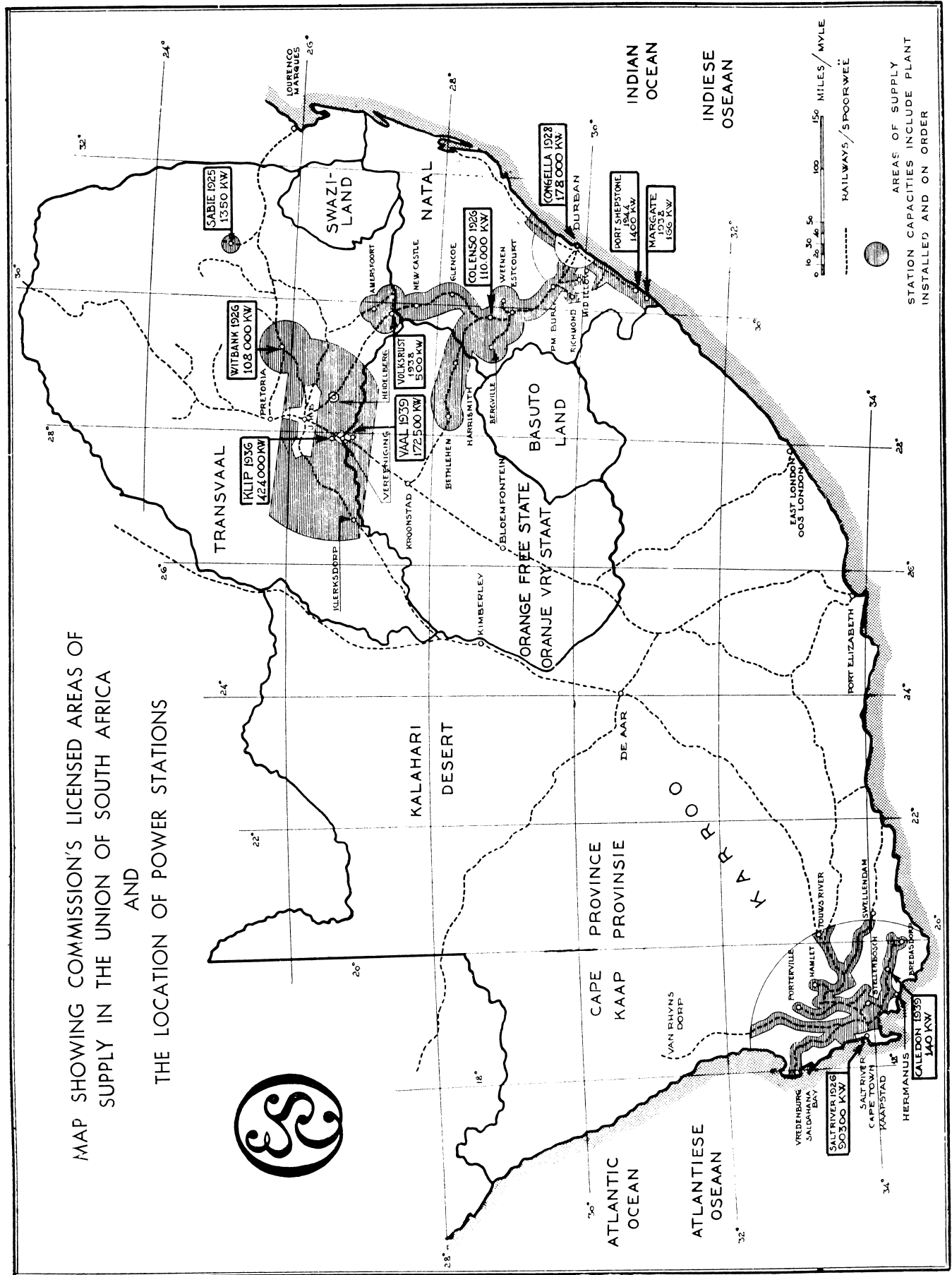


MAP SHOWING COMMISSION'S LICENSED AREAS OF SUPPLY IN THE UNION OF SOUTH AFRICA AND THE LOCATION OF POWER STATIONS



AREAS OF SUPPLY  
STATION CAPACITIES INCLUDE PLANT  
INSTALLED AND ON ORDER

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.

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Escom House,  
Rissik Street,  
Johannesburg,

18th June, 1946.

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-third Annual Report, covering its operations for the year ended 31st December, 1945, together with a brief review of its activities up to 30th April, 1946.

## GENERAL.

### Electricity Demands.

In South Africa the end of hostilities found the power supply industry severely handicapped by shortages of generating capacity and distribution equipment to meet the widespread demand for electricity for the pent-up requirements of mining, industrial and domestic consumers. Numerous requests for new or extended supplies were received by the Commission during the period under review. Many enquiries came from towns and villages remote from any of the Commission's existing power stations or supply systems. Some of them have no power stations of their own at present and others have outgrown the capacity of their existing plants. The Commission's own power stations are, for the greater part, already operating at marginal capacity.

During the war the Allied Governments permitted the priority manufacture of plant for export only for projects which would further the national war effort. Consequently, when the authorities lifted the controls, overseas manufacturers were inundated with an accumulation of orders, not only from their home markets but also from abroad. When it is borne in mind that, even under normal conditions, the manufacture of generators of the size required by

the Commission takes upwards of two years, it will be clear that no early improvement in the present position can be expected.

Apart from the shortage of plant and materials, there is also a great scarcity of skilled labour to undertake any new development work. In addition, prices have risen to such an extent as to make the supply of electricity to isolated small communities economically impracticable for the time being.

While the Commission is fully alive to its statutory obligation to provide a cheap and abundant supply of electricity wherever required and has constantly made every endeavour to do so, the present abnormal conditions make it extremely difficult, and in some cases impossible, to meet all the demands made upon it. It should, moreover, be borne in mind that the 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, are still in force and, in the allocation of the limited resources, priority is naturally given to schemes of national importance.

In its preceding Report the Commission sounded a warning that tariff increases might be unavoidable during the next few years as the result of increased costs. The Commission did not increase any of its charges during the year under review; but, due to the rising costs of plant, material, stores and labour, some of the Commission's Undertakings operated at a loss, and the net result of the year's working on all Undertakings was a deficit of £17,123. The Commission's Durban Undertaking was mostly affected and certain adjustments to the tariffs of that Undertaking will, therefore, be necessary during the ensuing year. This point is being dealt with more fully in the review of the operations of the Durban Undertaking in this Report.

It should be borne in mind that the Commission is required by statute to carry on its Undertakings, as far as practicable, neither at a profit nor at a loss, or, in other words, at cost, and to adjust its charges accordingly from time to time. The fact that while the prices of most other commodities increased very substantially, the Commission did not increase its tariffs during the war period, and that the increase now contemplated will be the first since the establishment of any of its Undertakings nearly 20 years ago, must be regarded as highly satisfactory.

## PLANT CAPACITY.

The aggregate of installed plant capacity in the main power stations owned by the Commission as at 31st December, 1945, was 872,650 kilowatts. In addition, 2,206 kilowatts of generating plant are installed in four small standby diesel stations at various centres. Plant under construction or on order will increase the total to 1,085,856 kilowatts.

A further major plant extension was decided upon subsequent to the period covered by this Report, and other schemes involving additional generating units are under consideration.

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 2,685 route miles of transmission lines and cables, and the installed transformer capacity is 1,861,106 kVA. Its licensed area of supply throughout the Union covers approximately 34,369 square miles.

An application for an extension of the Commission's area of supply, which will cover an additional 18,000 square miles (approximately) and will include the new goldfields in the Orange Free State, will shortly be made to the Electricity Control Board.

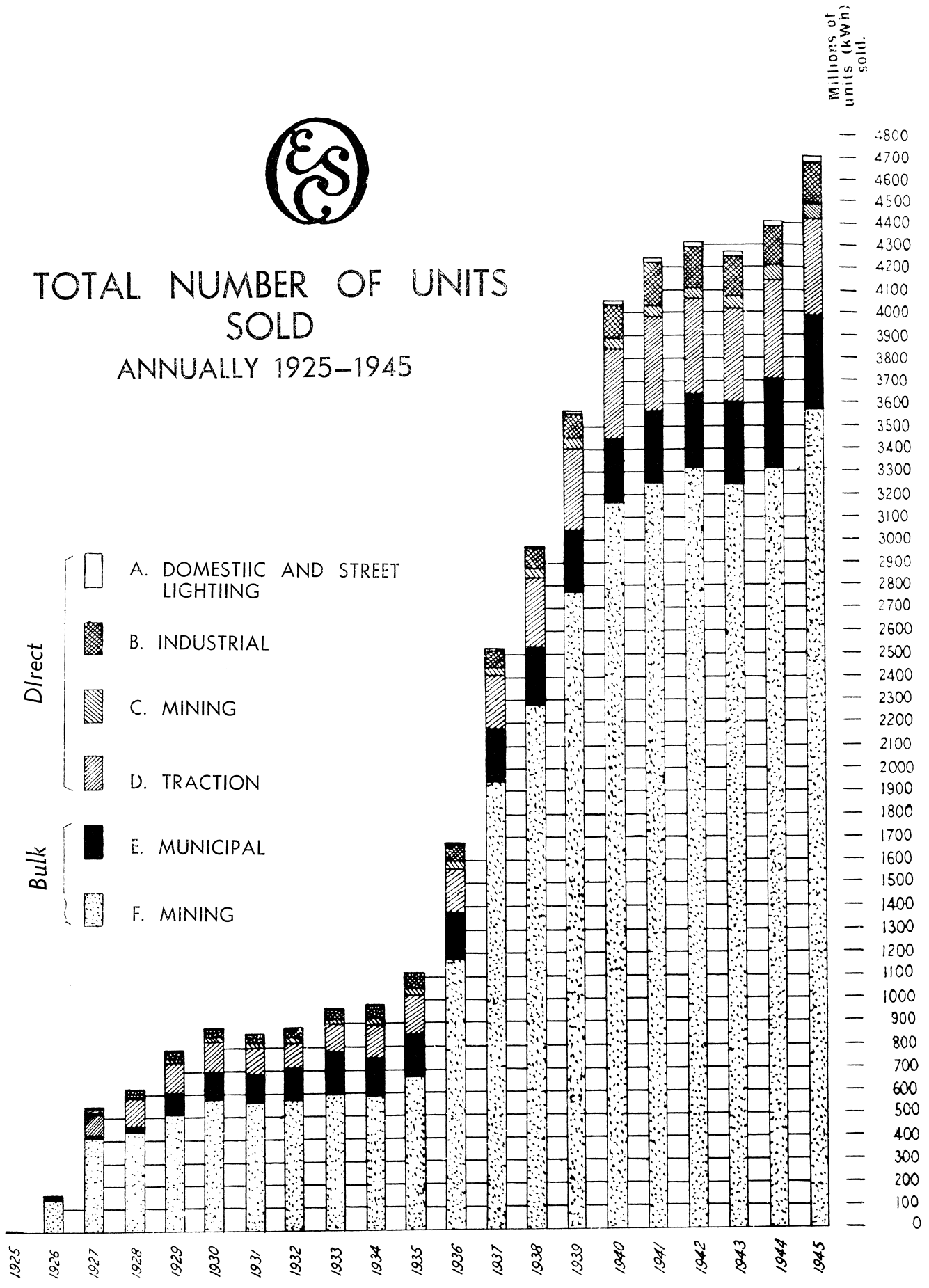
## TARIFFS.

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.



# TOTAL NUMBER OF UNITS SOLD ANNUALLY 1925-1945



## OUTPUT AND SALES.

The output of electricity from the Commission's power stations in 1945 established a new record total of 4,861,401,741 units. This exceeded the previous year's total by 317,643,488 units, or 6.99 per cent. The increase was largely due to the commencement of operation of the Vaal Generating Station during the year.

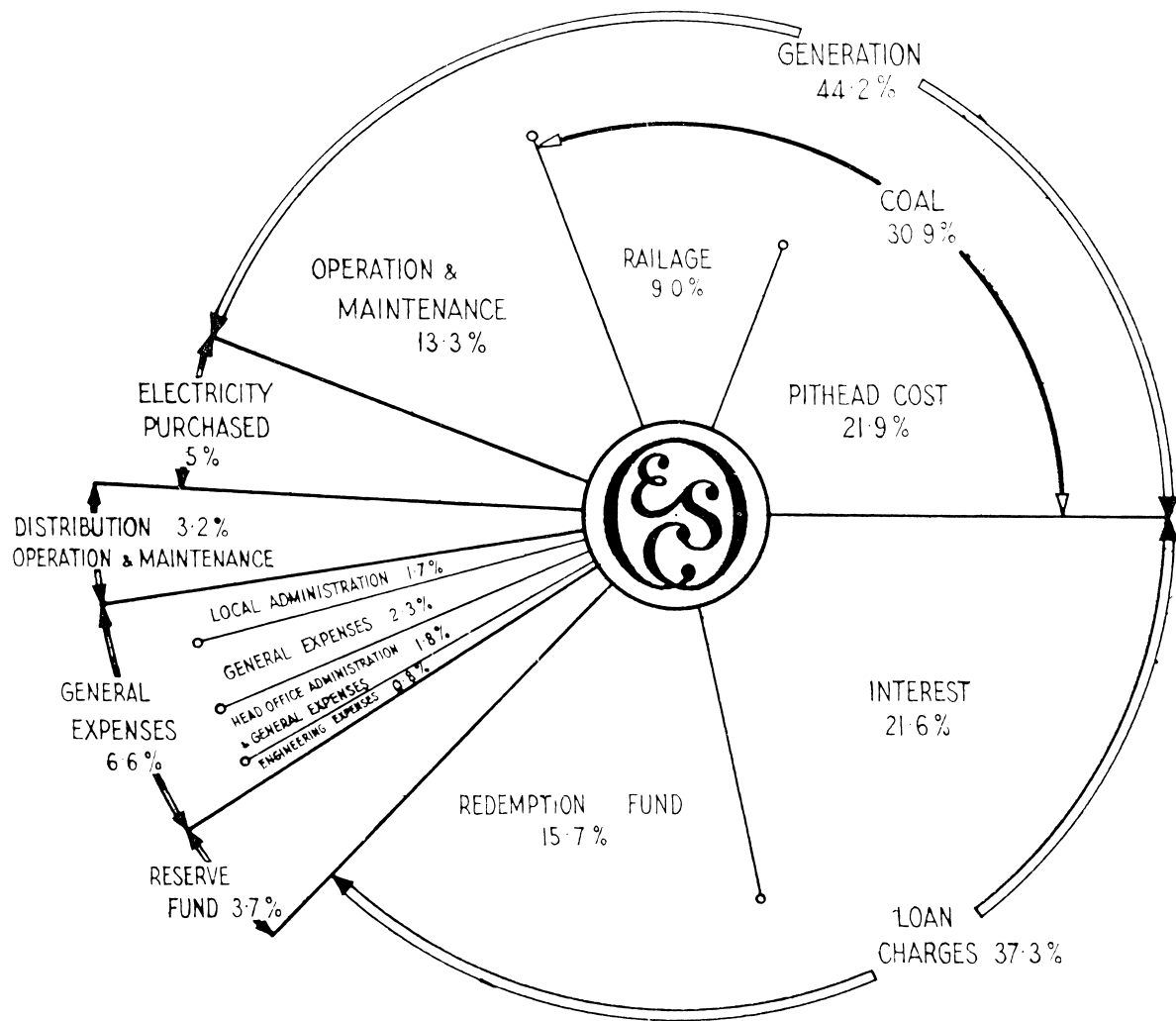
In the aggregate, sales of electricity generated in power stations owned by the Commission and purchased from other sources for consumers supplied by the Commission increased during the year by 6.573 per cent. to 4,706,064,504 units; but for reasons mentioned under the appropriate headings of this Report, sales declined at certain Undertakings, as shown hereunder:—

Undertaking.	Units Sold during 1945.	Compared with 1944.	
		Units.	Percentage.
Cape Town ... ..	165,857,610	+ 7,184,192	+ 4.53
Durban ... ..	348,740,929	+ 27,157,392	+ 8.44
Klip ... ..	2,643,039,705	- 60,598,924	- 2.24
Natal Central ... ..	333,192,760	- 2,784,678	- 0.83
Sabie ... ..	6,596,859	- 126,932	- 1.89
Vaal ... ..	377,902,035	—	—
Witbank ... ..	830,734,606	- 58,471,308	- 6.58
Totals ... ..	<u>4,706,064,504</u>	<u>+ 290,261,777</u>	<u>+ 6.573</u>

Units sold in 1945 to the various classes of consumers and the comparison with the previous year's sales are shown in the following table:—

Class of Supply.	1945.	Compared with 1944.
Bulk Supplies:		
Mining, etc. ... ..	<b>3,575,164,124</b>	+ 7.55 %
Municipal ... ..	<b>410,410,112</b>	+ 6.96 %
Direct Supplies for:		
Traction ... ..	<b>435,471,578</b>	- 0.84 %
Mining ... ..	<b>66,535,441</b>	+ 5.23 %
Industrial ... ..	<b>189,907,018</b>	+ 5.49 %
Domestic and Street Lighting ... ..	<b>28,576,231</b>	+ 12.57 %
	<u><b>4,706,064,504</b></u>	<u>+ 6.573%</u>

SUB-DIVISION OF  
**TOTAL PRODUCTION COSTS**  
 FOR THE YEAR 1945



“ Bulk Supplies for Mining, etc., ” represents practically the whole output of the Commission’s Klip and Vaal Power Stations and a large proportion of the output of its Witbank Power Station. These stations supplied approximately 67·5 per cent. of the 5,883 million units of electricity consumed by the gold mining and other industries and municipalities along the Witwatersrand during 1945.

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 21 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.

The amount in the Reserve Fund at 31st December, 1945, stood at £2,198,666, and the Redemption Fund at that date amounted to £6,238,398, 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, 1945, was £8,768,685, the nominal value being £8,779,464. The market value of these investments at that date was £9,150,076.

**Assets  
and  
Liabilities.**

The Commission's total assets at 31st December, 1945, amounted to £34,443,649, and its total liabilities to £25,896,637, the excess of assets (as shown on the Balance Sheet) over liabilities being £8,547,012. A graph showing the growth of assets and liabilities since 1923 is reproduced on the opposite page.

