
Natal Central	547	...	33	67	125	184	82	1,038					
Rand Extension	278	83	...	9	...	43	22	435					
Sabie	7	...	...	1	8					
Witbank	22	...	129	...	31	31	213					
Totals	825	105	396	212	300	430	375	2,643					

STATIC TRANSFORMERS AT POWER STATIONS AND SUB-STATIONS.

(Step-up and Step-down, including Spares.)

Undertaking.						Capacity. Kilovolt-amperes.
Cape Town ...	...	...	...	...	...	164,547
Durban ...	...	...	...	...	...	72,545
Klip ...	...	...	...	...	...	549,133
Natal Central ...	...	...	...	...	...	225,178
Rand Extension ...	...	...	...	...	...	317,865
Sabie ...	...	...	...	...	...	3,640
Witbank (including Reef, 71,890) ...	...	...	...	...	...	262,086
Total ...	...	...	...	...	...	1,594,994

CONVERTING SUB-STATIONS.

Type.			Number of Sub-stations.	Number of Units.	Total Rating.
Motor Generators ...	...	...	14	24	48,000 kW
Rotary Converters ...	...	...	8	15	28,150 kW
Rectifiers ...	...	...	31	†46	*72,337 kW
Totals ...	...	...	53	85	—

† Of these some are equipped for rectifying and inverting—the total inverted rating is 10,000 kW.

* Forward rating.

Electricity Supply Commission.

STATEMENT No. 2.

Summary of principal plant and equipment in course of installation or on order at 31st December, 1944.

BOILER PLANT.

Power Station.	Capacity in lb of steam per hour (Normal rating).			Pressure. p s i
	Number of Boilers.	Each.	Total.	
Congella	5	200,000	1,000,000	625
Vaal	6	190,000	1,140,000	390
			<u>2,140,000</u>	

GENERATING PLANT.

Power Station.	Number of Sets.		Capacity. Each.	Total Kilowatts.
		
Congella	2	...	40,000 kW	80,000
Vaal	{ 5	...	33,000 kW	} 172,500
	{ 1	...	7,500 kW (House Set)	
				<u>252,500</u>

TRANSFORMERS.

(Step-up and Step-down.)

	Kilovolt-amperes.
Total capacity in course of installation or on order	264,274

CONVERTING SUB-STATIONS.

Type.	Number of Sub-stations.	Number of Sets.	Total Rating.
Mercury Arc Rectifiers ...	5	5	9,168 kW Forward

STATEMENT No. 3.

Units sold to all consumers during the past twenty years.

Year.	Cape Town Under- taking.	Durban Under- taking.	Klip Under- taking.	Natal Cent. Under- taking.	Sabie Under- taking.	Witbank Under- taking.	Total.
1925 ...	—	—	—	—	75,943	—	75,943
1926 ...	280,242	—	—	719,666	651,458	160,031,213	161,682,579
1927 ...	5,811,836	—	—	104,206,235	1,938,940	439,061,722	551,018,733
1928 ...	31,038,697	15,563,460	—	114,213,037	2,829,888	464,267,213	627,912,295
1929 ...	47,945,690	78,873,576	—	123,911,774	3,176,173	543,091,138	796,998,351
1930 ...	49,772,016	99,228,000	—	117,075,484	4,585,060	618,951,364	889,611,924
1931 ...	52,109,958	103,899,765	—	101,131,880	6,585,553	603,359,113	867,086,269
1932 ...	64,268,873	109,808,223	—	100,292,933	6,080,010	610,285,123	890,735,162
1933 ...	100,685,629	118,538,312	—	109,186,538	6,349,651	639,368,114	974,128,244
1934 ...	73,583,974	131,104,182	—	124,898,129	7,329,679	648,245,530	985,161,494
1935 ...	80,020,511	149,874,024	—	154,278,600	7,181,282	727,888,529	1,119,242,946
1936 ...	85,840,383	170,493,987	556,997,155	171,476,131	6,863,253	696,376,199	1,688,047,108
1937 ...	94,038,449	189,412,691	1,349,853,464	210,632,827	7,166,684	684,516,633	2,535,620,748
1938 ...	98,801,619	209,495,780	1,666,852,594	234,948,157	7,240,167	768,114,272	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	307,724,141	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

NOTE.—The units sold at Cape Town do not include the units supplied to Cape Town Corporation under the Pooling Agreement.

STATEMENT No. 4.

Distribution of the units sold during 1944 as between the various classes of consumers.

UNITS SOLD, 1944.

