



**Dr. J. THEO HATTINGH**

**Chairman, Electricity Supply Commission.**

[Photo: M. Karklin

MEMBERS OF THE

Electricity Supply Commission

---

DR. JOHANNES THEOBALD HATTINGH (Chairman)

ROBERT BURNS WATERSTON

CALVIN STOWE McLEAN

WALTER HEINRICH ANDRAG

Dr. REINART LUDWIG STRASZACKER

# CONTENTS

	Page
Plant Capacity ... ..	6
New Power Stations and Extensions to Existing Power Stations ...	6
Transmission System and Area of Supply ... ..	11
Output and Sales ... ..	13
Costs and Tariffs ... ..	14
Statistical Summary ... ..	17
FINANCIAL:	
Loan Capital ... ..	17
Redemption and Reserve Funds ... ..	18
Investments ... ..	18
Capital Expenditure ... ..	18
Assets and Liabilities ... ..	18
STAFF:	
Home Ownership Scheme ... ..	20
Personnel ... ..	20
COMMISSION'S UNDERTAKINGS:	
Cape Western ... ..	23
Cape Northern ... ..	28
Border ... ..	31
Durban ... ..	35
Natal Central ... ..	38
Witbank ... ..	41
Rand ... ..	45
Sabie ... ..	51
MUNICIPAL ELECTRICITY SUPPLY SCHEMES ... ..	52
ANNEXURES:	
A—Auditors' Report and Accounts ... ..	54
B—Statistical and Other Statements ... ..	88
C—Union Statistics (Diagrams) ... ..	102

# Electricity Supply Commission

Escom House,

Rissik Street,

Johannesburg,

22nd July, 1953.

**The Honourable,**

**The Minister of Economic Affairs,**

**Pretoria.**

SIR,

As required by Section 14 of the Electricity Act, No. 42 of 1922, the Commission has the honour to present its thirtieth Annual Report, covering its operations for the year ended 31st December, 1952, together with a brief review of its activities up to 30th April, 1953.

The Commission is still doing everything possible to speed up the construction of new power stations and the extension of existing stations to meet the rising demand for electricity.

The commissioning of Hex River Power Station at Worcester in May, 1952, relieved power shortage in the Cape Western Undertaking, and in spite of a number of unavoidable delays good progress has been made with the construction of the Vierfontein, Wilge and Umgeni stations and at power station extensions elsewhere. This progress, however, must be balanced against the increasing demand for power throughout the Union. It must again be emphasised that there is no short cut to the rapid development of power production on the scale sought in South Africa, in view of the shortage of money and the difficulty of obtaining early delivery of power station plant and equipment.

During 1952 the Commission produced and sold more electricity than before. The sale of 8,080.5 million units exceeded the 1951 figure of 7,456.5 million units by 8.369 per cent. Nevertheless, on the Rand and Cape Western Undertakings the demand created by the rapid mining and industrial development exceeded the output, and on a number of occasions power shedding had to be carried out and loads restricted. In the Cape Western Undertaking this was fortunately for a short period only owing to the commissioning of Hex River Power Station. In the Rand Undertaking area in particular the demand for power is such that it would appear that, even when the new power stations are completed, they may not be able to cope fully with the demand. During 1952 restrictions in this area were applied on the equitable basis adopted in 1950 and applications for new connections were granted only if they were for essential services or in the national interest.

The Reports issued during the last four years have contained warnings of rising costs in the production and distribution of electricity and the necessity to increase charges to balance expenditure. The necessity for these warnings is shown in the section "Costs and Tariffs" and by the fact that the overall deficit for 1952 on the operation of the Commission's Undertakings amounted to £418,282.



In May, 1952, the Chairman, the General Manager, the Chief Accountant and the Law Adviser and Secretary visited the United States of America to raise money to finance the cost of providing power for the production of uranium and they obtained a loan of 19,600,000 dollars from the Export-Import Bank of Washington. On their return journey they interviewed manufacturers of power station plant and equipment in Britain to expedite delivery.

Due to the shortage of money the Commission has been able only on a limited scale to supply rural and other consumers who fall outside an established distribution system. Schemes are considered in order of priority, due weight being given to food production and other aspects of national interest. In some areas groups of farmers financed the distribution equipment to obtain a supply of electricity. Farmers have on occasion paid more than their share in these group supplies to assist their neighbours. Where money is the obstacle to the furnishing of a supply the Commission has established a scheme in terms of which the consumer pays for the distribution equipment and the Commission purchases the equipment from the consumer over a period of years.

## **PLANT CAPACITY**

The aggregate installed capacity of the Commission's Power Stations as at 31st December, 1952, was 1,698,500 kW, an increase of 104,000 kW over the corresponding figure for the previous year.

The major items of plant commissioned during 1952 were two 190,000-lb/hr boilers and two 33,000-kW turbo-generators at Vaal Power Station and two 200,000-lb/hr boilers and two 20,000-kW turbo-generators at Hex River Power Station.

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

## **NEW POWER STATIONS AND EXTENSIONS TO EXISTING POWER STATIONS**

Although delay in deliveries of plant and equipment is by no means a thing of the past, it was less severe in 1952 than in the previous year, and the shortage of steel required for construction work was less acute. Consequently, it was possible to achieve during the year a better rate of progress with the erection of new power stations than at any time since the start of the Commission's programme of post-war expansion.

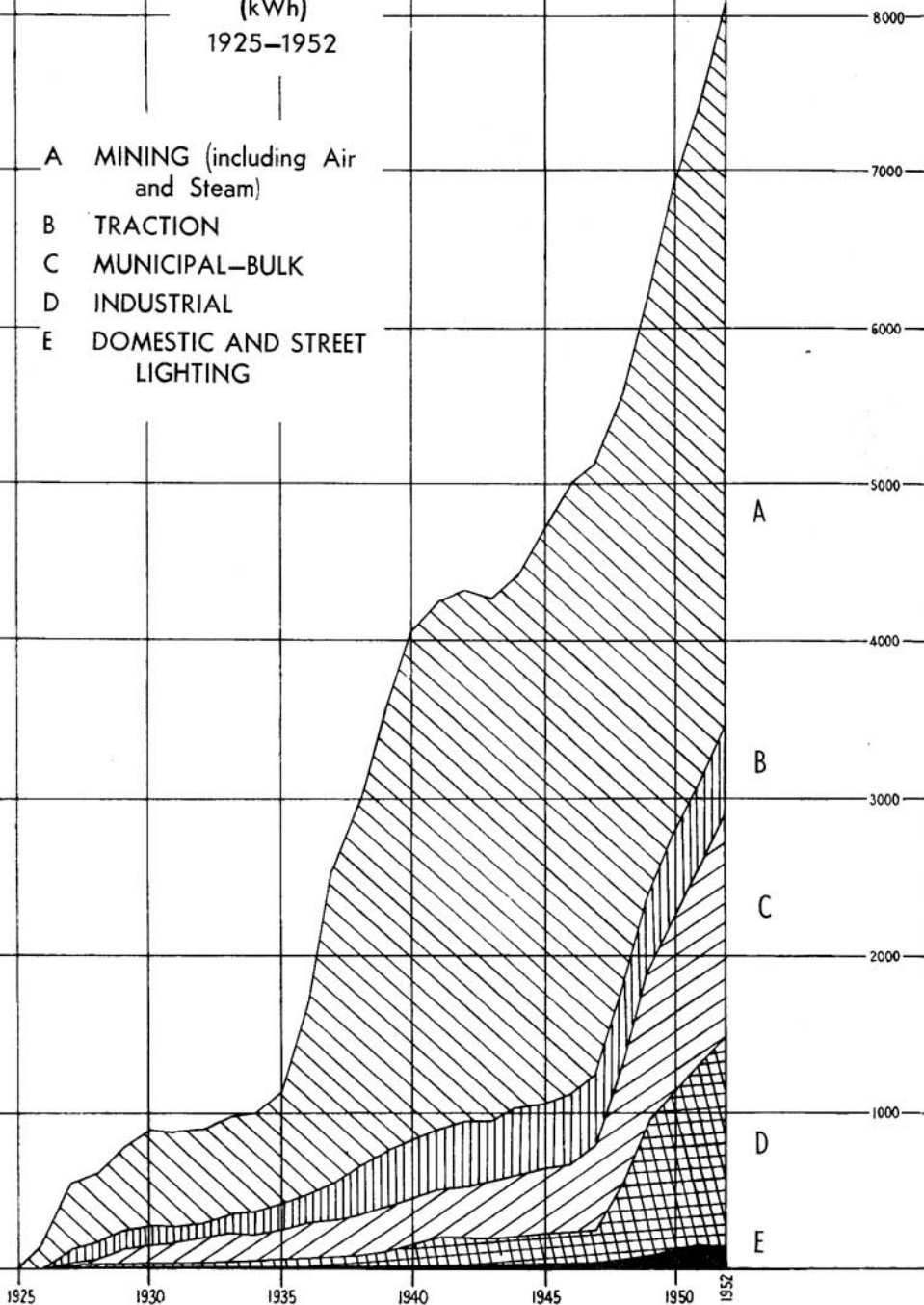
The programme of new power station construction and extensions to existing stations involves capital expenditure now estimated at £91,000,000. This figure allows for the further extensions to Salt River No. 2, Taaibos and Vierfontein Power Stations, which were foreshadowed in the last Annual Report, and includes an increase of £13,215,000 on estimates of expenditure based on prices ruling at the time of placing contracts. The contracts, however, contain an "escalator" clause which provides that any subsequent variations in the cost of materials and/or labour shall be for the Commission's account, and previous estimates have therefore been adjusted according to the latest information.

The following paragraphs record the plant which has been installed and the work proceeding on new power stations and on extensions to existing power

UNITS SOLD  
(kWh)  
1925-1952

Millions

- A MINING (including Air and Steam)
- B TRACTION
- C MUNICIPAL-BULK
- D INDUSTRIAL
- E DOMESTIC AND STREET LIGHTING



stations, and will indicate the items of plant which will be coming into service at intervals in various parts of the Union.

### **Cape Western Undertaking**

*Hex River Power Station, Worcester:* This new power station was commissioned on the 30th May, 1952, with one boiler and one turbo-generator operating. In September, 1952, a second boiler and a second turbo-generator were placed in service, and the initial installation, comprising four 200,000-lb/hr boilers and three 20,000-kW turbo-generators, was completed and brought into commercial service in April, 1953. The cost, previously estimated at £3,593,000, has now been revised to £4,070,000. Further comment upon the commissioning of this new station is given in the Report dealing with the Cape Western Undertaking on page 25.

*Salt River No. 2 Power Station, Cape Town:* This new power station, situated on a site adjoining the existing Salt River Power Station, is required to meet the needs of the Cape Western system. The design of the station allows for eight 260,000-lb/hr boilers and six 30,000-kW turbo-generators. Up to April, 1953, orders had been placed for four turbo-generators and six boilers at a total cost which is now adjusted to the figure of £10,350,000. The initial installation will consist of four 260,000-lb/hr boilers and two 30,000-kW turbo-generators and the additional two turbo-generators and two boilers are planned to follow in a programme of continuous construction. It is hoped that the first boiler will be steaming by June, 1954, as it can be used to relieve the shortage of steam at Salt River No. 1 Station until the first turbo-generator in the new station is ready for commercial service about seven months later.

### **Cape Northern Undertaking**

*Central Power Station, Kimberley:* Four additional 75,000-lb/hr boilers and two reconditioned 6,000-kW turbo-generators (derated to 5,500 kW) are being installed in this station, and the progress of work is set out on page 29 of this Report. An earlier estimate of the cost was £1,154,980, but this has been revised to £1,300,000.

### **Border Undertaking**

*West Bank No. 2 Power Station, at East London:* This new station, designed for an ultimate capacity of 90,000 kW, is being constructed on a site adjoining the existing West Bank No. 1 Power Station at East London. Two 170,000-lb/hr boilers and two 15,000-kW turbo-generators have been ordered. The cost of the initial installation, including civil works, was estimated at £2,362,600 and later revised to £2,600,000. The excavations for the circulating water system were begun in June, 1952, and the erection of the boiler house steelwork structure in April, 1953. The boilers are scheduled to be ready in October, 1954, and March, 1955, respectively, with the turbo-generators each one month later.

### **Swartkops Undertaking**

*Swartkops Power Station, Port Elizabeth:* The initial installation at this new power station will consist of two 210,000-lb/hr boilers and two 20,000-kW turbo-generators, and it is hoped to have the first set in operation early in 1954. The previous estimate of £3,142,000 has now been revised to £4,800,000 including the cost of extensive civil works. By the end of 1952 the erection of steelwork for the boiler and turbine houses had reached an advanced stage and the turbine house overhead crane was being erected. Cooling water culverts and cable tunnel were

completed and work begun on the outlet channel. Workshops and stores were built and railway tracks on the site were almost completed. The station is planned for three 20,000-kW turbo-generators and thereafter for additional 30,000-kW sets as required.

### **Durban Undertaking**

*Congella Power Station, Durban:* As reported last year, the total generator capacity installed at this station is now 206,000 kW. Progress on the boiler extensions has been disappointing, but one of the three new 200,000-lb/hr boilers was brought into service in April, 1953. The cost of the programme which includes the dismantling of two 6,000-kW generators for use elsewhere and the installation of the third 40,000-kW turbo-generator as well as the addition of the three 200,000-lb/hr boilers, was previously estimated at £1,676,000, but this figure has now been revised to £1,850,000.

*Umgeni Power Station, near Pinetown, Natal:* Good progress was made with work on this station, which is being erected to meet the increasing needs of the Durban Corporation and other consumers and to ensure adequate supply for the electrified railway system. By the end of 1952 the erection of steelwork for the boiler house and turbine house was nearing completion and work on the erection of the first two boilers had reached an advanced stage. It is expected that the first turbo-generator will be ready for service by April, 1954, and the second by October, 1954. Four 180,000-lb/hr boilers and two 30,000-kW turbo-generators have been ordered. The cost previously estimated was £4,918,288, but this figure has now been revised to £6,600,000. The station is designed to be capable of extension by further twelve boilers and six turbo-generators of similar capacity to those already ordered.

### **Natal Central Undertaking**

*Colenso Power Station, Natal:* Extensions at this station consist of three 180,000-lb/hr boilers and one 25,000-kW turbo-generator. The cost which was estimated in 1948 at £981,350, is now expected to be £1,425,000.

### **Witbank Undertaking**

*Witbank Power Station:* Extensions at the Witbank Power Station provide for the addition of two 80,000-lb/hr boilers and one 20,000-kW turbo-generator. The plant is expected to be commissioned in the second half of 1953.

The previous estimate of £665,000 has now been revised to £940,000.

### **Rand Undertaking**

*Taabos Power Station, near Coalbrook, district Heilbron, O.F.S.:* This station, which is being built on a site adjoining the Clydesdale Colliery, will provide additional power for the Rand Undertaking system. It will be interconnected with the Vaal and Vierfontein Stations and will be the key-point of a 132-kV transmission system. Orders have been placed for seven 580,000-lb/hr boilers and seven 60,000-kW turbo-generators and it is expected that the first set will be ready for service during the second half of 1954. In December, 1952, work began on the erection of steelwork for the boiler house and the steelwork for Boiler No. 1 has been delivered on site. Railway tracks are being laid and the necessary housing is being provided, including a block of single-quarters. The estimated cost of the station was £18,313,000, but this figure has been revised to £19,300,000.



# Electricity Supply Commission

Map  
showing

## The Commission's Licensed Areas of Supply

B E C H U A N A L A N D  
P R O T E C T O R A T E

S O U T H  
W E S T  
A F R I C A

A T L A N T I C  
O C E A N

C A P E  
O F  
G O O D  
H O P E

B A S U T O L A N D

N A T A L

M O C A M B I Q U E

S W A Z I L A N D

P R E T O R I A  
J O H A N N E S B U R G  
N O R T H W E S T  
N O R T H E A S T  
C A P E P R O V I N C E  
F R E E S T A T E  
B L O M F O N T E I N  
S T E L L E R B O O K

D U R B A N

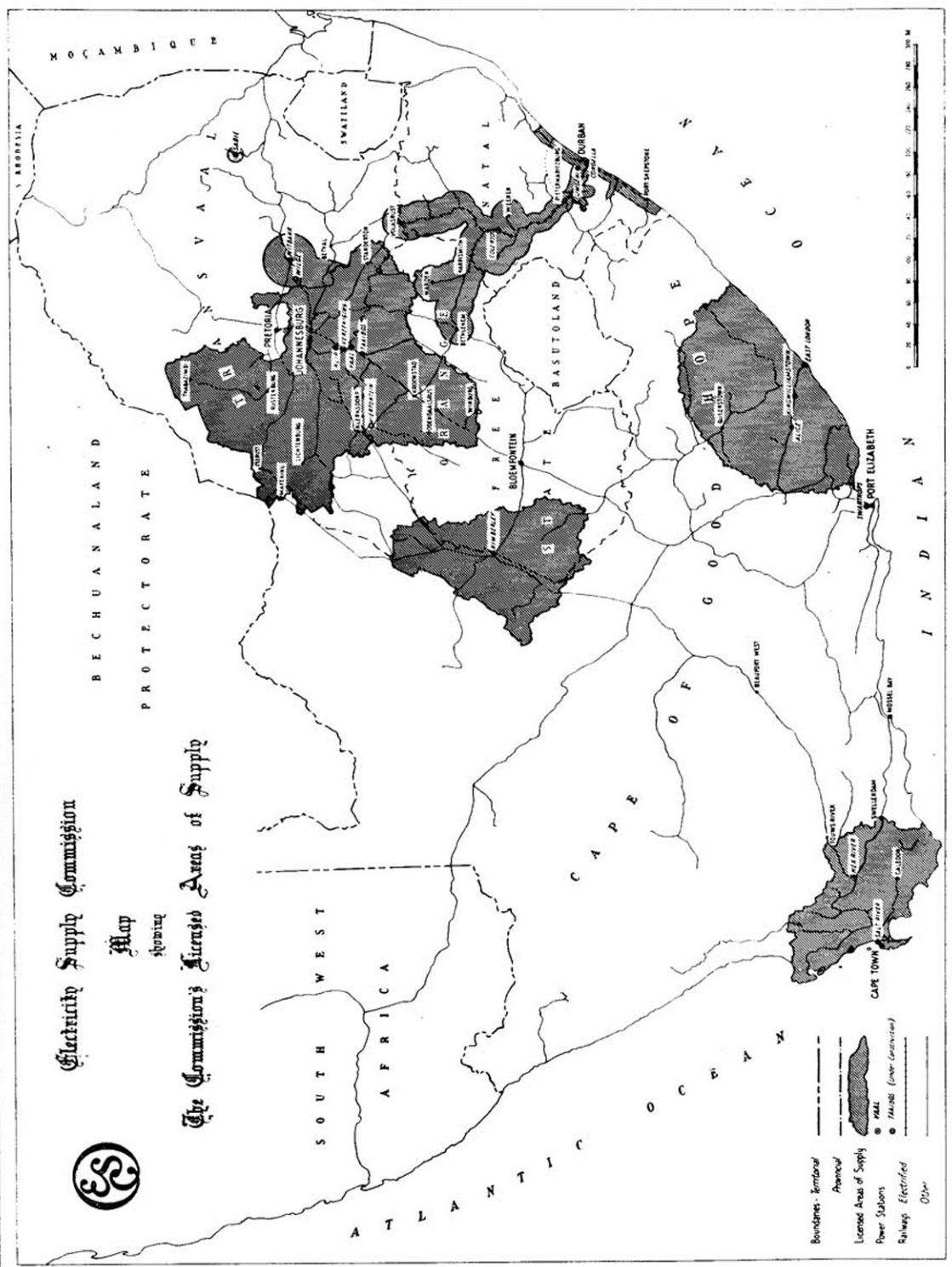
F A C T O R Y

H O P P O

P O R T E L I Z A B E T H

C A P E T O W N  
S T E L L E R B O O K  
W I L L I A M S B A Y  
E L L I O T T

- Boundaries - Territorial
- Principal
- Licensed Areas of Supply
- Power Stations
- Railways - Electrified
- Other



*Vaal Power Station, Orange Free State:* The programme of extensions covers eight 190,000-lb/hr boilers, four 33,000-kW turbo-generators and one 7,000-kW house set, which will make a total of eighteen boilers, nine turbo-generators and three house sets for the complete station. At the end of April, 1953, nine turbo-generators with two house sets and fourteen boilers were in service, and it is expected that the rest of the plant will be completed before the end of 1953. The original estimate for these extensions was £5,089,200, but this figure has been revised and is now £6,000,000.

*Vereeniging Power Station, Transvaal:* This power station is being extended by the installation of one 180,000-lb/hr boiler which will permit an increased output up to the full generator capacity of the existing plant. This boiler is expected to be in service in 1954. The original estimate was £282,900, but on revision this has been increased to £370,000.

*Vierfontein Power Station, district Viljoenskroon, O.F.S.:* The main purpose of this station, sited on the Vierfontein coalfield about eight miles south of the Vaal River, is to assist in meeting the heavy demand for power which is developing on the goldfields of the Orange Free State and in the Klerksdorp area.

Turbine house steelwork for the first five turbo-generators has been erected and good progress has been made with the erection of the first six boilers and Nos. 1 and 2 Cooling Towers. The first 30,000-kW set is scheduled to start up in May, 1953. The station will comprise seventeen 210,000-lb/hr boilers and ten 30,000-kW turbo-generators. The estimated cost of this station has increased from £16,570,000 to £20,600,000.

*Wilge Power Station, near Kendal, district Witbank:* This new project will comprise two sections: No. 1 section will be equipped with four spreader-stoker type 150,000-lb/hr boilers and two 30,000-kW turbo-generators, and No. 2 section with four 400,000-lb/hr pulverised fuel type boilers and two 60,000-kW turbo-generators. The site adjoins the New Largo Colliery and the estimated cost of the station, previously reported to be £10,327,000, has been revised to £10,800,000.

The initial installation of two 150,000-lb/hr boilers and one 30,000-kW turbo-generator is expected to be ready for operation early in 1954, with two additional 150,000-lb/hr boilers and the second 30,000-kW turbo-generator ready by July, 1954, and February, 1955, respectively.

By the end of 1952 good progress had been made on the foundations for the station buildings, No. 1 cooling tower was under construction, and ponds were being constructed for towers Nos. 2 and 3. Since the end of the year work has begun on the erection of steelwork for turbine house No. 1 and for boilers Nos. 1 to 4. Work is proceeding on the erection of workshops, the laying of 17.5 miles of 18in. pipe line from Bronkhorstspuit Dam, the construction of the make-up water pump house at the Dam and the laying of railway tracks from the Colliery siding.



## **TRANSMISSION SYSTEM AND AREA OF SUPPLY**

The transmission system was extended from 7,413 route miles at the end of 1951 to 7,691 route miles at the end of 1952. The Commission's licensed area of supply is now 104,240 square miles.

The following statement shows some of the major lines completed during 1952 and under construction or projected at the year's end:

*Completed in 1952:*

	kV	Route Miles
Vaal to Vierfontein ... ..	132	80
Vierfontein to Alma (two lines) ... ..	132	120
Slurry to Zeerust ... ..	88	25
Greenlands to Heilbron ... ..	88	21
North Rand/Pretoria (new section) ... ..	88	13
Montclair to Marburg ... ..	88	74
Eerste River Substation to Capex Substation ...	66*	9

\*Initially operating at 33 kV

*Under Construction:*

Vaal to Vierfontein (turn-in to Taaibos) ...	132	13
Taaibos to Libanon ... ..	132	54
Taaibos to West Wits (two lines) ... ..	132	110
Taaibos to Doornfontein Line ... ..	132	56
Alma to Virginia ... ..	132	19
Alma to Grootkop ... ..	132	20
Colenso to Umgeni ... ..	132	114
Umgeni to Springfield ... ..	132	8 (double circuit)
Vaal to Taaibos (two lines) ... ..	88	24
Klip to E.R.P.M. ... ..	88	45
Klerksdorp Area Extension Lines ... ..	88	13
Vaal to Rand Water Board, Zuikerbos (two lines) ... ..	88	14
Transfer, Vlakfontein E. and W. lines from Vereeniging to Vaal Power Station ...	88	21
Marburg to Margate ... ..	88	9
Hex River Power Station to Hugo (Touws River Line) ... ..	66	38
Oakdale Substation to Stellenbosch ... ..	66*	15
Virginia to Merriespruit Ring ... ..	40	13
Cedara to Greytown ... ..	33	60
Harrismith to Warden, Vrede and Reitz ...	33	100
King William's Town to Adelaide ... ..	33	70 (revised)

\*To operate initially at 33 kV

*Projected:*

Grootkop to Balkfontein ... ..	132	25
Taaibos to Virginia ... ..	132	115
Turn-in to Wilge from Witbank/Brakpan Lines	132	38
Wilge to Struben Distribution Station ...	132	41
Line to Central West Co-operative, Viljoenskroon ... ..	88	13
Line to Wolmaransstad ... ..	88	36
Balance of Klerksdorp Area Extensions (includes lines from Vierfontein to Western Reefs) ...	88	40
Thornville to Richmond ... ..	88	12

	kV	Route Miles
East London to King William's Town ... ..	66	36
Gouda to Moorreesburg ... ..	66	22
Two Cable Feeders from Salt River Power Station to Oakdale Substation ... ..	66	12
Buccleugh via Lombardy to Rietfontein Con- solidated ... ..	40	10
Ringling—Sundry Distribution Stations ... ..	40	130
Kimberley to Tadcaster ... ..	33/66	70

## OUTPUT AND SALES

Units generated by and sold from the Commission's Power Stations increased by 5·421 per cent and 8·369 per cent respectively. Units purchased totalled 423,872,232 for the year, or 5·246 per cent of the Commission's total sales.