Revenue, production costs and other important figures relating to the operation of the Commission's Undertakings during the year 1945, with the comparative figures for 1944, are as follows:—

	1945.	1944.	Difference.
Revenue as per Revenue Account ...	<b>£3,770,631</b>	£3,353,508	+ 12·44%
Total Production Costs (including interest redemption and reserve fund charges ... ..)	<b>£3,787,754</b>	£3,345,681	+ 13·21%
Excess of Production Costs over Revenue ... ..	<b>£17,123</b>	(Surplus) £7,827	- £24,950
Net Revenue ... ..	<b>*£3,753,660</b>	*£3,321,870	+ 13·00%
Average price per unit sold ...	<b>*0·1862d.</b>	*0·1755d.	+ 6·10%
Average revenue per units sold (including Sundry Revenue) ...	<b>*0·1912d.</b>	*0·1805d.	+ 5·94%
Average cost per unit sold ...	<b>0·1930d.</b>	0·1818d.	+ 6·14%
Total cost of coal consumed (including Railage) ... ..	<b>£1,169,445</b>	£987,141	+ 18·47%
Railage on coal consumed ... ..	<b>£340,032</b>	£291,942	+ 16·47%
Coal consumed (in tons of 2,000 lbs.)	<b>4,010,683</b>	3,713,445	+ 8·00%

\* After deducting further adjustments of £16,971 in 1945 and £31,638 in 1944, shown in lower sections of the Revenue Accounts of the Witbank Undertaking.

A diagram showing the sub-division of the Commission's total production costs for the year 1945 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, in terms of the 1941 amendment to the Electricity Act, totalled £32,440 at 31st December, 1945, of which amount £17,859 had been repaid at that date.

Greater advantage of the facilities available to employees under this Scheme will undoubtedly be taken by them when the prices of properties and building material are more reasonable and building restrictions are relaxed or removed.

## Personnel

The staff employed by the Commission as at 31st December, 1945, numbered 1,531, made up as follows:—

Europeans (including 12 on Active Service)	...	...	707
Non-Europeans (including 3 on Active Service)	...	...	824
			<hr/>
			1,531
			<hr/> <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.

Acknowledgments have been made in previous Reports of the Commission's appreciation of the unremitting and highly successful efforts of its employees in maintaining vitally important supplies of electricity under difficult conditions throughout the war period. It was felt, however, that recognition of their loyal and zealous services merited expression in a more tangible form, and the Commission was pleased, therefore, on the victorious conclusion of hostilities to grant to all European employees who remained in its service and also to those who served with the Armed Forces or were employed on other war work a gratuity based on one-eighth per cent. of salaries for each month of service during the period 1st September, 1939, to 31st August, 1945, the maximum gratuity being 9 per cent. of annual salary at the latter date. Non-European employees were granted gratuities ranging from 10s. for those with from three to six months' service up to £8 for those who had served the full period.

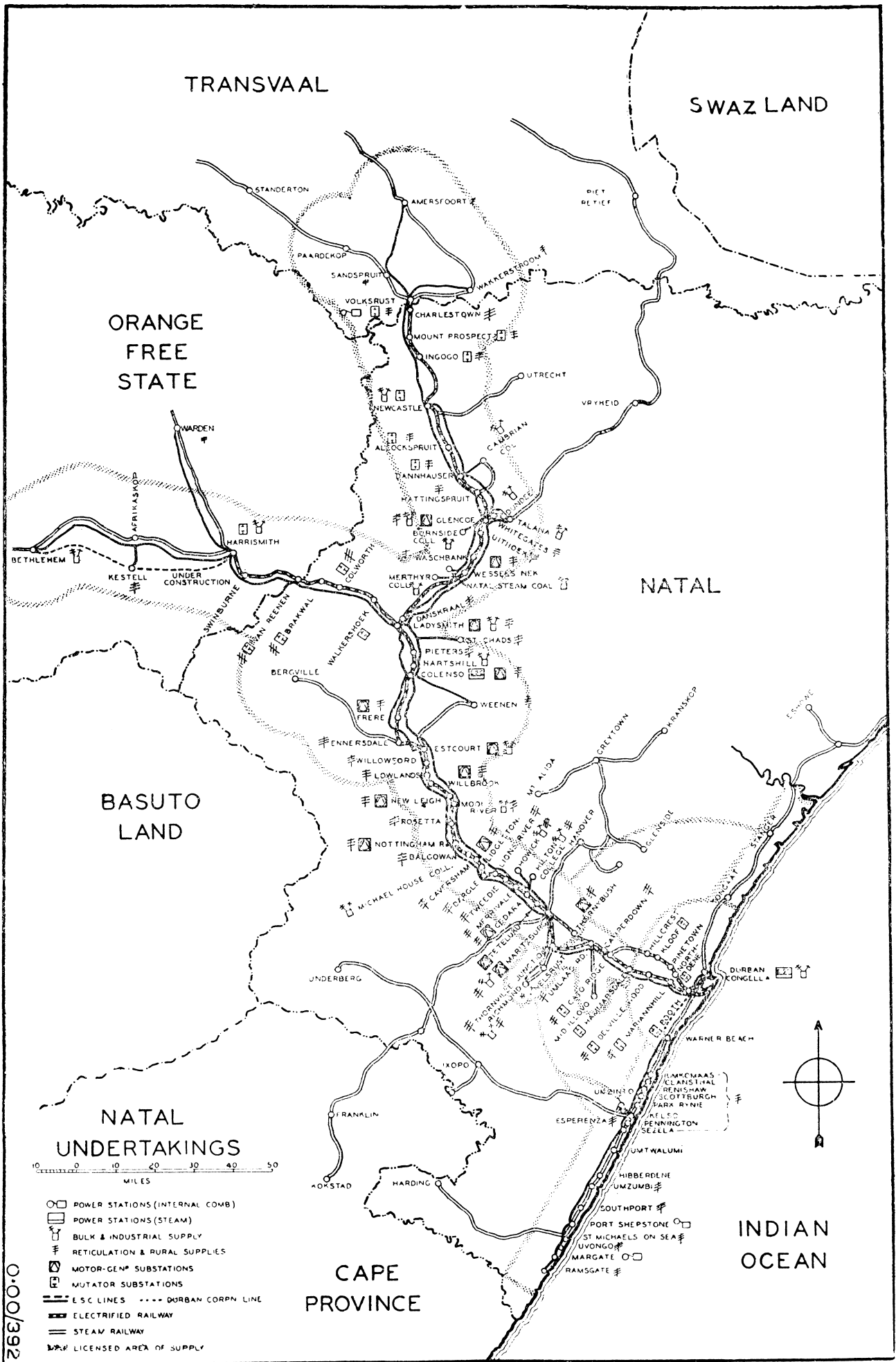
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COMMISSION'S UNDERTAKINGS.

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.]

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TRANSCVAAL

SWAZ LAND

ORANGE  
FREE  
STATE

NATAL

BASUTO  
LAND

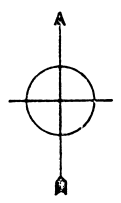
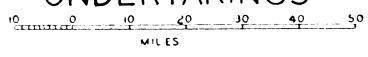
NATAL  
UNDERTAKINGS

CAPE  
PROVINCE

INDIAN  
OCEAN

0.00/392

- ☐ POWER STATIONS (INTERNAL COMB)
- ☐ POWER STATIONS (STEAM)
- ☐ BULK & INDUSTRIAL SUPPLY
- ☐ RETICULATION & RURAL SUPPLIES
- ☐ MOTOR-GEN<sup>r</sup> SUBSTATIONS
- ☐ MUTATOR SUBSTATIONS
- E. S. C. LINES    - - - - DUBBAN CORPN. LINE
- == ELECTRIFIED RAILWAY
- == STEAM RAILWAY
- ☐ LICENSED AREA OF SUPPLY





## NATAL CENTRAL UNDERTAKING.

Colenso  
Power  
Station  
Extensions.

The extensions referred to in the previous Report, forming the first unit of what is virtually a new power station, and comprising one 25,000 kW turbo alternator and two 180,000 lbs. per hour boilers with two cooling towers and the necessary ancillaries, are well in hand.

Excellent progress has been made with the civil works, and the turbine house steelwork, which was commenced less than twelve months ago, is almost completely erected.

Delivery of the turbine and boilers has been promised for late 1946, and present indications are that the new plant should be in service by the end of 1947.

Harrismith-  
Bethlehem  
88 kV  
Line  
Recon-  
struction.

Work on the new 88 kV line on reinforced concrete pylons from Harrismith to Bethlehem continued uninterrupted throughout the period under review. The pylons have been completed, and the work of stringing the conductors was nearing completion at the date of this Report.

Conversion  
of Glencoe-  
Newcastle  
line from  
33 kV to  
88 kV.

In pursuance of the Commission's policy to remove all 88 kV lines in Natal from their existing routes along the railway track, work has been started on the provision of an 88 kV line between Glencoe and Newcastle on a cross-country route. This is to be accomplished by the conversion of the existing 33 kV line between these points to 88 kV operation and the establishment of 88 kV distribution substations at Newcastle and Dannhauser en route.

A duplicate 88 kV cross-country line from Glencoe to Newcastle will also be erected before removing the existing 88 kV line along the railway track.

Supply to  
Newcastle  
Municipality.

An agreement is being negotiated with the Newcastle Municipality, at present a bulk consumer, whereby the Commission will take over the distribution system and the supply of electricity in the borough.

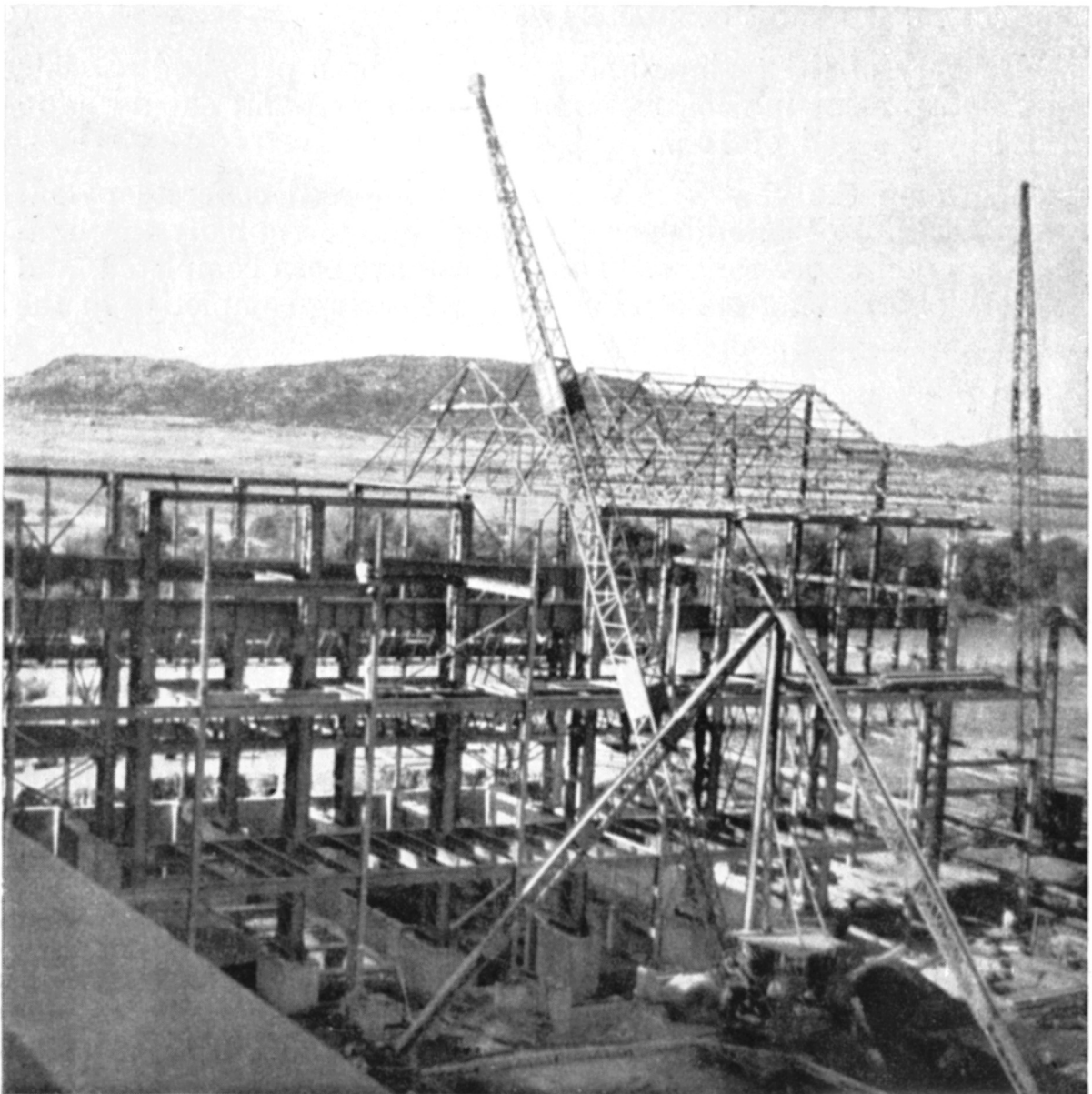
The new substation at Newcastle will supply the borough as well as large industrial consumers which are being established in the area.

Railway  
Electri-  
fication:  
Rosburgh-  
Hillcrest.

Work was held up on the Rosburgh-Hillcrest railway electrification scheme during 1945, as it was more important to use the available labour force on the Ladysmith-Harrismith section; but it is proposed to recommence erection work towards the end of 1946.

Ladysmith-  
Harrismith  
Section.

In order to improve operating conditions on the traction system, it was decided in 1939 to provide three additional rectifier substations on the Ladysmith-Harrismith section at Brakwal, Walkershoek and Swinburne respectively. This scheme involved redistribution and modification of the existing rectifier equipment and the installation of a certain amount of new equipment. Owing to war conditions, progress has, however, been very slow.



The steel framework of the turbine house and auxiliary bay now in course of erection at the Colenso Power Station.

The new substation at Brakwal was commissioned in December, 1941; but it was not until November, 1945, that the Walkershoeck substation was completed and put into service.

The necessary changes at Van Reenen substation have been completed, and at present modification of the equipment at Colworth substation is in progress. It is anticipated that this work will be completed in the near future.

On completion of Colworth substation, the portable rectifier equipment temporarily in use there will be installed at Swinburne where the new substation is expected to be ready for service towards the end of 1946 and the scheme will then be complete.

**Capital Expenditure.**

The capital expenditure on the Natal Central Undertaking during the year amounted to £78,077, bringing the total as at 31st December, 1945, up to £4,593,190.

**Output.**

The units sent out from Colenso Power Station in 1945 totalled 357,961,710, an increase of 1.48 per cent. over the output for the previous year.

**Sales.**

The total sales of electricity from the Undertaking for the year amounted to 333,192,760 units and shows a decline of 0.83 per cent. by comparison with the previous year's sales. Traction supplies were down by 3.5 per cent.; but sales to all other classes of consumers show an increase. Electricity supplied to the Durban Undertaking under the interchange arrangements amounted to 4,198,100 units in 1945 as against 392,600 in 1944. These units are not included in the total sales.

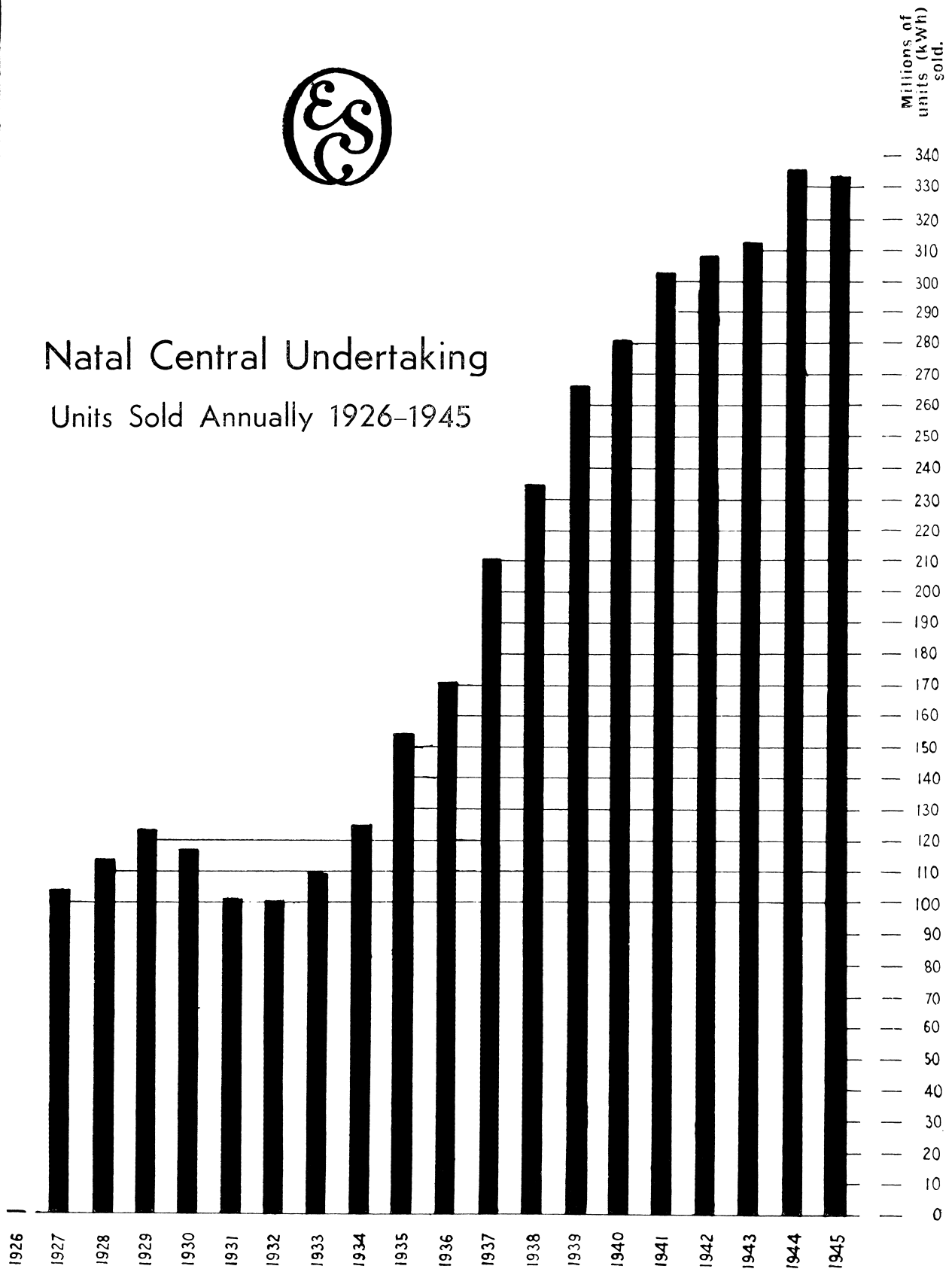
Sales to the various classes of consumers, the corresponding revenue and the average price per unit sold are summarised hereunder:—

Consumers		Sales.		Revenue	Average Price per Unit Sold	
Class	No.	Units	Increase or Decrease		1944	1945
			%	£	d.	d.
Traction ... ..	1	256,559,011	- 3.50	432,819	·3910	·4049
Bulk ... ..	11	51,986,183	+ 5.71	111,994	·5065	·5170
Industrial ... ..	197	20,980,566	+19.15	54,359	·6457	·6218
Domestic and Lighting ...	1,973	3,667,000	+ 9.95	29,111	1.9694	1.9052
	<u>2,182</u>	<u>333,192,760</u>	<u>- 0.83</u>	<u>628,283</u>	<u>·4370</u>	<u>·4526</u>



# Natal Central Undertaking

Units Sold Annually 1926-1945



Of the total number of consumers supplied by the Undertaking at 31st December, 1945, 138 comprised farm connections.