Undertaking.	Traction.	Bulk.	Industrial and Mining.	Domestic and Lighting.	Total.
Cape Town ...	59,513,183	24,706,783	57,283,501	17,169,951	158,673,418
Durban ...	—	299,959,723	18,709,332	2,914,482	321,583,537
Klip ...	—	2,703,638,629	—	—	2,703,638,629
Natal Central ...	265,853,759	49,179,301	17,609,225	3,335,153	335,977,438
Sabie ...	—	—	6,723,791	—	6,723,791
Witbank ...	113,774,795	630,531,139	142,933,326	1,966,654	889,205,914
Totals ...	439,141,737	3,708,015,575	243,259,175	25,386,240	4,415,802,727

STATEMENT No. 5.

POWER STATION STATISTICS, 1944.

Power Station.	Units Generated.	Maximum Half-hourly Demand. Kilowatts (Sent Out).	Load Factor on Units Sent Out. Per cent.
Caledon*	—	—	—
Colenso	370,647,930	65,990	60·9
Congella	339,531,800	77,960	46·0
Klip	2,875,664,053	365,310 (Hour)	84·2
Margate	20,990	—	—
Port Shepstone	710,609	1,305	—
Sabie	7,235,100	1,250	65·2
Salt River	131,504,060	55,400	25·0
Volkstrust	7,435	—	—
Witbank	818,436,276	105,939 (Hour)	82·7
	<u>4,543,758,253</u>		

* Caledon not operated during 1944—standby only.

STATEMENT No. 6.

Particulars of coal used at the Commission's Steam-raising Power Stations during 1944.

Power Station.	COAL CONSUMED.			B.Th.U.		Thermal Efficiency on Units Sent Out.
	Tons. (2,000 lb)	Per Unit Generated lb	Per Unit Sent Out. lb	Average per lb. of Coal.	Average per Unit. Sent Out.	
Colenso	265,788	1·434	1·507	12,280	18,510	18·43%
Congella	246,990	1·455	1·566	12,280	19,230	17·74%
Klip	2,382,836	1·657	1·763	9,120	16,080	21·22%
Salt River	104,264	1·586	1·721	11,910	20,500	16·64%
Witbank	713,567	1·744	1·854	10,940	20,280	16·82%
	<u>3,713,445</u>					

Average Cost per Ton (2,000 lbs.).

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Colenso	8/3	9/10	10/7	10/9	10/9	11/-	10/10	10/9	10/11	10/11	11/-	10/11	10/10	10/4
Congella	11/2	15/4	15/6	15/4	15/-	15/5	15/2	15/-	15/3	15/2	15/3	15/2	14/9	14/6
Klip	—	—	—	—	—	3/2	3/-	3/3	3/4	3/6	3/6	3/7	3/9	3/11
Salt River	23/4	24/11	25/4	25/6	25/4	25/4	24/8	25/1	25/6	25/7	25/7	25/3	25/-	23/4
Witbank	2/2	2/4	2/4	2/3	2/3	2/2	2/2	2/1	2/1	2/-	2/-	2/1	2/1	2/4

Electricity Supply Commission.

Statement 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 1944.

(See previous Annual Reports for Rights or Interests in or over Land acquired prior to 1944.)