Aggregate figures for all Undertakings were:

	1952	1951	Increase
Units generated ... ..	8,777,956,146	8,326,567,811	5·421%
Units purchased ... ..	423,872,232	194,625,288	117·789%
Units sold ... ..	8,080,560,814	7,456,490,147	8·369%

The following figures record units sold by individual Undertakings:

	1952	1951	
Border ... ..	97,722,672	88,065,643	
Cape Northern ... ..	61,337,571	58,521,002	
Cape Western ... ..	341,237,981	303,476,376	
Durban ... ..	655,609,675	616,953,244	
Natal Central ... ..	453,973,018	433,384,649	
Rand ... ..	6,039,553,121	5,563,180,420	
Sabie ... ..	6,119,927	6,081,087	
Witbank ... ..	425,006,849	386,827,726	
	8,080,560,814	7,456,490,147	

Analysis of sales by classes of consumers shows:

	1952	1951	
<i>Bulk Supplies:</i>			
Municipal ... ..	1,462,127,066	1,263,436,842	
<i>Direct Supplies:</i>			
Traction ... ..	554,830,254	539,366,602	
Mining ... ..	4,585,333,615	4,359,570,645	
Industrial ... ..	1,347,317,033	1,159,707,191	
Domestic ... ..	128,137,815	131,097,302	
Street Lighting ... ..	2,815,031	3,311,565	
	8,080,560,814	7,456,490,147	

A chart showing annual sales of electricity is on page 7. Statement No. 3 of Annexure B gives units sold to all consumers for the past 28 years, and the distribution of units sold is shown in Statement No. 4.

## COSTS AND TARIFFS

Comment has been made in previous Annual Reports upon the rise in the cost of power production, and particularly upon the steep rise in the cost of coal and in the cost of building new power stations. The importance of these two factors in the cost structure is evident from the circle diagram on the opposite page.

**Cost of Coal**—During the year 1952 further increases in the price of coal were allowed by the Price Controller, and the increase in the cost of coal to the Commission is shown in the following examples of the cost of coal per ton in 1951 and 1952, including railage and handling charges, compared with the average cost for the five-year period 1939-1943:

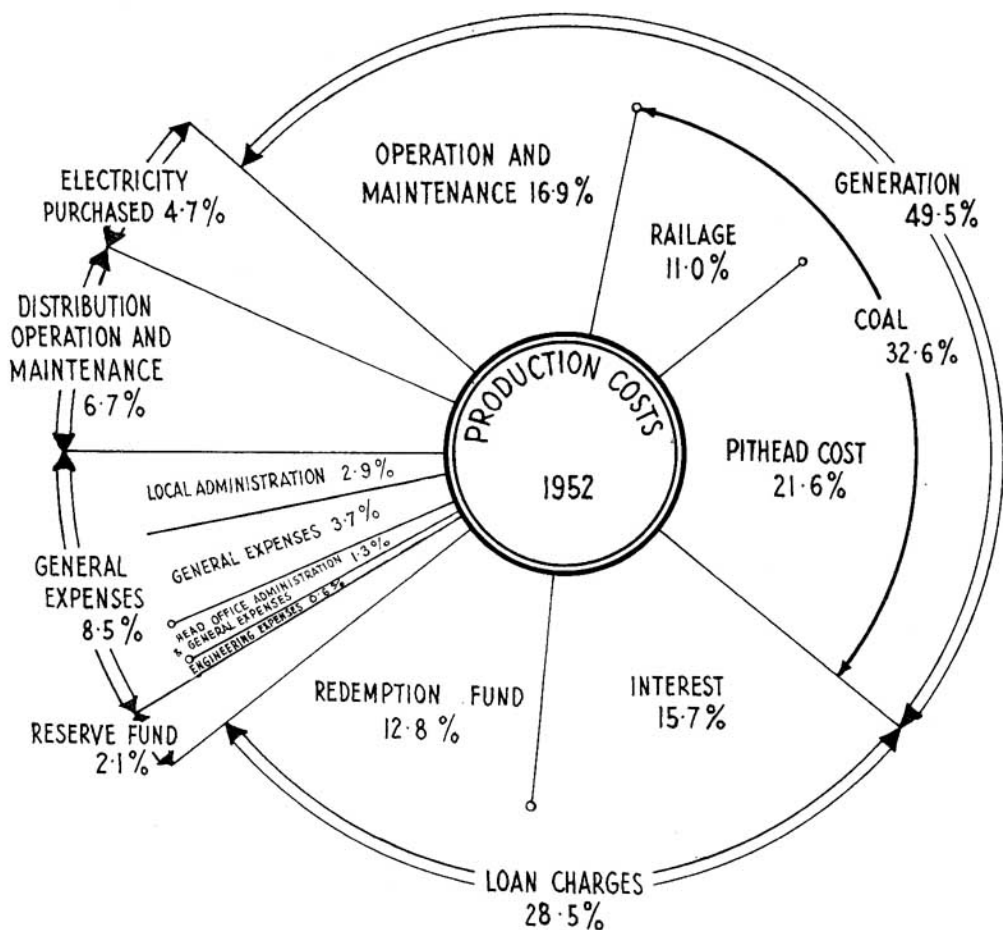
	Cost of coal per ton			Average revenue per unit sold		
	Average 1939-43	1951	1952	Average 1939-43	1951	1952
Natal Central Undertaking (Colenso Power Station)	10/11d.	14/3d.	18/6d.	·4578	·5311	·5700
Cape Western Undertaking (Salt River Power Station)	25/5d.	33/10d.	35/3d.	·7783	·8498	·8751
Durban Undertaking (Congella Power Station)	15/1d.	20/-	23/6d.	·3436	·4505	·4741

The figures in the second half of the table show the average revenue, that is, the cost of electricity to the consumer, including the adjustment made in terms of the coal clauses contained in the Commission's licences. It is significant that, if allowance is deducted for the increases which are due directly to the rise in the cost of coal, the Commission's charges were, up to the beginning of 1952, little above the pre-war level.

It is not to be inferred from that statement that the increases in the cost of items other than coal and new plant have been insignificant. On the contrary, there have been substantial increases, since 1939, in wage scales and cost-of-living allowances, in the cost of stores of all kinds, and in transport costs, but the incidence of these increases upon tariffs has been cushioned to an appreciable extent by the expansion of the Commission's business and the condition that in most instances Undertakings have been operating with less than the normal amount of reserve plant.

**Cost of New Plant**—The Commission's programme of new works has been reported upon in previous annual reports and a full description is given on pages 6-11 of this Report. As loan charges and provision for a reserve fund amount to a large proportion of the total working costs, attention must be drawn again to the increase in the cost of new plant.

The revised estimates of the probable cost of the new power stations described on pages 6—11 represent an average capital cost of approximately £66 per kW of plant installed. This figure may be compared with the figure of £15.3 per kW installed in the Klip Power Station, which was completed in 1942. Moreover, the rise in interest rates to 5 per cent during the past two years does not hold out much prospect that loan capital will be obtainable in the near future at the low rates of 3 per cent to 3½ per cent, which was a feature of the Commission's borrowing during the years 1947 to 1949. It is inevitable therefore that the commissioning of the new power stations and extensions to existing power stations and the development of transmission and distribution networks to take this additional power to the consumer will necessitate an upward adjustment of tariffs, which will be substantial when all the new plant is brought into commission.



A similar situation obtains on the Undertakings which have been established in recent years—the Border and Cape Northern Undertakings and also on the

Rand Undertaking—inasmuch as these Undertakings were acquired by the Commission at a stage when a very large expansion of business had become necessary. The tariffs which the Commission was able to adopt at the commencement reflected the pre-war level of costs. The increases in the cost of coal or fuel and other items have necessitated upward adjustments of the initial tariffs and further upward revisions must follow the commissioning of new plant.

The Commission, in its function as a bulk supplier, is able to use large and more efficient units of plant. Without these economies in the production of electricity, the cost of supplying the power requirements of the country would be higher still. While the general comment set out above applies broadly to all Undertakings, each Undertaking has to be considered on its own.

The following changes in tariffs were made during the year 1952:

New tariffs were introduced on the Rand Undertaking in January, 1952, replacing the interim tariff structure which was adopted in 1948. Due largely to the rise in the cost of coal, it became necessary to increase the tariffs with effect from July, 1952, and to incorporate provision for an automatic adjustment for variation in the cost of coal. The new tariffs, with the coal adjustment clause, were approved by the Electricity Control Board in November, 1952. A further general increase in tariffs was made in January, 1953.

Of the Border Undertaking it was reported in the last Annual Report that the Commission's charges in the Alice section had to be raised from January, 1952. It became necessary to make upward adjustments in the East London and King William's Town sections also, and in June, 1952, an application was made to the Electricity Control Board for amendment of the Border Licence, 1947, to incorporate a revised schedule of standard prices for consumers in the East London and King William's Town sections. The application was granted and the increased tariffs became effective from November, 1952.

In September, 1952, an application to amend the schedule of standard prices for the Cape Western Undertaking was lodged with the Electricity Control Board. Objections were lodged by a number of local authorities and the issue was unsettled at the end of the year. In order to avoid building up a large deficit the Commission decided to introduce, in terms of Section 10 of the Electricity Act and with effect from February, 1953, a surcharge of 20 per cent on the tariffs in force in the Cape Western Undertaking.

It will be noted from individual Undertaking reports that deficits were incurred for the year 1952 in respect of all Undertakings, except Sabie Undertaking.

## STATISTICAL SUMMARY

Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's Undertakings during the year 1952, with the comparative figures for 1951, are as follows:—

	1952	1951	Increase
<b>Total Revenue</b> ... ..	£12,655,772	£10,955,565	15·519%
<b>Total Production Costs (including interest, redemption and reserve fund charges)</b> ... ..	13,074,054	11,102,484	17·758%
<b>Difference between Revenue and Production Costs</b> ...	Dr. £418,282	Dr. £146,919	Dr. £271,363
<b>Average price per unit sold</b>	0·3738d.	0·3506d.	6·623%
<b>Average revenue per unit sold (including Sundry Revenue)</b> ... ..	0·3759d.	0·3526d.	6·597%
<b>Average cost per unit sold</b>	0·3883d.	0·3574d.	8·663%
<b>Units generated</b> ... ..	8,777,956,146	8,326,567,811	5·421%
<b>Units sent out</b> ... ..	8,347,118,622	7,806,653,518	6·923%
<b>Units Purchased</b> ... ..	423,872,232	194,625,288	117·789%
<b>Units Sold</b> ... ..	8,080,560,814	7,456,490,147	8·369%
<b>Total cost of coal consumed (including railage)</b> ...	£4,259,823	£3,276,709	30·003%
<b>Railage on coal consumed</b>	£1,437,922	£1,120,602	*28·317%
<b>Coal consumed (in tons of 2,000 lb)</b> ... ..	7,841,181	7,344,771	6·759%

\*Increase in railage rates 20·194%

A diagram showing the subdivision of the Commission's total production costs for the year 1952 is reproduced on page 15.



## FINANCIAL

**Loan Capital**—Three loans totalling £13,000,000 were raised locally during 1952, as follows:—

Date issued	Amount	Interest	Issue Price	Redeemable
11th March ...	£4,500,000	4 $\frac{1}{4}$ %	£98 $\frac{1}{4}$ %	28 / 2 / 1964 / 67
25th August ...	£5,000,000	5%	£100%	31 / 8 / 1964 / 67
2nd December ...	£3,500,000	5%	£100%	30 / 11 / 1966 / 68
	<hr/> £13,000,000 <hr/>			

These loans were fully subscribed, but at the year end the amount received on account of the loan issued on the 2nd December was £2,818,850. The balance

of £681,150, payable not later than the 31st March, 1953, in terms of the prospectus has since been received. The loans raised locally as Local Registered Stock totalled £77,500,000 at the year end.

The loan of \$30,000,000 U.S.A. from the International Bank for Reconstruction and Development, equivalent to approximately £10,750,000, bears interest at 4 per cent per annum and is redeemable over 17 years by equal half-yearly instalments, including interest, from the 15th May, 1954. The loan is to be used only for the purchase of imported materials, mainly from the United Kingdom, and is to be taken up during the period ending the 31st December, 1953. The amount taken up to the 31st December, 1952, was \$18,064,525, equivalent to £6,479,542 South African currency.

An agreement, dated the 7th October, 1952, was entered into with the Export-Import Bank of Washington for an 18-year loan of \$19,600,000 U.S.A., equivalent to approximately £7,000,000, for the production of power from Wilge Power Station for uranium production. The loan bears interest at 4 per cent per annum, and is redeemable over 15 years by equal half-yearly instalments, including interest, from the 16th February, 1956. The full amount of the loan is to be taken up during the period ending 30th June, 1955. At the 31st December, 1952, the amount withdrawn was \$2,142,100, equivalent to £766,870 South African currency.

These amounts increased the Commission's loan capital at the date of the Balance Sheet to £84,065,262.

**Redemption Fund**—The amount in the Redemption Fund at 31st December, 1952, amounted to £18,301,974, which in the aggregate exceeded the amounts required for the redemption of the loans over the maximum periods laid down in terms of issue, after taking into account the depreciation on the market value of investments. At the 31st December, 1952, there was, however, a deficit in respect of Loan No. 4 which is redeemable on the 30th June, 1953, on account of the depreciation of investments held in respect of this loan. The amounts in the Redemption Fund include the proceeds from the sales of assets and profits on realisation of investments.

**Reserve Fund**—The amount in the Reserve Fund at 31st December, 1952, was £2,192,405.

**Investments**—The book value of securities, representing investment in Government, Municipal and Electricity Supply Commission stocks, held by the Commission on behalf of the various funds at 31st December, 1952, was £20,073,418, the nominal value being £20,113,776. The market value of these investments at that date was £16,531,577.

**Capital Expenditure**—Expenditure on Capital Account during the year amounted to £19,637,974 which increased the total capital expenditure at 31st December, 1952, to £88,279,551. Expenditure on Capital Account will amount to approximately £184,500,000 on completion of all the works to which the Commission is committed and on projected works.

**Assets and Liabilities**—The Commission's total assets at the 31st December, 1952, amounted to £115,842,087, and its total liabilities to £95,672,197, the excess of assets (as shown in the Balance Sheet) over liabilities being £20,169,890. A graph showing the growth of assets and liabilities since 1923 is reproduced on the opposite page.

# Assets and Liabilities for the Years 1923-1952

TOTAL ASSETS

TOTAL LIABILITIES

LOAN CAPITAL

MILLIONS  
POUNDS

120

110

100

90

80

70

60

50

40

30

20

10

0

1923

1925

1930

1935

1940

1945

1950

1952

116

96

84

**STAFF**

**Home Ownership Scheme**—The balance at 31st December, 1952, on loans granted to employees, to enable them to acquire homes under the Commission's Home Ownership Scheme in terms of the 1941 amendment to the Electricity Act, was £295,522.



**Personnel**—The Staff employed by the Commission at the 31st December, 1952, numbered 10,889, made up as follows:

Europeans increased from	...	3,571	to	3,790	Increase 6%
Non-Europeans increased from	...	6,765	to	7,099	Increase 5%
		<hr/>		<hr/>	
		10,336		10,889	Increase 5·1%
		<hr/>		<hr/>	

The Commission desires to express to all members of the staff its appreciation of their loyal and conscientious efforts which have been carried out in extremely difficult circumstances owing to the rapid growth of demand and the shortage of plant and staff.

## THE COMMISSION'S UNDERTAKINGS

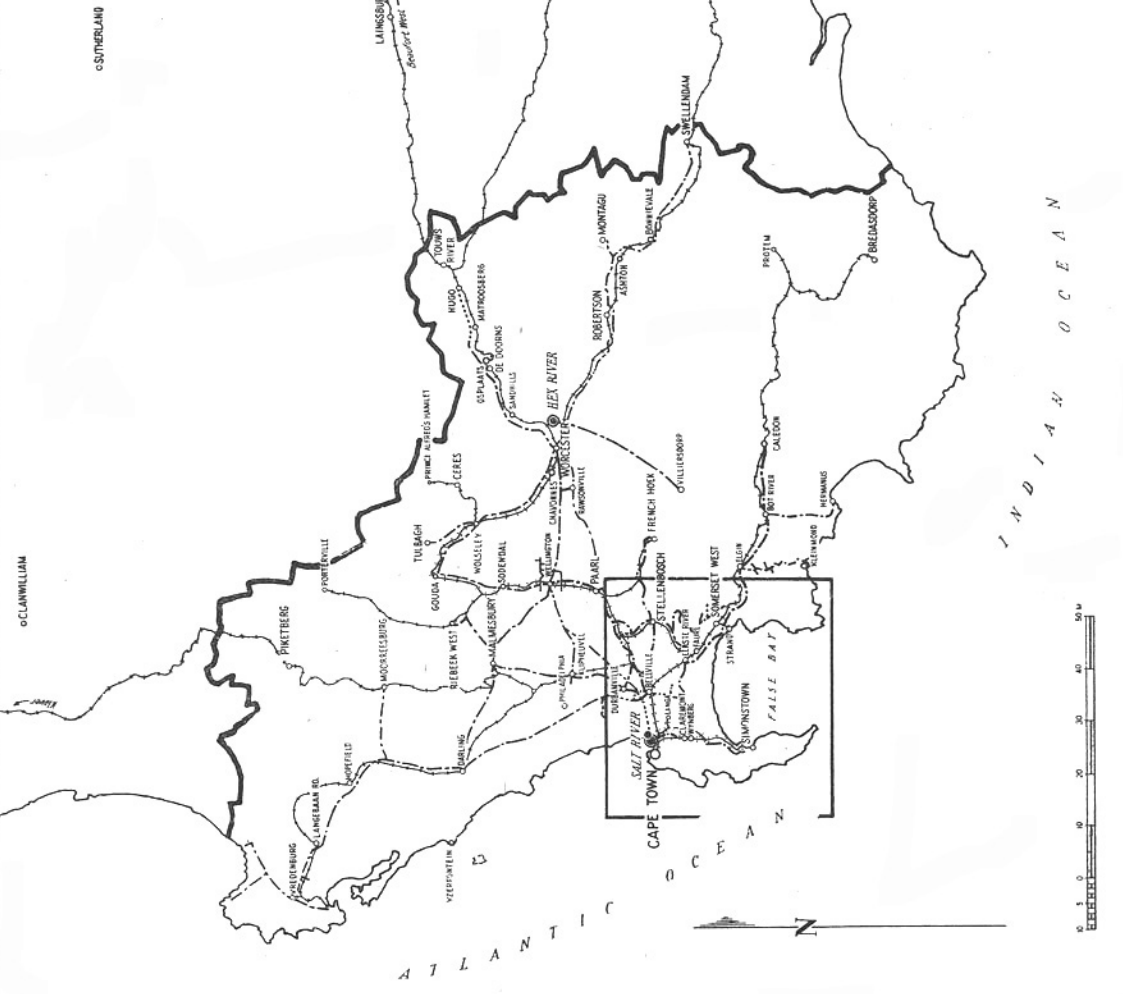
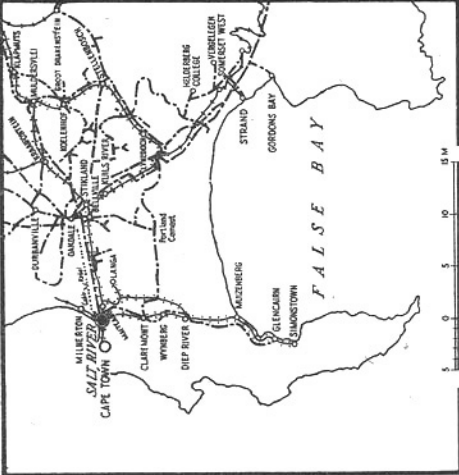
The operation and development of the individual Undertakings are reviewed in detail in the following pages.

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

# Cape Western Undertaking

## REFERENCE

- Area of Supply .....
- E.S.C. Power Stations .....
- (Under Construction) .....
- Transmission Lines .....
- Railways - Electrified .....
- Other .....



INDIAN OCEAN

ATLANTIC OCEAN



# CAPE WESTERN UNDERTAKING

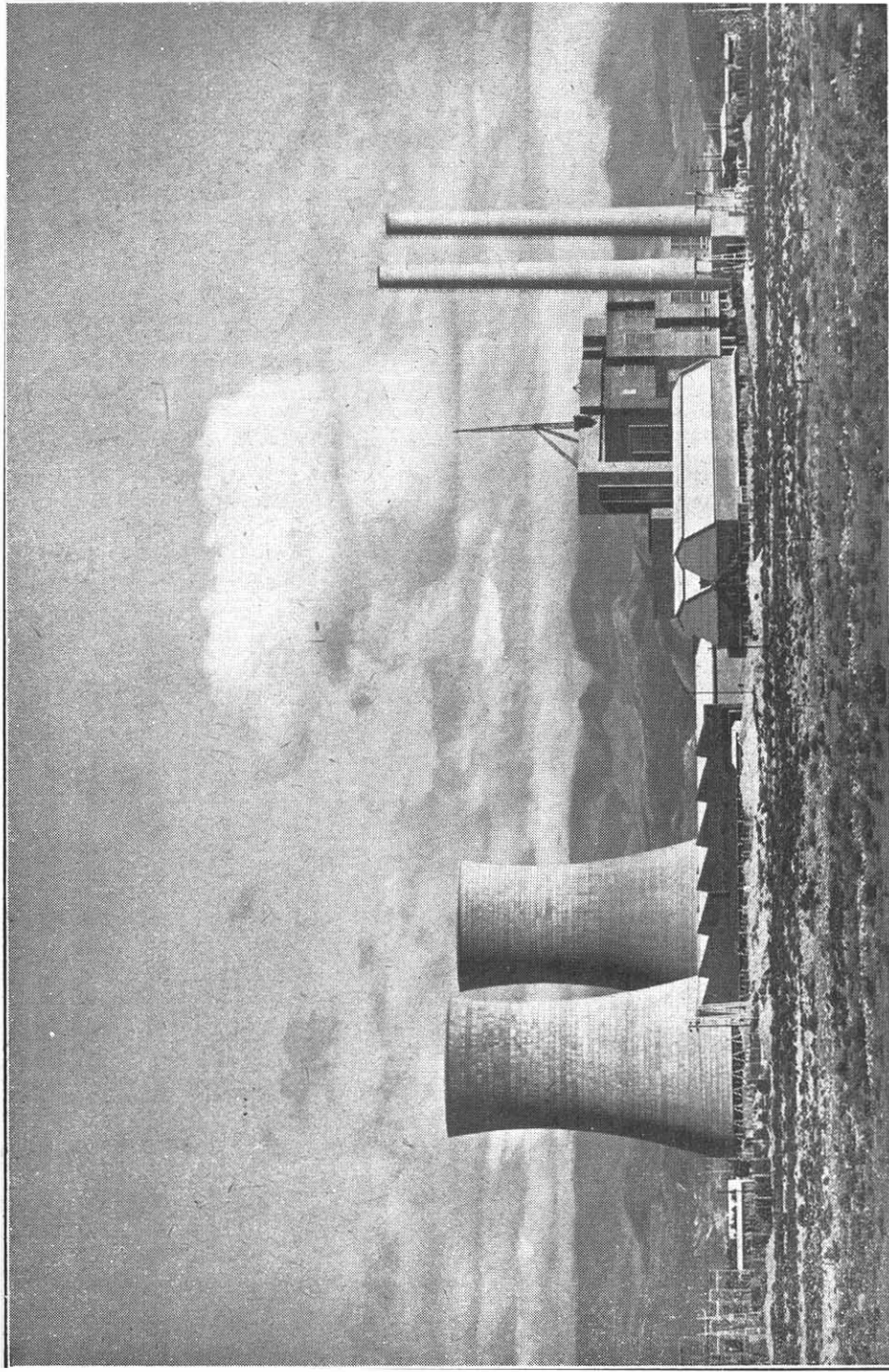
CONSUMERS		SALES			Average Price per Unit Sold	
Class	Number	Increase or Decrease		Revenue from Sales		
		Units	%			
Traction	1	64,721,340	+ 8.745	£ 179,577	d	0.6517
Bulk	23	106,807,138	+ 34.504	£ 317,607	d	0.6914
Industrial	1,617	97,684,499	- 4.691	£ 398,300	d	0.9786
Domestic and Lighting	18,450	71,925,004	+ 16.036	£ 348,771	d	1.1754
	20,091	341,237,981	+ 12.443	£ 1,244,255	d	0.8498
		1952	1951	Accumulated to 31.12.52		
Total Revenue	...	£1,252,137	£1,080,557			
Working Costs	...	£1,369,626	£1,128,111			
Deficit	...	£117,489	£47,554	£111,706		
Capital Expenditure	...	£2,125,041	£2,506,044	£11,419,600		

Salt River Power Station		Worcester Power Station		Hex River Power Station	
		1952	1951	From 30/5/52	
Units Sent Out	...	194,731,379	18,120	57,759,350	39,900
Maximum half-hour Demand kW S.O.	...	61,850	68,800	—	28.1
Station Peak kW	...	54,900	36.0	—	21.85
Load Factor %	...	41.9	18.42		
Thermal Efficiency % S.O.	...	17.28			
		1952	1951	From 30/5/52	
Coal Consumed—tons	...	137,788	145,920	37,575	1,301
Average per unit sent out—lb.	...	1.636	1.499	12,000	£61,751
Calorific Value B.Th.U./lb	...	12,070	12,350		
Total Cost	...	£243,040	£246,619		
Cost per ton	...	35s. 3d.	33s. 10d.		
Fuel Oil consumed—lb	...			792,808	0.566
Fuel Oil per unit sent out—lb	...			12,110	0.668

**FUEL:**

Coal Consumed—tons ...  
 Average per unit sent out—lb.  
 Calorific Value B.Th.U./lb ...  
 Total Cost ...  
 Cost per ton ...  
 Fuel Oil consumed—lb ...  
 Fuel Oil per unit sent out—lb



HEX RIVER POWER STATION.