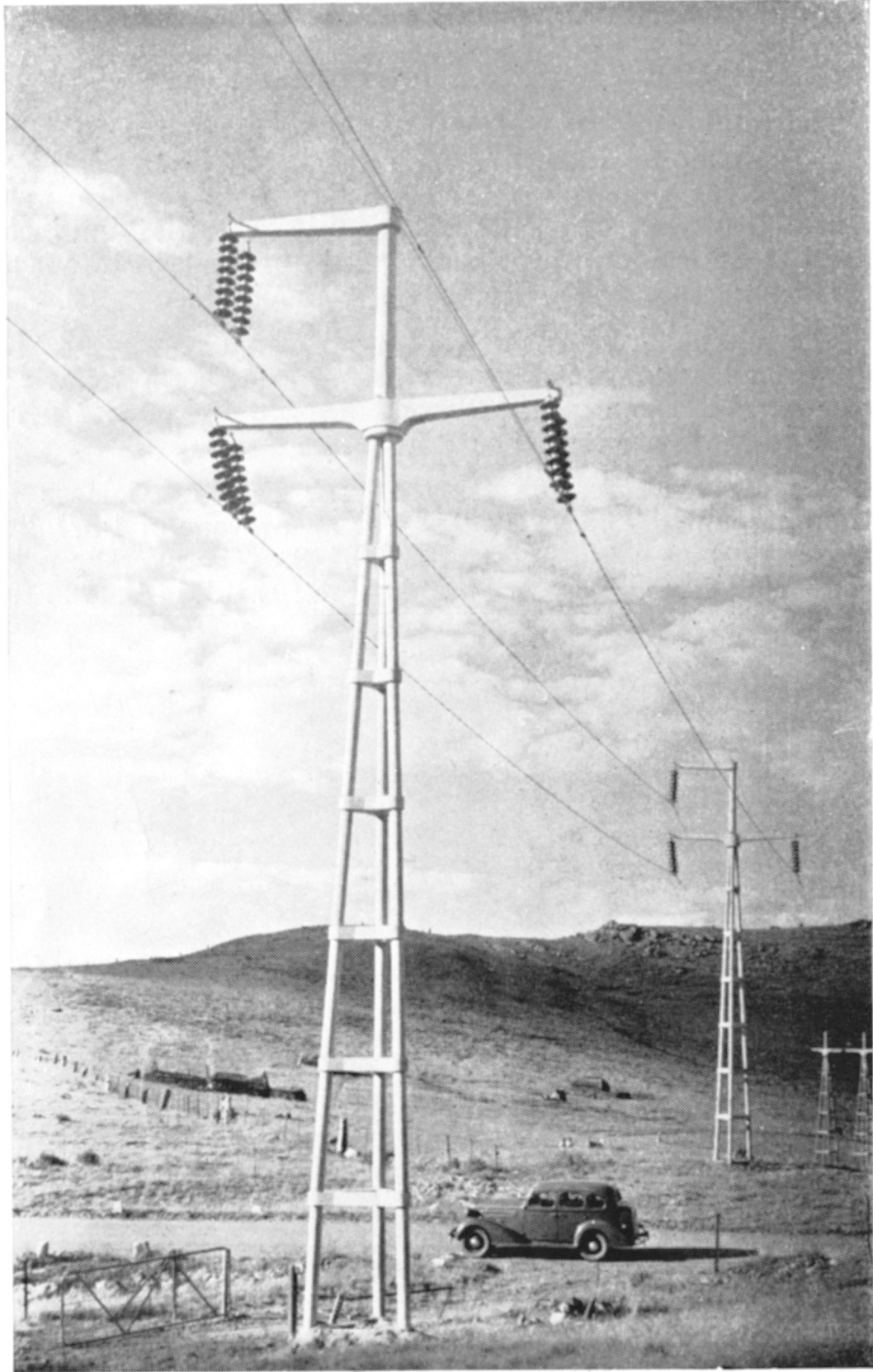
Working  
Results.

The total working costs for the year amounted to £637,863 and the revenue to £636,417. The deficit of £1,446 on the year's working of the Undertaking reduced the brought forward surplus to £22,511, after charging £7,051 for war gratuities and including a credit of £6,188 for a provision made in previous years for anticipated expenditure which is no longer required.

The maximum half-hourly demand sent out was 68,510 kW and the load factor was 59·6 per cent. The thermal efficiency of the power station on units sent out dropped from 18·43 per cent. in 1944 to 17·82 per cent. in 1945.

Coal Con-  
sumption.

The coal consumption for the year 1945 at Colenso Power Station amounted to 281,267 tons (or an average of 1·571 lbs. per unit sent out) at a total cost of £150,142. The average price per ton of coal delivered increased by 4d. from 10s. 4d. in 1944 to 10s. 8d. in 1945.



The concrete pylons used on the new 88 kV line between Harrismith and Bethlehem. At the date of this Report the work of stringing the conductors was nearing completion.

## WITBANK UNDERTAKING.

Coal mining activities in the Witbank area have continued to expand and the Commission has in hand a large construction programme in order to meet the power requirements of the industry.

The 21 kV line on wooden poles from Navigation substation to a new colliery (Honingskrans) on the farm Klipfontein was—owing to late delivery of line material—only recently completed.

The gap between Phoenix and Springbok collieries has been closed by erecting a steel hexagonal pole line between these points. This provides duplicate supply facilities for each of the mines on the loop from Landau No. 3 shaft via Wolwekrans, Bosmanskrans (new Douglas) and Springbok to Phoenix.

Three additional mines—Albion, Tavistock and South Witbank—are about to open up beyond this loop line, and a subsidiary loop to supply these mines is being arranged between Phoenix and Springbok substations.

The feeders supplying this coal mining area are gradually becoming overloaded, and it has now been decided to build a new feeder, about 25 miles long, from the power station 21 kVA busbars to a convenient point in the neighbourhood of Springbok to tie in with the existing and the contemplated supply lines.

In view of the heavy loading in sight and to provide for development, the new feeder will operate at 88 kV with suitable step-up 21/88 kV transformers at or near the power station and 88/21 kV step-down transformers at the tie-in point. With the advent of this line, improvement in the protection of the loop will result in greater supply security.

Negotiations for the supply of electricity to Bethal have been proceeding for some time, and it is hoped that an agreement in this connection will shortly be finalised.

Negotiations for a supply to Kinross are also proceeding.

A diagram of the transmission system of the Witbank Undertaking is reproduced on page 24.

Delivery of the rectifier equipment for the substation at Elandsfontein was completed during November, 1945, and erection was put in hand early in December. The substation commenced commercial operation on 15th April, 1946.





No further work has been carried out on the substations at Krugersdorp and Maraisburg as the rectifier equipments for these substations are still in use at Maitland in the Cape.

## Output.

The units sent out from the Witbank Power Station during 1945 totalled 709,541,784, which, compared with the previous year's output, shows a decrease of 7·84 per cent.

## Sales.

Sales of electricity from the Witbank Undertaking amounted to 830,734,606 units for the year, including 117,537,347 units purchased by the Commission from The Victoria Falls and Transvaal Power Co., Ltd., and the Pretoria Municipality for railway traction supplies for the Reef and Pretoria electrification systems. This total is 58,471,308 units, or 6·58 per cent. lower than that for 1944, due largely to easing load for maintenance purposes which was conveniently arranged by transferring load to the new Vaal Power Station, and also to the fact that the Pretoria Municipality had ceased to take a standby supply from this Undertaking during the year.

Bulk sales to the Falls Company represented 66·71 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.

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

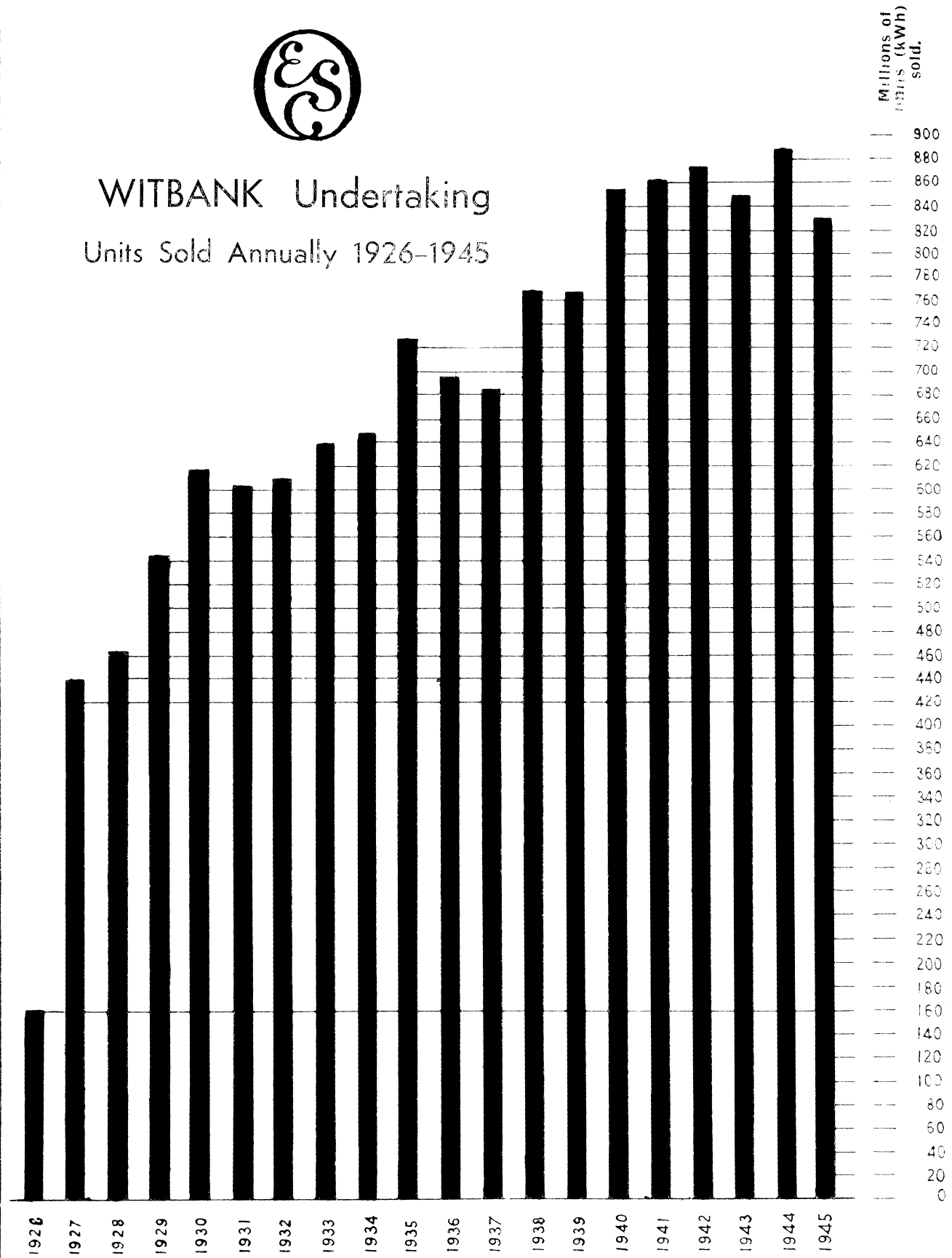
Consumers Class	No.	Sales.		Increase or Decrease %	Net Revenue £	Average Price per Unit Sold	
		Units				1944 d.	1945 d.
Traction	1	117,537,347		+ 3·31	194,308	-3920	-3968
Bulk	2	559,710,890		- 11·23	238,183	-0938	-1021
Industrial	84	151,305,969		+ 5·86	125,088	-1711	-1984
Domestic and Lighting	993	2,180,400		+10·87	8,371	-8309	-9214
	1,080	830,734,606		- 6·58	565,950	-1460	-1635

Capital  
Expen-  
diture.

The capital expenditure on this Undertaking as at 31st December, 1945, was £2,739,462.



WITBANK Undertaking  
Units Sold Annually 1926-1945



Working  
Results.

The working costs for the year amounted to £592,191, and the net revenue, after allowing for one-half of the rebate to consumers in the Local and Municipal Supplies Section of the Undertaking, totalled £592,431, leaving a surplus of £240 on the year's working. The remaining one-half of the rebate, amounting to £16,971, and war gratuities £1,378, were deducted from the accumulated surplus which was reduced to a credit balance of £19,218 at the year-end.

The maximum hourly demand sent out was 100,966 kW and the load factor was 80·2 per cent. The thermal efficiency on units sent out was 17·02 per cent.

Coal Con-  
sumption.

The coal consumption for the year 1945 at Witbank Power Station amounted to 642,227 tons (or an average of 1·810 lbs. per unit sent out) at a total cost of £73,653. The average price per ton of coal consumed during the year remained unchanged from that for the previous year at 2s. 4d., which includes the cost of haulage by the Commission's own locomotives and trucks from adjoining collieries.



## CAPE TOWN UNDERTAKING.

Pooled  
Stations.

The Cape Town City Council's Table Bay Power Station operated throughout the year as the base load station under the "Pooling" arrangements with the Council, and the Commission's Salt River Power Station was called upon to meet only 22.7 per cent. of the electricity requirements of the whole system.

Table Bay  
Extensions.

Orders for all the major items of work connected with the Table Bay Power Station extensions had been placed by the end of 1945 and most of the sub-foundation work had been completed at that date. The present indications are, however, that it will not be possible to have the new plant ready for service by the winter of 1947 as was planned in the first instance.

New  
Circulating  
Water Intake  
Duct.

The heavy seas usually experienced during the winter storms at the Cape have affected the intake duct of the new circulating water system supplying the Salt River Power Station. Scouring action of waves and currents on the sand, which previously formed a barrier between a section of the new intake duct and the sea, have exposed the duct to direct impact by waves, requiring it to act as a sea-wall—a purpose for which it was not designed. The extent of the scouring which had taken place by the winter of 1945 necessitated extensive protective measures to prevent serious damage during the next stormy season. This work will shortly be completed and involved the deposition of a stone rubble berm on which concrete blocks, weighing from 6 to 11 tons each, have been dumped for a distance of about 300 feet to form a protective apron.

Another difficulty was faced when, as the result of the greater use being made of the Duncan Dock by ships using oil for fuel, quantities of surface oil floated in with the water through the hollow mole intake to the screens at the new pump house. The nuisance was overcome first by means of floating wooden boards at the screens and subsequently by a fixed submerged boom across the intake duct whereby water enters the duct at a depth of several feet below the surface.