Farm or Lot.	District.	Title.	Purchase Price or Rental.	Acquired From.	Purpose for which Required.
<u>NATAL CENTRAL UNDERTAKING.</u>					
Subdivision Fels of Subdivision Lichtenstein of Subdivision A of farm Burnside No. 3287 ...	Klip River	Servitude of Right-of-way in Perpetuity	£12 15 0	G. H. H. Schroeder	Power Conductors
Susanna No. 1005 ...	Harrismith	do.	£17 10 0	C. C. J. Bester	do.
Burlesca No. 1199 ...	do.	do.	£23 15 0	M. P. J. van V. van Rooyen	do.
(i) Remainder of Kotze Rust No. 1251, and (ii) Alma No. 1394 ...	do.	do.	£26 5 0	T. G. Corver	do.
(i) Subdivision of Clearwaters No. 1045 ... (ii) Hilary No. 1044 ... (iii) Poona A No. 1200 ... (iv) Remainder of Clearwaters No. 1045 ...	do.	do.	£58 15 0	A. A. Krogman	do.
Carbutdene No. 1171 ...	do.	do.	£35 15 0	J. N. Saayman	do.
Wilverdiend No. 1257 ...	do.	do.	£16 5 0	J. H. P. Potgieter	do.
(i) Remaining Portion Leeuwbank No. 941 ... (ii) The Poplars No. 1617 ... (iii) Frenda No. 1647 ...	do.	do.	£51 5 0	M. H. Wessels	do.
Rietvallei No. 180 ...	do.	do.	£8 15 0	C. Perl	do.
Warden Town Lands No. 1031 ...	do.	do.	£70 5 0	Municipality of Warden	do.
(i) Remainder of Subdivision C of Jordaans Stroom No. 3310 (ii) Remainder of Banagher No. 7359 ...	Klip River	do.	£16 12 6	J. Campbell and four others	do.
Subdivision E.S.C. 2 of Subdivision M.G.E. 1 of Roseneu No. 3212	do.	Crown Grant of 18,157 sq. ft.	£50 0 0	S.A. Railways and Harbours	Staff Quarters
<u>CAPE TOWN UNDERTAKING.</u>					
Portion 9 of Farm Oude Brug A ...	Caledon	Purchase of 20,422 sq. ft.	£25 0 0	Elgin Orchards (Prop.), Ltd.	Substation Site
Lot K Portion of Lot KL of Krom River ...	do.	Servitude of Right-of-way in Perpetuity	£10 11 0	W. F. A. Green	Power Conductors
Erf No. 43, Worcester ...	Worcester	Purchase of 9,408 sq. ft. and residence	£2,300 0 0	N. H. Acker	Engineer's Residence
Portions 8 and R of Palmiet Rivier ...	Caledon	Servitude of Right-of-way in Perpetuity	£9 16 8	Estate late E. I. D. Gordon	Power Conductors
Rank Eillon ...	do.	do.	£1 18 2	J. W. Patell	do.
Remainder of land adjoining Oude Brug ...	do.	do.	£20 5 4	Elgin Orchards (Pty.), Ltd.	do.
(i) Remainder Lot R, Palmiet Rivier (ii) Remainder Lot LK, Krom River ...	do.	do.	£51 17 0	E. B. F. and H. A. Molteno	do.
Portion 59 Onrust River and Rheezicht ...	do.	do.	£18 5 6	D. J. Schneider	do.
Remainder of Portions Goudyn and Boontjes Rivier ...	Worcester	do.	£16 0 2	R. E. le Roux	do.
<u>WITBANK UNDERTAKING.</u>					
Portion 1 of Portion A, Vlaklaagte No. 241 ...	Middelburg	Servitude of Right-of-way in Perpetuity	£40 16 0	A. van Wyk	Power Conductors
<u>DURBAN UNDERTAKING.</u>					
Subdivision 1 of Lot 156, Port Shepstone Township ...	Port Shepstone	Purchase of 7,200 sq. ft.	£250 0 0	S.A. Railways and Harbours	Site for Spray Pond
<u>RAND EXTENSION UNDERTAKING.</u>					
Remaining Portion of C of Rietfontein No. 74 ...	Vereeniging	Servitude of Right-of-way in Perpetuity	£1 12 3 per annum	J. F. J. van Vuuren	Power Conductors
Portion "B" of Rietfontein No. 74 ...	do.	do.	£3 14 6 per annum	G. M. J. van Vuuren	do.
(i) Remaining Portion of Blesboklaagte of Smaldeel No. 51 (ii) Damfontein of Vlakfontein No. 26 ...	do.	do.	£7 0 0 per annum	{ H. I. and H. S. J. van der Merwe and P. L. Bezuidenhout }	do.
Portion 9 of Welverdiend of Kwaggafontein No. 10 ...	do.	do.	£4 1 6 per annum	J. P. van Schalkwyk	do.
Portion F of Blesbokfontein No. 60 ...	do.	do.	£1 5 0 per annum	J. J. Myburgh	do.
Remaining Portion of Portion ABCD, Stillfontein No. 39 ...	Klerksdorp	do.	£0 13 6	A. M. E. Evert	do.
Holding No. 101, Morningside, Zandfontein No. 1 ...	Johannesburg	do.	£5 0 0	M. C. A. Beerstecher	do.
Holding No. 28 Morningside, Zandfontein No. 1 ...	do.	do.	£5 0 0	S. M. Goldby	do.
Remainder Lot 13, Sandown ...	do.	do.	£5 0 0	R. F. Foy	do.
Portion 19 of Witklip No. 13 ...	Springs	do.	£5 0 0	K. P. G. Schoeman	do.
Remainder Portion Witklip No. 13 ...	do.	do.	£1 5 9 per annum	F. J. Potgieter	do.
(i) Remainder Portion Rietfontein No. 33 (ii) Portion A, Lot 6, Rietfontein No. 33 ...	Johannesburg	do.	Nil	H. L. Zinn	do.
Remainder Lot 15, Edenburg 626 ...	Pretoria	do.	£5 0 0	W. D. McKellar	do.
Portion F, Lot 168, Edenburg Township ...	Johannesburg	do.	£5 0 0	F. A. Bustin	do.
Portion Roodepoort No. 18 ...	Roodepoort	do.	Nil	Anglo Vaal Brick and Tile Co.	do.
Klippoortje No. 10 ...	do.	Surface Right Permit	Nil	Department of Mines	do.
Nooitgedacht No. 53 ...	Klerksdorp	do.	Nil	Department of Mines	do.
Witkop No. 46 ...					
Vaalkop No. 119 ...					
<u>VAALE GENERATING STATION UNDERTAKING.</u>					
Subdivisions 4 and 5 of Bankfontein No. 9 ...	Heilbron	{ Purchase of 236,6449 morgen 500,8589 acres }	£5,008 13 8	Vereeniging Estates Ltd.	Power Station Site
Subdivisions 1, 3 and 4 of Zandfontein 259 ...	do.	Servitude of Right-of-way in Perpetuity	£250 0 0	do.	Power Conductors and Water Pipe Lines