[(Photo D. Honeyman

**General**—The foregoing statistics illustrate the continued increase in the demand for electricity. Decreased sales in the Industrial class, and a heavy increase in Bulk sales are largely accounted for by the provision of direct bulk supplies to Somerset West and Strand in January, these places having been previously supplied via Cape Explosives Works Limited.

Arrangements between the Commission and the Cape Town City Council continued to operate in terms of the 1933 Pooling Agreement. 963,818,842 units were sent out from the Pooled Stations, representing an increase of 25,986,202 units or 2·7 per cent over the 1951 figure. The Commission's Salt River Station sent out 168,424,925 units, against 194,731,379 in the previous year. The decrease followed the commissioning of turbo-generators Nos. 4 and 5 at the Cape Town City Council's Table Bay Station, when it became possible to increase generation there, and to take the opportunity thus afforded for the reconditioning of boilers at Salt River. The new Hex River Power Station, which was commissioned in May, sent out 57,759,350 units by the end of the year, and the Worcester Diesel Station 18,120 units. The total number of units sent out to the Commission's and the City Council's consumers was 1,017,354,414: an increase of 8·3 per cent over the previous year.

**Coal**—Although there was no crisis during the year as regards the quantity of coal available, the quality of the coal supplied left much to be desired, particularly in respect of grading. The effect of this upon boiler output capacity may be seen in the Fuel Statistics for Salt River Power Station, already quoted.

**System Operation**—For the first time in the history of the Undertaking it became necessary to curtail supply to consumers at peak periods. This was due to an unfortunate coincidence of troubles in turbo-generators at the Council's Table Bay Station, and from February it was necessary on occasions to shed as much as 20 MW during evening peak hours. The commissioning of the first generator at Hex River Power Station on 30th May enabled load-shedding to be ended so far as the Commission's consumers were concerned, but the City Council was obliged intermittently to curtail supplies to its consumers until August.

Supplies were also interrupted on nine occasions due to major plant failures in the Pooled Stations. Four failures were in connection with turbo-generators at Table Bay, two in connection with turbo-generators at Salt River, one due to a main transformer failure at Salt River and two due to boiler trouble at Table Bay. Interruption of supplies varied in duration from a few minutes to a maximum of 2 hours 16 minutes.

**Major Transmission System**—Considerable extensions were made to the major 66-kV transmission system during the year. The 33-kV line from Oakdale via Paarl was reconstructed for operation at 66 kV, and the Muldersvlei traction substation en route was put into commission. The new line from Oakdale via Eerste River to Capex (built for 66 kV but operating at 33 kV), was also com-

missioned, including the Eerste River Substation which is also required for railway traction supplies. The tie line from Wellington to Worcester via Du Toit's Kloof was reinsulated for operation at 66 kV and put into commission just prior to the commissioning of Hex River Power Station. The 33-kV line between Wellington and Malmesbury was converted from pin- to suspension-insulation, to minimise the insulation failures which have been experienced there. The 66-kV line from Hex River Power Station to Hugo was begun, and is at present under construction: this line will serve the Touws River electrification scheme and other consumers.

**Urban Development**—To meet the continually increasing load in the Commission's reticulation areas of Parow, Goodwood and Bellville, the transformer capacity at Oakdale and Elsies River was increased by a total of 8,000 kVA, bringing the total installed capacity to 22,000 kVA.

Three standard brick-built substations and four outdoor substations were added to this system, together with two temporary substations, involving an increase of 4,550 kVA in the installed transformer capacity feeding the low voltage network.

Approximately 68 miles of overhead and underground feeders, including low voltage mains, were commissioned, and 1,170 new consumers were connected, including 12 large users.

**Rural Development**—The 606 new connections made during the year included 301 farms. Bulk supplies were given to the municipalities of Swellendam and Villiersdorp, and low tension reticulation schemes were commissioned in the villages of Riebeeek Kasteel and Riebeeek West. Supply by direct cable was made available to Worcester Municipality when Hex River Power Station came into operation.

**Land and Buildings**—Seven sites were purchased for substations in the urban areas of Parow, Goodwood and Bellville, and further sites were allocated to the Commission by arrangement with the Townships Board in newly subdivided township areas. An additional two morgen of land was purchased adjacent to the main Oakdale Substation site; this land is required for various depot developments which include the provision of an electrical test department. Five houses were purchased for occupation by operating staff in the areas of Ashton, Bellville, Somerset West and Wolseley.

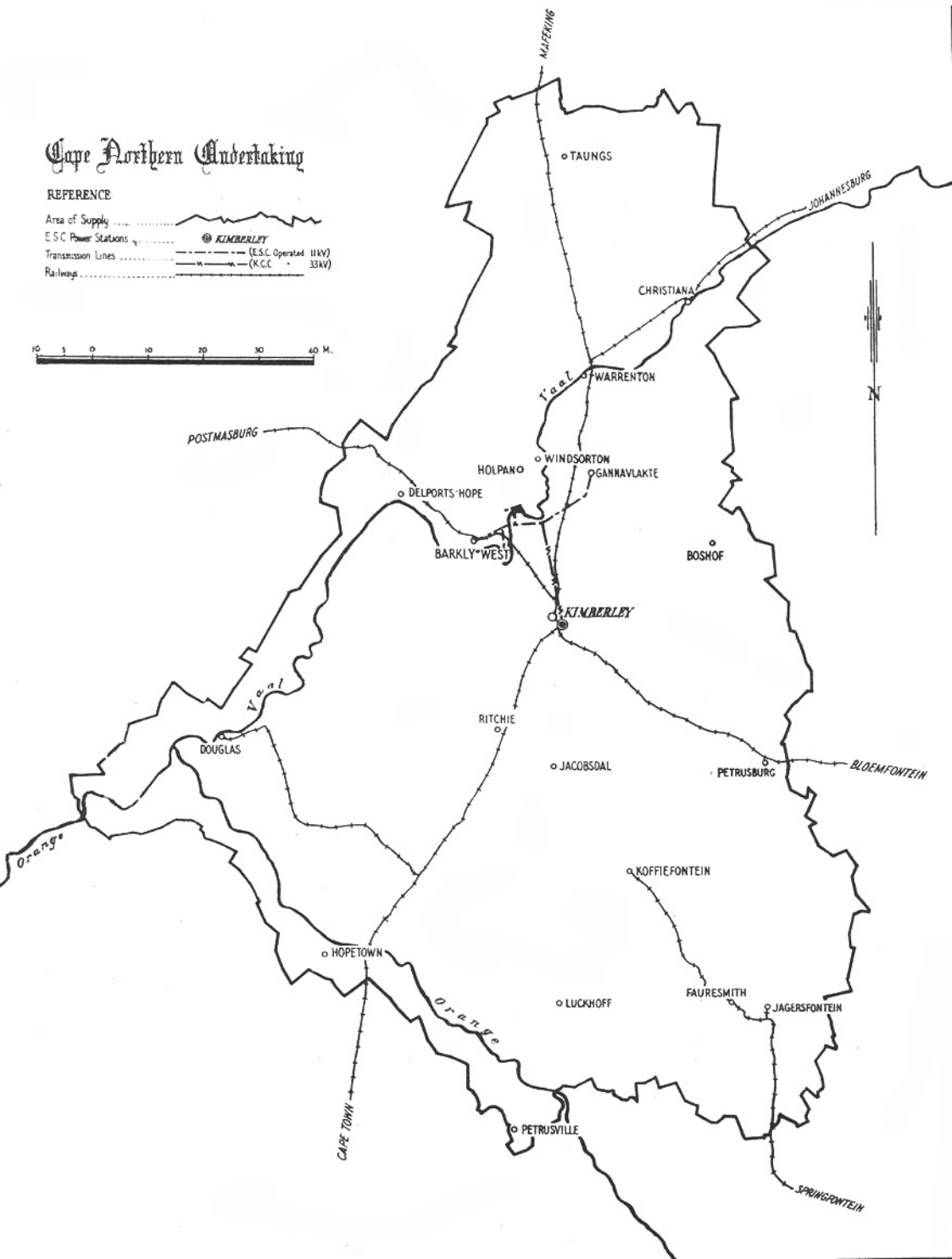
**New Power Stations**—Developments in connection with the Hex River and Salt River No. 2 Power Stations are reported on page 8.

**Financial**—A deficit of £117,489 for the year's working converted an accumulated surplus of £5,783 at the end of 1951 to an accumulated deficit of £111,706 at the end of 1952.

# Cape Northern Undertaking

## REFERENCE

- Area of Supply .....
- ESC Power Stations ..... **KIMBERLEY**
- Transmission Lines ..... (E.S.C. Operated 110V)
- ..... (K.C.C. 33kV)
- Railways .....





## CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1952	1951
			%	£	d	d
Bulk ... ..	2	40,130,900	+9.557	101,103	0.6046	0.5786
Mining ... ..	1	20,563,800	-5.963	60,184	0.7024	0.6596
Industrial ... ..	29	611,068	*	5,815	2.2837	1.2152
Domestic and Lighting	25	31,803	*	279	2.1095	1.0759
	57	61,337,571	+4.813	167,381	0.6549	0.6091

	1952	1951	Accumulated to 31.12.52
Total Revenue ... ..	£167,802	£148,788	
Working Costs ... ..	£179,716	£151,212	
Deficit ... ..	£11,914	£2,424	£8,938
Capital Expenditure ... ..	£320,787	£80,796	£617,427

CENTRAL POWER STATION—			
	1952	1951	
Units Sent Out ... ..	60,542,467†	58,513,651†	
Maximum half-hour Demand kW S.O. } ... ..	14,350	14,050	
Load Factor % ... ..	48.0	47.5	
Thermal Efficiency % Sent Out ...	12.65	13.25	

COAL:			
	1952	1951	
Consumption—tons ... ..	65,693	61,501	
Average per unit sent out—lb ...	2.170	2.102	
Calorific Value B.Th.U./lb ...	12,430	12,250	
Total Cost ... ..	£86,603	£74,944	
Cost per ton ... ..	26s. 4d.	24s. 4d.	

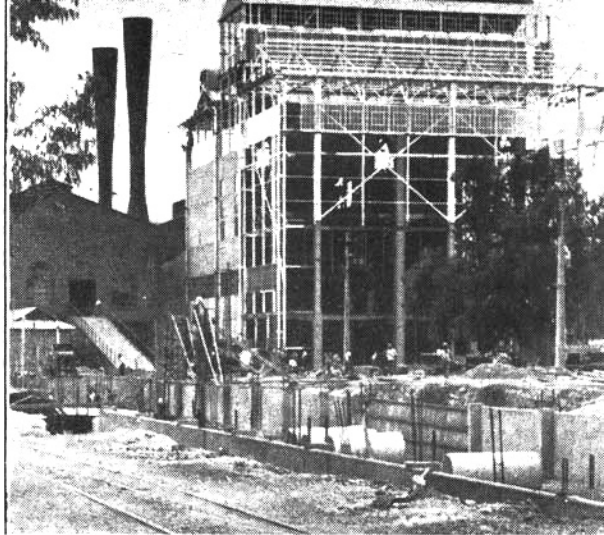
\* Not comparable with 1951.

† In addition, units were purchased

**Output and Sales**—Units sold in 1952 show an increase of 4.8 per cent over the 1951 figure. An increase in sales for Industrial consumption, from 19,838 units in 1951 to 611,068 in 1952, while Domestic and Lighting sales rose from 3,164 units to 31,803, resulted from the extension of the rural network, as described later.

**Power Station**—Increased load, and decreased supply of cooling water due to drought, caused serious difficulties during the summer months. The low level and consequent high temperature of water in the cooling vlei led to load reductions

**CENTRAL POWER STATION:**  
Boiler House under construction,  
February, 1953.



in January and part of February, 1952, but the programme of boiler overhauls mentioned in the last Report was duly completed and no trouble was experienced during the winter peak load period. Unfortunately when winter ended and boilers again had to be taken out of commission in rotation for overhaul, rainfall was still inadequate and there were times when water temperature in the vlei reached 100°F. Consequently, load shedding became unavoidable on occasions during December, 1952, and again in January, 1953. Acknowledgment must be made of co-operation on the part of the De Beers Company and other large users, which minimised so far as possible, the effects of load reductions.

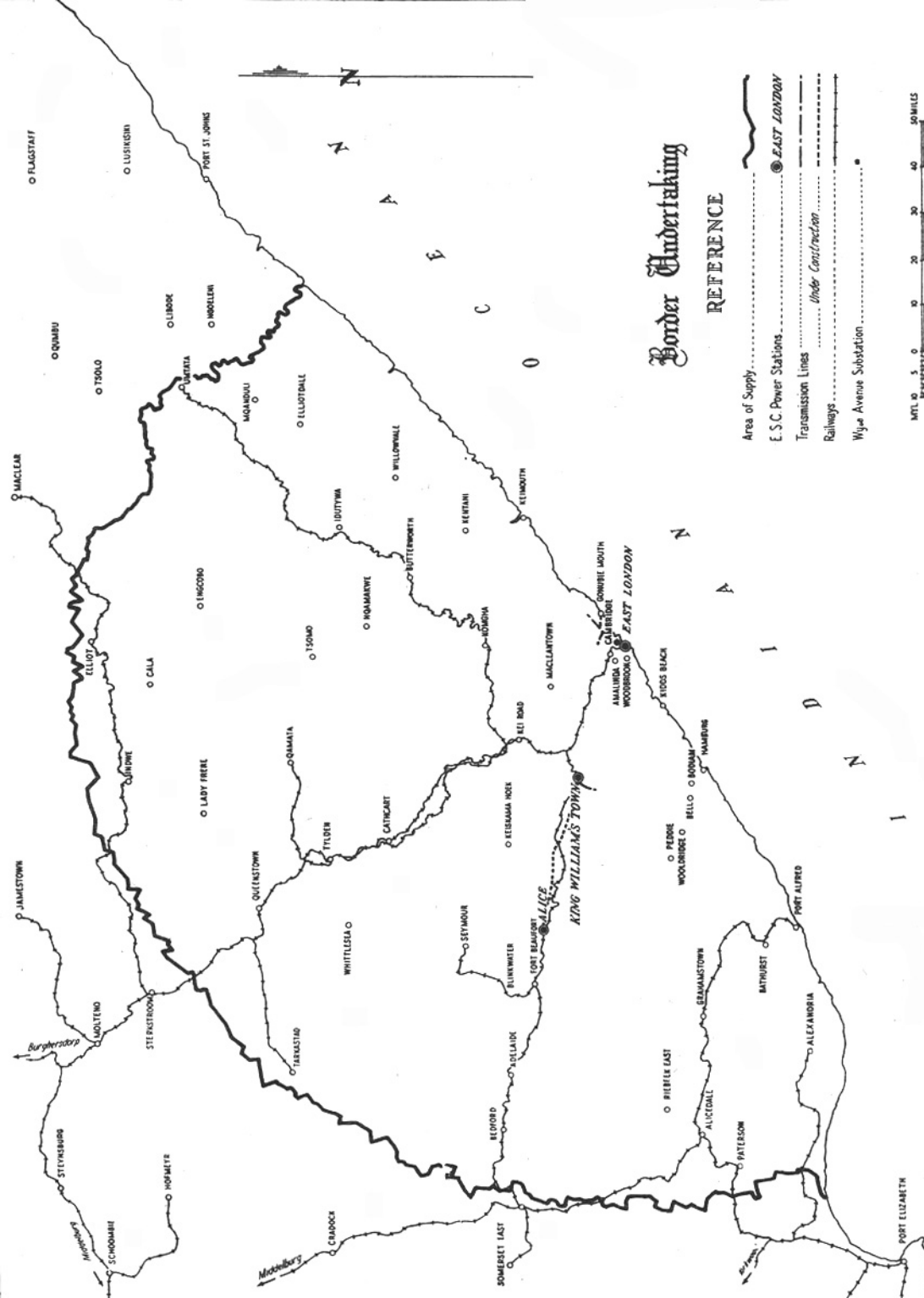
A mechanical draught cooling system is being installed to supersede the present system, which depends upon the vlei for the cooling of water and proves unreliable and unsatisfactory in operation. The new system will be completed in two halves; the first to be ready by July, 1953, and the second half with booster pump-house by January, 1954.

By the end of the year the new boiler house was almost completed, and the two new 75,000-lb/hr boilers are scheduled to come into commercial operation in July and October, 1953, and the two 5,500-kW turbo-generators (transferred from Congella Power Station) in August and October, 1953. An additional two 75,000-lb/hr boilers will be erected, to be ready towards the end of 1954.

**Distribution: Rural Supplies**—The 11-kV rural network from Riverton Pumping Station to Barkly West has been extended to 31½ miles, and is supplying 27 river pumping plants of 642 h.p. connected load and 26 domestic premises. A 19½-mile 11-kV line from Riverton Pumping Station to the Pretoria Portland Cement Works' gypsum quarries at Gannavlake was placed in commercial operation on 1st December, with another gypsum quarry to be connected early in 1953. 800,840 units of 580 kVA maximum demand were distributed in rural areas during the year.

A transmission line, 22 miles in length, is in course of construction between Kimberley and Boshof. This line is being constructed for 22 kV, but will operate at 11 kV for the time being.

**Financial**—A deficit of £11,914 on the year's working converted a surplus of £2,976 at the end of 1951 to an accumulated deficit of £8,938 at the end of 1952.



# Border Undertaking

## REFERENCE

- Area of Supply .....
- E. S. C. Power Stations .....
- Transmission Lines .....
- Railways .....
- Wye Avenue Substation .....



CONSUMERS		SALES			Average Price per Unit Sold		
		Class	Number	Units	Increase	Revenue from Sales	1952
Bulk	...	...	1	87,648,500	%	£	d
Industrial	...	...	115	2,914,651	10.621	237,218	0.6232
Domestic and Lighting	...	...	2,026	6,947,267	29.911	22,636	1.7331
Steam—Industrial	...	...	2	212,254	7.586	46,581	1.5305
			2,144	97,722,672	61.540	843	0.7197
Total Revenue	...	...		1952		1951	Accumulated to 31.12.52
Working Costs	...	...		£307,828		£263,934	
Deficit	...	...		£348,724		£285,048	
Capital Expenditure	...	...		£40,896		£21,114	£51,167
				£204,861		£309,905	£1,093,423

		East London		Alice	
		1952	1951	1952	1951
Units Sent Out	...	87,648,500	79,233,280	706,029	674,846
Maximum Half-hour	...	19,950	20,150	192	199
Demand kW S.O.	...	50.0	44.9	41.9	38.7
Load Factor %	...	15.12	15.52		
Thermal Efficiency % S.O.	...				
FUEL:					
Coal Consumed—tons	...	79,795	70,333		
Average per Unit Sent Out—lb.	...	1.821	1.775		
Calorific Value B.Th.U./lb	...	12,390	12,390		
Total Cost	...	£135,555	£110,833		£5,086
Cost per ton	...	34s. 0d.	31s. 6d.		£18 5s. 11d.
Fuel Oil consumed—lb	...			574,580	555,970
Fuel Oil per unit S.O.—lb	...			0.814	0.824

## BORDER UNDERTAKING—(continued)

	King William's Town			
	1952 Steam	1951 Steam	1952 Oil	1951 Oil
Units Sent Out ... ..	9,036,019	8,375,937	87,488	104,500
Maximum Half-hour Demand kW S.O. } ... ..	2,636	2,606	In parallel with steam plant	
Load Factor % ... ..	39·4	37·1		
Thermal Efficiency % S.O. ...	13·27	13·18		
<b>FUEL:</b>				
Coal consumed—tons ... ..	9,339*	8,342†		
Average per unit S.O.—lb ...	2·021	1·992		
Calorific Value B.Th.U./lb ...	12,720	13,090		
Total Cost ... ..	£17,358	£13,792		£467
Cost per ton ... ..	37s. 2d.	33s. 1d.		£15 4s. 6d.
Fuel Oil consumed—lb ... ..			50,067	61,354
Fuel Oil per unit S.O.—lb ...			0·572	0·587

\* Includes 210 tons for Steam Supply.

† Includes 130 tons for Steam Supply.

**Output and Sales**—Sales in 1952 increased by 11 per cent over the corresponding figure for 1951, and each of the three power stations increased its output.

**East London**—Except for a small reduction of load in August, operational continuity at the West Bank No. 1 Power Station was maintained throughout the year. The new plant mentioned in the previous Report, comprising two 55,000-lb/hr boilers and a 7,500-kW turbo-generator, operated satisfactorily. No. 6 turbo-generator, previously generating at 6·6 kV, was reconnected to generate at 11 kV.

The progress of work on the new West Bank No. 2 Station is reported on page 8.

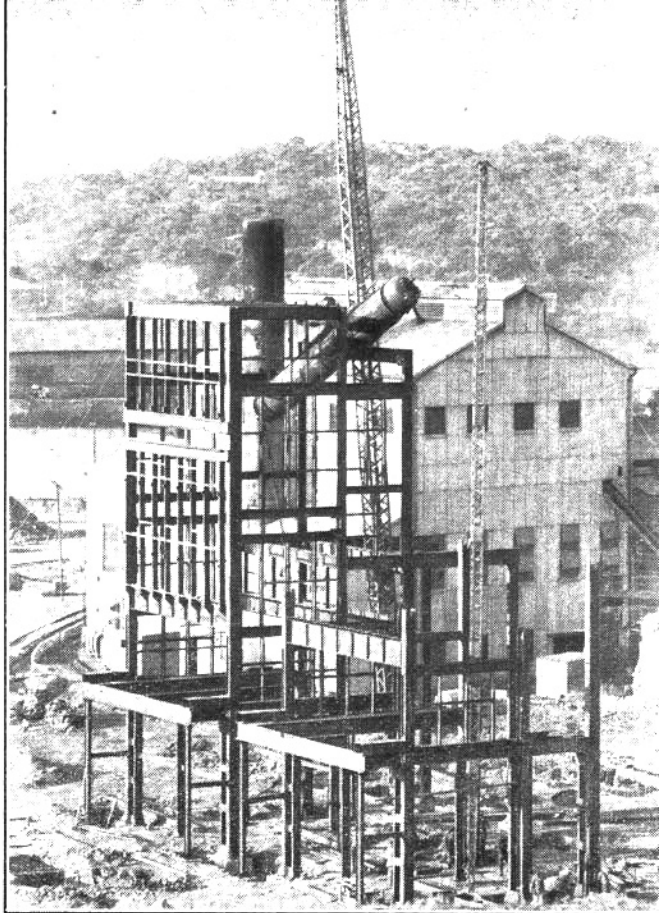
Consumption on the 11 kV rural system continues to expand. In the Gonubie and Bonza Bay areas the maximum demand increased from 252 to 351 kVA and the number of consumers rose from 125 to 207.

Work began in April on the 33-kV transmission line from King William's Town to Adelaide via Alice and Fort Beaufort, and 403 structures were erected by the end of the year.

**WEST BANK No. 2 POWER  
STATION**

**Erection of Boiler House  
steelwork.**

[Photo Marius Garb



**King William's Town**—Units sent out increased from 8,480,437 in 1951 to 9,123,507 in 1952; an increase of a little over 7 per cent.