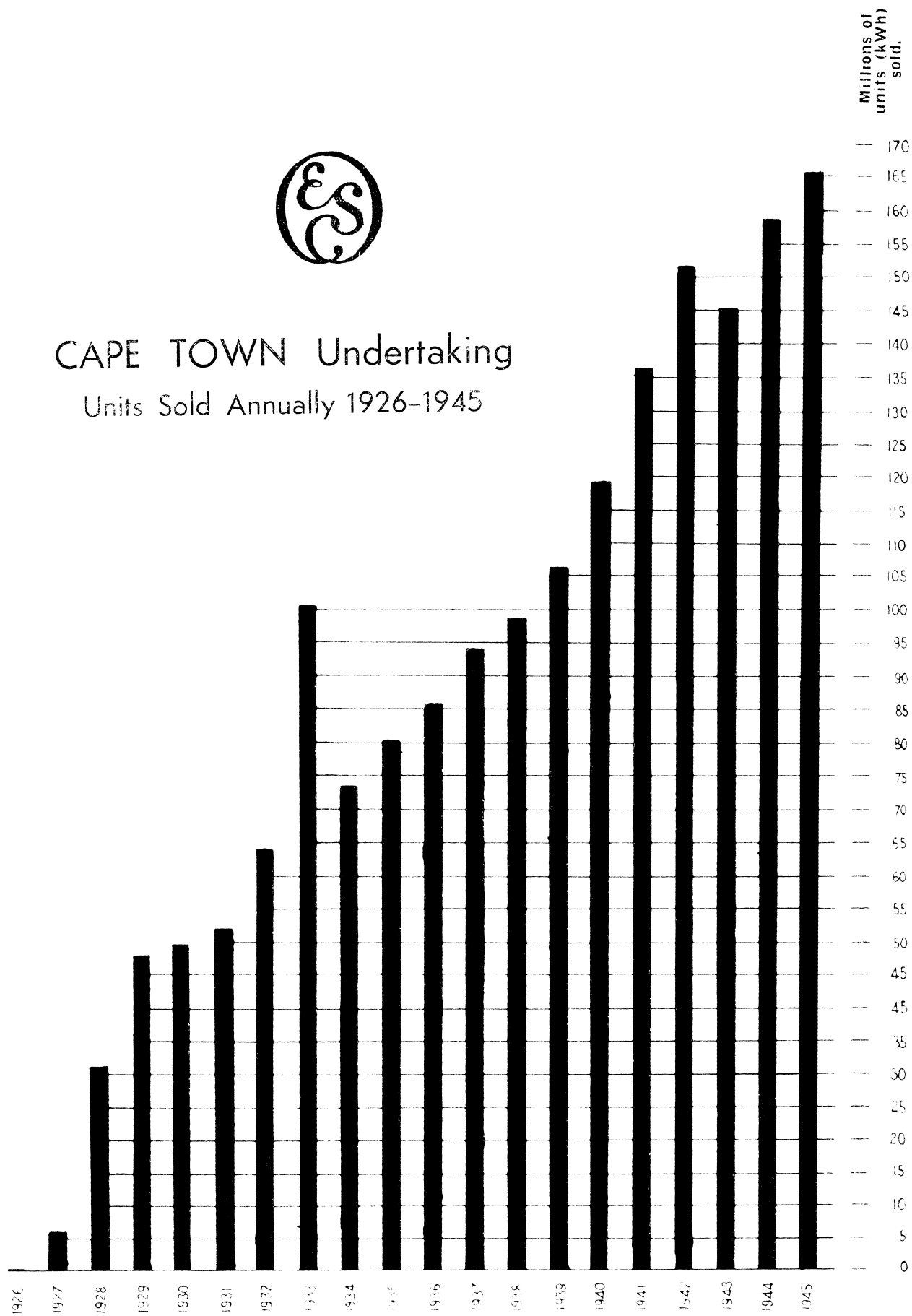
Cape Main  
Line Elec-  
trification.

Details of the system to supply power to the proposed main line electrification from Cape Town to Touws River, with the possibility of an extension of the scheme to Beaufort West, are still under consideration and no work has yet been put in hand.



# CAPE TOWN Undertaking

Units Sold Annually 1926-1945



Cape  
Suburban  
Electri-  
fication.

In conjunction with the proposed main line electrification, which will operate at 3,000 volts D.C., the Railway Administration intends also to convert to that voltage the existing suburban 1,500-volt D.C. system. This will involve the provision of new converting plant and the relocation of substations.

Matroos-  
fontein  
and Smits  
Quarry  
Reticulation  
Schemes.

An agreement was concluded with the Cape Divisional Council during the year, in terms of which the Commission will undertake the supply and distribution of electricity to the Council's sub-economic housing schemes for non-Europeans at Matroosfontein and Smits Quarry.

The Matroosfontein scheme envisages a total of 690 houses, Superintendent's House, Health Centre, Church, Primary School, Civic Centre, Market and Shopping Centre. At 30th April, 1946, 52 houses had been connected at this centre.

The Smits Quarry scheme provides for 296 houses and also public and other buildings.

New  
Consumers.

Additional connections to the mains of this Undertaking during the period under review included 17 industrial and 71 domestic consumers.

Farm connections totalled 489 at the end of the year.

Capital  
Expenditure.

Capital expenditure on the Cape Town Undertaking was increased during the year by £96,650, bringing the total as at 31st December, 1945, up to £3,189,347. 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 1945 was 578,515,373. Of this, Salt River Power Station sent out 131,294,133 units, an increase of 8.35 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 165,857,610 units in 1945, which reflects an increase of 4.53 per cent. compared with the sales for 1944.

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

Consumers Class	No.	Sales.		Revenue	Average Price per Unit Sold	
		Units	Increase		1944	1945
			%	£	d.	d.
Traction ... ..	1	61,375,220	3.13	168,090	·6566	·6573
Bulk ... ..	8	27,371,812	10.79	77,110	·6620	·6761
Industrial ... ..	587	57,872,017	1.03	175,550	·6956	·7280
Domestic and Lighting ...	8,227	19,238,561	12.05	106,900	1.3683	1.3336
	8,823	165,857,610	4.53	527,650	·7485	·7635

**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 £520,456, and the revenue for the corresponding period totalled £529,413. The surplus of £8,957 on the year's working of the Undertaking increased the accumulated surplus to £22,811 after deducting £6,600 for war gratuities.

The maximum half-hourly demand sent out from Salt River Power Station was 57,400 kW, and the load factor, calculated on 8,904 hours, was 25.7 per cent. The thermal efficiency of the power station on units sent out was 16.78 per cent., which shows a slight improvement on the figure for the previous year. By comparison, the thermal efficiency of the Table Bay Power Station, which carried the base load was 24.48 per cent. in 1945. The overall efficiency of the pooled power stations was 22.2 per cent.

**Coal  
Consumption.**

The coal consumption for the year 1945 at Salt River Power Station amounted to 109,379 tons (or an average of 1.666 lbs. per unit sent out) at a total cost of £138,721. The average price per ton of coal delivered increased by 2s. from 23s. 4d. in 1944 to 25s. 4d. in 1945. The average coal consumption of the pooled power stations for the year was 1.222 lbs. per unit sent out.



## DURBAN UNDERTAKING.

Dust  
Nuisance.

The Commission has been gravely concerned about complaints made by residents in the vicinity of Congella Power Station regarding the inconvenience and discomfort caused by coal dust and ash deposits from the station and the harmful effect on their properties. While the Commission views these complaints with every sympathy and is determined to do everything in its power to abate the nuisance as expeditiously as prevailing circumstances permit, it feels compelled to point out that, when it was decided in 1926 to build the power station at Congella, the present site was in a swampy area isolated from any established residential locality or industrial activities.

The solution of the problem is not quite so simple as some critics suggest, having regard to the difficulties of obtaining the necessary plant and equipment. The drastic proposal that the power station should be removed from close proximity to the residential area of Umbilo to a more suitable area adjacent to Durban, which has been made in Parliament and the Press, would, apart from the time factor to effect the change, be extremely costly and would probably double the price of electricity to consumers.

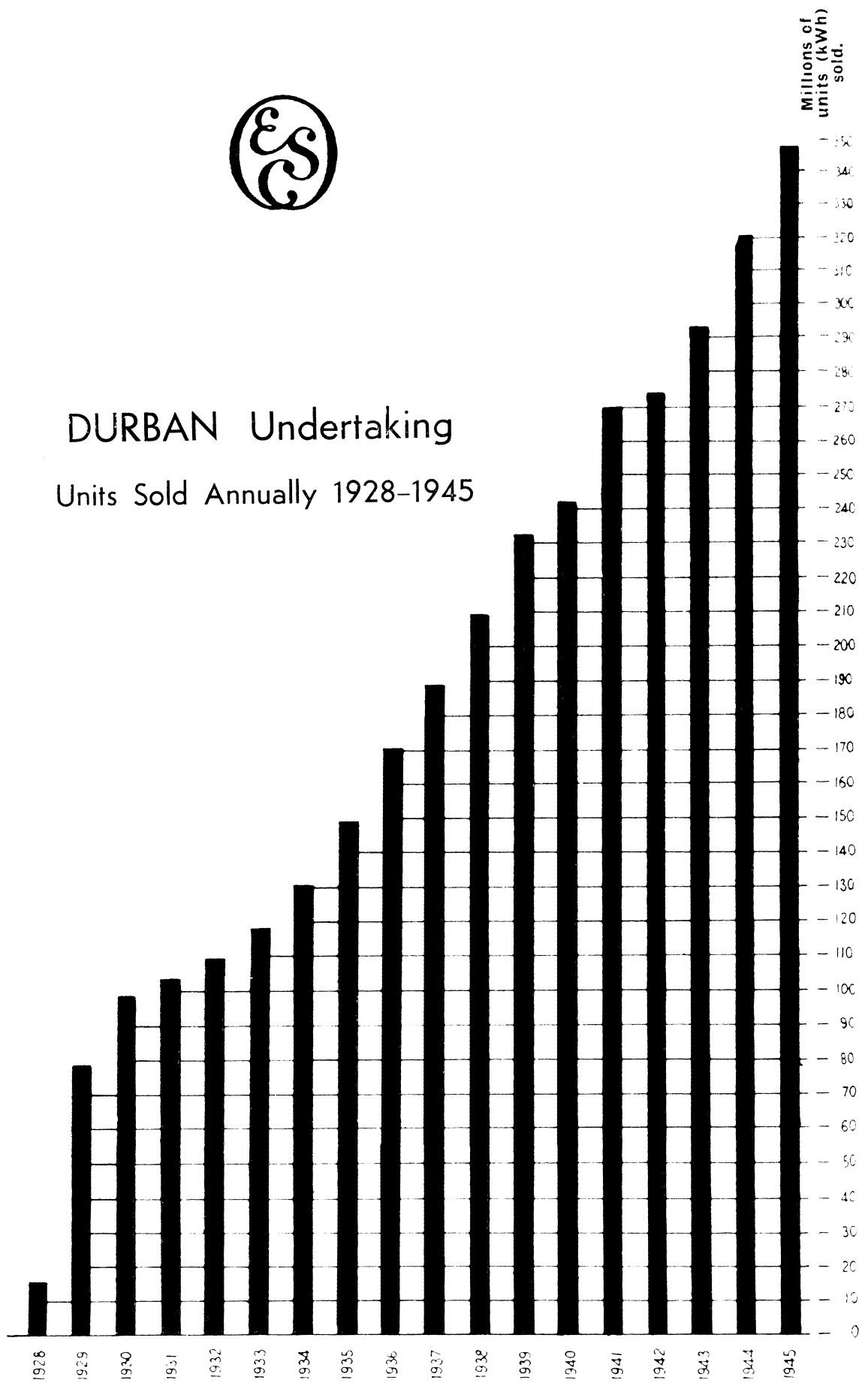
Expert advice on the best method of precipitating the coal dust and ash from the existing power station has, however, been obtained, and the measures now in hand are confidently expected to effect substantial improvements.

The present unsatisfactory position is due almost entirely to causes attributable to the war. Loading conditions on the station during the war were such that generating and ancillary units could not be taken out of service for thorough overhaul without seriously curtailing essential supplies of electricity. Consequently operating efficiency could not be maintained; but, in fact, gradually deteriorated. The vicissitudes of the 40,000-kilowatt set, which should have been in service in 1941, are already well known. The belated commissioning of this plant at the end of February, 1946, was attended by many operating troubles. The dust and grit extraction plant provided for the new 200,000 lbs. per hour boilers fell far short of the guaranteed efficiency, and it has been necessary from time to time to take the boilers out of service in order to effect modifications to the precipitators. Although some improvement



# DURBAN Undertaking

## Units Sold Annually 1928-1945



has been effected in these precipitators, they are still far from satisfactory and major changes are now to be made. The remedial measures will involve the expenditure of a considerable sum of money; but no expense or effort is being spared to effect an abatement of the nuisance as early as possible.

Ash  
Handling  
Arrange-  
ments.

The ash handling plant has been redesigned to enable the fly-ash to be transported by rail and construction is in progress, although slow delivery of equipment is causing delays. Meanwhile, the Railway Administration has made available to the Commission another reclamation site for the disposal of ash. The area will provide dumping space for about  $2\frac{1}{2}$  years' output of ash from Congella Power Station, during which time it is hoped to complete the alternative arrangements for ash handling.

Port  
Shepstone  
Power  
Station.

With the rapidly increasing electricity requirements of consumers on the Natal South Coast, the load on the diesel power station at Port Shepstone will soon reach the output capacity of the two 700-kilowatt generating sets commissioned in 1944. It was, therefore, decided during the period under review to instal a third set at this station. By means of supercharging the engine, it is possible to accommodate a set of larger capacity and a 1,493, h.p. diesel engine has been ordered with a 1,000 kW alternator, which it is hoped will be in operation in 1947.

Capital  
Expenditure.

The capital expenditure on the Durban Undertaking during the year amounted to £242,494, bringing the total as at 31st December, 1945, up to £3,015,482.

Output.

The units sent out from Congella Power Station in 1945 totalled 338,012,581, an increase of 7.19 per cent. over the output for the previous year. The diesel stations at Margate and Port Shepstone sent out 9,454 and 705,480 units respectively during the year.

Sales.

The total sales of electricity from the Undertaking for the year amounted to 348,740,929 units (excluding 400,200 units supplied to the Natal Central Undertaking under the interchange arrangement, but including 6,381,216 units purchased from the Durban Corporation for sale to consumers along the South Coast), an increase of 8.44 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 8.51 per cent. to 324,431,681 units. South Coast sales for the year advanced by 14.99 per cent. to 5,666,639 units.

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

Consumers		Sales.			Average Price per Unit Sold	
Class	No.	Units	Increase	Revenue	1944	1945
			%	£	d.	d.
Bulk	2	325,563,611	8.54	427,211	3087	3149
Industrial	71	19,687,048	5.23	31,241	3993	3808
Domestic and Lighting	1,379	3,490,270	19.76	25,112	18141	17267
	1,452	348,740,929	8.44	483,564	3276	3328

**Working Results.**

Legislation affecting wages, hours and conditions of work, enacted during the war, and the payment of a cost of living allowance on a rising scale, substantially increased the cost of generation at Congella Power Station, and practically every item of stores and material purchased for the operation and maintenance of the plant has risen steadily in price since the outbreak of war. Until the end of 1944 these increased costs were, however, met to some extent by the increased revenue received from the greater output of the plant, and the small deficits were offset against the brought forward surplus balance; but, during 1945, while revenue increased by 10.17 per cent. to £486,839, total working costs exceeded that amount by £25,168, having risen by 13.74 per cent. to £512,007. The net balance on the Revenue Account of the Undertaking was a deficit of £27,310 after charging £5,963 for war gratuities and taking into account the brought forward surplus of £3,821.

An adjustment of the charges in 1946 will be necessary, not only to cover this deficit but also the capital charges in respect of the 1941 extensions which will be brought into commercial operation only during the latter part of 1946.

The maximum half-hourly demand sent out was 76.810 kW and the load factor was 50.2 per cent. The thermal efficiency of the power station on units sent out dropped from 17.74 per cent. in 1944 to 16.95 per cent. in 1945. As explained earlier in this Report, this drop in efficiency was largely due to the inability to carry out normal maintenance under the difficult loading conditions on the power station during the year.

**Coal Con-  
sumption**

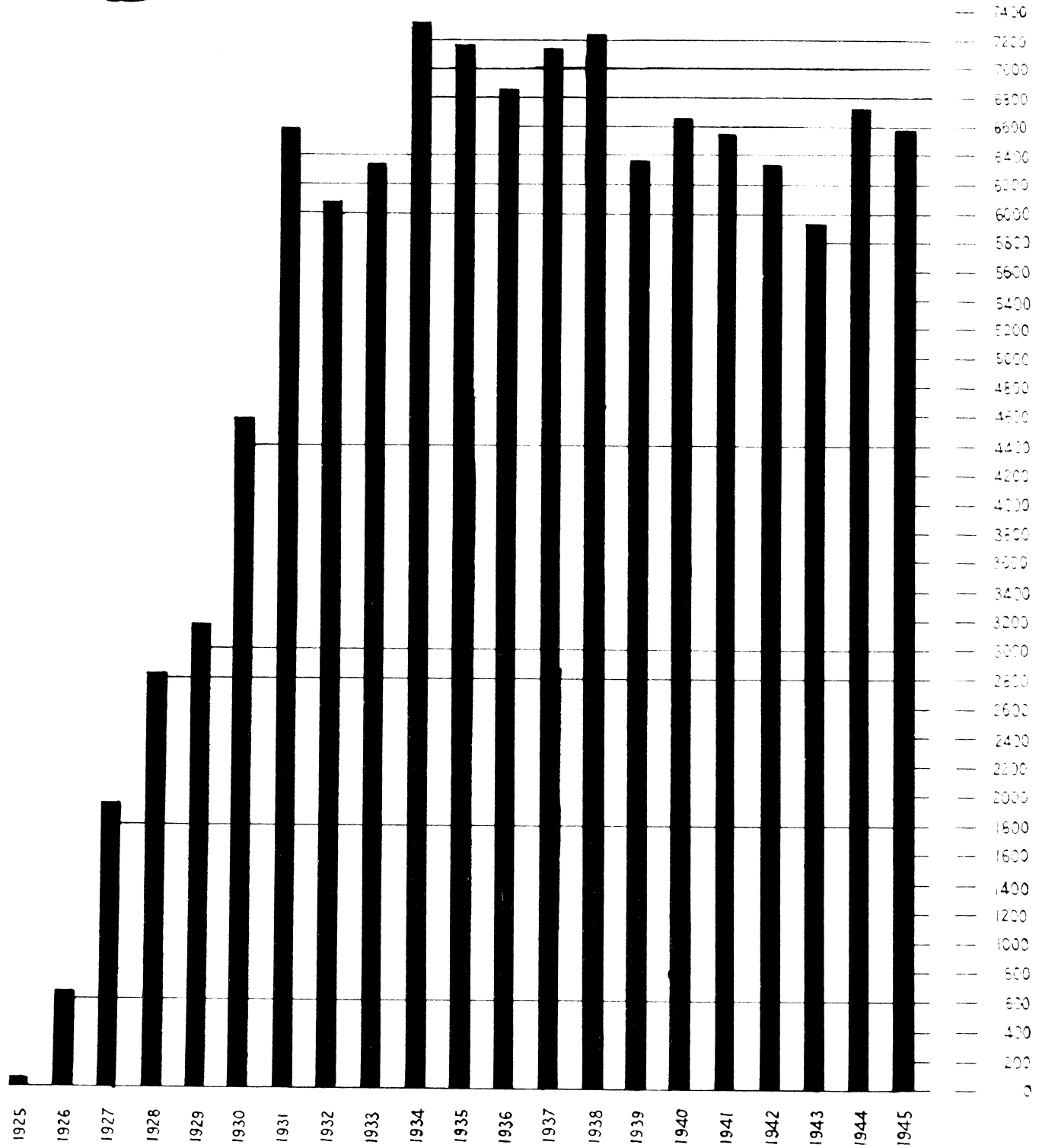
The coal consumption for the year 1945 at Congella Power Station amounted to 278,091 tons (or an average of 1.645 lbs. per unit sent out) at a total cost of £212,967. The average price per ton of coal delivered increased by 10d. from 14s. 6d. in 1944 to 15s. 4d. in 1945.