ANNEXURE " D. "

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

Extracted from the 1942/43 Industrial Census, and published by courtesy of the Department
of Census and Statistics (Pretoria).

UNITS GENERATED.

Province.	Local Authorities.	Other Producers.
Cape	612,206,970	198,623,335
Natal	20,200,988	806,619,973
O.F.S.	44,453,259	18,284,066
Transvaal	650,357,321	5,349,004,350
Total	1,327,218,538	6,372,531,664
	7,699,750,202	

CONSUMERS AND SALES.

	PROVINCE.					Totals.
	Cape.	Natal.	O.F.S.	Transvaal.		
Total Number of Consumers	144,595	56,817	15,827	157,680		374,919
Total Units Consumed ...	691,281,193	704,667,021	75,380,875*	5,167,034,767		6,638,363,856
Number of Domestic Consumers	126,481	43,396	14,042	133,449		317,368
Units Sold and Used for Domestic Consumption	340,646,512	144,724,135	14,547,373	346,032,985		845,951,005
Average Units Sold per Domestic Consumer	2,693	3,335	1,036	2,593		2,666

* Some of these units were generated in Natal and Transvaal.

**STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY
IN THE UNION OF SOUTH AFRICA—(Continued).**

INSTALLED CAPACITY OF PLANTS.

Capacity.	Number of Power Stations.	Total Installed Capacity—Kilowatts.
50,000 kilowatts and over	13	1,426,000
20,000 kilowatts and over and below 50,000 kilowatts	3	173,000
10,000 kilowatts and over and below 20,000 kilowatts	5	76,600
5,000 kilowatts and over and below 10,000 kilowatts	6	46,977
1,000 kilowatts and over and below 5,000 kilowatts	39	80,092
Below 1,000 kilowatts	248	54,913
	<u>314</u>	<u>1,857,582</u>

SIZE AND TYPE OF GENERATING UNITS.

Size of Sets.	Steam Turbines.	Steam Recip- rocating Engines.	Diesel Petrol, Paraffin, Light Oil Engines.	Gas Engines.	Water Wheels and Turbines.	Total Number of Sets.
(1) A.C. Plants:						
Below 250 kilowatts	2	79	322	7	28	438
250 kilowatts and over, but below 1,000 kilowatts	30	65	18	7	11	131
1,000 kilowatts and over, but below 5,000 kilowatts	77	—	—	—	—	77
5,000 kilowatts and over	91	—	—	—	—	91
(2) D.C. Plants:						
Below 250 kilowatts	—	35	167	9	—	211
250 kilowatts and over, but below 1,000 kilowatts	1	9	1	3	—	14
1,000 kilowatts and over, but below 5,000 kilowatts	1	—	—	—	—	1

FUEL CONSUMED.

Type of Fuel.	Quantity. (Tons of 2,000 lb).	Coal.
Coal	6,643,550	£2,512,367
Other Fuel	—	£224,096

**STATISTICS RELATING TO THE PRODUCTION AND SUPPLY OF ELECTRICITY
IN THE UNION OF SOUTH AFRICA.—(Continued).**

COAL CONSUMPTION.

(Calorific Values Unknown.)

Average Coal Consumption per Unit Generated.	Number of Undertakings.
Under 2 lb 	16
2 lb and over, but under 3 lb 	20
3 lb and over, but under 4 lb 	15
4 lb and over, but under 6 lb 	19
6 lb and over, but under 8 lb 	9
8 lb and over 	20

TRANSFORMERS.

Total installed capacity 	7,738,571 kVA
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Total value of land, buildings, machinery, plant and tools 	£54,504,733
Total number of persons employed in the electricity industry (generation and distribution) 	16,078
Total salaries and wages paid for the year 	£3,166,486