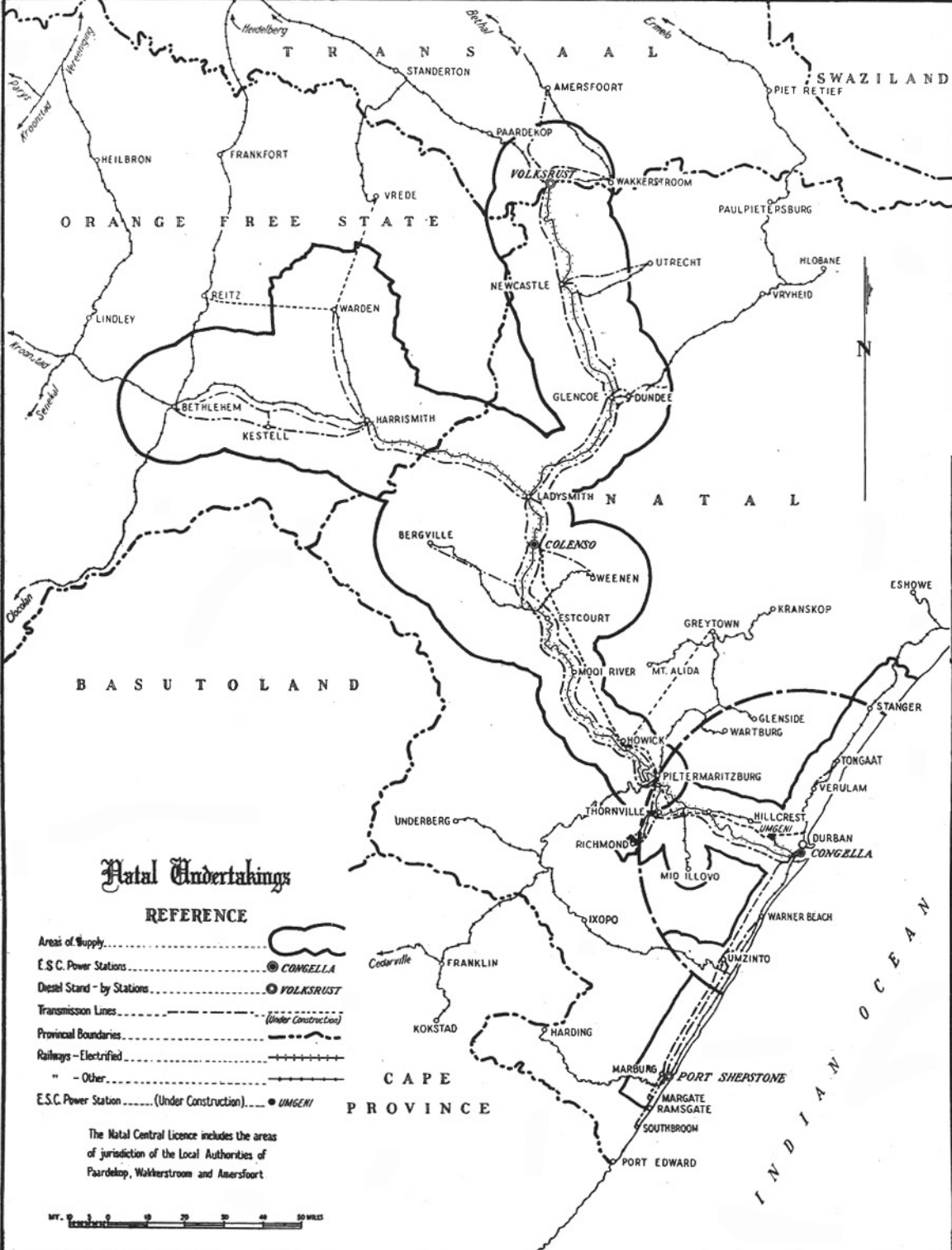
Two total failures of supply occurred during the year; one when transformers in a generator panel failed and were burnt out, and other a little later when supply to auxiliaries failed.

The switchgear bay annexe building and switchgear were completed and the entire system now operates at 11 kV.

**Alice**—706,029 units were sent out in 1952, showing an increase of 4·6 per cent over the 1951 figure.









The change-over from direct to alternating current for supply to consumers and street lighting was completed during October. Two new reticulation substations were energised, and the 3·3-kV ring main was completed early in 1953. Work on the 3·3-kV equipment and reticulation substations is scheduled for completion by May, 1953.

**Financial**—A deficit of £40,896 for the year's working increased the deficit of £10,271 at the end of 1951 to an accumulated deficit of £51,167 at the end of 1952.



# Natal Undertakings

## REFERENCE

- Areas of Supply ..... 
- E.S.C. Power Stations .....  CONGELLA
- Diesel Stand-by Stations .....  VOLKSRUST
- Transmission Lines .....  (Under Construction)
- Provincial Boundaries ..... 
- Railways - Electrified ..... 
- " - Other ..... 
- E.S.C. Power Station ..... (Under Construction) .....  UMGENI

The Natal Central Licence includes the areas of jurisdiction of the Local Authorities of Paardekop, Wakkersstroom and Amersfoort



## DURBAN UNDERTAKING

CONSUMERS		SALES			Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease	1952		1951	
			%	£	d	d	
Traction ... ..	1	42,118,935	+ 0.696	81,608	0.4650	0.4352	
Bulk ... ..	2	577,860,543	+ 6.777	1,064,195	0.4420	0.4203	
Industrial ... ..	202	22,369,934	- 2.213	56,955	0.6111	0.5684	
Domestic and Lighting	3,372	13,260,263	+19.818	92,332	1.6711	1.7442	
	3,577	655,609,675	+ 6.266	1,295,090	0.4741	0.4505	
		1952		1951	Accumulated to 31.12.52		
Total Revenue ... ..		£1,302,162		£1,161,909			
Working Costs ... ..		£1,317,407		£1,145,390			
Surplus ... ..		—		£16,519			
Deficit ... ..		£15,245		—	£28,138		
Capital Expenditure ... ..		£2,226,544		£999,220	£9,023,158		
		Congella Power Station Nos. 1 and 2		Port Shepstone Power Station			
		1952	1951	1952	1951		
Units Sent Out ... ..	651,482,630	596,367,170	416,044	1,706,676			
Maximum half-hour Demand kW S.O. } ... ..	142,216	131,820	2,674	3,366			
Station Peak kW ... ..	158,000	143,700	2,730	3,430			
Load Factor % ... ..	52.2	51.6	1.8	3.7			
Thermal Efficiency % S.O. ... ..	21.36	21.47					
FUEL:							
Coal Consumed — tons	437,596	393,087					
Average per unit sent out—lb ... ..	1.343	1.318					
Calorific Value B.Th.U./lb	11,900	12,060					
Total Cost ... ..	£513,801	£393,335					
Cost per ton ... ..	23s. 6d.	20s. 0d.					
Fuel Oil consumed—lb			239,833	617,199			
Fuel Oil per unit sent out—lb ... ..			0.576	0.573			

**Output and Sales**—The foregoing figures show that the increase in demand for electricity recorded in previous years continued in 1952. Sales rose by more





### UMGENI POWER STATION

under construction, September, 1952.

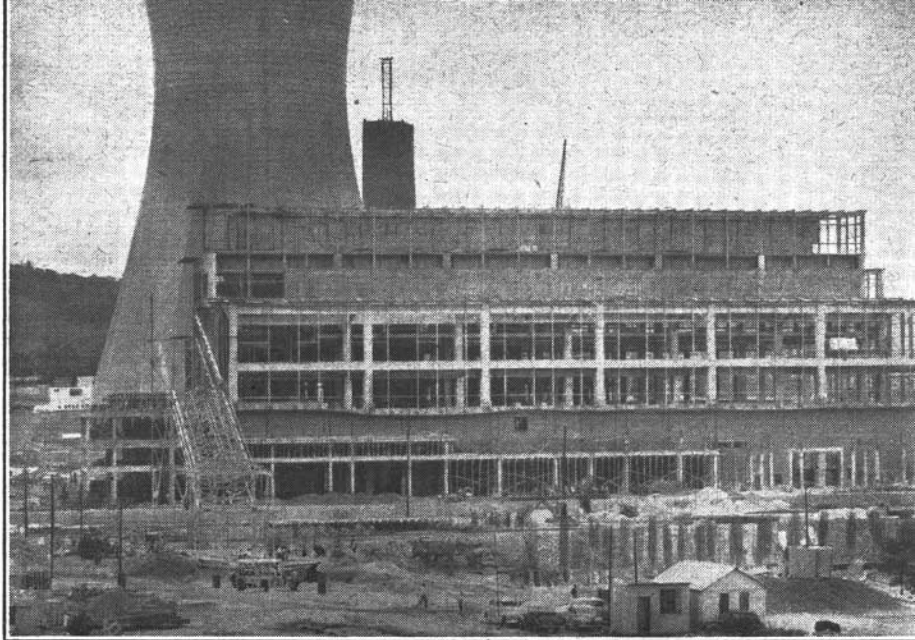
[Photo Whysalls

than 6 per cent, output by over 9 per cent, and the maximum half-hour demand on Congella Power station reached 142,216 kW in 1952, compared with 131,820 in 1951.

**Congella Power Station**—There were a number of interruptions to supply during the year. On 19th April, busbar faults caused the shut-down of No. 2 Station and consequent outages for periods which varied in different parts of Durban from a few minutes to 3 hours 30 minutes. Interruptions to supply from this station for periods from 14 minutes to 1 hour 6 minutes on 27th September were due to loss of auxiliaries. On 15th May, two feeder cables were out of commission for 37 minutes and the interconnector for 1 hour 2 minutes on account of an exciter fault on a generator. There were other interruptions to supply, for short periods.

Maintenance of supply has been rendered particularly difficult by trouble with the main steam joints of the high-pressure cylinders on two generators, one of which was also out of commission for a time on account of a distorted spindle. The demands made on available plant have entailed little opportunity for the overhaul and maintenance of boilers, and four boilers were out of commission during the installation of the new electrostatic precipitators.

Last year's Report mentioned that the 40,000-kW turbo-generator commissioned in March, 1952, would not be fully available without the three new 200,000-lb/hr boilers which were due to steam towards the end of the year.



### UMGENI POWER STATION

Nearer View of Turbine House and Administration Block construction.

[Photo Whysa/Is

Unfortunately, there were delays in the installation of these boilers, which are now expected to be commissioned in March, July and November, 1953.

Coal supplies at Congella were much better than in 1952, and the year under review passed without any crisis arising.

The first of the four mechanical dust-collection equipments mentioned last year was commissioned early in 1953, with the remaining three under erection.

**Umgeni Power Station**—The progress of work on this new Station is reported on page 9. The Springfield Substation building, to be the terminal of the 132-kV interconnector line between Colenso, Umgeni and Congella, was completed, transformers installed, and the 33-kV switchgear connected.

**South Coast**—In this area 16,606,814 units were sold in 1952, an increase of 13·8 per cent over the figure for 1951, and the demand still increases.

The 88-kV line from Durban was energised as far as Marburg, and is carrying most of the South Coast load. It has been extended to Margate, and was completed in February, 1953. A temporary 88-kV stepdown substation at Margate should be in commission before the end of 1953. Considerable industrial expansion is taking place in the Umkomaas area, and it has been decided to convert supply there from 3·3 kV to 11 kV. Conversion from 6·6 kV to 11 kV in the Kelso area has been completed.

**North Coast**—1,067,155 units were sold in this area, compared with 945,519 in the previous year. This scheme is developing, and supply is being changed from 6·6 kV to 33 kV.

**Rural Supplies**—24½ miles of 11 kV and 5 miles of 6·6-kV line were constructed, and 49 new rural consumers were connected.

**Financial**—A deficit of £15,245 on the year's working increased the deficit of £12,893 at the end of 1951 to an accumulated deficit of £28,138 at the end of 1952.

## NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1952	1951
			%	£	d	d
Traction .. .. .	1	257,255,096	0·175	514,552	0·4800	0·4404
Bulk ... .. .	12	140,729,362	10·894	340,429	0·5806	0·5466
Mining ... .. .	9	19,781,652	11·195	59,036	0·7162	0·6885
Industrial ... .. .	434	26,422,576	13·090	86,503	0·7857	0·8015
Domestic and Lighting	3,575	9,784,332	14·828	77,711	1·9062	1·9638
	4,031	453,973,018	4·751	1,078,231	0·5700	0·5311

	1952	1951	Accumulated to 31.12.52
Total Revenue ... .. .	£1,095,822	£975,887	
Working Costs ... .. .	£1,116,132	£965,650	
Surplus ... .. .	—	£10,237	
Deficit ... .. .	£20,310	—	£20,141
Capital Expenditure ... .. .	£1,058,707	£737,348	£8,549,458
<b>COLENSO POWER STATION—</b>			
Units Sent Out ... .. .	481,956,691	471,475,920	
Maximum half-hour Demand kW S.O. } ... .. .	91,620	87,990	
Station Peak kW ... .. .	106,000	108,000	
Load Factor % ... .. .	59·9	61·2	
Thermal Efficiency % Sent Out ... .. .	18·89	19·09	
<b>COAL:</b>			
Consumption—tons ... .. .	360,038	345,444	
Average per unit sent out—lb	1·494	1·465	
Calorific Value B.Th.U./lb ... .. .	12,090	12,200	
Total Cost ... .. .	£333,298	£246,513	
Cost per ton ... .. .	18s. 6d.	14s. 3d.	

**Output and Sales**—Units sold increased by 4·7 per cent over the figure for the previous year, consumption for traction purposes accounting for nearly 57 per cent of the 1952 total. The number of consumers rose from 3,827 in 1951 to 4,031 in 1952.

**Coleenso Power Station**—Delays in installation of plant, as experienced in 1951 and recorded last year, continued in 1952, and are particularly unfortunate in the case of boilers, which are most urgently needed. The three 180,000-lb/hr boilers which were due to steam in April, July and October, 1953, are now expected to be

ready in July and November, 1953, and February, 1954, respectively. The new 25,000-kW turbo-generator, which was to be commissioned during the first half of 1953, will not be in operation before June of this year.

Despite difficulties, however, continuity of supply was maintained throughout the year, although there were a number of occasions when it became necessary to reduce load to traction supply during periods when heavy traction peak loads were experienced.

Coal supplies were better in 1952 than in 1951, but there were times when stocks fell to as low as two days' duration.

**Distribution System**—The interruption of work on the 132-kV interconnector line between Colenso and Springfield (Durban) ended early in 1953 when sufficient steel towers became available for construction to be resumed. Almost all servitudes have been negotiated, and no further troubles are expected in this connection. Foundations for the Mason's Mill substation at Pietermaritzburg have been completed, work has begun on the building, and the transformers have arrived on site. Work is in hand on the 88/132-kV step-up substation at Colenso. Erection of the transformers is being carried out departmentally.

Negotiations with regard to supply for Pietermaritzburg have proceeded with the borough Consulting Engineers, and proposals are under consideration for 88 kV supply at Mason's Mill as well as at Weltevrede. Industrial demands continue to increase in the Estcourt area.

Pole structures for the Cedara/Greytown 33-kV line have been erected, and the stringing of conductors began early in 1953. The substation foundation and building at Greytown are complete, and the substation modifications at Cedara are well in hand. It is expected that the line will be energised during May, 1953.

For the Harrismith/Warden/Vrede/Reitz 33-kV line all servitudes have been obtained, and the route is being surveyed. Material for construction work, scheduled to start in March, 1953, is on hand.

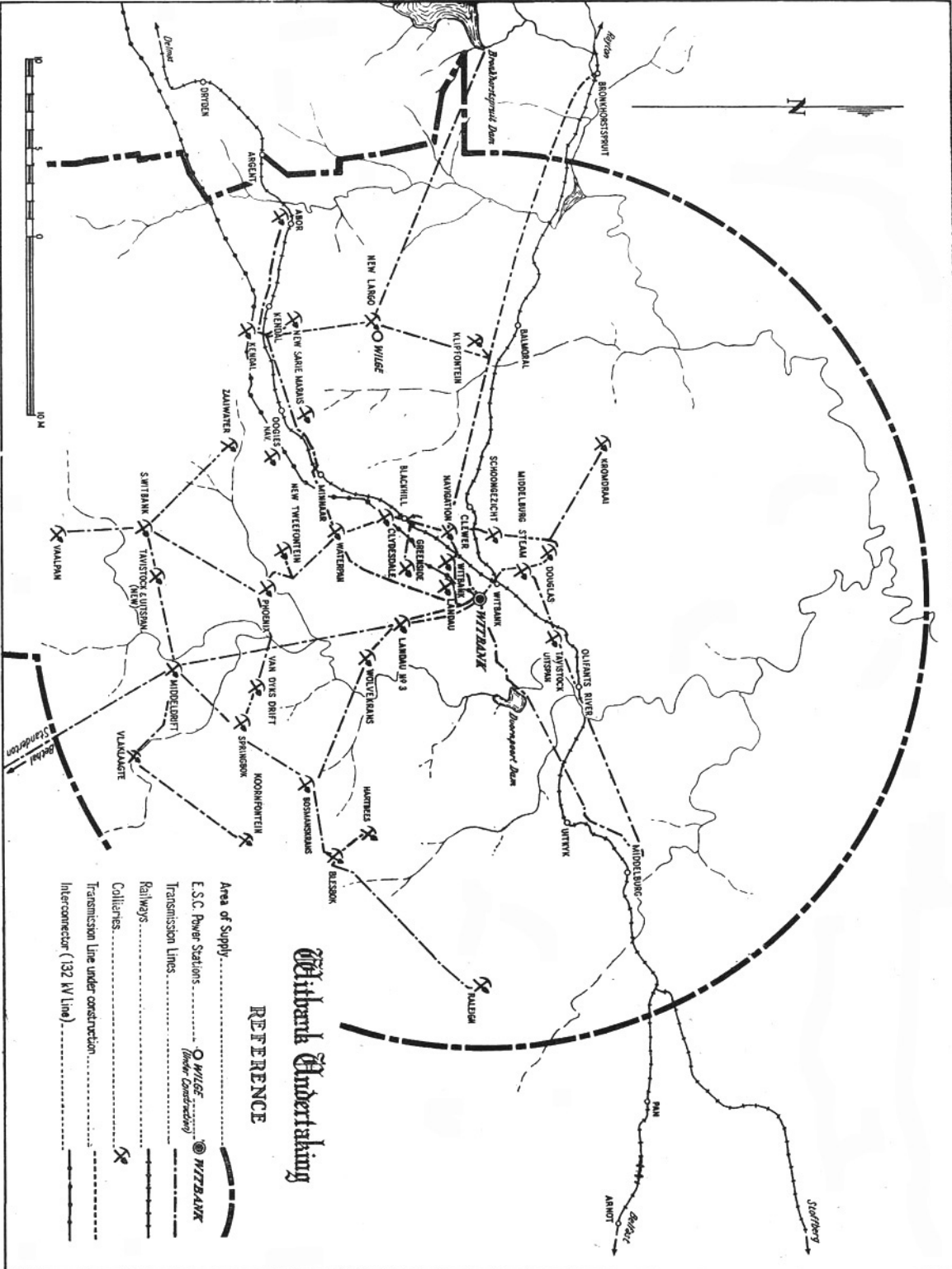
It was originally planned to construct the second Thornville/Richmond line at 33 kV, but it has now been decided that this will be a wood-pole line designed for 88 kV. The first four miles of the line will be energised at 11 kV at the outset as it will have to be tied to the existing 11-kV Richmond line to suit operating conditions. Erection started early in 1953, and work on the rural scheme will proceed after the 88-kV line is constructed as far as Richmond.

**Rural Supplies**—The 11-kV Winterton rural network was almost completed by the end of 1952, and 30 consumers were connected. During 1953 work will start on the Eston/Mid-Illovo rural scheme. In the year under review 13 miles of 11-kV and 5½ miles of 6.6-kV line were erected and energised, and 72 new rural consumers were connected.

**Offices and Stores**—Extended office accommodation is being built at Colenso and new first-aid rooms provided. The Mechanical Workshop Department has been moved to the old Stores building which was suitably enlarged and modified.

Changeroom accommodation at the Power Station has been improved and additional accommodation provided.

**Financial**—A deficit of £20,310 on the year's working converted an accumulated surplus of £169 at the end of 1951 to an accumulated deficit of £20,141 at the end of 1952.



# Oribana Undertaking

## REFERENCE

- Area of Supply.....
- E.S.C. Power Stations.....
  - WILTBANK (Under Construction)
  - ⊙ WILTBANK
- Transmission Lines.....
- Railways.....
- Collieries.....
- Transmission Line under construction.....
- Interconnector (132 KV Line).....

## WITBANK UNDERTAKING

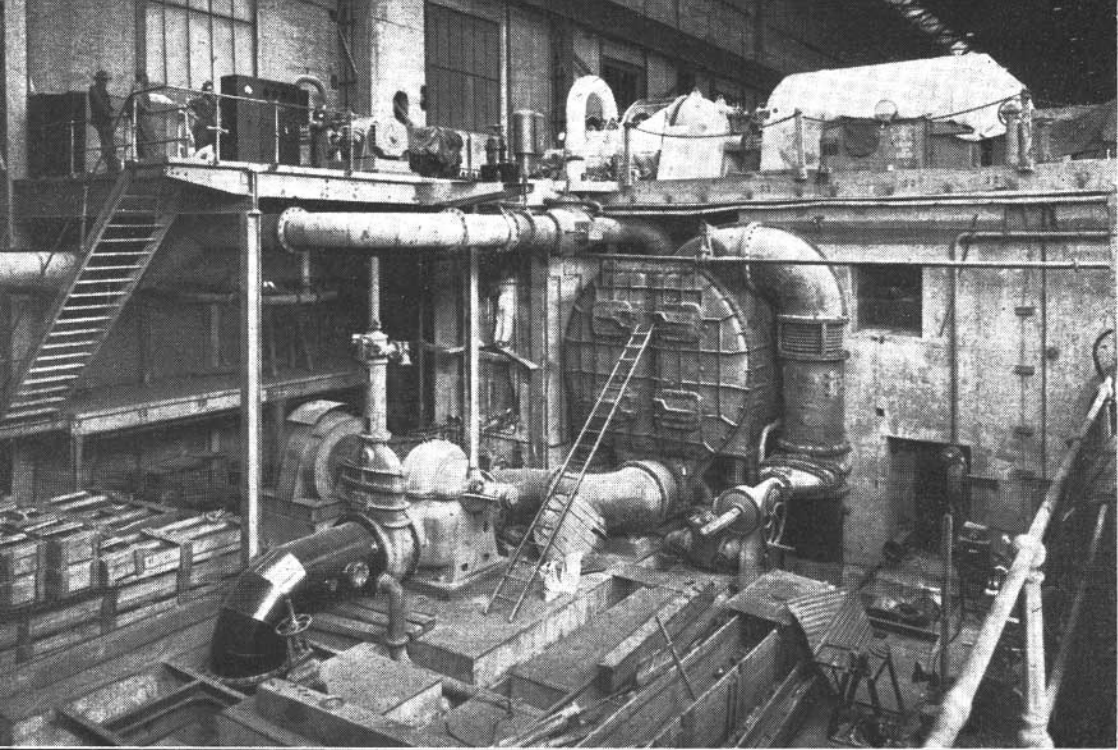
CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1952	1951
			%	£	d	d
Traction ... ..	1	190,734,883*	5.252	281,498	0.3542	0.3380
Bulk ... ..	3	7,362,830†	18.261	19,180	0.6252	0.6380
Mining ... ..	31	77,739,850	2.766	161,698	0.4992	0.4741
Industrial ... ..	93	143,533,381	20.787	174,779	0.2922	0.2716
Domestic and Lighting	1,750	5,635,905	14.873	28,505	1.2139	1.2272
	1,878	425,006,849†	9.870	665,660	0.3759	0.3603
						Accumulated to 31.12.52
Total Revenue ... ..		£974,663		£885,116		
Working Costs ... ..		£989,698		£876,059		
Surplus ... ..		—		£9,057		
Deficit ... ..		£15,035		—		£24,322
Capital Expenditure ... ..		£463,750		£285,651		£4,009,362
WITBANK POWER STATION—						
Units Sent Out ... ..		710,997,440		795,147,419		
Maximum one hour } Demand kW S.O. }		100,628		105,126		
Load Factor % ... ..		80.4		86.3		
Thermal Efficiency % Sent Out ...		16.46		16.88		
COAL:						
Consumption—tons ... ..		666,900		740,740		
Average per unit sent out—lb ...		1.876		1.863		
Calorific Value B.Th.U./lb ...		11,050		10,850		
Total Cost ... ..		£195,099		£165,285		
Cost per ton ... ..		5s. 10d.		4s. 6d.		

\* Units purchased and interchanged.

† 468,677,279 units sent to Rand Undertaking and not included.

The foregoing statistics include sales by the Witbank Local Supply System to the towns of Bethal, Witbank, Middelburg and Bronkhorstspuit, to electro-chemical and other smaller industries, to coal mines and to domestic and lighting consumers. These sales amounted to 234,271,966 units in 1952, an increase of 14 per cent over the 1951 figure.