# SABIE Undertaking

## Units Sold Annually 1925-1945

Millions of  
units (kWh)  
sold.



## SABIE UNDERTAKING.

Heavy floods were experienced at the Commission's hydro-electric power station at the Sabie River Gorge during January, 1946; but the whole of the works withstood the additional strain without any sign of harmful effect. The floods, however, completely isolated the small community at the power station for 48 hours from the village of Sabie, about seven miles away, on which the settlement is dependent for its everyday requirements.

The three 450 kW sets installed in this station operated very satisfactorily throughout the year.

### Capital Expenditure.

The capital expenditure on this Undertaking as at 31st December, 1945, remained unchanged at £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 6,596,859 units, a decrease of 1·89 per cent. compared with the figure for the previous year.

### Working Results.

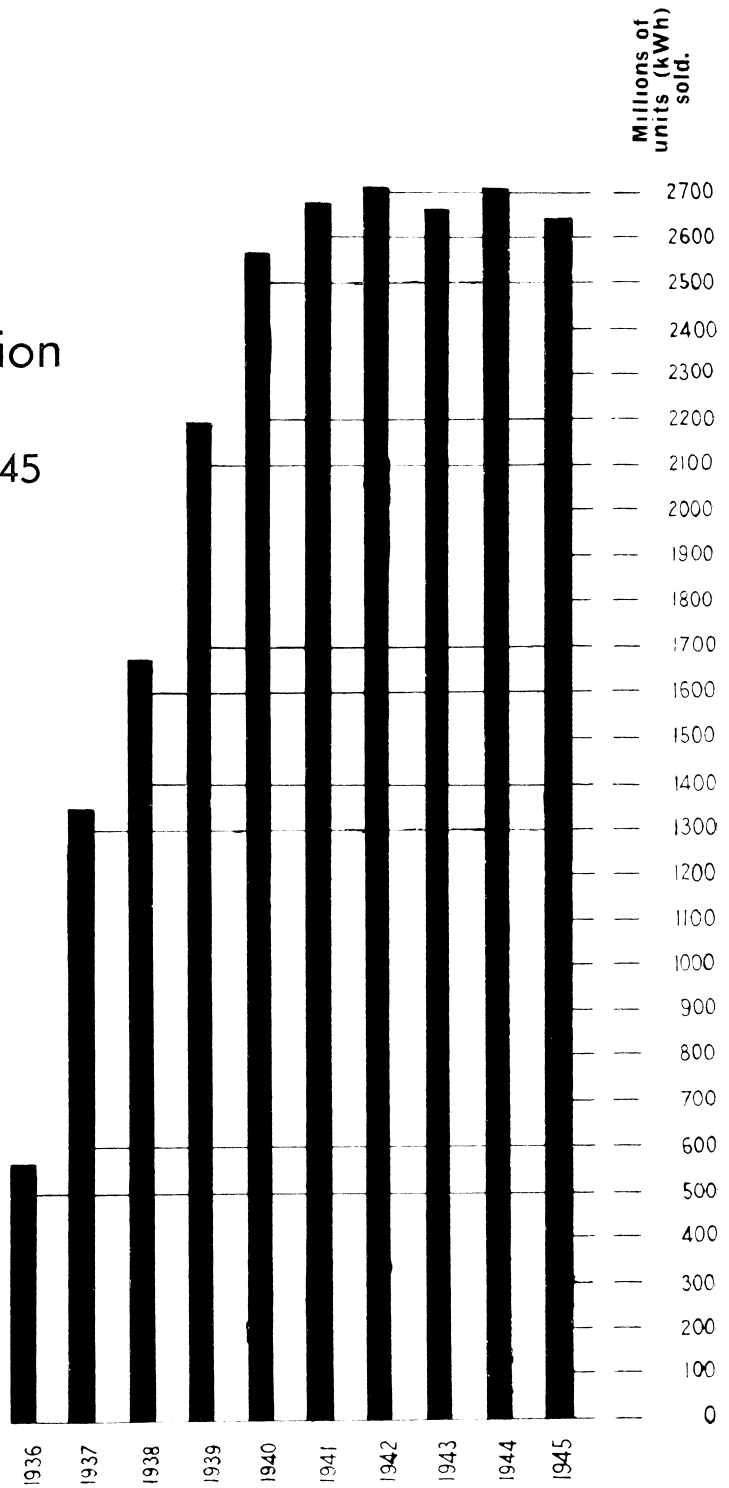
The total working costs for the year amounted to £14,024 and the revenue to £14,318. The surplus on the Revenue Account of this Undertaking was reduced to £103 after charging £369 for war gratuities and taking into account the brought forward surplus of £178.

The average price per unit sold increased by 1·83 per cent. from 0·5115d. in 1944 to 0·5209d. in 1945.

The maximum half-hourly demand sent out was 1,275 kW and the load factor was 62·19 per cent.



KLIP Generating Station  
Undertaking  
Units Sold Annually 1936-1945





## KLIP GENERATING STATION UNDERTAKING.

Klip, the Commission's largest power station, is also operated by The Victoria Falls and Transvaal Power Co., Ltd., as a unit of the Reef Grid system, and the whole output of the station's twelve main generating sets of 33,000 kilowatts each is sold to the Company for supply to the gold mining industry and other consumers on the Witwatersrand.

Output  
and  
Sales.

The output of this station declined during 1945 by 2·24 per cent. to 2,643,039,705 units by comparison with the 1944 figure. This was due to a reduction in off-peak loading at this station consequent upon the starting up of the Vaal base load station.

Capital  
Expenditure.

The capital expenditure on this Undertaking as at 31st December, 1945, amounted to £6,536,650.

Working  
Results.

The operating costs and capital charges (interest, redemption and reserve) are paid by the Falls Company and in 1945 amounted to £1,160,741. The average price per unit sold increased by 4·77 per cent. from 0·1001d. in 1944 to 0·1049d. in 1945, due mainly to the reduced output.

The maximum hourly demand sent out in 1945, was 374,220 kW and the average load factor calculated on 8,760 hours was 80·6 per cent. The thermal efficiency of the power station on units sent out was 20·91 per cent.

Coal Con-  
sumption.

Klip Power Station consumed coal at an average rate of 271 tons per hour (or an average of 1·795 lbs. per unit sent out) at an average price of 4s. 2d. per ton, as against 3s. 11d. in 1944. The total consumption for the year was 2,372,019 tons at a cost of £499,029. 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.

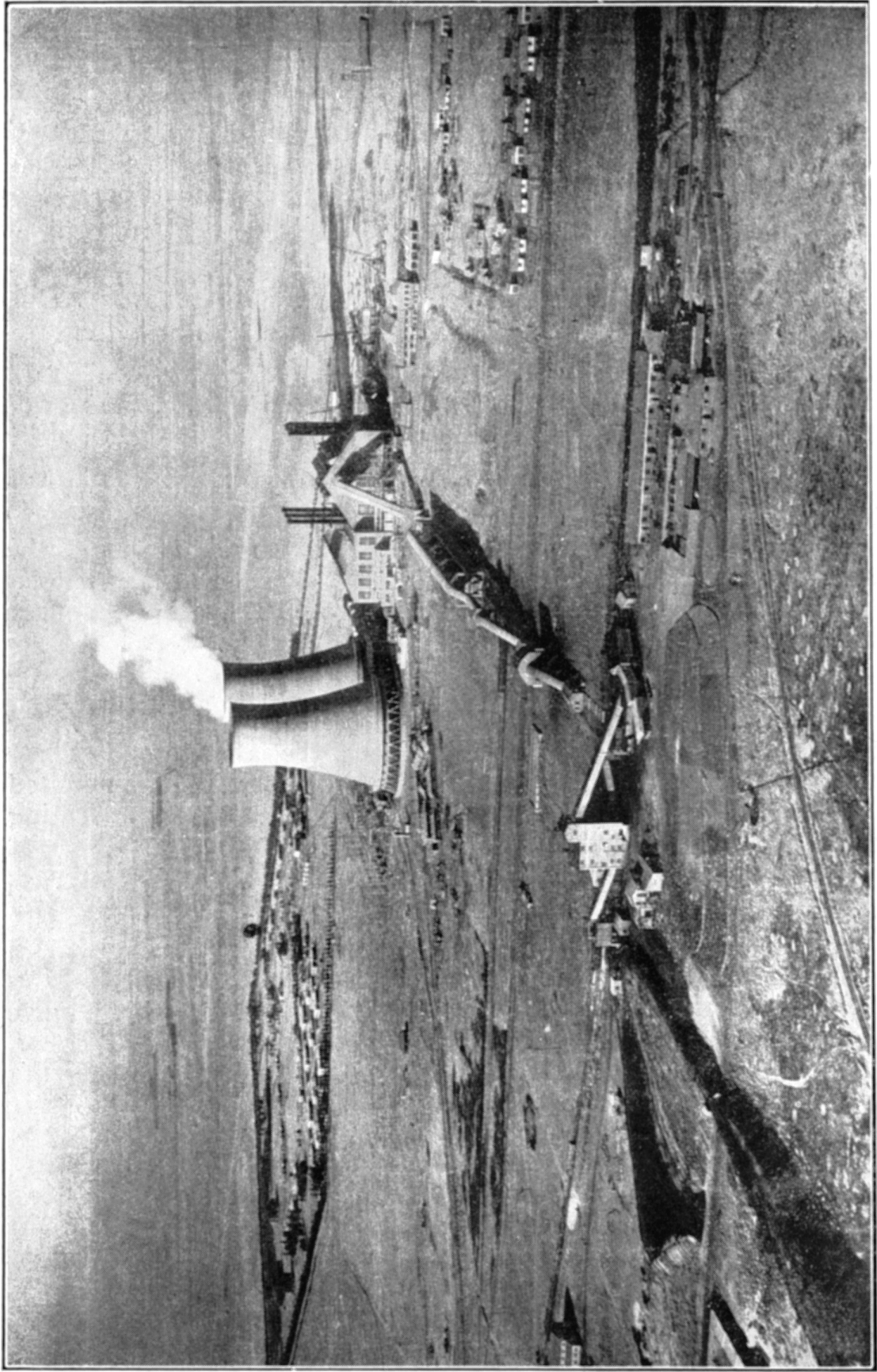
The Rand Extension Undertaking comprises a transmission and distribution system and is operated as part of the Witwatersrand Grid system by The Victoria Falls and Transvaal Power Co., Ltd. under a licence granted to the Commission and ceded to the Falls Company.

An application to the Electricity Control Board for a further extension of the area of supply of this Undertaking will shortly be made by the Commission to include the new goldfields in the Orange Free State and other areas. The additional area contemplated by the Commission will cover approximately 18,000 square miles.

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, 1945, amounted to £70,565. The Company also bears its own costs of operating and maintaining the system.

Capital expenditure on the Undertaking as at 31st December, 1945, amounted to £1,128,633.

The transmission lines and cables serving this Undertaking at 31st December, 1945, totalled approximately 441 route miles and the installed transformer capacity at that date was 327,810 kVA. A diagram is reproduced on the facing page showing the transmission system and the present area of supply of this Undertaking.



Aerial view of the Vaal Generating Station showing the staff accommodation

## VAAL GENERATING STATION UNDERTAKING.

Supply to  
Orange  
Free State  
Gold Mines.

The Vaal Generating Station, which will have an installed capacity of 200,000 kilowatts, will be called upon to supply the initial requirements of the developing gold mines in the Odendaalsrust area of the Orange Free State. The nearest mining development is taking place at a point approximately 120 miles distant from the power station and it is proposed to transmit the power by means of an 88 kV line. A suitable line already exists as far as Coalbrook covering  $8\frac{1}{2}$  miles of the distance and that line will be extended to the Odendaalsrust area.

A new power station will probably be required by the time the mines reach production stage and the question of a suitable site is now being investigated.

Plant  
Installed.

The two 33,000 kilowatt generating sets supplied by Metropolitan-Vickers Electrical Export Co., Ltd., went into service in January and April, 1945. A bronze plaque, bearing the following inscription, has been erected in the entrance foyer of the Vaal Power Station:—

“ This Generating Station was commissioned  
in January, 1945.

---

The initial plant of two 33,000 kW Turbo-Generators and six boilers essential to the industries of this country was manufactured in Great Britain and delivered by the British Merchant Navy protected by the Fighting Services during the war years, 1940-1944.

---

‘ In their travail they did not fail us ’.”

Plant  
Under  
Construction.

Of the three 33,000 kilowatt Ljungstrom main sets and the 7,000 kilowatt house set ordered from Sweden in 1939, the house set and No. 2 main set were delivered on site in October, 1945, and the last set was expected to leave Sweden in June, 1946. Good progress with erection has been made. The house set started up

on 10th April, 1946, and the first of the three large machines is almost ready for commercial operation. The other two are expected to be in service by November, 1946.

A further house set and four additional boilers for this station are on order for delivery within two years.

The Victoria Falls and Transvaal Power Co., Ltd., has supervised construction and also operates this station on behalf of the Commission.

**Output  
and Sales.**

This station sent out 377,902,035 units of electricity in 1945.

**Capital  
Expenditure.**

The capital expenditure on this Undertaking as at 31st December, 1945, amounted to £3,266,333.

**Working  
Results.**

As in the case of the Klip Power Station, the operating costs and capital charges of this station are paid by the Falls Company and in 1945 amounted to £279,907. The average price per unit sold during the period of operation in 1945 was 0·1753d.

The average maximum hourly demand sent out in 1945 was 63,457 kW. The average load factor calculated on 8,172 hours was 72·9 per cent. The thermal efficiency of the power station on units sent out was 21·69 per cent.

**Coal Con-  
sumption.**

Vaal, which is also a "pit-head" power station, consumed 327,700 tons of coal (or an average of 1·734 lbs. per unit sent out) during the year at a total cost of £94,933, the average price being 5s. 10d. per ton.

## **ANNEXURES.**

The Commission submits for the year 1945 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.

Account No. 10—Vaal Generating Station 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, 1945.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1945.

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

Statement No. 4—Distribution of units sold during 1945 as between the various classes of consumers.

Statement No. 5—Power Station Statistics, 1945.

Statement No. 6—Particulars of coal used at the Commission's Steam-raising Power Stations during 1945.

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 1945.

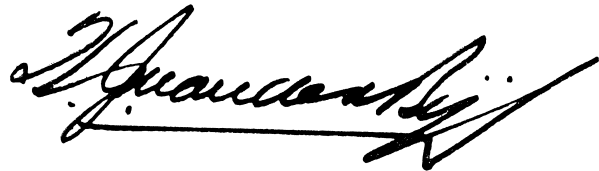
**ANNEXURE " D "—UNION STATISTICS.**

Union Statistics relating to the production and distribution of electricity. This information, which was extracted from the 1943/44 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.



## 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.

<i>New Schemes.</i>	<i>Extensions.</i>	<i>Tenders.</i>
	Edenvale.	
	Johannesburg.	
	Lichtenburg.	
	Nylstroom.	
	Pretoria.	

## NATAL.

Nil.

## ORANGE FREE STATE.

Brandfort.	Bothaville.	Bothaville.
Marquard.	Hoopstad.	Lindley.
Parys.	Lindley.	
Zastron.		

## CAPE.

Umtata.	Beaufort West.	Aliwal North.
Vryburg.	Calvinia.	Kokstad.
	Cradock.	Umtata.
	Kokstad.	
	Mafeking.	
	Oudtshoorn.	
	Port Alfred.	

Up to 31st December, 1945, 535 reports on municipal electricity supply schemes, of which 176 were in respect of new schemes, had been submitted by the Commission. In addition, the Commission had issued at that date 255 supplementary reports on tenders.

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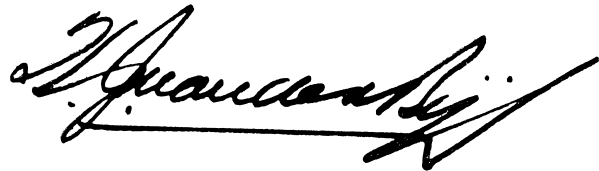
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I have the honour to be,

Sir,

Your obedient servant,



H. J. VAN DER BIJL,  
CHAIRMAN.

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**ANNEXURE " A. "****THE REPORT OF THE AUDITORS.**

Johannesburg,  
17th May, 1946.

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, 1945.

**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, 1945, 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, 1945, 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.

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, 1945.

**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 and the Vaal Generating Station in terms of agreements with The Victoria Falls and Transvaal Power Company, Limited.
- (2) Other amounts transferred to cost of capital works at Undertakings for services of Head Office Staff.
- (3) Fees for reporting on Power Schemes of Local Authorities.
- (4) Amounts chargeable to Revenue Accounts under other headings.

The amount remaining, which is greater than the corresponding amount for 1944, has been charged against the Revenue Accounts of all the Undertakings in commercial operation. In the case of the Klip, Rand Extension, Witbank (Power Station) and Vaal Undertakings, the amount is determined by agreements 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 1945 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 by the Commission 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 1945. One half 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 half 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 AND VAAL UNDERTAKINGS.

The first portion of the plant of the Vaal Generating Station came into commercial operation on the 22nd January, 1945, and a further portion on the 24th April, 1945. The Vaal Undertaking Revenue Account shows the results of its operation from the dates mentioned.

We have accepted the accounts rendered by The Victoria Falls and Transvaal Power Company, Limited, which Company, in terms of agreements with the Commission, operates the stations and is the sole customer on a cost basis. The Capital Charges made by the Commission have been verified by us. The resulting figures have been summarised in the respective Revenue Accounts.

#### RAND EXTENSION UNDERTAKING.

In terms of agreement between The Victoria Falls and Transvaal Power Company, Limited, and the Commission, the Company is 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.

#### REVENUE ACCOUNTS.

The results of the operations during the year of the various Undertakings and the accumulated balances to date are clearly shown in the respective Revenue Accounts.