**WITBANK POWER STATION**  
**Installation of No. 6 Turbo-Generator.**

[Photo B.R.S. Photographers

**Output and Sales**—Sales increased by nearly 10 per cent over the 1951 figure, largely due to an increase of over 20 per cent in Industrial consumption. The decrease in output was caused by having to take plant out of commission during the year for overhaul before new plant now under erection could come into commission.

Last year's Report indicated that the new 20,000-kW turbo-generator under erection at Witbank Power Station was expected to be in operation by the end of 1952, but difficulties and delays intervened and this set, together with two 80,000-lb/hr boilers, is now due for commissioning during the second half of 1953. Fortunately the 1952 winter was mild, and with the co-operation of consumers in Witbank Township it did not become necessary to interrupt supplies there. Peak loads of collieries presented a problem, but supplies were maintained.

**Distribution System**—The 88-kV wooden pole line from Bethal to Standerton was commissioned in December, 1952, and is operating satisfactorily. Since a Petersen Coil was connected to the 88-kV system during October, there has been a marked improvement in the reliability of supply. At Middeldrift substation the

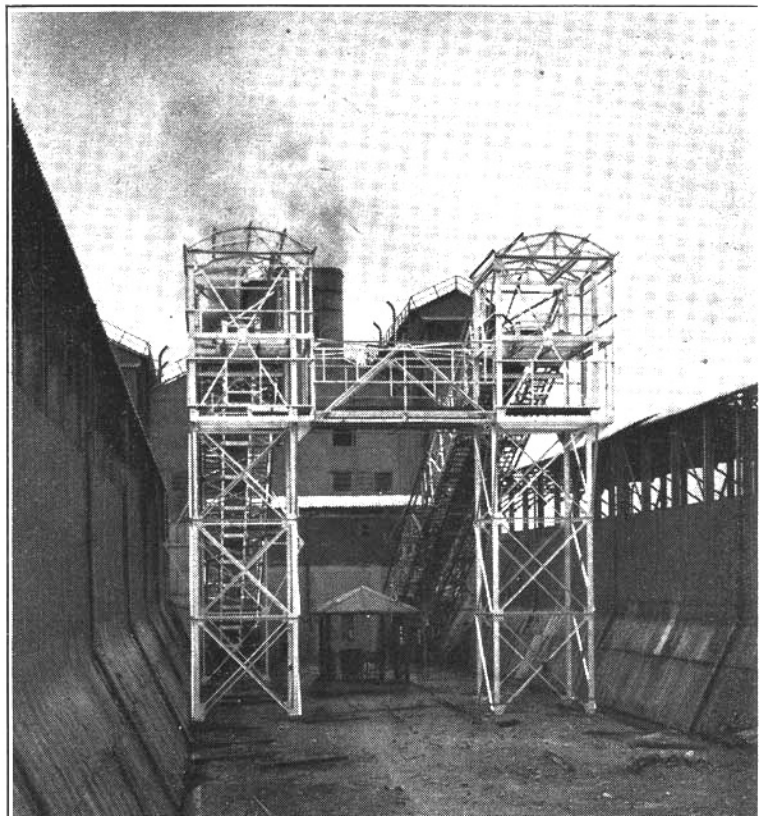
88-kV and 21-kV circuit-breakers were installed and placed in service. At Bethal the 88-kV circuit-breaker was in course of installation at the end of the year.

On the 21-kV network a 6.4 mile tie-line was constructed from Honingkrans, near Balmoral, to connect New Largo Colliery to the ring system. Another line, of 17 miles, was erected from New Largo to Bronkhorstspuit Dam. At New Largo the temporary substation was replaced by a permanent structure with three 750-kVA transformers. The 13 mile line from Doornpoort Dam to Middelburg Town was reconstructed, the aluminium conductors being replaced by copper and the pin insulators by discs.

At Middelburg Town a new substation was constructed for the changeover from 33-kV supply to 11 kV.

There were two serious switchgear failures during the year. One was at the Rand Carbide old substation, where a 21-kV circuit-breaker was wrecked and the roof collapsed, but there was no serious interruption to supply as the new substation was available. The other was at the Witbank municipal substation, where a similar 21-kV circuit-breaker was wrecked, and extensive damage was caused to the substation building by the explosion and the resultant fire. In this case the major part of Witbank Town was without supply from 10.30 p.m. to 6.30 a.m.

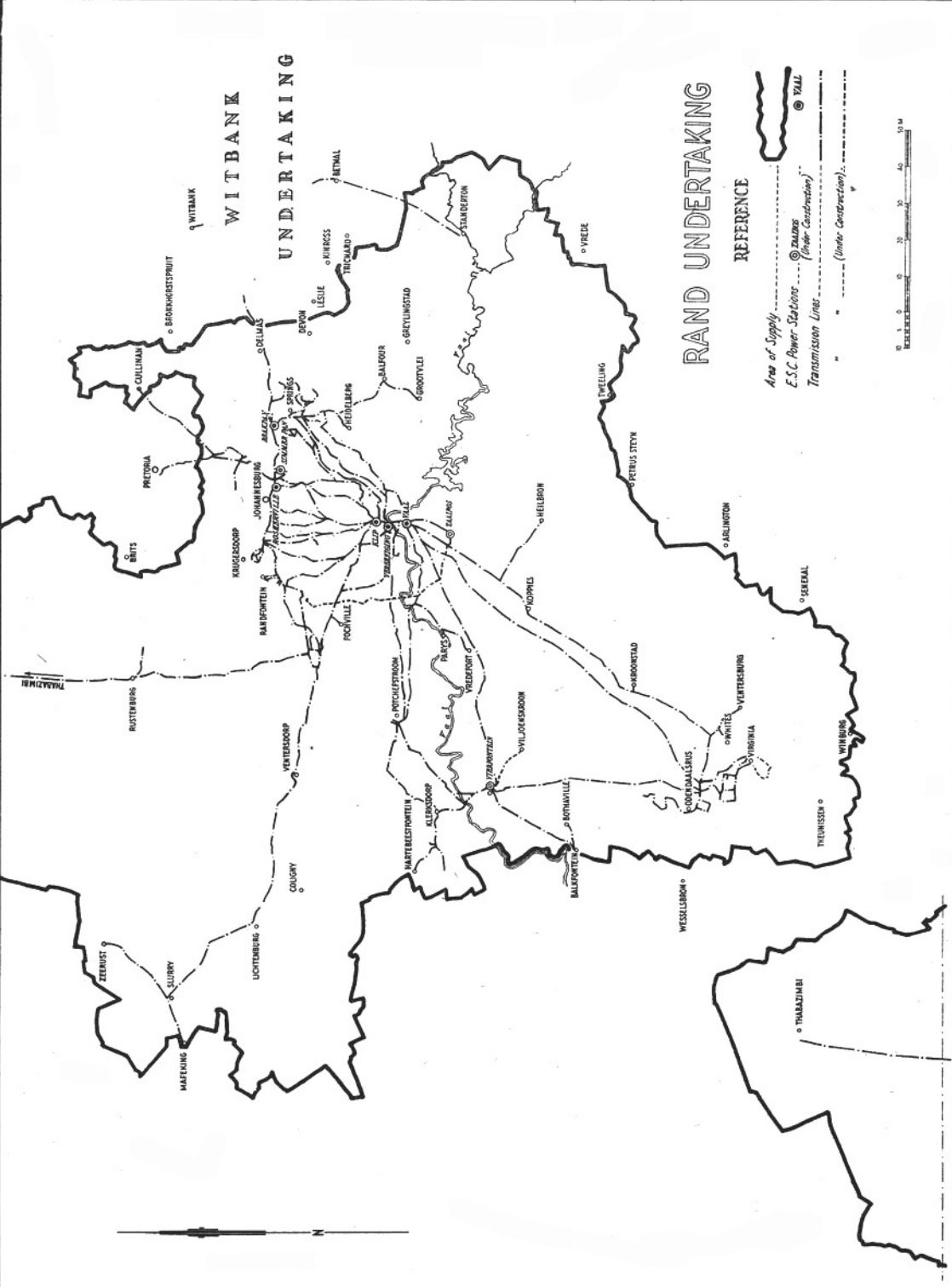
**Financial**—A deficit of £15,035 on the year's working increased the deficit of £9,287 at the end of 1951 to an accumulated deficit of £24,322 at the end of 1952.



**New Ash Handling Plant,  
Witbank Power Station Extensions.**

[Photo B.R.S. Photographers





WITBANK  
 UNDERTAKING

RAND UNDERTAKING

REFERENCE

- Area of Supply
- E.S.C. Power Stations
- Transmission Lines
- (Under Construction)





**RAND UNDERTAKING—(continued)**

	Brakpan Power Station		Klip Power Station	
	1952	1951	1952	1951
	Electricity Units Sent Out ...	212,893,784	166,559,663	2,762,691,276
Maximum Load	42,904	43,024	375,085	372,951
One-hour kW S.O. } ...	56.5	44.2	83.9	82.5
Load Factor %	13.28	13.25	20.32	20.55
Thermal Efficiency % Sent Out ...				
<b>COAL:</b>				
Consumption—tons ...	301,223	233,592	2,467,764	2,441,423
Average per unit sent out—lb	2.830	2.805	1.786	1.812
Calorific Value B.Th.U./lb ...	9,080	9,180	9,400	9,160
Total Cost	£158,675*	£117,142*	£1,196,393	£923,785
Cost per Ton ...	9s. 7d.	8s. 10d.*	9s. 8d.	7s. 7d.

	Rosherville Power Station		Simmerpan Power Station	
	1952	1951	1952	1951
	Electricity Units Sent Out ...	240,960,917	171,632,986	130,417,982
Maximum Load	50,016	51,047	32,907	41,159
One-hour kW S.O. } ...	54.8	38.4	45.1	30.3
Load Factor %	10.97	10.99	9.94	10.26
Thermal Efficiency % Sent Out ...				
<b>COAL:</b>				
Consumption—tons ...	394,396	275,006	250,312	199,632
Average per unit sent out—lb	3.274	3.205	3.839	3.659
Calorific Value B.Th.U./lb ...	9,500	9,690	8,940	9,090
Total Cost	£375,293*	£245,326*	£134,436	£97,456
Cost per Ton ...	12s. 9d.	10s. 7d.*	10s. 9d.	9s. 9d.

\* Includes cost of coal for compressed air. See compressed air section.

	Vaal Power Station		Vereeniging Power Station	
	1952	1951	1952	1951
Electricity Units Sent Out ...	...	...	...	...
Maximum Load }	1,531,673,311	1,362,811,212	958,535,062	933,410,207
One-hour kW S.O. }	211,926	192,149	136,897	140,811
Load Factor %	82.3	81.0	79.7	75.7
Thermal Efficiency % Sent Out ...	22.75	22.29	16.18	16.51
<b>COAL:</b>				
Consumption—tons ...	1,269,611	1,118,042	1,138,293	1,092,700
Average per unit sent out—lb ...	1.658	1.641	2.375	2.341
Calorific Value B.Th.U./lb ...	9,050	9,330	8,880	8,830
Total Cost ...	£425,302	£329,672	£383,219	£312,007
Cost per Ton ...	6s. 8d.	5s. 11d.	6s. 9d.	5s. 9d.
<b>COAL:</b>				
Consumption—tons ...	30,087	30,977	194,771	188,032
Average per unit sent out—lb ...	3.461	3.506	2.840	2.742
Calorific Value B.Th.U./lb ...	9,080	9,180	9,500	9,690
<b>COAL:</b>				
Consumption—tons ...	50,974,300	52,037,500	59,545,500	60,154,900
Electric Input—kWh exc. Trans. losses ...	60,420,664	61,541,901	74,344,017	74,810,081
Air Units Sent Out kWh per cent. ...	84.37	84.56	80.09	80.41

	Brakpan Power Station		Rosherville Power Station	
	1952	1951	1952	1951
Compressed Air Units Sent Out ...	17,387,190	17,670,000	137,139,900	137,162,800
Steam Units Sent Out ...	...	...	...	...
<b>COAL:</b>				
Consumption—tons ...	30,087	30,977	194,771	188,032
Average per unit sent out—lb ...	3.461	3.506	2.840	2.742
Calorific Value B.Th.U./lb ...	9,080	9,180	9,500	9,690

	Canada Dam Compressor Station		Robinson Compressor Station	
	1952	1951	1952	1951
Compressed Air Units Sent Out ...	50,974,300	52,037,500	59,545,500	60,154,900
Electric Input—kWh exc. Trans. losses ...	60,420,664	61,541,901	74,344,017	74,810,081
Air Units Sent Out kWh per cent. ...	84.37	84.56	80.09	80.41

Brakpan Power Station supplies Steam and generates Electricity.

Rosherville Power Station generates Compressed Air and Electricity.

## RAND UNDERTAKING—(continued)

	Modder B and New Modder Compressor Stations	
	1952	1951
<b>COMPRESSED AIR:</b>		
Units Sent Out ... ..	9,194,390	9,904,241
Electric Input kWh ... ..	10,801,452	11,582,745
Air Units Sent out kWh per cent. ... ..	85.12	85.51

**Growth of Load**—During 1952 the existing generating resources of the Rand Undertaking were taxed to the utmost by demands for electricity, and until additional plant is commissioned at Vaal and Vierfontein Power Stations and the new Taaibos and Wilge Power Stations come into operation, this undesirable situation will be unaltered.

The load factor on the Undertaking's power stations increased as a result of maximum demand limitation, and the number of units sent out by Klip, Vereeniging, Rosherville, Simmerpan and Brakpan stations increased by 5.6 per cent, although no additional plant has been installed at these stations.

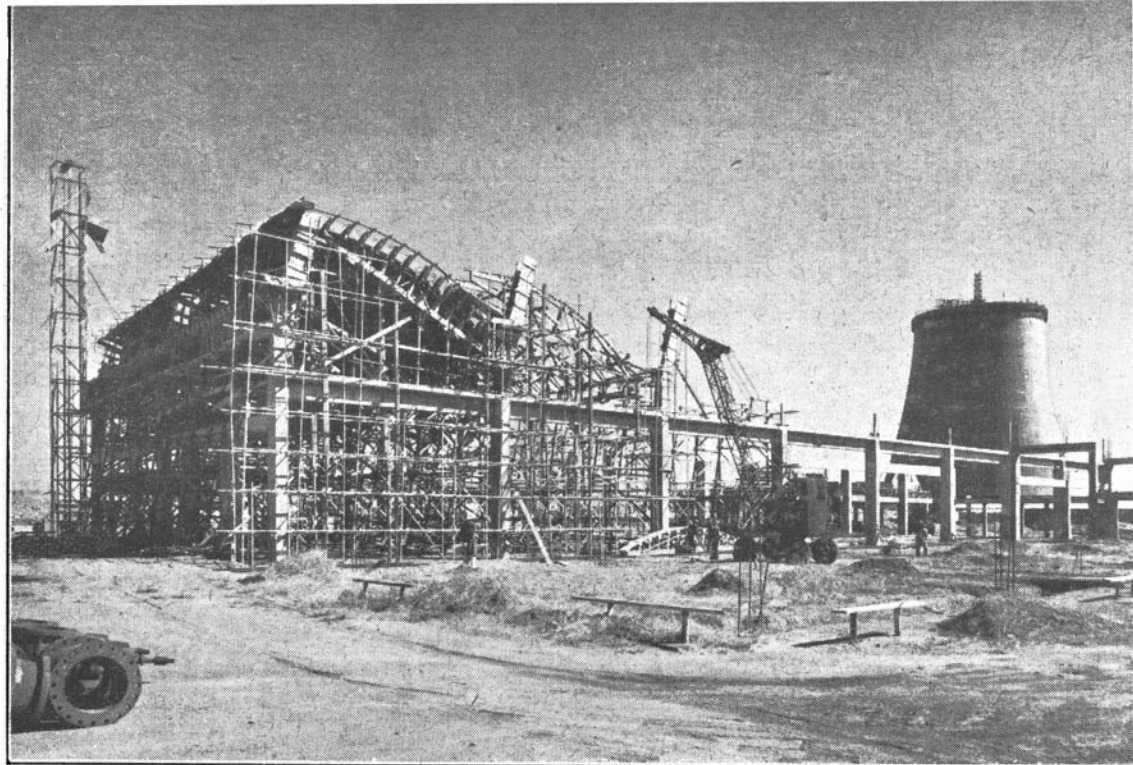
Sales of electricity totalled 5,774,983,751 units, an increase of a little more than 9 per cent over 1951. Sales of compressed air and steam also increased by 8.5 per cent over the 1951 figure.

Although operating statistics indicate that sales of electricity to mining consumers increased by 5.6 per cent while the industrial use of electricity increased by 18.6 per cent, the actual increase in the case of mining consumers was 225,429,970 units and in the case of industrial consumers 164,041,206 units. Increased sales to Iscor (Vanderbijl Park) and other large industrial concerns accounted for most of the increase in industrial consumption.

The drop in domestic and lighting sales is accounted for by the fact that from May, 1952, the greater part of the reticulation system in Germiston was transferred to the Germiston Municipality. The Municipality now takes a bulk supply from the Commission and itself retails to domestic and industrial consumers in its specified area.

**Generating Plant Capacity**—The maximum electric load carried was 977,000 kW, 24,000 kW higher than the previous year's maximum load. Again, as in 1951, it was only possible to carry such a load by using the supplementary facilities made available by the Johannesburg and Pretoria Municipalities, Rand Water Board and Randfontein Estates Ltd. and other owners of generating plant.

The installation of Nos. 11 and 12 Boilers at Vaal Power Station enabled full generating capacity to be obtained from No. 6 33,000-kW turbo-generator. Nos. 13 and 14 boilers were commissioned during the first half of 1953, and Nos. 7, 8 and 9 turbo-generators were operated, but their full influence will not be felt until later in the year.



**WILGE POWER STATION**  
under construction, April, 1953.

[Photo B.R.S. Photographers

Progress was reported on the erection of the 180,000-lb/hr boiler at Vereeniging.

At Vierfontein, the commissioning of the first 30,000-kW generator, together with Nos. 1 and 2 boilers, was scheduled for May, 1953.

During April, 1953, the maximum electric load on the Undertaking system reached 1,000,000 kW for the first time.

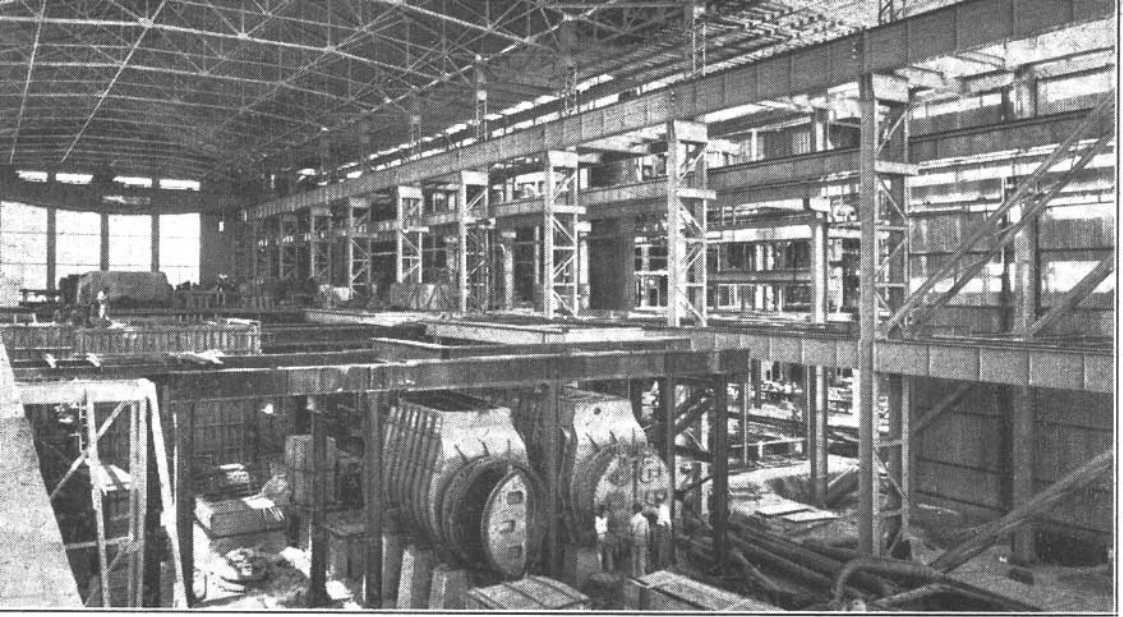
The continued increased demands for power made it necessary to continue limiting maximum demands and restricting new supplies. The quotas allotted to industrial and bulk supply consumers were reviewed before the 1952 winter season, but in the circumstances it was not possible to make any general increase and, in fact, the position did not hold any prospect of relieving supply restrictions during the winter of 1953.

The total route length of major transmission lines placed in service in 1952 was 259 miles. Major lines under construction totalled 412 miles, while projected construction amounted to 219 miles.

A 20-MVA synchronous condenser was installed at Dunottar Distribution Station.

A 45-MVA 88/40-kV transformer group and a 20-MVA synchronous condenser were initially installed at North Rand Distribution Station.

Two 60-MVA 132/40-kVA transformers were put in service at Alma Distribution Station; one 60-MVA 88/132-kV transformer was commissioned at Vaal Power Station.



**VIERFONTEIN POWER STATION**  
Interior of Turbine House.

[Photo B.R.S. Photographers

25,000-kVA booster transformers were installed at Rustenburg and Lichtenburg with automatic equipment to control voltage on the 88-kV transmission lines in these districts.

Other works carried out included the equipment of substations and the reinforcement of 40-kV "rings" in the Transvaal and Orange Free State. Additional high voltage points of supply were made available along the S.A. Railways Reef electrification system.

The new E.R.P.M. Distribution Station was placed in service, but the 88-kV transmission line to it from Klip Power Station has still to be connected. Portion of this transmission line, as far as the recently constructed Switching Station at Rosherville, is in use, and a temporary connection has been made between the Switching Station and the Johannesburg Municipal 88-kV system.

Electricity was supplied to the following Local Authorities: Zeerust, Heilbron, Ventersburg, Bothaville, Hartebeestfontein, Standerton. Supply was also extended to the Irrigation Department at Balkfontein, O.F.S., and supplies to a number of gold mines in the Free State were converted to a permanent basis.

**Tariffs**—The new tariffs approved by the Electricity Control Board were brought into force for mining and industrial supplies in January, 1952. The increase in revenue, however, did not keep up with the greatly increased operating costs, due mainly to higher coal costs and the abnormal cost of maintaining maximum output, and from July it became necessary to provide for an automatic adjustment of the unit rate dependant upon fluctuations in coal costs. Further increases in costs during the second half of the year necessitated a further adjustment of the tariff in January, 1953.

The tariffs approved by the Electricity Control Board for application in residential areas were brought into effect in January, 1953.

**Financial**—Working costs totalled £8,306,250, an increase of £1,231,736 over 1951 costs, and although revenue rose by £1,145,954 to £8,108,763 the resulting deficit was £197,487.

## SABIE UNDERTAKING

CONSUMERS				SALES		Revenue from Sales	Average Price per Unit Sold	
Class			Number	Units	Increase		1952	1951
					%	£	d	d
Mining ... ..			1	6,119,927	0.639	8,911	0.3495	0.3323
				1952		1951	Accumulated to 31.12.52	
Total Revenue ... ..				£8,911		£8,419		
Working Costs ... ..				£8,817		£8,354		
Surplus ... ..				£94		£65	£204	
Capital Expenditure ... ..				—		—	£96,170	
SABIE POWER STATION—								
Units Sent Out ... ..				6,410,000		6,308,900		
Maximum half-hour Demand kW S.O. } ... ..				1,200		1,150		
Station Peak kW ... ..				1,220		1,250		
Load Factor % ... ..				60.8		62.6		
RAINFALL at Power Station:								
Inches ... ..				54.52		45.74		
Millimetres ... ..				1,385		1,162		

Sabie is the Commission's only hydro-electric station and has continued to give uninterrupted and satisfactory service throughout the year.

A surplus of £94 for the year's working increased the surplus of £110 at the end of 1951 to an accumulated surplus of £204 at the end of 1952.



## MUNICIPAL ELECTRICITY SUPPLY SCHEMES—1952

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

### TRANSVAAL:

*New Schemes*  
Groblersdal  
Rodeon  
Tzaneen

*Extensions*  
Alberton, Carletonville  
Carolina, Ermelo  
Koster, Lydenburg  
Nelspruit, Nylstroom  
Pietersburg, Rustenburg  
Schweizer Reneke  
White River

*Tenders*  
Christiana  
Leeuwdoornsstad  
Louis Trichardt (2)  
Pietersburg  
Piet Retief  
Standerton  
White River

### ORANGE FREE STATE:

*New Schemes*  
Fouriesburg

*Extensions*  
Boshof  
Ficksburg  
Reitz  
Rouxville

*Tenders*  
Bloemfontein (7)  
Marquard  
Reitz  
Senekal

### NATAL:

*Extensions*  
Harding  
Paulpietersburg  
Pietermaritzburg  
Stanger

### CAPE:

*Extensions*  
Adelaide, Alexandria  
Bedford, Britstown  
Cradock, De Aar  
Fort Beaufort  
George, Griquatown  
Kenhardt  
Mossel Bay (2)  
Prieska, Queenstown  
Somerset East  
Sutherland, Vredendal  
Warrenton

*Tenders*  
Beaufort West  
Cathcart  
Citrusdal (2)  
George  
Hofmeyer  
Indwe  
Kenhardt  
Murraysburg  
Upington  
Venterstad

### SOUTH WEST AFRICA:

*Extensions*  
Grootfontein  
Mariental  
Swakopmund  
Walvis Bay (2)

*Tenders*  
Mariental

Up to the 31st December, 1952, 1,300 reports on Municipal Electricity Supply Schemes had been submitted by the Commission. Of these, 231 were in respect of new schemes, 619 were in respect of extension schemes and 450 were reports on tenders.

## ANNEXURES

The Commission submits for the year 1952 with this Report:—

### ANNEXURE A—AUDITORS' REPORT AND ACCOUNTS

The Report of the Auditors

Balance Sheet

Schedule No. 1—Expenditure on Capital Account

Schedule No. 2—Investments of the Redemption Fund

Schedule No. 3—Loan Capital and Sundry Loans and Amounts Outstanding for Rights Acquired

Account No. 1—Redemption Fund Account

Account No. 2—Reserve Fund Account

Revenue Accounts in respect of:—

Account No. 3—Cape Western Undertaking

Statement of Pooled Costs, Cape Town

Account No. 4—Cape Northern Undertaking

Account No. 5—Border Undertaking

Account No. 6—Durban Undertaking

Account No. 7—Natal Central Undertaking

Account No. 8—Witbank Undertaking

Account No. 9—Rand Undertaking

Account No. 10—Sabie Undertaking

### ANNEXURE B—STATISTICAL AND OTHER STATEMENTS

Statement No. 1—Summary of principal plant and equipment installed at the Commission's several Undertakings as at 31st December, 1952.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1952.

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

Statement No. 4—Units sold and number of consumers, 1952.

Statement No. 5—Power Station Statistics, 1952.

Statement No. 6—Water consumed by power stations, 1952.

Statement No. 7—Power purchased, 1952.

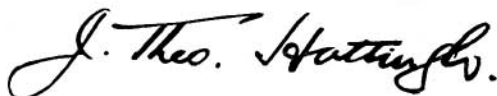
Statement No. 8—Showing the price or rent of land or rights or interests in or over land or other property acquired or hired by the Commission during the year 1952.

Statement No. 9—Coal used at the Commission's steam-raising power stations.

### ANNEXURE C—UNION STATISTICS

Diagrams illustrating the production and distribution of electricity, incorporating information supplied by courtesy of the Bureau of Census and Statistics (Pretoria).

Yours faithfully,



J. THEO. HATTINGH,

Chairman.

**ANNEXURE A****THE REPORT OF THE AUDITORS**

Johannesburg,

28th May, 1953.

*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, 1952.

**REDEMPTION FUND**

In the course of our audit we have examined the position of the Redemption Fund established by the Commission in terms of the Schedule to the Electricity Act to provide for the redemption of the loans issued by the Commission.

In the records of the Commission the Redemption Fund is divided into sections corresponding to the loans. The Commission has invested the moneys accruing to each section of the Fund in the investments prescribed in the Schedule to the Act and in valuing the Fund at 31st December, 1952, we have taken into account the market value of the investments at that date.

Loan No. 4 is due to be repaid on 30th June, 1953. Owing to the depreciation in the market value of investments, it is anticipated that there will be a deficit in respect of that portion of the Redemption Fund which relates to this loan. This deficit is applicable to certain Undertakings which have, with the exception of Sabie, surpluses in other sections of the Fund which more than offset the portion of the deficit applicable to them. In the case of Sabie, we are informed that the deficit will be recovered from the consumer there.

We find that in the aggregate the value of the Fund at 31st December, 1952, was 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.

The Minister has fixed the date from which provision for redemption of Loan No. 17 commenced at 1st November, 1952, and of loan No. 18 at 1st May, 1953.

We understand that application will be made, within the prescribed period, to the Minister to fix the dates from which provision for redemption of subsequent loans must be made. Provision has been made, however, for the redemption of moneys expended out of such loans on works which had come into commercial operation before 31st December, 1952.

## **LOAN FROM EXPORT-IMPORT BANK OF WASHINGTON**

The Commission has entered into an agreement dated 7th October, 1952, with the Bank to borrow \$19,600,000 U.S.A. The loan, which bears interest at 4% per annum, is redeemable over 15 years by equal half-yearly instalments including principal and interest, the first instalment being payable on 16th February, 1956. The full amount of the loan is to be taken up not later than 30th June, 1955, and the amount drawn at 31st December, 1952, was \$2,142,100 U.S.A., equivalent to £766,870. The loan, which is secured on all the assets and revenues of the Commission, ranks *pari passu* with all other loans or securities issued by the Commission. To avoid losses through fluctuations in the Exchange Rate between Union and United States currencies the Commission has arranged forward dollar cover with the South African Reserve Bank for payments falling due under this agreement. The Governor General has exempted the Commission from applying the provisions of the Schedule to the Electricity Act (which relate mainly to the establishment of a Redemption Fund) in respect of this loan. The half yearly repayments of principal required for this loan and for the loan granted in 1951 by the International Bank for Reconstruction and Development take the place of contributions to Redemption Fund normally required to be made for loans issued by the Commission.

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

While progress has been made in the registration into the Commission's name of the documents of title referred to in our report of 27th June, 1952, there are still some documents which have not been produced to us and which, we are informed, are in the hands of the Commission's Solicitors or with Deeds Offices awaiting registration.

## **HEAD OFFICE ADMINISTRATION, ENGINEERING AND GENERAL EXPENSES, INCLUDING PUBLICITY**

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

- (1) The continued expansion in the operations of the Commission and the extensive programme of capital work carried out and in progress.
- (2) The increased expenditure on salaries, cost of living allowances and Pension Fund contributions mainly due to increased staff.

There has also been increased expenditure on travelling overseas in connection with the raising of funds for the Commission and expediting delivery of plant.

There has been set off against the total expenditure:

- (1) Amounts transferred to costs of Capital and Reserve Fund Expenditure at Undertakings for services of Head Office Staff.
- (2) Fees for reporting on Power Schemes of Local Authorities.
- (3) Amounts chargeable to Revenue Accounts under other headings.

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

## REVENUE ACCOUNTS

The results of the operations of the Commission's Undertakings for 1951 and 1952 may be summarised as follows:—

	+                      -		Transfers to	
	Surplus/	Deficit	Reserve Fund	
	1951	1952	1951	1952
Natal Central	+£10,237	-£20,310	£20,000	£20,000
Witbank	+9,057	- 15,035	10,000	5,000
Cape Western	-47,554	- 117,489	54,639	34,892
Durban	+ 16,519	- 15,245	35,000	15,000
Sabie	+ 65	+ 94	—	—
Border	- 21,114	- 40,896	3,000	3,000
Rand	- 111,705	- 197,487	345,689	195,000
Cape Northern	- 2,424	- 11,914	7,000	5,000
	<hr/>	<hr/>	<hr/>	<hr/>
	- £146,919	- £418,282	£475,328	£277,892
Accumulated Surplus/ Deficit carried for- ward from previous year	+£18,768	-£128,151		
Accumulated Deficit at end of year	-£128,151	-£546,433		

The foregoing summary shows that at each Undertaking, with the exception of Sabie, there has been a deficit on the operations for the year. In the case of some Undertakings, a surplus in 1951 has been converted into a deficit in 1952 and in others a deficit in the former year has materially increased. The total accumulated deficit at 31st December, 1952, amounted to £546,433. At the same time contributions to Reserve Fund have been reduced in total from £475,328 to £277,892 and the aggregate amount in the Reserve Fund has fallen from £2,271,059 to £2,192,405.

The contribution during 1952 and the amount in the Reserve Fund at the end of that year represent only 44% and 3.5% respectively of the amount of expenditure on Capital Account which had come into commercial operation at 31st December, 1952, viz. £62,992,000. During the nine years immediately prior to 1948 the annual contributions varied between 1% and 6% of the expenditure on Capital Account in commercial operation and the balance on Reserve Fund varied between 10.5% and 7.9%.

We do not consider that either the amount in the Reserve Fund at 31st December, 1952, or the contribution during the year 1952 are adequate to achieve the purposes for which this Fund was created in terms of Section 9 of the Electricity Act, 1922.

Section 10 (4) of the Electricity Act, 1922, provides:

“It shall be a general principle of the Commission that its undertakings shall, as far as practicable, be carried on neither at a profit nor at a loss and that its charges shall be adjusted accordingly from time to time.”

It is apparent that to rectify the position, to avoid future losses and to enable adequate sums to be placed to Reserve Fund, increases in charges to consumers are required. We are informed that the Commission is taking steps to increase charges to consumers.

### GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1952 and, subject to the foregoing remarks, in terms of Clause 13 (4) of the Electricity Act, 1922, we certify as follows:—

- (a) We have found the Accounts of the Commission to be in order.
- (b) The Accounts issued present a true and correct view of the financial position of the Commission and its transactions and of the result of trading.
- (c) Due provision has been made for the redemption and repayment of moneys borrowed.
- (d) As formerly, the Land and Rights, Buildings and Civil Works and Machinery and Plant are set out in the Balance Sheet as on a cost basis. The value of the other assets of the Commission is correctly stated.
- (e) Sums fixed by the Commission have been set aside to the Reserve Fund under Section 9 as prescribed.
- (f) All our requirements as Auditors have been complied with and carried out.

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

# Electricity Supply Commission.

Incorporated under the Electricity Act, 1922.

## BALANCE SHEET at 31st DECEMBER, 1952.

<b>Loan Capital</b> (as per Schedule No. 3) ... ..	£84,065,262
<b>Interest Accrued on Loan Capital</b> ... ..	490,116
<b>Deferred Liabilities for Assets and Rights Acquired</b> (as per Schedule No. 3) ... ..	150,086
<b>Creditors and Credit Balances</b> ... ..	5,238,369
Current Liabilities and Provisions.	
<b>Temporary Advances</b> ... ..	5,728,364
Amount due to Bankers less Cash on Current Accounts and on Hand ... ..	£1,094,414
Advances at Call ... ..	4,633,950
<b>Redemption Fund</b> (as per Account No. 1) ... ..	18,301,974
<b>Sinking Fund</b> (Umkomaas Town Board Loans) ... ..	5,427
<b>Amount Amortised on Account of Deferred Liabilities for Assets and Rights Acquired</b> ... ..	216,517
<b>Reserve Fund</b> (as per Account No. 2) ... ..	2,192,405

### NOTE—

In addition to the liabilities shown above the Commission is committed to the extent of approximately £58,900,000 for expenditure on Capital Account and £777,000 chargeable against Reserve Fund.

In addition to the annual contributions the Commission is committed to pay £32,131 annually to the Electricity Supply Commission Pension and Provident Fund for the period ending 31st December, 1969, and £11,027 during 1970.

£116,388,520

<b>Expenditure on Capital Account</b> (at Cost) (as per Schedule No. 1)	£88,279,551
Land and Rights ... ..	£804,490
Buildings and Civil Works ... ..	19,521,171
Machinery and Plant ... ..	66,160,000
	86,485,661
Assets Sold ... ..	1,793,890
<b>Movable Plant and Equipment</b> (less Depreciation) ... ..	704,904
Workshop Equipment, Instruments, Tools and Loose Plant	349,135
Transportation Equipment ... ..	203,975
Furniture and Office Equipment ... ..	151,794
<b>Stores and Materials</b> ... ..	5,007,801
<b>Debtors and Debit Balances</b> ... ..	1,482,936
Current Debtors less Reserves ... ..	1,367,920
Entire Share Capital of the Rand Mines Power Supply Company, Limited ... ..	600
Expenditure on Investigations in terms of Section 3 (b) of the Act and Payments in Advance ... ..	114,416
<b>Investments</b> ... ..	293,477
Amount invested in First Mortgages on Leasehold Property at Kimberley and on Freehold Properties, in terms of the Electricity Amendment Act, 1941, less Reserve.	
<b>Investment of Redemption Fund</b> (as per Schedule No. 2) ... ..	17,660,501
(Market Value £14,405,091)	
<b>Investment of Sinking Fund</b> ... ..	5,444
Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities ... ..	5,414
Interest Accrued ... ..	30
(Market Value £4,662)	
<b>Investment of Reserve Fund</b> ... ..	2,407,473
Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities ... ..	2,392,303
Interest Accrued ... ..	15,170
(Market Value £2,121,824)	
<b>Balance on Revenue Accounts</b> (as per Accounts Nos. 3 to 10)	546,433
Natal Central Undertaking ... ..	20,141
Witbank Undertaking ... ..	24,322
Cape Western Undertaking ... ..	111,706
Durban Undertaking ... ..	28,138
Sabie Undertaking ... ..	204
Border Undertaking ... ..	51,167
Rand Undertaking ... ..	302,225
Cape Northern Undertaking ... ..	8,938

£116,388,520



# Electricity Supply Commission.

SCHEDULE No. 1

## Schedule of Expenditure on Capital Account at 31st December, 1952.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1951	Year ended 31st December, 1952.	Total at 31st December, 1952.	Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1951	Year ended 31st December, 1952.	Total at 31st December, 1952.
<b>RAND UNDERTAKING:</b>				<b>WITBANK UNDERTAKING:</b>			
<b>Rand.</b>				Land and Rights ... ..	£18,443	£2,485	£20,928
Land and Rights ... ..	£201,600	£42,388	£243,988	Buildings and Civil Works ... ..	701,566	38,212	739,778
Buildings and Civil Works ... ..	1,842,425	58,579	1,901,004	Machinery and Plant ... ..	2,352,916	423,053	2,775,969
Machinery and Plant ... ..	12,712,879	255,610	12,968,489		3,072,925	463,750	3,536,675
	14,756,904	356,577	15,113,481	Assets Sold ... ..	472,687	—	472,687
Assets Sold ... ..	—	377,492	377,492		<b>£3,545,612</b>	<b>£463,750</b>	<b>£4,009,362</b>
	<b>£14,756,904</b>	<b>£734,069</b>	<b>£15,490,973</b>				
<b>Klip Power Station.</b>				<b>CAPE WESTERN UNDERTAKING:</b>			
Land and Rights ... ..	£128,325	—	£128,325	Land and Rights ... ..	£60,650	£10,341	£70,991
Buildings and Civil Works ... ..	1,622,757	£24,530	1,647,287	Buildings and Civil Works ... ..	2,382,186	555,672	2,937,858
Machinery and Plant ... ..	4,895,137	Cr. 10,429	4,884,708	Machinery and Plant ... ..	6,387,730	1,559,028	7,946,758
	<b>£6,646,219</b>	<b>£14,101</b>	<b>£6,660,320</b>		8,830,566	2,125,041	10,955,607
<b>Vaal Power Station.</b>				Assets Sold ... ..	463,993	—	463,993
Land and Rights ... ..	£5,768	—	£5,768		<b>£9,294,559</b>	<b>£2,125,041</b>	<b>£11,419,600</b>
Buildings and Civil Works ... ..	2,187,097	£42,158	2,229,255				
Machinery and Plant ... ..	6,443,359	1,279,367	7,722,726	<b>DURBAN UNDERTAKING:</b>			
	<b>£8,636,224</b>	<b>£1,321,525</b>	<b>£9,957,749</b>	Land and Rights ... ..	£124,653	£971	£125,624
<b>Vierfontein Power Station.</b>				Buildings and Civil Works ... ..	2,062,708	499,214	2,561,922
Land and Rights ... ..	£15,260	£13,494	£28,754	Machinery and Plant ... ..	4,609,253	1,726,359	6,335,612
Buildings and Civil Works ... ..	1,117,913	1,093,560	2,211,473		<b>£6,796,614</b>	<b>£2,226,544</b>	<b>£9,023,158</b>
Machinery and Plant ... ..	787,191	2,861,876	3,649,067				
	<b>£1,920,364</b>	<b>£3,968,930</b>	<b>£5,889,294</b>	<b>SABIE UNDERTAKING:</b>			
<b>Taaibos Power Station.</b>				Land and Rights ... ..	£510	—	£510
Land and Rights ... ..	£193	£3,041	£3,237	Buildings and Civil Works ... ..	60,491	—	60,491
Buildings and Civil Works ... ..	131,676	1,154,165	1,285,841	Machinery and Plant ... ..	35,169	—	35,169
Machinery and Plant ... ..	9,134	307,532	316,666		<b>£96,170</b>	—	<b>£96,170</b>
	<b>£141,003</b>	<b>£1,464,741</b>	<b>£1,605,744</b>				
<b>Wilge Power Station.</b>				<b>BORDER UNDERTAKING:</b>			
Land and Rights ... ..	£18	£110	£128	Land and Rights ... ..	£6,356	£335	£6,691
Buildings and Civil Works ... ..	1,948	531,443	533,391	Buildings and Civil Works ... ..	134,333	47,381	181,714
Machinery and Plant ... ..	429,613	1,519,915	1,949,528	Machinery and Plant ... ..	747,873	157,145	905,018
	<b>£431,579</b>	<b>£2,051,468</b>	<b>£2,483,047</b>		<b>£888,562</b>	<b>£204,861</b>	<b>£1,093,423</b>
<b>Rand Extension.</b>				<b>CAPE NORTHERN UNDERTAKING:</b>			
Land and Rights ... ..	£37,483	Cr. £6,332	£31,151	Land and Rights ... ..	£2,144	£150	£2,294
Buildings and Civil Works ... ..	267,560	91,080	358,640	Buildings and Civil Works ... ..	59,313	27,262	86,575
Machinery and Plant ... ..	3,736,765	931,971	4,668,736	Machinery and Plant ... ..	235,183	293,375	528,558
	<b>£4,041,808</b>	<b>£1,016,719</b>	<b>£5,058,527</b>		<b>£296,640</b>	<b>£320,787</b>	<b>£617,427</b>
<b>Greater Rand Extension.</b>				<b>SWARTKOPS RIVER UNDERTAKING:</b>			
Land and Rights ... ..	£9,140	£5,947	£15,087	Land and Rights ... ..	£1,502	£15,851	£17,353
Buildings and Civil Works ... ..	210,329	123,589	333,918	Buildings and Civil Works ... ..	269,685	343,466	613,151
Machinery and Plant ... ..	2,714,640	1,593,151	4,307,791	Machinery and Plant ... ..	52,067	580,422	632,489
	<b>£2,934,109</b>	<b>£1,722,687</b>	<b>£4,656,796</b>		<b>£323,254</b>	<b>£939,739</b>	<b>£1,262,993</b>
<b>TOTAL RAND UNDERTAKING:</b>				<b>HEAD OFFICE:</b>			
Land and Rights ... ..	£397,787	£58,651	£456,438	Land ... ..	£61,185	£500	£61,685
Buildings and Civil Works ... ..	7,381,705	3,119,104	10,500,809	Buildings and Equipment ... ..	340,020	3,805	343,825
Machinery and Plant ... ..	31,728,718	8,738,993	40,467,711		<b>£401,205</b>	<b>£4,305</b>	<b>£405,510</b>
	39,508,210	11,916,748	51,424,958				
Assets Sold ... ..	—	377,492	377,492	<b>SUMMARY:</b>			
	<b>£39,508,210</b>	<b>£12,294,240</b>	<b>£51,802,450</b>	Land and Rights ... ..	£708,967	£95,523	£804,490
<b>NATAL CENTRAL UNDERTAKING:</b>				Buildings and Civil Works ... ..	14,775,901	4,745,270	19,521,171
Land and Rights ... ..	£35,737	£6,239	£41,976	Machinery and Plant ... ..	51,754,731	14,405,269	66,160,000
Buildings and Civil Works ... ..	1,383,894	111,154	1,495,048		67,239,599	19,246,062	86,485,661
Machinery and Plant ... ..	5,605,822	926,894	6,532,716	Assets Sold ... ..	1,401,978	391,912	1,793,890
	7,025,453	1,044,287	8,069,740		<b>£68,641,577</b>	<b>£19,637,974</b>	<b>£88,279,551</b>
Assets Sold ... ..	465,298	14,420	479,718				
	<b>£7,490,751</b>	<b>£1,058,707</b>	<b>£8,549,458</b>				



## Schedule of Investments of the

## Redemption Fund at 31st December, 1952.

SCHEDULE No. 2.

INVESTMENTS.							Nominal Value	Book Value
LOCAL REGISTERED STOCKS.								
<b>Electricity Supply Commission—</b>								
4½	per cent.	1953/63	...	...	...	...	£108,475	£108,475
4½	per cent.	1953	...	...	...	...	312,176	312,176
3¾	per cent.	1954/64	...	...	...	...	896,781	896,033
3½	per cent.	1959/64	...	...	...	...	196,397	195,273
3¼	per cent.	1956/66	...	...	...	...	346,050	334,975
3½	per cent.	1957/67	...	...	...	...	355,677	347,896
3¾	per cent.	1959/64	...	...	...	...	521,310	510,407
3¾	per cent.	1960/65	...	...	...	...	443,400	434,694
3¼	per cent.	1961/66	...	...	...	...	515,900	505,813
3¼	per cent.	1965/70	...	...	...	...	553,500	553,245
3	per cent.	1967/73	...	...	...	...	641,050	636,007
3	per cent.	1968/74	...	...	...	...	1,142,000	1,142,000
3¼	per cent.	1968/73	...	...	...	...	6,626,800	6,618,665
3½	per cent.	1969/74	...	...	...	...	296,300	291,891
3½	per cent.	1969/74	...	...	...	...	42,700	41,846
3¾	per cent.	1965/67	...	...	...	...	50,000	48,500
3¾	per cent.	1964/67	...	...	...	...	600,000	588,000
3¾	per cent.	1964/68	...	...	...	...	100,000	98,000
4½	per cent.	1964/67	...	...	...	...	500,000	486,250
5	per cent.	1964/67	...	...	...	...	324,850	318,081
5	per cent.	1966/68	...	...	...	...	350,000	345,625
<b>The Government of the Union of South Africa—</b>								
4½	per cent.	1953	...	...	...	...	356,265	356,265
3¼	per cent.	1953	...	...	...	...	5,000	5,000
3½	per cent.	1953/58	...	...	...	...	25,000	25,000
3½	per cent.	1955/65	...	...	...	...	2,300	2,300
3	per cent.	1956/61	...	...	...	...	40,000	40,000
3	per cent.	1957/66	...	...	...	...	535,000	534,975
3	per cent.	1958/68	...	...	...	...	15,000	15,000
3	per cent.	1959/69	...	...	...	...	100,000	100,000
3	per cent.	1960/70	...	...	...	...	343,700	343,700
<b>Municipal—</b>								
<b>Johannesburg:</b>								
3¼	per cent.	1956/66	...	...	...	...	1,600	1,600
3¾	per cent.	1959	...	...	...	...	6,200	6,200
3¾	per cent.	1960/65	...	...	...	...	20,000	20,000
3¼	per cent.	1962/67	...	...	...	...	129,000	126,531
3½	per cent.	1965	...	...	...	...	1,200	1,200
3¼	per cent.	1965/70	...	...	...	...	294,000	294,000
3	per cent.	1967/77	...	...	...	...	30,000	30,000
<b>Cape Town:</b>								
3¾	per cent.	1960/65	...	...	...	...	2,000	2,000
3¼	per cent.	1962/67	...	...	...	...	225,000	222,568
3	per cent.	1976	...	...	...	...	100,000	99,750
<b>Durban:</b>								
3¼	per cent.	1962/72	...	...	...	...	115,500	115,211
3¼	per cent.	1965/75	...	...	...	...	45,000	45,000
3¼	per cent.	1966/76	...	...	...	...	50,000	50,000
3	per cent.	1967/77	...	...	...	...	334,000	334,000
							17,699,131	17,584,152
<b>Interest Accrued</b>								76,349
							£17,699,131	£17,660,501
<b>Market Value</b>								£14,405,091

## ALLOCATION OF INVESTMENTS TO LOANS.

Loan No.	Local Registered Stocks.	Nominal Value	Book Value
			including Interest Accrued
3	£500,000 4½ per cent. 1953/63	£437,525	£436,140
4	£2,500,000 4½ per cent. 1953	2,262,041	2,259,433
5	£6,750,000 3¾ per cent. 1954/64	4,412,431	4,410,180
6	£2,500,000 3½ per cent. 1959/64	1,392,497	1,388,564
7	£2,000,000 3¼ per cent. 1956/66	1,128,550	1,124,493
8	£2,000,000 3½ per cent. 1957/67	1,009,077	1,006,163
9	£2,000,000 3¾ per cent. 1959/64	906,310	907,401
10	£1,500,000 3¾ per cent. 1960/65	614,000	614,111
11	£2,000,000 3¼ per cent. 1961/66	706,000	705,869
12	£2,500,000 3¼ per cent. 1965/70	665,100	662,570
13	£3,000,000 3 per cent. 1967/73	424,050	419,283
14	£3,000,000 3 per cent. 1968/74	326,700	323,063
15	£15,000,000 3¾ per cent. 1968/73	2,711,000	2,706,907
16	£3,000,000 3½ per cent. 1969/74	255,000	252,162
17	£3,000,000 3¾ per cent. 1969/74	190,000	187,806
18	£5,250,000 3¾ per cent. 1965/67	151,000	149,601
19	£3,000,000 3¾ per cent. 1964/67	63,000	62,408
21	£5,000,000 3¾ per cent. 1964/68	20,000	19,795
22	£4,500,000 4½ per cent. 1964/67	3,350	3,312
23	£5,000,000 5 per cent. 1964/67	6,500	6,426
	Future—not yet raised	15,000	14,814
		£17,699,131	£17,660,501

# Electricity Supply Commission.

SCHEDULE No. 3.