During the year the Commission decided to pay gratuities to employees based on their emoluments and their employment since September, 1939, in recognition of their service to the Commission during the period of the war. This expense has been charged in the lower Section of the Revenue Accounts of the Undertakings operated by the Commission. This expenditure will be referred to in the Commission's report and meets with our approval.

The operation of the Durban Undertaking reflected a loss of £25,167 14s. 10d. resulting in an accumulated deficit of £27,310 0s. 4d. The reasons for this loss will be dealt with in the Commission's report. The Commission has decided to adjust this shortfall by a revision of tariffs. The position of the Witbank Undertaking is dealt with earlier in this report. In the case of the other Undertakings operated by the Commission, we are satisfied, on the information supplied to us, that at the present time no alterations in the existing charges for electricity are desirable.

#### GENERAL.

As the result of our audit of the books and accounts of the Commission for the year 1945, 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.

**Electricity Supply**  
Incorporated under the  
**BALANCE SHEET at**

<b>Loan Capital</b> ... ..		£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	
Less—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	
	136,487 3 1	
<b>Interest Accrued on Loan Capital</b> ... ..		
<b>Sundry Loans and Amounts Outstanding for Rights Acquired</b> ... ..		110,552 6 11
Umkomaas Town Board	8,380 0 0	
Volksrust Municipality	15,968 18 3	
Rand Water Board	75,394 19 10	
Caledon Municipality	6,049 6 11	
Rawsonville Village Management Board	4,759 1 11	
	610,585 17 2	
<b>Sundry Creditors and Credit Balances</b> ... ..		
Current Liabilities and Provisions.		215,281 3 3
<b>Barclays Bank (Dominion, Colonial and Overseas)</b> ... ..		
Temporary Advances, less Cash on Current Account		300,000 0 0
<b>Advances at Call</b> ... ..		273,731 5 11
<b>Pension Fund</b> ... ..		6,238,397 13 1
<b>Redemption Fund</b> (as per Account No. 1) ... ..		4,013 0 1
<b>Sinking Fund</b> (Umkomaas Town Board Loans) ... ..		68,601 17 8
<b>Sundry Loans Repaid</b> ... ..		2,198,665 13 10
<b>Reserve Fund</b> (as per Account No. 2) ... ..		37,332 15 1
<b>Balance on Revenue Accounts</b> ... ..		
(As per Accounts Nos. 3 to 7)		
Natal Central Undertaking	22,510 18 11	
Witbank Undertaking	19,217 9 0	
Cape Town Undertaking	22,811 2 7	
Durban Undertaking	Dr. 27,310 0 4	
Sabie Undertaking	103 4 11	

NOTE.—In addition to the liabilities shown above, the Commission is committed to the extent of approximately £3,980,000 for expenditure on Capital Account and £363,500 chargeable against Reserve Fund.

£34,443,648 16 1

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

Johannesburg,  
18th April, 1946.

**Commission.**

Electricity Act, 1922.

31st DECEMBER, 1945.

<b>Expenditure on Capital Account</b> (at Cost) ... ..		£24,956,748 1 7
(As per Schedule attached)		
Land and Rights	£301,477 13 7	
Buildings and Civil Works	6,355,726 17 3	
Machinery and Plant	18,299,543 10 9	
	83,656 9 2	
<b>Movable Plant and Equipment</b> (less depreciation) ... ..		
Workshop Equipment, Instruments, Tools and Loose Plant	30,340 10 11	
Transportation Equipment	15,414 5 6	
Furniture and Office Equipment	37,901 12 9	
	356,574 3 7	
<b>Stores and Materials</b> ... ..		277,984 12 0
<b>Sundry Debtors and Debit Balances</b> ... ..		
Current Debtors less Reserves	274,239 3 9	
Expenditure on investigations in terms of Section 3 (b) of the Act and payments in advance	3,745 8 3	
	277,501 7 4	
<b>Investment of Pension Fund</b> ... ..		
Amount invested in Stocks and Securities of Electricity Supply Commission, Municipalities and Rand Water Board and First Mortgages on Freehold Properties, less Reserve	276,005 9 3	
Interest Accrued	1,495 18 1	
	6,266,368 6 3	
<b>Investment of Redemption Fund</b> ... ..		
(As per Schedule attached)		4,133 3 1
<b>Investment of Sinking Fund</b> ... ..		
Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	4,102 4 9	
Interest Accrued	30 18 4	
	2,220,682 13 1	
<b>Investment of Reserve Fund</b> ... ..		
Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities	2,206,158 7 5	
Interest Accrued	14,524 5 8	

£34,443,648 16 1

Referred to in our Report of 17th May, 1946.  
ALEX. AIKEN & CARTER, }  
B. HALSEY, } Auditors.



## Electricity Supply

### SCHEDULE OF EXPENDITURE ON CAPITAL

Expenditure in connection with Electricity Undertakings.	Total to 31st December, 1944.	Year ended 31st December, 1945.	Total to 31st December, 1945.
<b>NATAL CENTRAL UNDERTAKING:</b>			
Land and Rights ... ..	£24,781 6 9	—	£24,781 6 9
Buildings and Civil Works ... ..	809,326 9 4	£52,946 1 1	862,272 10 5
Machinery and Plant ... ..	3,681,004 15 1	25,131 0 7	3,706,135 15 8
	<b>£4,515,112 11 2</b>	<b>£78,077 1 8</b>	<b>£4,593,189 12 10</b>
<b>WITBANK UNDERTAKING:</b>			
Land and Rights ... ..	£10,403 19 5	£35 16 3	£10,439 15 8
Buildings and Civil Works ... ..	648,214 8 1	143 3 2	648,357 11 3
Machinery and Plant ... ..	2,039,663 9 10	41,001 8 5	2,080,664 18 3
	<b>£2,698,281 17 4</b>	<b>£41,180 7 10</b>	<b>£2,739,462 5 2</b>
<b>CAPE TOWN UNDERTAKING:</b>			
Land and Rights ... ..	£29,493 3 1	£1,126 10 0	£30,619 13 1
Buildings and Civil Works ... ..	988,580 1 7	3,772 16 7	992,352 18 2
Machinery and Plant ... ..	2,074,623 13 10	91,750 18 4	2,166,374 12 2
	<b>£3,092,696 18 6</b>	<b>£96,650 4 11</b>	<b>£3,189,347 3 5</b>
<b>DURBAN UNDERTAKING:</b>			
Land and Rights ... ..	£31,143 6 6	—	£31,143 6 6
Buildings and Civil Works ... ..	846,310 18 10	£13,162 11 7	859,473 10 5
Machinery and Plant ... ..	1,895,533 15 6	229,330 19 11	2,124,864 15 5
	<b>£2,772,988 0 10</b>	<b>£242,493 11 6</b>	<b>£3,015,481 12 4</b>
<b>SABIE UNDERTAKING:</b>			
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
	<b>£96,170 6 1</b>	<b>—</b>	<b>£96,170 6 1</b>

Johannesburg,  
18th April, 1946.

## Commission.

### ACCOUNT TO 31st DECEMBER, 1945.

Expenditure in connection with Electricity Undertakings.	Total to 31st December, 1944.	Year ended 31st December, 1945.	Total to 31st December, 1945.
<b>KLIP GENERATING STATION UNDERTAKING:</b>			
Land and Rights ... ..	£127,975 0 0	—	£127,975 0 0
Buildings and Civil Works ... ..	1,577,515 2 7	£10,602 2 9	1,588,117 5 4
Machinery and Plant ... ..	4,814,495 5 7	6,062 14 7	4,820,558 0 2
	<b>£6,519,985 8 2</b>	<b>£16,664 17 4</b>	<b>£6,536,650 5 6</b>
<b>RAND EXTENSION UNDERTAKING:</b>			
Land and Rights ... ..	£10,807 2 2	£3 4 0	£10,810 6 2
Buildings and Civil Works ... ..	16,481 4 1	8,126 11 10	24,607 15 11
Machinery and Plant ... ..	964,594 12 3	128,620 7 1	1,093,214 19 4
	<b>£991,882 18 6</b>	<b>£136,750 2 11</b>	<b>£1,128,633 1 5</b>
<b>VAAL GENERATING STATION UNDERTAKING:</b>			
Land and Rights ... ..	£5,600 10 5	£12 12 0	£5,613 2 5
Buildings and Civil Works ... ..	897,724 11 4	90,435 0 6	988,159 11 10
Machinery and Plant ... ..	2,036,099 8 5	236,461 6 6	2,272,560 14 11
	<b>£2,939,424 10 2</b>	<b>£326,908 19 0</b>	<b>£3,266,333 9 2</b>
<b>ESCOM HOUSE:</b>			
Land ... ..	£59,585 3 0	—	£59,585 3 0
Building and Equipment ... ..	331,895 2 8	—	331,895 2 8
	<b>£391,480 5 8</b>	<b>—</b>	<b>£391,480 5 8</b>
<b>SUMMARY:</b>			
Land and Rights ... ..	<b>£300,299 11 4</b>	£1,178 2 3	<b>£301,477 13 7</b>
Buildings and Civil Works ... ..	<b>6,176,538 9 9</b>	179,188 7 6	<b>6,355,726 17 3</b>
Machinery and Plant ... ..	<b>17,541,184 15 4</b>	758,358 15 5	<b>18,299,543 10 9</b>
	<b>£24,018,022 16 5</b>	<b>£938,725 5 2</b>	<b>£24,956,748 1 7</b>

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.
<b>Local Registered Stocks.</b>				
<b>Electricity Supply Commission:</b>				
4½ per cent., 1953/63 ...	£105,900 0 0	£105,900 0 0	£40,450 0 0	—
4½ per cent., 1953 ...	268,964 0 0	268,964 0 0	1,500 0 0	£247,464 0 0
3¾ per cent., 1954/64 ...	828,013 0 0	827,847 3 10	10,000 0 0	—
3½ per cent., 1959/64 ...	138,822 0 0	138,822 0 0	—	—
3¼ per cent., 1956/66 ...	335,900 0 0	324,772 3 5	16,490 0 0	92,767 3 9
3½ per cent., 1957/67 ...	323,277 0 0	314,819 6 8	24,287 10 0	85,565 5 0
3¾ per cent., 1959/64 ...	519,200 0 0	508,297 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 ...	499,450 0 0	489,550 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
<b>The Government of the Union of South Africa:</b>				
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
3¾ per cent., 1953 ...	5,000 0 0	5,000 0 0	—	—
3½ per cent., 1953/58 ...	25,000 0 0	25,000 0 0	3,000 0 0	11,000 0 0
3½ per cent., 1955/65 ...	2,300 0 0	2,300 0 0	—	—
3 per cent., 1956/61 ...	40,000 0 0	40,000 0 0	—	10,000 0 0
3 per cent., 1957/66 ...	535,000 0 0	534,974 18 1	17,997 19 10	89,995 9 8
3 per cent., 1958/68 ...	15,000 0 0	15,000 0 0	—	1,000 0 0
3 per cent., 1959/69 ...	100,000 0 0	100,000 0 0	6,000 0 0	30,000 0 0
3 per cent., 1960/70 ...	343,700 0 0	343,700 0 0	12,000 0 0	66,000 0 0
<b>Municipal:</b>				
<b>Johannesburg:</b>				
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
3¾ 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	—	—
3¼ per cent., 1965/70 ...	294,000 0 0	294,000 0 0	8,000 0 0	44,000 0 0
<b>Cape Town:</b>				
3¾ per cent., 1960/65 ...	2,000 0 0	2,000 0 0	—	—
3¼ per cent., 1962/67 ...	225,000 0 0	222,567 15 8	—	—
<b>Durban:</b>				
3¼ per cent., 1962/72 ...	115,500 0 0	115,211 5 0	—	115,211 5 0
3¼ per cent., 1965/75 ...	45,000 0 0	45,000 0 0	2,500 0 0	14,500 0 0
Interest Accrued ...	£6,276,216 0 0	£6,221,713 14 9	£238,488 9 7	£1,561,246 3 7
	—	44,654 11 6	1,642 15 7	8,800 13 10
	£6,276,216 0 0	£6,266,368 6 3	£240,131 5 2	£1,573,046 17 5

Johannesburg,  
18th April, 1946.

## Supply Commission.

Investments of the Redemption Fund at 31st December, 1945.

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 3¾% Local Registered Stock, 1954/64.	£2,500,000 3¾% Local Registered Stock, 1959/64.	£2,000,000 3¾% Local Registered Stock, 1956/66.	£2,000,000 3¾% Local Registered Stock, 1957/67.	£2,000,000 3¾% Local Registered Stock, 1959/64.	£1,500,000 3¾% Local Registered Stock, 1960/65.	£2,000,000 3¾% Local Registered Stock, 1961/66.	£2,500,000 3¾% Local Registered Stock, 1965/70.
£65,450 0 0	—	—	—	—	—	—	—
15,500 0 0	£4,500 0 0	—	—	—	—	—	—
743,413 0 0	53,721 15 9	£17,000 0 0	£3,518 13 3	—	£193 14 10	—	—
35,000 0 0	88,522 0 0	5,600 0 0	5,400 0 0	£1,300 0 0	—	—	—
143,560 0 0	19,400 0 0	52,551 19 8	—	—	—	—	—
77,628 10 0	60,043 0 0	21,922 0 0	44,300 11 8	1,072 10 0	—	—	—
180,286 8 3	62,540 7 8	55,274 6 4	45,785 0 4	54,900 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	6,660 0 0	£4,450 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	5,000 0 0	5,000 0 0	5,000 0 0	5,000 0 0	—	—	—
159,998 19 11	79,994 9 7	56,995 19 8	46,400 0 0	51,995 19 8	6,997 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	—	—	—	—	—	—
125,600 0 0	54,000 0 0	19,900 0 0	21,100 0 0	18,600 0 0	10,700 0 0	13,100 0 0	2,700 0 0
—	—	1,500 0 0	—	—	—	—	—
12,000 0 0	—	—	1,000 0 0	4,300 0 0	—	—	—
16,660 0 0	32,424 13 11	16,686 11 11	—	—	—	—	—
86,000 0 0	29,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	1,000 0 0	22,000 0 0	6,000 0 0
—	—	—	—	—	2,000 0 0	—	—
—	—	38,998 7 11	46,838 7 11	58,108 7 11	10,122 11 11	27,000 0 0	11,500 0 0
28,000 0 0	—	—	—	—	—	—	—
£2,185,671 18 2	£722,536 6 11	£173,532 5 6	£121,612 13 2	£353,466 17 7	£122,810 10 4	£95,548 9 11	£43,800 0 0
15,750 6 7	5,043 3 7	4,047 18 8	3,370 0 11	3,334 7 10	1,213 17 4	984 1 8	467 2 6
£2,201,422 4 9	£727,579 10 6	£177,580 4 2	£124,982 14 1	£356,801 5 5	£124,024 7 8	£96,532 11 7	£44,267 2 6