## LOAN CAPITAL AT 31st DECEMBER, 1952.

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

## LOCAL REGISTERED STOCKS.

Loan No. 3:	£500,000 4 $\frac{3}{4}$ per cent. 1953/63	£500,000	0 0
Loan No. 4:	£2,500,000 4 $\frac{1}{2}$ per cent. 1953	2,500,000	0 0
Loan No. 5:	£6,750,000 3 $\frac{3}{4}$ per cent. 1954/64	6,750,000	0 0
Loan No. 6:	£2,500,000 3 $\frac{1}{2}$ per cent. 1959/64	2,500,000	0 0
Loan No. 7:	£2,000,000 3 $\frac{1}{4}$ per cent. 1956/66	2,000,000	0 0
Loan No. 8:	£2,000,000 3 $\frac{1}{2}$ per cent. 1957/67	2,000,000	0 0
Loan No. 9:	£2,000,000 3 $\frac{3}{4}$ per cent. 1959/64	2,000,000	0 0
Loan No. 10:	£1,500,000 3 $\frac{3}{4}$ per cent. 1960/65	1,500,000	0 0
Loan No. 11:	£2,000,000 3 $\frac{1}{4}$ per cent. 1961/66	2,000,000	0 0
Loan No. 12:	£2,500,000 3 $\frac{1}{4}$ per cent. 1965/70	2,500,000	0 0
Loan No. 13:	£3,000,000 3 per cent. 1967/73	3,000,000	0 0
Loan No. 14:	£3,000,000 3 per cent. 1968/74	3,000,000	0 0
Loan No. 15:	£15,000,000 3 $\frac{1}{2}$ per cent. 1968/73	15,000,000	0 0
Loan No. 16:	£3,000,000 3 $\frac{1}{2}$ per cent. 1969/74	3,000,000	0 0
Loan No. 17:	£3,000,000 3 $\frac{3}{4}$ per cent. 1969/74	3,000,000	0 0
Loan No. 18:	£5,250,000 3 $\frac{3}{4}$ per cent. 1965/67	5,250,000	0 0
Loan No. 19:	£3,000,000 3 $\frac{3}{4}$ per cent. 1964/67	3,000,000	0 0
Loan No. 21:	£5,000,000 3 $\frac{3}{4}$ per cent. 1964/68	5,000,000	0 0
Loan No. 22:	£4,500,000 4 $\frac{1}{4}$ per cent. 1964/67	4,500,000	0 0
Loan No. 23:	£5,000,000 5 per cent. 1964/67	5,000,000	0 0
Loan No. 25:	£3,500,000 5 per cent. 1966/68	3,500,000	0 0

(Payable in full not later than the 31st March, 1953, in terms of Prospectus)

Partly Paid: Deposits due and payments in advance		£47,000	0 0
Fully Paid		2,771,850	0 0
		2,818,850	0 0
£77,500,000 Total Local Registered Stocks		£76,818,850	0 0

Loan No. 20:	£10,750,000 \$30,000,000 4 per cent. loan from International Bank for Reconstruction and Development: to be taken up during the period ending 31st December, 1953. Amount received to 31st December, 1952	6,479,541	15 6
Loan No. 24:	£7,000,000 \$19,600,000 4 per cent. loan from Export-Import Bank of Washington: to be taken up during the period ending 30th June, 1955. Amount received to 31st December, 1952	766,869	18 9
		£95,250,000	£84,065,261 14 3

## DEFERRED LIABILITIES FOR ASSETS AND RIGHTS ACQUIRED AT 31st DECEMBER, 1952.

Umkomaas Town Board	£7,780	
Volksrust Municipality	3,891	
Rand Water Board	30,369	
Caledon Municipality	462	
Rawsonville Village Management Board	3,466	
East London Municipality	101,811	
Alice Municipality	2,307	
		£150,086

# Electricity Supply Commission.

Dr. Redemption Fund Account for the

Year ended 31st December, 1952.

Gr.

To Balance as per Balance Sheet	£18,301,974
Natal Central Undertaking	£2,864,623
Witbank Undertaking	2,723,916
Cape Western Undertaking	2,365,878
Durban Undertaking	1,806,000
Sabie Undertaking	99,470
Border Undertaking	41,968
Rand Undertaking	8,179,748
Cape Northern Undertaking	19,263
Head Office	201,108

By Balance at 31st December, 1951, brought forward £15,733,451

Loan No.	Local Registered Stocks.	
3	£500,000 4½ per cent. 1953/63	£432,098
4	£2,500,000 4½ per cent. 1953	2,461,365
5	£6,750,000 3½ per cent. 1954/64	4,506,203
6	£2,500,000 3½ per cent. 1959/64	1,342,719
7	£2,000,000 3½ per cent. 1956/66	1,123,420
8	£2,000,000 3½ per cent. 1957/67	1,005,681
9	£2,000,000 3½ per cent. 1959/64	949,550
10	£1,500,000 3½ per cent. 1960/65	629,815
11	£2,000,000 3½ per cent. 1961/66	738,836
12	£2,500,000 3½ per cent. 1965/70	673,422
13	£3,000,000 3 per cent. 1967/73	432,761
14	£3,000,000 3 per cent. 1968/74	312,949
15	£15,000,000 3½ per cent. 1968/73	2,806,483
16	£3,000,000 3½ per cent. 1969/74	271,365
17	£3,000,000 3½ per cent. 1969/74	211,171
18	£5,250,000 3½ per cent. 1965/67	211,718
19	£3,000,000 3½ per cent. 1964/67	100,554
21	£5,000,000 3½ per cent. 1964/68	50,332
22	£4,500,000 4½ per cent. 1964/67	14,996
23	£5,000,000 5 per cent. 1964/67	9,410
	Future—not yet raised	17,126

£18,301,974      £18,301,974

	Loan No.	
Natal Central Undertaking	3	£402,643
Witbank Undertaking	4	2,405,850
Cape Western Undertaking	5	4,128,205
Durban Undertaking	6	1,276,795
Sabie Undertaking	7	1,051,643
Border Undertaking	8	929,451
Rand Undertaking	9	826,030
Cape Northern Undertaking	10	550,246
Head Office	11	619,637
	12	591,129
	13	336,837
	14	244,515
	15	1,937,196
	16	176,796
	17	120,743
	18	92,704
	19	32,118
	Future	10,913

£15,733,451

Amounts contributed during the year as per Revenue Accounts 1,656,944

Natal Central Undertaking	147,816
Witbank Undertaking	62,042
Cape Western Undertaking	148,969
Durban Undertaking	147,993
Sabie Undertaking	Dr. 3,619
Border Undertaking	18,059
Rand Undertaking	1,128,517
Cape Northern Undertaking	7,167

Other Contributions 16,440

Net Proceeds of Sales of Fixed Property 333,468

Net Interest earned on Investments 561,671

£18,301,974

J. VAN NIEKERK, Chief Accountant.

We hereby certify that we are satisfied as to the correctness of the Accounts and Books of the Redemption Fund and as to the maintenance of the Fund at the amount required by the Schedule to the Electricity Act, 1922, subject to the remarks contained in our report dated 28th May, 1953.

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

# Electricity Supply Commission.

Dr. Reserve Fund Account for the

Year ended 31st December, 1952.

Cr.

<b>To Expenditure during the year on Replacements and Betterment</b>	£441,803
Natal Central Undertaking ... ..	£14,452
Witbank Undertaking ... ..	42,195
Cape Western Undertaking ... ..	48,770
Durban Undertaking ... ..	9,371
Border Undertaking ... ..	12,246
Rand Undertaking ... ..	314,769
<b>Balance as per Balance Sheet</b> ... ..	2,192,405
Natal Central Undertaking ... ..	554,782
Witbank Undertaking ... ..	150,994
Cape Western Undertaking ... ..	413,012
Durban Undertaking ... ..	105,672
Sabie Undertaking ... ..	11,426
Border Undertaking ... ..	1,695
Rand Undertaking ... ..	936,620
Cape Northern Undertaking ... ..	18,204

£2,634,208

<b>By Balance at 31st December, 1951, brought forward</b> ... ..	£2,271,059
Natal Central Undertaking ... ..	£529,175
Witbank Undertaking ... ..	181,693
Cape Western Undertaking ... ..	411,653
Durban Undertaking ... ..	96,090
Sabie Undertaking ... ..	11,018
Border Undertaking ... ..	10,788
Rand Undertaking ... ..	1,017,982
Cape Northern Undertaking ... ..	12,660
<b>Amounts set aside during the year as per Revenue Accounts</b> ... ..	277,892
Natal Central Undertaking ... ..	20,000
Witbank Undertaking ... ..	5,000
Cape Western Undertaking ... ..	34,892
Durban Undertaking ... ..	15,000
Border Undertaking ... ..	3,000
Rand Undertaking ... ..	195,000
Cape Northern Undertaking ... ..	5,000
<b>Interest earned on Investments</b> ... ..	85,257

£2,634,208

# Electricity Supply Commission.

## CAPE WESTERN UNDERTAKING.

**Dr. Revenue Account for the Year ended 31st December, 1952. Cr.**

### Generation of Electricity.

To Proportion of Pooled Costs (as per attached Statement) ...	£620,288	
„ Other Operation and Maintenance Costs Operation—		
Fuel ... ..	62,741	
Water, Oil, Waste and Stores ... ..	4,853	
Salaries and Wages ... ..	11,967	
Other Expenses ... ..	338	
„ Maintenance—		
Stores ... ..	1,072	
Salaries and Wages ... ..	5,755	
Other Expenses ... ..	867	
	£707,881	

### Distribution of Electricity.

„ Operation and Maintenance—		
Stores ... ..	24,611	
Salaries and Wages ... ..	108,184	
Other Expenses ... ..	19,676	
	152,471	

### General Expenses.

„ Local Administration and Technical Management ... ..	71,475	
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	70,219	
„ Head Office Administration and General Expenses, including Publicity ... ..	25,362	
„ Engineering Expenses ... ..	13,246	
	180,302	
Less—Charged to Pooled Costs ... ..	9,760	
	170,542	
	1,030,894	

„ Interest ... ..	240,328	
„ Redemption Fund ... ..	148,969	
„ Instalments on Deferred Liabilities for Assets Acquired ... ..	1,107	
„ Amount set aside to Reserve Fund ... ..	34,892	
	425,296	
Less—Charged to Pooled Costs ... ..	86,564	
	338,732	
	£1,369,626	

To Balance brought down ... .. £117,489

£117,489

### By Sales of Electricity—

Traction Supplies ... ..	£179,577	
Bulk Supplies ... ..	317,607	
Industrial Supplies ... ..	398,300	
Domestic and Lighting Supplies ... ..	348,771	
	£1,244,255	
„ Other Revenue ... ..	7,882	
„ Balance carried down ... ..	117,489	

£1,369,626

By Balance at 31st December, 1951, brought forward ... .. £5,783

„ Balance as per Balance Sheet ... .. 111,706

£117,489

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

Johannesburg,  
22nd April, 1953.

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

# Electricity Supply Commission and City of Cape Town.

**Dr. Statement of Pooled Costs for the Year ended 31st December, 1952, and Allocation thereof. Cr.**

## Pooled Generation of Electricity.

## By Allocation of Pooled Costs in terms of Agreement—

### To Operation and Maintenance—

Fuel ... ..	£1,108,530
Water, Oil, Waste and Stores ... ..	80,666
Salaries, Wages and Other Expenses ... ..	303,934

£1,493,130

„ General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..

30,876

„ Interest ... ..

169,589

„ Redemption Fund ... ..

185,519

„ Reserve Fund ... ..

27,879

£1,906,993

Electricity Supply Commission ... ..	£620,288
City of Cape Town ... ..	1,278,567

£1,898,855

„ Sundry Revenue ... ..

8,138

£1,906,993

# Electricity Supply Commission.

## CAPE NORTHERN UNDERTAKING.

### Revenue Account for the Year ended 31st December, 1952.

Dr.	Cr.
<b>Generation of Electricity.</b>	
To Operation—	
Fuel ... ..	£86,603
Water, Oil, Waste and Stores ... ..	2,789
Salaries and Wages ... ..	25,102
Other Expenses ... ..	7,530
„ Maintenance—	
Stores ... ..	4,145
Salaries and Wages ... ..	11,091
Other Expenses ... ..	451
„ Electricity Purchased ... ..	—
	£137,711
	3,488
<b>Distribution of Electricity.</b>	
„ Operation and Maintenance—	
Stores ... ..	325
Salaries and Wages ... ..	1,015
Other Expenses ... ..	354
	—
	1,694
<b>General Expenses.</b>	
„ Local Administration and Technical Management ... ..	6,353
„ General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	4,670
„ Head Office Administration and General Expenses, including Publicity ... ..	2,495
„ Engineering Expenses ... ..	1,303
	—
	14,821
	157,714
„ Interest ... ..	9,835
„ Redemption Fund ... ..	7,167
„ Amount set aside to Reserve Fund ... ..	5,000
	—
	£179,716
To Balance brought down ... ..	£11,914
	—
	£11,914
<b>By Sales of Electricity—</b>	
Bulk Supplies ... ..	£101,103
Mining Supplies ... ..	60,184
Industrial Supplies ... ..	5,815
Domestic Supplies ... ..	279
	—
	£167,381
„ Other Revenue ... ..	421
„ Balance carried down ... ..	11,914
	—
	£179,716
By Balance at 31st December, 1951, brought forward ... ..	£2,976
„ Balance as per Balance Sheet ... ..	8,938
	—
	£11,914

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

Johannesburg,  
22nd April, 1953.

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



# Electricity Supply Commission.

## BORDER UNDERTAKING.

**Dr. Revenue Account for the Year ended 31st December, 1952. Cr.**

<b>Generation of Electricity.</b>		
To Operation—		
Fuel ... ..	£159,395	
Water, Oil, Waste and Stores ... ..	4,311	
Salaries and Wages ... ..	34,886	
Other Expenses ... ..	1,239	
„ Maintenance—		
Stores ... ..	5,389	
Salaries and Wages ... ..	17,903	
Other Expenses ... ..	1,865	
„ Electricity Purchased ... ..		£224,988
		3,558
<b>Distribution of Electricity.</b>		
„ Operation and Maintenance—		
Stores ... ..	1,226	
Salaries and Wages ... ..	9,209	
Other Expenses ... ..	1,574	
		12,009
<b>General Expenses.</b>		
„ Local Administration and Technical Management ... ..	19,372	
„ General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	14,691	
„ Head Office Administration and General Expenses, including Publicity ... ..	6,237	
„ Engineering Expenses ... ..	3,257	
		43,557
		284,112
„ Interest ... ..	36,220	
„ Redemption Fund ... ..	18,059	
„ Instalments on Deferred Liabilities for Assets Acquired ... ..	7,333	
„ Amount set aside to Reserve Fund ... ..	3,000	
		£348,724
To Balance at 31st December, 1951, brought forward ... ..	£10,271	
„ Balance brought down ... ..	40,896	
		£51,167

By Sales of Electricity—		
Bulk Supplies ... ..	£237,218	
Industrial Supplies ... ..	22,636	
Domestic and Lighting Supplies ... ..	46,581	
		£306,435
„ Sales of Steam ... ..		843
„ Other Revenue ... ..		550
„ Balance carried down ... ..		40,896
		£348,724
By Balance as per Balance Sheet ... ..		£51,167
		£51,167

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

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



# Electricity Supply Commission.

## DURBAN UNDERTAKING.

Dr. Revenue Account for the Year

ended 31st December, 1952.

Cr.

### Generation of Electricity.

To Operation—			
Fuel ... ..	£516,065		
Water, Oil, Waste and Stores ... ..	18,518		
Salaries and Wages ... ..	85,791		
Other Expenses ... ..	17,498		
„ Maintenance—			
Stores ... ..	42,203		
Salaries and Wages ... ..	97,423		
Other Expenses ... ..	6,201		
„ Electricity Purchased ... ..		£783,699	
„ Electricity supplied by Natal Central Undertaking ... ..		18,164	
		4,549	

### Distribution of Electricity.

„ Operation and Maintenance—			
Stores ... ..	8,846		
Salaries and Wages ... ..	26,640		
Other Expenses ... ..	7,027		
		42,513	

### General Expenses.

„ Local Administration and Technical Management ... ..	33,268		
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	41,898		
„ Head Office Administration and General Expenses, including Publicity ... ..	19,957		
„ Engineering Expenses ... ..	10,423		
		105,546	
		954,471	
„ Interest ... ..		199,823	
„ Redemption Fund ... ..		147,993	
„ Sinking Fund ... ..		120	
„ Amount set aside to Reserve Fund ... ..		15,000	
		£1,317,407	

To Balance at 31st December, 1951, brought forward ... ..	£12,893		
„ Balance brought down ... ..	15,245		
		£28,138	

£28,138

### By Sales of Electricity—

Traction Supplies ... ..	£81,608		
Bulk Supplies ... ..	1,064,195		
Industrial Supplies ... ..	56,955		
Domestic and Lighting Supplies ... ..	92,332		
		£1,295,090	
„ Electricity supplied to Natal Central Undertaking ... ..			3,680
„ Other Revenue ... ..			3,392
„ Balance carried down ... ..			15,245

£1,317,407

By Balance as per Balance Sheet ... ..	£28,138
----------------------------------------	---------

£28,138

J. VAN NIEKERK, Chief Accountant.

Johannesburg,  
22nd April, 1953.

Referred to in our Report of 28th May, 1953.

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

# Electricity Supply Commission.

## NATAL CENTRAL UNDERTAKING.

**Dr. Revenue Account for the Year ended 31st December, 1952. Cr.**

<b>Generation of Electricity.</b>		
To Operation—		
Fuel ... ..	£333,330	
Water, Oil, Waste and Stores ... ..	4,157	
Salaries and Wages ... ..	62,320	
Other Expenses ... ..	1,855	
„ Maintenance—		
Stores ... ..	19,639	
Salaries and Wages ... ..	42,196	
Other Expenses ... ..	6,228	
„ Electricity supplied by Durban Undertaking ... ..		£469,725
		3,680
<b>Distribution of Electricity.</b>		
„ Operation and Maintenance—		
Stores ... ..	12,820	
Salaries and Wages ... ..	69,595	
Other Expenses ... ..	9,301	
		91,716
<b>General Expenses.</b>		
„ Local Administration and Technical Management ... ..	39,009	
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	54,207	
„ Head Office Administration and General Expenses, including Publicity ... ..	29,520	
„ Engineering Expenses ... ..	15,417	
		138,153
„ Deferred Payment Scheme, including Propaganda and Show-room Expenses ... ..		116
		703,390
„ Interest ... ..		243,524
„ Redemption Fund ... ..		147,816
„ Instalments on Deferred Liability for Assets Acquired ... ..		1,402
„ Amount set aside to Reserve Fund ... ..		20,000
		£1,116,132
To Balance brought down ... ..		£20,310
		£20,310

<b>By Sales of Electricity—</b>		
Traction Supplies ... ..	£514,552	
Bulk Supplies ... ..	340,429	
Mining Supplies ... ..	59,036	
Industrial Supplies ... ..	86,503	
Domestic and Lighting Supplies ... ..	77,711	
		£1,078,231
„ Electricity supplied to Durban Undertaking ... ..		4,549
„ Other Revenue ... ..		13,042
„ Balance carried down ... ..		20,310
		£1,116,132
By Balance at 31st December, 1951, brought forward ... ..		£169
„ Balance as per Balance Sheet ... ..		20,141
		£20,310

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

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

# Electricity Supply Commission.

## WITBANK UNDERTAKING.

### Dr. Revenue Account for the Year ended 31st December, 1952. Cr.

<b>Generation of Electricity.</b>				
To Operation—				
Fuel ... ..	£195,099			
Water, Oil, Waste and Stores ... ..	12,186			
Salaries and Wages ... ..	64,805			
Other Expenses ... ..	1,279			
„ Maintenance—				
Stores ... ..	41,218			
Salaries and Wages ... ..	44,999			
Other Expenses ... ..	32,404			
„ Electricity Purchased ... ..		£391,990		
„ Electricity supplied by Rand Undertaking ... ..		25,131		
		256,366		
<b>Distribution of Electricity.</b>				
„ Operation and Maintenance—				
Stores ... ..	4,054			
Salaries and Wages ... ..	14,090			
Other Expenses ... ..	1,027			
		19,171		
<b>General Expenses.</b>				
„ Local Administration and Technical Management ... ..	27,365			
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	32,047			
„ Head Office Administration and General Expenses, including Publicity ... ..	23,699			
„ Engineering Expenses ... ..	12,377			
		95,488		
„ Interest ... ..		788,146		
„ Redemption Fund ... ..		134,510		
„ Amount set aside to Reserve Fund ... ..		62,042		
		5,000		
		£989,698		
To Balance at 31st December, 1951, brought forward ... ..		£9,287		
„ Balance brought down ... ..		15,035		
		£24,322		
<b>By Sales of Electricity—</b>				
Traction Supplies ... ..		£281,498		
Bulk Supplies ... ..		19,180		
Mining Supplies ... ..		161,698		
Industrial Supplies ... ..		174,779		
Domestic and Lighting Supplies ... ..		28,505		
„ Electricity supplied to Rand Undertaking ... ..			£665,660	
„ Other Revenue ... ..				297,721
„ Balance carried down ... ..				11,282
				15,035
				£989,698
				£24,322
				£24,322

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

Johannesburg,  
22nd April, 1953.

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

# Electricity Supply Commission.

## RAND UNDERTAKING.

**Dr. Revenue Account for the Year ended 31st December, 1952. Cr.**

<b>Generation.</b>					
To Operation—					
Fuel ... ..	£2,673,318				
Water, Oil, Waste and Stores ... ..	82,205				
Salaries and Wages ... ..	533,095				
Other Expenses ... ..	27,668				
„ Maintenance—					
Stores ... ..	202,891				
Salaries and Wages ... ..	391,459				
Other Expenses ... ..	61,831				
„ Electricity Purchased ... ..		£3,972,467			
„ Electricity supplied by Witbank Undertaking ... ..		429,759			
		297,721			
<b>Distribution.</b>					
„ Operation and Maintenance—					
Stores ... ..	126,483				
Salaries and Wages ... ..	415,447				
Other Expenses ... ..	14,269				
		556,199			
<b>General Expenses.</b>					
„ Local Administration and Technical Management ... ..	188,267				
„ General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ... ..	261,773				
„ Head Office Administration and General Expenses, including Publicity ... ..	58,094				
„ Engineering Expenses ... ..	30,340				
		538,474			
		5,794,620			
„ Interest ... ..		1,183,584			
„ Redemption Fund ... ..		1,128,517			
„ Provision for Repayment of Outstanding Liability for Rights Acquired ... ..		4,529			
„ Amount set aside to Reserve Fund ... ..		195,000			
		£8,306,250			
To Balance at 31st December, 1951, brought forward ... ..		£104,738			
„ Balance brought down ... ..		197,487			
		£302,225			
<b>By Sales of Electricity—</b>					
Bulk Supplies ... ..	£698,490				
Mining Supplies ... ..	5,026,498				
Industrial Supplies ... ..	1,347,275				
Domestic and Lighting Supplies ... ..	101,856				
		£7,174,119			
„ Sales of Air and Steam ... ..		644,945			
„ Electricity supplied to Witbank Undertaking ... ..		256,366			
„ Other Revenue ... ..		33,333			
„ Balance carried down ... ..		197,487			
		£8,306,250			
		£302,225			
		£302,225			

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

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

Johannesburg,  
22nd April, 1953.

# Electricity Supply Commission.

## SABIE UNDERTAKING.

Dr.

### Revenue Account for the Year ended 31st December, 1952.

Cr.