J. VAN NIEKERK, Chief Accountant.

## Electricity Supply Commission.

## Redemption Fund Account for the Year ended 31st December, 1945

	Totals.	Loan No. 3. £500,000 4½% Local Registered Stock, 1953/63.	Loan No. 4. £2,500,000 4½% Local Registered Stock, 1953.	Loan No. 5. £6,750,000 3½% Local Registered Stock, 1954/64.	Loan No. 6. £2,500,000 3½% Local Registered Stock, 1959/64.	Loan No. 7. £2,000,000 3½% Local Registered Stock, 1956/66.	Loan No. 8. £2,000,000 3½% Local Registered Stock, 1957/67.	Loan No. 9. £2,000,000 3½% Local Registered Stock, 1959/64.	Loan No. 10. £1,500,000 3½% Local Registered Stock, 1960/65.	Loan No. 11. £2,000,000 3½% Local Registered Stock, 1961/66.	Loan No. 12. £2,500,000 3½% Local Registered Stock, 1965/70
<b>Cr.</b>											
<b>Balance at 31st December, 1944, brought forward—</b>											
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 4 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
<b>Amounts Contributed during the Year out of Revenue—</b>											
Natal Central Undertaking ... ..	£115,208 14 7	£52 4 11	£3,398 2 10	£92,493 7 2	—	£4,198 4 8	£1,459 5 1	£1,728 17 7	£1,986 12 6	£8,774 18 4	£1,117 1 6
Witbank Undertaking ... ..	68,643 10 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	128 8 10	2,337 0 6
Cape Town Undertaking ... ..	90,787 5 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	8,562 5 5	2,323 15 7
Durban Undertaking ... ..	47,740 3 11	4,264 12 0	19,064 19 9	7,795 15 10	—	441 10 8	7,871 11 3	2,277 10 10	3,451 12 9	2,396 14 8	175 16 2
Sabie Undertaking ... ..	3,568 10 10	—	2,610 16 8	870 5 7	—	—	—	—	—	87 8 7	—
Klip Generating Station Undertaking ... ..	165,534 0 0	—	—	—	£58,636 13 3	30,111 17 7	30,828 1 7	32,728 1 9	4,563 14 7	93 12 5	8,571 18 10
Rand Extension Undertaking ... ..	25,050 19 3	—	—	—	5,548 6 9	1,713 5 3	7,207 16 8	4,830 2 8	145 2 3	428 6 6	5,177 19 2
Vaal Generating Station Undertaking ... ..	67,950 3 4	—	—	—	—	—	—	682 3 6	30,463 10 11	36,804 8 11	—
Head Office ... ..	9,561 18 6	—	159 6 11	3,313 5 1	—	5,888 5 2	—	97 2 5	81 0 1	13 1	9 17 3
	£594,045 5 10	£15,599 2 10	£69,394 10 8	£170,492 16 9	£64,185 0 0	£48,094 0 4	£51,348 1 6	£52,218 5 4	£15,710 14 2	£57,289 5 3	£19,713 9 0
<b>Net Proceeds of Sales of Fixed Property—</b>											
Natal Central Undertaking ... ..	£338 13 4	—	—	£338 13 4	—	—	—	—	—	—	—
Cape Town Undertaking ... ..	1,095 0 0	—	—	1,095 0 0	—	—	—	—	—	—	—
Durban Undertaking ... ..	200 0 0	—	—	—	—	—	—	—	—	—	£200 0 0
Head Office ... ..	15 0 0	—	—	15 0 0	—	—	—	—	—	—	—
	£1,648 13 4	—	—	£1,448 13 4	—	—	—	—	—	—	£200 0 0
<b>Net Interest Earned on Investments, after Deducting Amounts Appropriated in writing off Premiums on Investments Purchased—</b>											
Natal Central Undertaking ... ..	£38,863 3 5	£27 10 10	£1,614 2 5	£34,514 4 0	—	£1,216 7 4	£365 17 5	£350 16 7	£283 1 10	£476 12 5	£14 10 7
Witbank Undertaking ... ..	49,296 0 7	£48 1 8	34,344 10 5	12,380 8 10	—	1,359 13 8	620 16 11	192 13 5	284 9 7	12 9 11	52 16 2
Cape Town Undertaking ... ..	30,215 3 2	5,645 12 8	3,118 12 3	17,921 18 2	—	327 12 11	333 14 0	1,703 1 10	617 6 10	490 11 8	26 12 10
Durban Undertaking ... ..	24,591 5 4	2,352 4 6	14,391 8 4	4,764 14 9	—	119 7 10	1,948 17 11	433 5 4	467 9 10	111 11 1	2 5 9
Sabie Undertaking ... ..	3,059 8 1	—	2,344 15 9	710 0 11	—	—	—	—	—	4 11 5	—
Klip Generating Station Undertaking ... ..	45,571 19 0	—	—	—	£20,578 13 8	9,341 9 10	7,795 11 3	6,667 3 7	742 8 9	9 19 2	436 12 9
Rand Extension Undertaking ... ..	5,670 2 0	—	—	—	2,003 11 3	499 5 10	1,819 5 8	1,002 8 0	23 2 4	56 17 2	265 11 9
Vaal Generating Station Undertaking ... ..	415 15 2	—	—	—	—	—	—	4 19 6	206 18 4	203 17 4	—
Head Office ... ..	2,946 10 3	—	111 19 2	948 8 5	—	1,852 10 1	—	19 13 0	12 12 5	1 4 4	2 10
	£200,629 7 0	£8,073 9 8	£55,925 8 4	£71,239 15 1	£22,582 4 11	£14,716 7 6	£12,884 3 2	£10,374 1 3	£2,667 9 11	£1,367 14 6	£798 12 8
<b>Grand Total</b>	<b>£6,238,397 13 1</b>	<b>£238,518 9 0</b>	<b>£1,567,712 1 0</b>	<b>£2,196,051 16 10</b>	<b>£723,852 12 4</b>	<b>£476,041 3 0</b>	<b>£423,352 15 0</b>	<b>£355,235 2 2</b>	<b>£122,228 13 4</b>	<b>£93,575 5 1</b>	<b>£41,829 15 4</b>
<b>Dr.</b>											
<b>Balance as per Balance Sheet—</b>											
Natal Central Undertaking ... ..	£1,215,661 13 2	£814 19 5	£46,062 11 9	£1,069,706 17 2	—	£39,475 14 1	£12,021 8 8	£11,987 3 0	£10,669 9 11	£23,515 15 0	£1,407 14 2
Witbank Undertaking ... ..	1,421,629 19 5	1,418 10 11	959,870 12 9	374,377 17 2	—	44,086 14 7	20,472 17 3	6,608 9 0	10,919 19 1	544 14 6	3,330 4 2
Cape Town Undertaking ... ..	941,943 16 3	166,956 16 0	88,944 14 5	556,110 11 8	—	10,627 1 7	10,999 15 10	58,477 1 3	23,311 17 8	23,644 2 3	2,871 15 7
Durban Undertaking ... ..	724,815 7 2	69,328 2 8	404,130 5 6	144,620 9 1	—	3,891 4 11	64,098 10 9	14,885 16 8	17,720 18 4	5,737 19 3	402 0 0
Sabie Undertaking ... ..	87,159 18 1	—	65,554 2 6	21,379 12 5	—	—	—	—	—	226 3 2	—
Klip Generating Station Undertaking ... ..	1,494,476 18 0	—	—	—	£659,716 4 8	301,937 6 1	256,006 11 3	227,731 8 2	27,602 9 2	432 10 10	21,050 7 10
Rand Extension Undertaking ... ..	190,306 10 8	—	—	—	64,136 7 8	16,197 17 9	59,753 11 3	34,186 16 5	862 16 2	2,411 7 11	12,757 13 6
Vaal Generating Station Undertaking ... ..	68,365 18 6	—	—	—	—	—	—	687 3 0	30,670 9 3	37,008 6 3	—
Head Office ... ..	94,037 11 10	—	3,149 14 1	29,856 9 4	—	59,825 4 0	—	671 4 8	470 13 9	54 5 11	10 0 1
	£6,238,337 13 1	£238,518 9 0	£1,567,712 1 0	£2,196,051 16 10	£723,852 12 4	£476,041 3 0	£423,352 15 0	£355,235 2 2	£122,228 13 4	£93,575 5 1	£41,829 15 4

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 17th, May, 1946.

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



## Electricity Supply

### NATAL CENTRAL

Dr.	Revenue Account for the Year				
	<b>Generation of Electricity.</b>				
To Operation—					
Fuel	£150,156	7	4		
Water, Oil, Waste and Stores	2,055	2	4		
Salaries and Wages	33,328	14	6		
Other Expenses	198	9	4		
„ Maintenance—					
Stores	8,511	12	7		
Salaries and Wages	19,944	12	7		
Other Expenses	1,732	8	7		
				£215,927	7 3
„ Electricity Purchased				100	12 6
„ Electricity Interchanged				291	16 5
				45,925	4 11
	<b>Distribution of Electricity.</b>				
„ Operation and Maintenance—					
Stores	5,712	15	6		
Salaries and Wages	32,469	9	2		
Other Expenses	7,743	0	3		
				17,317	14 6
	<b>General Expenses.</b>				
„ Local Administration and Technical Management	17,317	14	6		
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, Payment to Durban Undertaking under Agreement, etc.)	17,901	12	8		
„ Investigations and Development Expenses	40	13	1		
„ Head Office Administration and General Expenses, including Publicity	14,072	6	7		
„ Engineering Expenses	6,382	1	0		
				55,714	7 16
„ Deferred Payment Scheme, including Propaganda and Showroom Expenses				213	6 8
				318,172	15 7
„ Interest				170,839	6 11
„ Redemption Fund				115,208	14 7
„ Instalments paid on Volksrust Municipality Loan				1,642	12 5
„ Amount set aside to Reserve Fund				32,000	0 0
				£637,863	9 6
To Balance brought down				£1,446	1 8
„ War Gratuities to Employees, including Proportion of Head Office Payments				7,050	16 11
„ Balance as per Balance Sheet				22,510	15 11
				£31,007	17 6

Johannesburg,  
18th April, 1946.

J. VAN NIEKERK, Chief Accountant.

## Commission.

### UNDERTAKING

ended 31st December, 1945.

	Cr.
By Sales of Electricity—	
Traction Supplies	£432,818 10 9
Bulk Supplies	111,994 0 9
Industrial Supplies	54,359 15 0
Domestic and Lighting Supplies	29,110 10 6
Electricity Interchanged	3,061 2 8
	£631,343 19 8
„ Other Revenue	5,073 8 2
„ Balance carried down	1,446 1 8
	£637,863 9 6
By Balance at 31st December, 1944, brought forward	£24,819 17 2
„ Provision made in previous years for anticipated expenditure, no longer required.	6,188 0 4
	£31,007 17 6

Referred to in our Report of 17th May, 1946.

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

## Electricity Supply WITBANK

### Dr. Revenue Account for the Year

		<b>Generation of Electricity.</b>				
To Operation—						
	Fuel ... ..	£73,653	3	3		
	Water, Oil, Waste and Stores ... ..	7,444	10	6		
	Salaries and Wages ... ..	40,646	9	2		
	Other Expenses ... ..	1,923	14	4		
.. Maintenance—						
	Stores ... ..	17,125	6	2		
	Salaries and Wages ... ..	24,283	7	6		
	Other Expenses ... ..	16,824	2	4		
.. Electricity Purchased ... ..					£181,900	13 3
					169,259	6 7
		<b>Distribution of Electricity.</b>				
.. Operation and Maintenance—						
	Stores ... ..	2,623	11	5		
	Salaries and Wages ... ..	6,140	2	0		
	Other Expenses ... ..	289	3	1		
					9,052	16 6
		<b>General Expenses.</b>				
.. Local Administration and Technical Management ...		9,933	11	8		
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..		13,975	5	5		
.. 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 ... ..		9,006	6	4		
.. Engineering Expenses ... ..		4,084	10	5		
					43,999	13 10
.. Deferred Payment Scheme, including Propaganda and Showroom Expenses ... ..					67	14 4
					404,280	4 6
.. Interest ... ..					114,938	6 7
.. Redemption Fund ... ..					68,643	10 4
.. Amount set aside to Reserve Fund ... ..					4,329	5 11
.. Balance carried down ... ..					239	16 1
					£592,431	3 5
To Further adjustment in terms of Section 10 of the Electricity Act, 1922 ... ..					£16,971	3 0
.. War Gratuities to Employees, including Proportion of Head Office Payments ... ..					1,378	4 0
.. Balance as per Balance Sheet ... ..					19,217	9 0
					£37,566	16 0

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
18th April, 1946.

## Commission. UNDERTAKING.

ended 31st December, 1945.

Cr.

By Sales of Electricity—						
	Traction Supplies ... ..	£194,308	5	3		
	Bulk Supplies ... ..	238,764	1	8		
	Industrial Supplies ... ..	156,359	1	7		
	Domestic and Lighting Supplies ... ..	10,461	8	4		
					599,892	16 10
Less—Adjustment in terms of Section 10 of the Electricity Act, 1922 ... ..					16,971	3 1
					£582,921	13 9
.. Other Revenue ... ..					9,509	9 8
					£592,431	3 5
By Balance at 31st December, 1944, brought forward ... ..					£37,326	19 11
.. Balance brought down ... ..					239	16 1
					£37,566	16 0

Referred to in our Report of 17th May, 1946.

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



## Electricity Supply Commission

Dr. Statement of Pooled Costs for the Year ended

Pooled Generation of Electricity.		
To Operation and Maintenance—		
Fuel	£458,845 18 1	
Water, Oil, Waste and Stores	26,422 19 9	
Salaries, Wages and Other Expenses	122,340 14 6	
	£607,609 12 4	
„ General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	18,150 5 4	
„ Interest	117,733 0 1	
„ Redemption Fund	113,191 2 5	
„ Reserve Fund	17,777 13 8	
	£874,461 13 10	

Cape Town,  
18th April, 1946.

## and City of Cape Town.

31st December, 1945, and Allocation thereof.

Cr.

By Allocation of Pooled Costs in terms of Agreement—

Electricity Supply Commission	£289,024 9 11	
City of Cape Town	583,331 4 3	
	£872,355 14 2	
„ Sundry Revenue	2,105 19 8	
	£874,461 13 10	

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



## Electricity Supply

### DURBAN

#### Dr. Revenue Account for the Year

Generation of Electricity.			
To Operation—			
Fuel ... ..	£214,734	2	4
Water, Oil, Waste and Stores ... ..	8,361	19	3
Salaries and Wages ... ..	30,941	9	9
Other Expenses ... ..	122	19	1
.. Maintenance—			
Stores ... ..	12,326	5	8
Salaries and Wages ... ..	28,703	7	10
Other Expenses ... ..	4,487	1	6
.. Operation and Maintenance, Alice Street Power Station			
.. Electricity Purchased ... ..		12,167	10 3
.. Electricity Interchanged ... ..		10,380	0 0
		3,061	2 8
			£299,677 5 5
Distribution of Electricity.			
.. Operation and Maintenance—			
Stores ... ..	5,426	14	10
Salaries and Wages ... ..	9,605	18	3
Other Expenses ... ..	1,316	14	11
			16,349 8 0
General Expenses.			
.. Local Administration and Technical Management ... ..	9,890	13	9
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	13,047	4	1
.. Investigations and Development Expenses ... ..	46	17	7
.. Head Office Administration and General Expenses, including Publicity ... ..	8,599	15	2
.. Engineering Expenses ... ..	3,900	2	10
			35,484 13 5
.. Deferred Payment Scheme, including Propaganda and Showroom Expenses ... ..		2	18 7
			377,122 18 4
.. Interest ... ..		72,023	15 2
.. Redemption Fund ... ..		47,740	3 11
.. Sinking Fund ... ..		120	0 0
.. Amount set aside to Reserve Fund ... ..		15,000	0 0
			£512,006 17 5
To Balance brought down ... ..		£25,167	14 10
.. War Gratuities to Employees, including Proportion of Head Office Payments ... ..		5,962	17 9
			£31,130 12 7

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
18th April, 1946.

## Commission.

### UNDERTAKING.

ended 31st December, 1945.

Cr.

By Sales of Electricity—			
Bulk Supplies ... ..	£127,211	11	3
Industrial Supplies ... ..	31,240	11	10
Domestic and Lighting Supplies ... ..	25,111	14	8
Electricity Interchanged ... ..	291	16	5
			£183,855 14 2
.. Other Revenue ... ..			2,983 8 5
.. Balance carried down ... ..			25,167 14 10
			£512,006 17 5
By Balance at 31st December, 1944, brought forward ... ..	£3,820	12	3
.. Balance as per Balance Sheet ... ..	27,310	0	4
			£31,130 12 7

Referred to in our Report of 17th May, 1946.

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



## Electricity Supply

### KLIP GENERATING

#### Dr. Revenue Account for the Year

Generation of Electricity.		
To Operation—		
Fuel ... ..	£499,028 16 5	
Water, Oil, Waste and Stores ... ..	10,792 11 6	
Salaries and Wages ... ..	62,103 17 6	
Other Expenses ... ..	1,833 4 0	
.. Maintenance—		
Stores ... ..	14,650 9 0	
Salaries and Wages ... ..	39,477 10 9	
Other Expenses ... ..	9,866 3 2	
	£637,752 12 4	
General Expenses.		
.. Local Administration and Technical Management ...	8,471 1 4	
.. General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	19,132 4 10	
.. 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 ... ..	7,030 17 11	
.. Engineering Expenses ... ..	3,188 12 8	
	55,147 16 9	
.. Interest ... ..	692,900 9 1	
.. Redemption Fund ... ..	231,273 8 9	
.. Provision for Repayment of Amounts Outstanding (Rand Water Board) ... ..	165,534 0 0	
.. Amount set aside to Reserve Fund ... ..	6,557 13 7	
	64,475 7 0	
	£1,160,740 18 5	

Johannesburg,  
18th April, 1946.

J. VAN NIEKERK, Chief Accountant.

## Commission.

### STATION UNDERTAKING.

#### ended 31st December, 1945. Cr.

By Sales of Electricity—		
Bulk Supplies ... ..	£1,151,907 15 2	
.. Other Revenue ... ..	5,833 3 3	

£1,160,740 18 5

Referred to in our Report of 17th May, 1946.

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

Account No. 9.

## Electricity Supply

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### RAND EXTENSION

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Dr. Revenue Account for the Year

To General Expenses (Insurance) ... ..	£170 13 6	
„ Head Office Administration and General Expenses, including Publicity ... ..	828 3 0	
„ Engineering Expenses ... ..	375 11 8	
	£1,374 8 2	
„ Interest ... ..	34,215 16 0	
„ Redemption Fund ... ..	25,050 19 3	
„ Amount set aside to Reserve Fund ... ..	9,924 6 2	
	£70,565 9 7	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
18th April, 1946.

## Commission.

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### UNDERTAKING.

---

ended 31st December, 1945.

Cr.

By Amount recovered from The Victoria Falls and Transvaal Power Company, Limited ... ..	£70,565 9 7	
	£70,565 9 7	

Referred to in our Report of 17th May, 1946.

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

**Electricity Supply**  
**VAAL GENERATING**

Dr. Revenue Account for the Year

Generation of Electricity.			
To Operation—			
Fuel ... ..		£94,932 16 1	
Water, Oil, Waste and Stores ... ..		1,919 5 1	
Salaries and Wages ... ..		18,966 19 11	
Other Expenses ... ..		433 3 9	
„ Maintenance—			
Stores ... ..		1,369 18 5	
Salaries and Wages ... ..		3,645 14 9	
Other Expenses ... ..		951 4 4	
		£122,219 2 4	
General Expenses.			
„ Local Administration and Technical Management ...		3,894 9 5	
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..		4,272 2 1	
„ Head Office Administration and General Expenses, including Publicity ... ..		2,486 9 1	
„ Engineering Expenses ... ..		1,127 13 0	
		11,780 13 7	
		133,999 15 11	
„ Interest ... ..		67,503 10 2	
„ Redemption Fund ... ..		67,950 3 4	
„ Provision for Repayment of Amounts Outstanding (Rand Water Board) ... ..		847 13 7	
„ Amount set aside to Reserve Fund ... ..		9,605 17 1	
		£279,907 0 1	

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
18th April, 1946.

Account No. 10.

**Commission.**  
**STATION UNDERTAKING.**

ended 31st December, 1945. Cr.

By Sales of Electricity—			
Bulk Supplies ... ..		£276,101 11 10	
„ Other Revenue ... ..		3,805 8 3	
		£279,907 0 1	

Referred to in our Report of 17th May, 1946.

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.**

Bulk supply at Power  
Station.

**Schedule of Charges.**

(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.
<b>Statement No. 1.</b> —Summary of Principal Plant and Equipment installed at the Commission's several undertakings as at 31st December, 1945 ... ..	85
<b>Statement No. 2.</b> —Summary of Principal Plant and Equipment in course of installation or on order as at 31st December, 1945 ...	88
<b>Statement No. 3.</b> —Units sold to all consumers during the past twenty-one years ... ..	89
<b>Statement No. 4.</b> —Distribution of units sold during 1945 as between the various classes of consumers ... ..	90
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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, 1945:

## 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
Vaal	...	...	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 1 }	{ 60,000 100,000 200,000 }	960,000	{ 275 300 625
Klip	24	180,000	4,320,000	355
Salt River	{ 2 6 }	{ 60,000 100,000 }	720,000	{ 270 425
Vaal	6	190,000	1,140,000	360
Witbank	20	70,000	1,400,000	225
<b>Totals</b>	<b>81</b>		<b>9,380,000</b>	

## 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	40,000	396,000	480,000	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
Vaal ...	2	33,000	40,000	66,000	80,000	10,500 A.C.	
Volksrust ...	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
<b>Totals ...</b>	<b>43</b>			<b>838,556</b>	<b>1,006,796</b>		<b>36,300</b>

Total Station Capacity: 874,856 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.		460/250 and 380/220 volts. Route Miles.		Total Route Miles.
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Cape Town ...	—	—	—	—	306	—	—	—	151	—	—	—	—	—	801
Durban (South Coast)	—	—	—	—	58	—	—	—	28	—	—	—	—	—	166
Natal Central ...	553	—	—	—	33	67	125	184	—	—	—	—	—	—	1,044
Rand Extension ...	278	85	—	—	—	9	—	47	—	—	—	—	—	—	441
Sabie ...	—	—	—	—	—	7	—	—	—	—	—	—	—	—	8
Witbank ...	—	22	—	—	—	140	—	32	—	—	—	—	—	—	225
<b>Totals ...</b>	<b>831</b>	<b>107</b>	<b>397</b>	<b>223</b>	<b>304</b>	<b>437</b>	<b>304</b>	<b>437</b>	<b>386</b>	<b>2,685</b>					

STATIC TRANSFORMERS AT POWER STATIONS AND SUB-STATIONS.

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

Undertaking.						Capacity. Kilovolt-amperes.
Cape Town ... ..	...	...	...	...	...	168,120
Durban ... ..	...	...	...	...	...	66,360
Klip ... ..	...	...	...	...	...	549,133
Natal Central ... ..	...	...	...	...	...	246,303
Rand Extension ... ..	...	...	...	...	...	327,810
Sabie ... ..	...	...	...	...	...	3,640
Vaal ... ..	...	...	...	...	...	234,909
Witbank (including Reef, 71,890) ... ..	...	...	...	...	...	264,831
<b>Total</b> ... ..	...	...	...	...	...	<b>1.861,106</b>

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	†59	*72,337 kW
<b>Totals</b> ... ..	...	...	<b>53</b>	<b>98</b>	—

† Of these some are equipped for rectifying and inverting—the total inverted rating is 11,500 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, 1945.

### BOILER PLANT.

Power Station.			Number of Boilers.	Each.	Capacity in lb of steam per hour (Normal rating).		Pressure. p s i
					Total.		
Colenso	...	...	2	180,000	<b>360,000</b>		290
Congella	...	...	4	200,000	<b>800,000</b>		625
					<b><u>1,160,000</u></b>		

### GENERATING PLANT.

Power Station			Number of Sets		Capacity. Each.		Total Kilowatts.
Colenso	...	...	1	...	25,000 kW	...	<b>25,000</b>
Congella	...	...	2	...	40,000 kW	...	<b>80,000</b>
Vaal	...	...	3	...	33,000 kW	...	<b>106,000</b>
			1	...	7,000 kW (House Set)	}	
							<b><u>211,000</u></b>

### TRANSFORMERS.

(Step-up and Step-down.)

		Kilovolt-amperes.
Total capacity in course of installation or on order	...	95,020

### CONVERTING SUB-STATIONS.

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

**STATEMENT No. 3.**

Units sold to all consumers during the past twenty-one years.

Year.	Cape Town Under-taking.	Durban Under-taking.	Klip Under-taking.	Natal Cent. Under-taking.	Sabie Under-taking.	Vaal Under-taking.	Witbank Under-taking.	Total.
1925	—	—	—	—	75,943	—	—	<b>75,943</b>
1926	280,242	—	—	719,666	651,458	—	160,031,213	<b>161,682,579</b>
1927	5,811,836	—	—	101,266,235	1,938,940	—	439,061,722	<b>551,018,733</b>
1928	31,038,697	15,563,460	—	114,213,037	2,829,888	—	164,267,213	<b>627,912,295</b>
1929	47,945,690	78,873,576	—	123,911,774	3,176,173	—	543,091,138	<b>796,998,351</b>
1930	49,772,016	99,228,000	—	117,075,484	4,585,060	—	618,951,364	<b>889,611,924</b>
1931	52,109,958	103,899,765	—	101,131,880	6,585,553	—	603,359,113	<b>867,086,269</b>
1932	64,268,873	109,808,223	—	100,292,933	6,080,010	—	610,285,123	<b>890,735,162</b>
1933	100,685,629	118,538,312	—	109,186,538	6,349,651	—	639,368,114	<b>974,128,244</b>
1934	73,583,974	131,104,182	—	124,898,129	7,329,679	—	648,245,530	<b>985,161,494</b>
1935	80,020,511	149,874,024	—	154,278,600	7,181,282	—	727,888,529	<b>1,119,242,946</b>
1936	85,840,383	170,493,987	556,997,155	171,476,131	6,863,253	—	696,376,199	<b>1,688,047,108</b>
1937	94,038,449	189,412,691	1,349,853,464	210,632,827	7,166,684	—	684,516,633	<b>2,535,620,748</b>
1938	98,801,619	209,495,780	1,666,852,594	234,948,157	7,240,167	—	768,114,272	<b>2,985,452,589</b>
1939	106,451,848	233,677,491	2,193,206,661	266,238,056	6,380,657	—	767,741,727	<b>3,573,696,440</b>
1940	119,770,941	242,741,129	2,566,536,197	281,121,807	6,669,552	—	853,317,743	<b>4,070,157,369</b>
1941	136,240,415	270,316,419	2,675,943,959	302,395,900	6,565,110	—	862,562,248	<b>4,254,024,051</b>
1942	151,769,902	273,748,608	2,707,829,911	307,724,141	6,335,396	—	873,410,460	<b>4,320,848,418</b>
1943	145,739,820	293,366,350	2,669,086,704	312,387,660	5,930,089	—	849,119,231	<b>4,275,629,854</b>
1944	158,673,418	321,583,537	2,703,638,629	335,977,438	6,723,791	—	889,205,914	<b>4,415,802,727</b>
1945	165,857,610	348,740,929	2,643,039,705	333,192,760	6,596,859	377,902,035	830,734,606	<b>4,706,064,504</b>

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 1945 as between the various classes of consumers.

## UNITS SOLD, 1945.

Undertaking.	Traction.	Bulk.	Industrial and Mining.	Domestic and Lighting.	Total.
Cape Town ...	61,375,220	27,371,812	57,872,017	19,238,561	165,857,610
Durban ...	—	325,563,611	19,687,048	3,490,270	348,740,929
Klip ...	—	2,643,039,705	—	—	2,643,039,705
Natal Central ...	256,559,011	51,986,183	20,980,566	3,667,000	333,192,760
Sabie ...	—	—	6,596,859	—	6,596,859
Vaal ...	—	377,902,035	—	—	377,902,035
Witbank ...	117,537,347	559,710,890	151,305,969	2,180,400	830,734,606
Totals ...	435,471,578	3,985,574,236	256,442,459	28,576,231	4,706,064,504

**STATEMENT No. 5.**

## POWER STATION STATISTICS, 1945.

Power Station.	Units Generated.	Maximum Half-hourly Demand. Kilowatts (Sent Out).	Load Factor on Units Sent Out. Per cent.
Caledon* ...	—	—	—
Colenso ...	376,154,460	68,510	59.6
Congella ...	365,438,100	76,810	50.2
Klip ...	2,813,583,762	374,220 (Hour)	80.6
Margate ...	9,454	—	—
Port Shepstone ...	705,480	1,424	—
Sabie ...	7,035,100	1,275	62.2
Salt River ...	142,347,167	57,400	25.7
Vaal ...	400,682,925	63,457 (Hour)	72.9
Volkstrust ...	11,550	—	—
Witbank ...	755,433,743	100,966 (Hour)	80.2
	4,861,401,741		

\* Caledon not operated during 1945—standby only.

**STATEMENT No. 6.**

Particulars of coal used at the Commission's Steam-raising Power Stations during 1945.

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 ...	281,267	1.495	1.571	12,190	19,150	17.82%
Congella ...	278,091	1.522	1.645	12,240	20,130	16.95%
Klip ...	2,372,019	1.686	1.795	9,090	16,320	20.91%
Salt River ...	109,379	1.537	1.666	12,200	20,330	16.78%
Vaal ...	327,700	1.636	1.734	9,070	15,730	21.69%
Witbank ...	642,227	1.700	1.810	11,080	20,050	17.02%
	<u>4,010,683</u>					

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

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
Colenso ...	9/10	10/7	10/9	10/9	11/-	10/10	10/9	10/11	10/11	11/-	10/11	10/10	10/4	10/8
Congella ...	15/4	15/6	15/4	15/-	15/5	15/2	15/-	15/3	15/2	15/3	15/2	14/9	14/6	15/4
Klip ...	—	—	—	—	3/2	3/-	3/3	3/4	3/6	3/6	3/7	3/9	3/11	4/2
Salt River ...	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	25/4
Vaal ...	—	—	—	—	—	—	—	—	—	—	—	—	—	5/10
Witbank ...	2/4	2/4	2/3	2/3	2/2	2/2	2/1	2/1	2/-	2/-	2/1	2/1	2/4	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 1945.

(See previous Annual Reports for Rights or Interests in or over Land acquired prior to 1945.)

Farm or Lot.	District.	Title.	Purchase Price or Rental.	Acquired From.	Purpose for which Required.
<b><u>NATAL CENTRAL UNDERTAKING.</u></b>					
Remainder Dovesdale ... } Remainder Rocketdale ... }	Newcastle	Servitude of Right-of-way in Perpetuity	£150 0 0	J. E. Briscoe	Power Conductors
Tweedeel No. 1003 ... } Portion Plauen No. 850 ... }	Harrismith	do.	£68 5 0	D. D. van Reenen	do.
Grootgeluk No. 58 ...	do.	do.	£17 0 0	A. A. Stanton	do.
"Some More" No. 1277 ...	do.	do.	£40 15 0	C. W. Steenkamp	do.
Redeemed Farm Balmoral No. 297 ... } Kiel No. 772 ... }	do.	do.	£36 5 0	Union Government	do.
Remainder Sub Welkomst Washbank No. 1076 ...	Klip River	do.	£15 0 0	I. J. de Jager	do.
Portion named Erin No. 1644 of Plauen No. 850 ...	Harrismith	do.	£12 10 0	L. A. van Reenen	do.
Komeet No. 52 ... } Polzin No. 817 ... }	do.	do.	£26 5 0	J. Sallis	do.
Driehoek No. 748 ...	do.	do.	£11 5 0	J. H. Swiegers	do.
"School" No. 661 ... } Riverside No. 1174 ... }	do.	do.	£15 0 0	J. Venter	do.
Christina No. 898 ...	do.	do.	£23 15 0	C. F. Kunz	do.
Remainder Smaldeel 1002 ...	do.	do.	£20 0 0	K. G. Liddell	do.
<b><u>CAPE TOWN UNDERTAKING.</u></b>					
Portion partly abolished quitrent land "The Spring," comprising remaining extent of Boston Park and part of Boston Farm	Bellville	Servitude of Right-of-way in Perpetuity	£1 10 3	H. C. V.N. Duminy	Power Conductors
Remainder of farm "Gevonden," Portion "De Latabs Plaats," Portion "Tois Kloof" ...	Worcester	do.	£150 9 7	H. C. de Wet	do.
Redeemed quitrent land Portion 61 Portion of Lot 2 of Onrust River and Rheeziq ...	Caledon	do.	£7 19 0	S. J. Fourie	do.
Remainder Lot No. 2 Onrust River and Rheeziq ...	do.	do.	£11 10 0	S. J. Haumann	do.
Remainder "Lorraine" ...	Worcester	do.	£10 0 0	J. C. H. de Wet	do.
(1) Redeemed quitrent land Lots F. and G. Helderfontein Estate, Portion farm Palmietriver ... } (2) Abolished quitrent land portion of De Oude Brugge now called Morning Star ... }	Caledon	do.	£38 13 2	C. C. Cunningham	do.
Portion 2 (Lebenstraum) Groot Eiland A ...	Worcester	do.	£35 8 5	J. de Wet Deetlefs	do.
(1) Remainder of Groot Eiland A ... } (2) Portion of "Lorraine" ... }	do.	do.	£3 19 2	P. B. Deetlefs	do.
<b><u>WITBANK UNDERTAKING.</u></b>					
Portion 5 of Portion C of Wolwekrans No. 44 ...	Witbank	Servitude of Right-of-way in Perpetuity	£17 8 0	J. D. Lourens	Power Conductors
Portion 4 of Portion C of farm Wolwekrans No. 44 ...	do.	do.	£29 8 0	J. S. Rabe	do.
<b><u>RAND EXTENSION UNDERTAKING.</u></b>					
Portion 1 of Portion B of Wildebeestpan No. 40 ...	Klerksdorp	Servitude of Right-of-way in Perpetuity	£2 15 0 per annum	H. M. Swart	Power Conductors
(i) Remaining Portion of Western Portion of Farm Witkop No. 46 ... } (ii) Remaining extent Western Portion called Lot 1 of Farm Witkop No. 46 ... }	do.	do.	Nil	Western Reefs Exploration and Development Co., Ltd.	do.
(iii) Remaining extent Eastern Portion of Farm Witkop No. 46 ... } (iv) Portion "A" Vaalkop No. 110 ... } (v) Portion "B" Vaalkop No. 110 ... } (vi) Remaining extent Vaalkop No. 110 ... }	do.	do.	Nil	Delmas Health Committee	do.
Portion of Portion of Witkop 13 ...	Springs	do.	Nil	J. P. Smith	do.
Remaining Portion of Witkop 13 ...	do.	do.	£5 0 0	W. H. C. Bleasby	do.
Portion A of Lot 168 Edenburg Township ...	Johannesburg	do.	£5 0 0	F. Paladin	do.
Portion of Lot 13, Farm Rietfontein No. 33 ...	do.	do.	£5 0 0	P. J. Mare	do.
(1) Remaining Portion Lot 5 of Portion Rietfontein 33 ... } (2) Portion Farm Rietfontein 33 ... }	do.	do.	£15 0 0	Department of Mines	do.
Vlakfontein No. 21 ...	Nigel	Surface Right Permit	Nil	do.	do.
Vlakfontein No. 8 ...	Heidelberg	do.	Nil	do.	do.

## ANNEXURE " D. "

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

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Extracted from the 1943/44 Industrial Census and published by courtesy of the Department of Census and Statistics (Pretoria).

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## UNITS GENERATED.

Province.			Local Authorities.	Private Companies.
Cape ... ..	...	...	666,222,166	218,463,733
Natal ... ..	...	...	20,735,234	862,136,589
O.F.S. ... ..	...	...	47,338,122	21,910,690
Transvaal ... ..	...	...	712,207,857	5,493,903,988
Total ... ..	...	...	1,446,503,379	6,596,415,000
			<hr/> 8,042,918,379 <hr/>	

## CONSUMERS AND SALES.

	PROVINCE.				
	Cape.	Natal.	O.F.S.	Transvaal.	Totals.
Total Number of Consumers	147,133	58,334	16,207	156,413	378,087
Total Units Consumed ...	756,400,308	745,763,123	90 528,389	5,326,975,690	6,919,667,510
Number of Domestic Consumers	127,912	45,818	14,241	137,569	325,540
Units Sold and Used for					
Domestic Consumption	348,256,807	156,792,233	15,691,117	367,865,283	888,605,770
Average Units Sold per					
Domestic Consumer	2,723	3,422	1,102	2,674	2,730

**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	1,486,000
20,000 kilowatts and over and below 50,000 kilowatts	...	4	155,500
10,000 kilowatts and over and below 20,000 kilowatts	...	5	75,100
5,000 kilowatts and over and below 10,000 kilowatts	...	6	46,977
1,000 kilowatts and over and below 5,000 kilowatts	...	42	85,812
Below 1,000 kilowatts	...	248	55,646
		<u>318</u>	<u>1,905,035</u>

SIZE AND TYPE OF GENERATING UNITS.

Size of Sets.	Type of Generating Unit.					Total Number of Sets.	
	Steam Turbines.	Steam Recip- rocating Engines.	Diesel Petrol, Paraffin, Light Oil Engines.	Gas Engines.	Water Wheels and Turbines.	Local Authori- ties.	Private Com- panies.
<b>(1) A.C. Plants:</b>							
Below 250 kilowatts	2	81	310	8	28	325	104
250 kilowatts and over, but below 1,000 kilo- watts	32	68	20	7	11	39	99
1,000 kilowatts and over, but below 5,000 kilo- watts	75	—	—	—	—	26	49
5,000 kilowatts and over	94	—	—	—	—	22	72
<b>(2) D.C. Plants:</b>							
Below 250 kilowatts	—	33	171	9	—	152	61
250 kilowatts and over, but below 1,000 kilo- watts	1	10	1	3	—	2	13
1,000 kilowatts and over, but below 5,000 kilo- watts	1	—	—	—	—	1	—

FUEL CONSUMED.

Type of Fuel.	Quantity. (Tons of 2,000 lb).	Coal.
Coal	6,920,722	£2,638,182
Other Fuel	—	£250,215

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

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COAL CONSUMPTION.

(Calorific Values Unknown.)

Average Coal Consumption per Unit Generated.	Number of Undertakings.
Under 2 lb     ...     ...     ...     ...     ...	19
2 lb and over, but under 3 lb     ...     ...     ...     ...	22
3 lb and over, but under 4 lb     ...     ...     ...     ...	16
4 lb and over, but under 6 lb     ...     ...     ...     ...	18
6 lb and over, but under 8 lb     ...     ...     ...     ...	8
8 lb and over     ...     ...     ...     ...     ...	22

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TRANSFORMERS.

Total installed capacity     ...     ...     ...     ...	7,813,444 kVA
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Total value of land, buildings, machinery, plant and tools     ...     ...     ...     ...     ...	£55,650,843
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Total average number of persons employed in the electricity industry (generation and distribution)	16.100
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Total salaries and wages paid for the year     ...     ...	£3,366,099
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