#### Generation of Electricity.

To Operation—	
Water, Oil, Waste and Stores ... ..	£85
Salaries and Wages ... ..	4,429
Other Expenses ... ..	2
,, Maintenance—	
Stores ... ..	143
Salaries and Wages ... ..	245
Other Expenses ... ..	29
	£4,933

#### Distribution of Electricity.

,, Operation and Maintenance—	
Stores ... ..	25
Salaries and Wages ... ..	570
Other Expenses ... ..	146
	741

#### General Expenses.

,, Local Administration and Technical Management ... ..		309
,, General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.) ... ..		731
,, Head Office Administration and General Expenses, including Publicity ... ..		946
,, Engineering Expenses ... ..		494
		2,480
		8,154
		4,282
,, Interest ... ..	Cr. 3,619	
,, Redemption Fund ... ..	94	
,, Balance carried down ... ..	£8,911	

To Balance as per Balance Sheet ... ..	£204	
	£204	

#### By Sales of Electricity—

Mining Supplies ... ..	£8,911
------------------------	--------

By Balance at 31st December, 1951, brought forward ... ..	£110
,, Balance brought down ... ..	94
	£204

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 28th May, 1953.

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

Johannesburg,  
22nd April, 1953.

## ANNEXURE B

STATEMENT No. 1.

## Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1952.

Undertaking and Area (Square Miles)	Electric Power-Station	Type	Station Capacity MW	BOILERS		MAIN GENERATORS		HOUSE SETS	
				No.	Continuous Maximum Rating, Each, thousand lb/hr	No.	Normal Rating Each MW	No.	Normal Rating Each MW
Border 21,500	Alice	Oil	0.54	—	—	1 1 2	0.025 0.055 0.230		
	King William's Town	Steam	4.5	1	10.0	2	1.5		
		Oil		3	12.0	1	0.5		
							1	1.0	
	West Bank No. 1	Steam	32.0	4	21.5	1	1.5		
				2	27.5	2	4.0		
4				55.0	3	7.5			
Cape Northern 14,800	Central, Kimberley	Steam	20.0	8	30.0	1 1 2	3.0 5.0 6.0		
Cape Western 12,600	Salt River } No. 1 } Hex River }	Steam	90.3	2	60.0	3	10.0	1	0.3
		Steam	40.0	6 2	100.0 200.0	3 2	20.0 20.0		
Durban 1,900	Congella Nos. 1 and 2	Steam	206.0	6	60.0	3	12.0		
				4	100.0	1	20.0		
				5	200.0	1	30.0		
						3	40.0		
	Port Shepstone	Oil	3.4	—	—	2 2	0.7 1.0		

Natal Central 11,300	Colenso Nos. 1 and 2	Steam	110-0	8 4 2	60-0 80-0 180-0	5 2	12-0 25-0		
	Volkstrust	Oil	0-5	—	—	2	0-25		
Rand 39,300	Brakpan	Steam	48-0	8 10 1	28-0 45-0 70-0	1 2 1	3-0 12-5 20-0		
	Klip	Steam	424-0	24	180-0	12	33-0	4	7-0
	Rosherville	Steam	60-5	32 8	38-0 48-0	5 1	9-6 12-5		
	Simmerpan	Steam	40-0	4 12 8	20-0 25-0 48-0	1 5 2	3-0 3-0 11-0		
	Vaal	Steam	278-0	12	190-0	8	33-0	2	7-0
	Vereeniging	Steam	157-5	20 2 5	45-0 60-0 180-0	3 3	20-0 32-5		
Sabie 200	Sabie Gorge	Hydro	1-35	—	—	3	0-45		
Witbank 2,640	Witbank	Steam	108-0	20	70-0	5	20-0	1	8-0

#### SUMMARY:

Total No. of Boilers ... ..	227
Total Boiler House Rating ... ..	17,715,000 lb./hr.
Total No. of Main Generators ... ..	99 Capacity 1,574-29 MW
Total No. of House Sets ... ..	8 Capacity 50-3 MW
Total Plant Capacity (Electric) ... ..	1,624-59 MW

#### Major Items of Plant Commissioned 1952

Hex River ... ..	2-20 MW Generators.
Vaal ... ..	2-33 MW Generators.

## Statement No. 1—(continued)

## COMPRESSED AIR POWER STATIONS: RAND UNDERTAKING

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

## CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1952

Undertaking	Number	MVA
Border ... ..	124	38.1
Cape Northern ... ..	41	5.0
Cape Western ... ..	2,047	436.4
Durban ... ..	410	115.4
Natal Central ... ..	985	362.1
Rand ... ..	2,171	5,425.4
Sabie ... ..	13	3.6
Witbank ... ..	382	298.3
At Compressor Stations, Rand ... ..	48	339.0
<b>TOTALS ... ..</b>	<b>6,221</b>	<b>7,023</b>



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

## (1) OVERHEAD TRANSMISSION LINES

Undertaking	132 kV	88 kV	66 kV	33 kV and 40 kV	10 kV to 22 kV	2.0 kV to 6.6 kV	525 V 380/220	Totals
Border	—	—	—	—	26	4	50	80
Cape Northern	—	—	—	—	51	—	—	51
Cape Western	—	—	182	308	588	254	399	1,731
Durban	—	114	—	57	111	57	91	1,430
Natal Central	—	597	—	55	558	159	121	1,490
Rand	267	1,722	—	720	228	89	54	3,080
Sabie	—	—	—	—	7	—	1	8
Witbank	—	86	—	—	246	40	53	425
Totals	267	2,519	182	1,140	1,815	603	769	7,295

## UNDERGROUND CABLES

Border	—	—	—	—	14	—	—	14
Cape Western	—	—	—	60	49	6	16	131
Durban	—	—	—	2	3	1	2	8
Natal Central	—	—	—	—	5	—	3	10
Rand	—	—	—	—	96	92	10	198
Witbank	—	—	—	—	22	12	2	36
Totals	—	—	—	62	186	116	33	397

TOTAL OVERHEAD LINES AND UNDERGROUND CABLES: 7,413 CIRCUIT MILES.

## (2) TELEPHONE AND PILOT CABLES

Cape Western	...	...	...	91
Rand	...	...	...	781
Witbank	...	...	...	10

} 882 circuit miles.

## POWER-STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1952

Undertaking	Electric Power-Station	BOILERS		GENERATORS		Trans- mission Lines Circuit Miles	TRANSFORMERS	
		No.	Continuous Maximum Rating Each, thousand lb/hr	No.	Normal Rating Each MW		No.	Capacity MVA
Border ...	West Bank No. 2	2	170	2	15.0	68	1	7
Cape Northern ...	Central, Kimberley	4	75	2	5.5	—	13	41
Cape Western ...	{ Hex River Salt River No. 2.	2	200	1	20.0	—	92	37
		6	260	4	30.0	—		
Durban ...	{ Congella No. 2 Umgeni	3	200	2	30.0	10	35	195
		4	180	1	25.0	130		
Natal Central ...	Colenso No. 2	3	180	1	25.0	—	99	99
Rand ...	{ Robinson Taalbos Vaal	7	580	7	60.0	—	—	27
		6	190	1	33.0	—		
		1	180	1	7.0	—		
		17	210	10	30.0	—		
		4	150	2	30.0	—		
Swartkops ...	{ Wilge Swartkops	4	400	2	60.0	—	—	—
		2	210	2	20.0	—		
Witbank ...	Witbank	2	80	1	20.0	—	9	99

## Summary:—

Numbers of Boilers ...	67	C.M.R. 16,190,000 lb/hr
Number of Generators ...	38	Total Rating 1,266 MW
Transmission Lines ...	399	Circuit Miles
Transformers ...	780	Rating 4,736 MVA

## STATEMENT No. 3

## UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST TWENTY-EIGHT YEARS

Million Units

Year	Border	Cape Northern	Cape Western	Durban	Klip	Natal Central	Rand	Sabie	Vaal	Witbank	Totals
1925			0.3			0.7		0.08		160.0	0.08
1926			5.8			104.2		0.7		439.1	161.7
1927			31.0	15.6		114.2		1.9		464.3	551.0
1928			47.9	78.9		123.9		2.8		543.1	627.9
1929			49.8	99.1		117.1		3.2		619.0	797.0
1930			52.1	103.9		101.1		4.6		603.4	889.6
1931			64.2	109.8		100.3		6.6		610.3	867.1
1932			100.7	118.5		109.2		6.1		639.4	890.7
1933			73.6	131.1		124.9		6.3		648.3	974.1
1934			80.0	149.8		154.3		7.3		727.9	985.2
1935			85.8	170.4	557.0	171.5		7.2		696.4	1,119.2
1936			94.0	189.4	1,349.9	210.6		6.9		684.5	1,688.0
1937			98.8	209.5	1,666.9	234.9		7.2		768.1	2,535.6
1938			106.5	233.7	2,183.2	266.2		7.2		767.7	2,985.4
1939			119.8	242.7	2,566.6	281.1		6.4		853.3	3,573.7
1940			136.2	270.3	2,675.9	302.4		6.7		862.6	4,070.2
1941			151.8	273.8	2,707.8	307.7		6.6		873.4	4,254.0
1942			145.7	293.4	2,669.1	312.4		6.3		849.1	4,320.8
1943			158.7	321.6	2,703.6	336.0		5.9		889.2	4,275.6
1944			165.9	348.8	2,643.0	333.2		6.7	377.9	830.7	4,415.8
1945			184.6	369.7	2,614.3	347.0		6.6	582.5	896.9	4,706.1
1946			198.6	402.6	2,547.2	346.0		7.4	668.6	887.7	5,002.4
1947	56.2		222.4	448.7	1,207.4	367.9	2,185.7	7.6	435.1	633.2	5,114.5
1948	69.2		249.5	513.0		371.8	4,653.9	7.3		358.3	5,576.9
1949	68.7		271.9	561.8		406.5	5,151.8	7.0		378.5	6,222.2
1950	79.9	53.9	303.5	617.0		433.4	6,039.6	6.3		386.8	6,910.6
1951	88.0	58.5	341.2	655.6		454.0		6.1		425.0	7,456.5
1952	97.7	61.3						6.1			8,080.5

Notes.—(1) The units sold at Cape Western since 1934 do not include the units supplied to Cape Town City Council under the Pooling Agreement.  
(2) The units purchased from Durban Corporation for sale down the South Coast are included in the Durban Undertaking figures above.  
(3) The decreases of Klip, Vaal and Witbank are due to the E.S.C. taking over the V.F.P. at 00.00 hours on 1st July, 1948, since when Klip and Vaal became part of the Rand Undertaking, whilst Witbank now interchanges to Rand Undertaking.

By use:—  
ELECTRICITY

## UNITS SOLD AND NUMBER OF

Undertaking	TRACTION			BULK			MINING	
	Units	Per cent. Traction	No. Cons.	Units	Per cent. Bulk	No. Cons.	Units	Per cent. Mining
Border ... ..				87,648,500	6.006	1		
Cape Northern ..				40,130,900	2.750	2	20,563,800	0.475
Cape Western ...	64,721,340	11.665	1	106,907,138	7.325	23		
Durban ... ..	42,118,935	7.591	1	577,860,543	39.594	2		
Natal Central ...	257,255,096	46.367	1	140,729,362	9.643	12	19,781,652	0.457
Rand ... ..				498,813,411	34.178	53	4,208,646,479	97.133
Sabie ... ..							6,119,927	0.141
Witbank ... ..	190,734,883	34.377	1	7,362,830	0.504	3	77,739,850	1.794
Total Electricity ...	554,830,254	100.000	4	1,459,452,684	100.000	96	4,332,851,708	100.000
Per cent. ...	7.099			18.673			55.437	

## AIR AND STEAM

Border: Steam ..								
Rand: Air ... ..				2,674,382		1	235,094,717	93.113
Steam ... ..							17,387,190	6.887
Total Air and Steam				2,674,382		1	252,481,907	100.000
Per cent. ...				1.010			95.355	

## ELECTRICITY, AIR AND STEAM

Grand Totals ...	554,830,254		4	1,462,127,066		97	4,585,333,615	
Per cent. ...	6.866			18.094			56.745	

By Province:—

Cape ... ..	64,721,340	11.665	1	238,825,911	16.334	27	20,563,800	0.449
Natal ... ..	291,347,656	52.511	1	703,448,245	48.112	12	19,781,652	0.431
O.F.S. ... ..	8,026,375	1.447	1	54,876,833	3.753	12	425,125,001	9.271
Transvaal ...	190,734,883	34.377	1	464,976,077	31.801	46	4,119,863,162	89.849

Electricity — 96.723 }  
Air and Steam — 3.277 } per cent. of total sales.

## STATEMENT No. 4

## CONSUMERS, 1952 (Electricity, Air and Steam)

No. Cons.	INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number Consumers
	Units	Per cent. Industrial	No. Cons.	Units	Per cent. Domestic and Lighting	No. Cons.	Units	Per cent. Total Units Sold	
	2,914,651	0.218	115	6,947,267	5.305	2,026	97,510,418	1.248	2,142
1	611,068	0.045	29	31,803	0.024	25	61,337,571	0.785	57
	97,684,499	7.303	1,617	71,925,004	54.924	18,450	341,237,981	4.366	20,091
	22,369,934	1.672	202	13,260,263	10.126	3,372	655,609,675	8.388	3,577
9	26,422,576	1.975	434	9,784,332	7.472	3,575	453,973,018	5.808	4,031
99	1,044,155,589	78.057	349	23,368,272	17.845	1,493	5,774,983,751	73.889	1,994
1							6,119,927	0.078	1
31	143,533,381	10.730	93	5,635,905	4.304	1,750	425,006,849	5.438	1,878
141	1,337,691,698	100.000	2,839	130,952,846	100.000	30,691	7,815,779,190	100.000	33,771
	17.115			1.676			100.000		

	212,254	2.205	2				212,254	0.080	2
13	9,413,081	97.795	21				247,182,180	93.353	35
1							17,387,190	6.567	1
14	9,625,335	100.000	23				264,781,624	100.000	38
	3.635						100.000		

155	1,347,317,033		2,862	130,952,846		30,691	8,080,560,814		33,809
	16.674			1.621			100.000		

1	101,422,472	7.528	1,763	78,904,074	60.254	20,501	504,437,597	6.243	22,293
9	47,276,603	3.509	532	19,991,129	15.266	5,341	1,081,845,285	13.388	5,895
15	43,899,337	3.258	64	790,151	0.603	457	532,717,697	6.592	549
130	1,154,718,621	85.705	503	31,267,492	23.877	4,392	5,961,560,235	73.777	5,072

## POWER STATION OPERATING STATISTICS: YEAR, 1952

## ELECTRICITY GENERATION.

Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS		Station Load Factor % Sent Out	Coal Burned Tons (2,000 lb)	LB OF COAL		Calorific Value of Coal B.Th.U. as Recd. (Weighted Average)	B.Th.U. PER UNIT		OVERALL THERMAL EFFICIENCY %	
			½ Hour (or Hour) Sent Out kW	Peak kW			Per Unit Generated	Per Unit Sent Out		Generated	Sent Out	Generated	Sent Out
Brakpan ... ..	229,287,794	212,893,784	Hour 42,904	—	56.5	301,223	2.627	2.830	9,080	23,850	25,700	14.31	13.28
Central, Kimberley ...	64,290,767	60,542,467	14,350	15,000	48.0	65,693	2.044	2.170	12,430	25,410	26,970	13.43	12.65
Colenso No. 1 and No. 2 ...	509,118,670	481,956,691	91,620	106,000	59.9	360,038	1.414	1.494	12,090	17,100	18,060	19.95	18.89
Congella No. 1 and No. 2 ...	702,137,000	651,482,630	142,216	158,000	52.2	437,596	1.246	1.343	11,900	14,830	15,980	23.01	21.36
Hex River from 30/5 ...	61,439,800	57,759,350	39,900	—	28.1	37,575	1.223	1.301	12,000	14,680	15,610	23.24	21.85
King William's Town ...	9,657,481	9,036,019	2,636* Hour	2,720*	39.4	9,129	1.891	2.021	12,720	24,050	25,710	14.19	13.27
Klip ... ..	2,956,687,513	2,762,691,276	375,085 Hour	—	83.9	2,467,764	1.669	1.786	9,400	15,690	16,790	21.75	20.32
Rosherville ... ..	264,821,230	240,960,917	50,016 Hour	—	54.8	394,396	2.979	3.274	9,500	28,300	31,100	12.06	10.97
Salt River No. 1 ... ..	181,622,210	168,424,925	45,560 Hour	54,900	41.9	137,788	1.517	1.636	12,070	18,310	19,750	18.63	17.28
Simmerpan ... ..	137,674,019	130,417,982	32,907 Hour	—	45.1	250,312	3.636	3.839	8,940	32,510	34,320	10.50	9.94
Vaal ... ..	1,623,320,748	1,531,673,311	211,926 Hour	—	82.3	1,269,611	1.564	1.658	9,050	14,150	15,000	24.11	22.75
Vereeniging ... ..	1,020,918,370	958,535,062	136,897 Hour	—	79.7	1,138,293	2.230	2.375	8,880	19,800	21,090	17.23	16.18
West Bank, East London ...	92,166,210	87,648,500	19,950 Hour	21,300	50.0	79,795	1.732	1.821	12,390	21,460	22,560	15.90	15.12
Witbank ... ..	761,827,298	710,997,440	100,628 Hour	—	80.4	666,900	1.751	1.876	11,050	19,350	20,730	17.63	16.46
<b>Totals</b>	<b>8,614,969,110</b>	<b>8,065,020,354</b>				<b>7,616,113</b>							

\* Includes Diesel Plant.

## HYDRO ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demand kW		Station Load Factor Sent Out	Rain	
			½ Hr. Sent Out	2 Mins. Generated		Inches	mm.
Sabie ...	6,553,900	6,410,000	1,200	1,220	60.8	54.52	1,385

## STEAM GENERATION:

Station	Units Generated	Units Sent Out	Coal Burned Tons of 2,000 lb.	lb. Coal Per Units Sent Out	Max. Sustained Load over 1 Hour kW	Load Factor %
Brakpan ... ..	17,446,410	17,387,190	30,087	3.461	6,428	30.8
King William's Town	212,254	212,254	210			
<b>Total Steam</b>	<b>17,658,664</b>	<b>17,599,444</b>	<b>30,297</b>			

## POWER STATION OPERATING STATISTICS: YEAR 1952

## DIESEL ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Load Factor % Hour Sent Out	Fuel Consumed		Lub. Oil Galls.
			Hour	2 Mins.		Total lb	Per kWh Sent Out	
Alice	821,782	706,029	192	215	41.9	574,580	0.814	1,129
King William's Town	87,488	87,488	900	960	—	50,067	0.572	50
Port Shepstone	423,364	416,044	2,674	2,730	1.8	239,833	0.576	280
Volkstrust	7,053	7,053	—	—	—	5,826	0.826	4
Worcester (May and July)	19,785	18,120	—	—	—	12,110	0.668	16
<b>TOTALS</b>	<b>1,359,472</b>	<b>1,234,734</b>				<b>882,416</b>	<b>0.715</b>	<b>1,479</b>

## COMPRESSED AIR GENERATION:

Station	Air Units Generated	Air Units Sent Out		Coal Burned		Electric Input		Max. Sustained Load over One Hour	Load Factor %
		Units	%	Total Tons	lb Coal/Units Sent Out	Total kWh excluding Losses	Units Sent Out/kWh %		
Central Rand Compressed Air System:—									
Rosherville*	137,415,000	137,139,900	55.38	194,771	2.840	74,344,017	80.09	} 75,620	37.3
Robinson†	59,545,500	59,545,500	24.04	—	—	60,420,664	84.37		
Canada Dam†	50,974,300	50,974,300	20.58	—	—	—	—		
Air Pipe-line Totals	247,934,800	247,659,700		194,771	—	134,764,681			

## Other Air Stations:—

Modder B and New Modder	9,194,390	9,194,390	—	—	—	10,801,452	85.12		
Total Air ...	257,129,190	256,854,090	—	194,771	—	145,566,133			

## GENERATION SUMMARY:

## TOTAL COAL BURNED

= Steam Driven Generating Stations + Compressed Air Steam Driven Stations + Steam Sales.  
 = 7,616,113 + 194,771 + 30,297.  
 = 7,841,181 tons of 2,000 lb. (increase of 496,410 over 1951 or 6.759%).

## TOTAL UNITS GENERATED

= Electricity (Steam + Hydro) + Air Units Generated at Steam Driven Stations + Steam Units Generated.  
 = Steam 8,614,969,110  
 = Hydro 6,553,900 } 8,622,882,482 + 137,415,000 + 17,658,664.  
 = Diesel 1,359,472 }  
 = 8,777,956,146 (increase of 451,368,335 or 5.421% over 1951).



## POWER PURCHASED.

Under-taking	Purchased From	Maximum Demand	UNITS		
Border	East London, Municipality of ...	351kVA		859,645	
Cape Northern	Kimberley, City of ... ..	580kVA		800,840	
Durban	Durban, City of At Canelands ... .. At Warner Beach ... ..	433 kW 3,744 kW	1,152,051 } 9,078,150 }	10,230,201	
Rand	Johannesburg, City of ex Jeppe Street Power Station ...	*15,400 kW	4,742,499	218,632,708	
	ex Orlando at Bantjes Substation at Rosherville Switching Station ...	*70,560 kW *32,880 kW	183,899,813 29,990,396		
	Middle Witwatersrand (Western Areas), Ltd. ... ..	2,000 kW	15,561,321		
	Pretoria, City of for use of Rand Undertaking ... for use of Witbank Undertaking	24,500 kW	60,471,117 } 16,360,028 }	76,831,145	411,981,546
	Pretoria Portland Cement Co., at Slurry ... ..	20,000 kW		9,099,935	
	Rand Water Board Vereeniging ... .. Zwartkopjes ... ..	6,380 kW 11,200 kW	15,154,560 } 29,410,315 }	44,564,875	
	The Randfontein Estates G.M. Co. (W) Ltd. ... ..	10,800 kW		47,291,562	

\*Non-simultaneous Demands.

TOTAL UNITS PURCHASED: 423,872,232

(5.246 per cent. of Units Sold)

Note re Cape Western Undertaking:

Under the Pooling Agreement, the E.S.C. received 321,740,026 Units from the Pool, which includes 168,424,925 Units sent out from Salt River Power Station.

## STATEMENT No. 7

**WATER (OTHER THAN SEA WATER) CONSUMED BY POWER  
STATIONS FOR THE YEAR 1952  
(Millions of Gallons)**

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border ... ..	12		14
Cape Northern ... ..	12		180
Cape Western ... ..	29		
Durban ... ..	87		
Natal Central ... ..	31	359	
Rand (including Witbank Power Station)	242	6,322	1,047

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

## STATEMENT No. 8

**STATEMENT SHOWING THE PRICE OR RENT OF LAND OR  
INTERESTS IN OR OVER LAND OR OTHER PROPERTY  
ACQUIRED OR HIRED BY THE COMMISSION  
DURING THE YEAR 1952**

(See previous Annual Reports for Rights or Interests in or over land  
acquired prior to 1952)

**Cape Western Undertaking**

Immovable Property was acquired to the value of	...	...	£17,426	1	0
Servitudes were acquired for	...	...	605	16	5

**Natal Central Undertaking**

Immovable Property was acquired to the value of	...	...	4,041	0	0
Servitudes were acquired for	...	...	994	8	4

**Durban Undertaking**

Immovable Property was acquired to the value of	...	...	440	0	0
Servitudes were acquired for	...	...	468	15	6

**Witbank Supply System**

Servitudes were acquired for	...	...	60	9	4
Servitudes were acquired for annual rentals amounting to	...	...	7	13	6

**Rand Undertaking**

Immovable Property was acquired to the value of	...	...	67,539	16	0
Surface Rights, Rights of Way and other Servitudes were acquired for	...	...	5,934	16	8
Property was hired for an annual rental of	...	...	950	0	0

**Cape Northern Undertaking**

Immovable Property was acquired to the value of	...	...	109,376	0	0
-------------------------------------------------	-----	-----	---------	---	---

**Swartkops River Undertaking**

Immovable Property was acquired to the value of	...	...	15,418	10	5
-------------------------------------------------	-----	-----	--------	----	---

**Head Office**

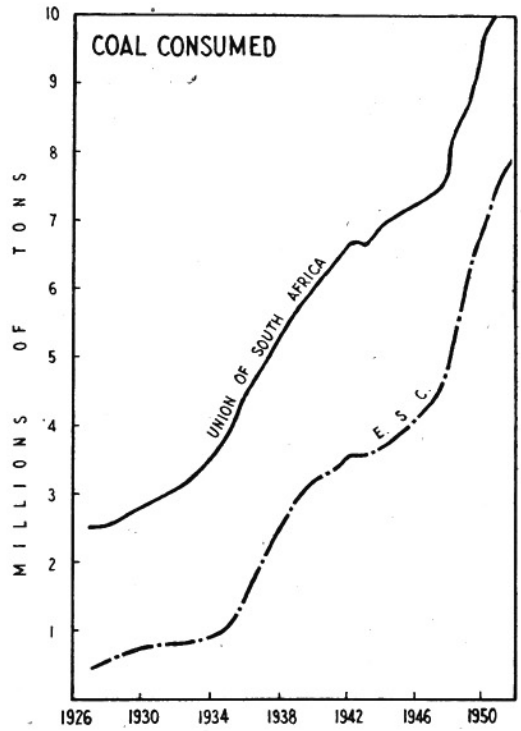
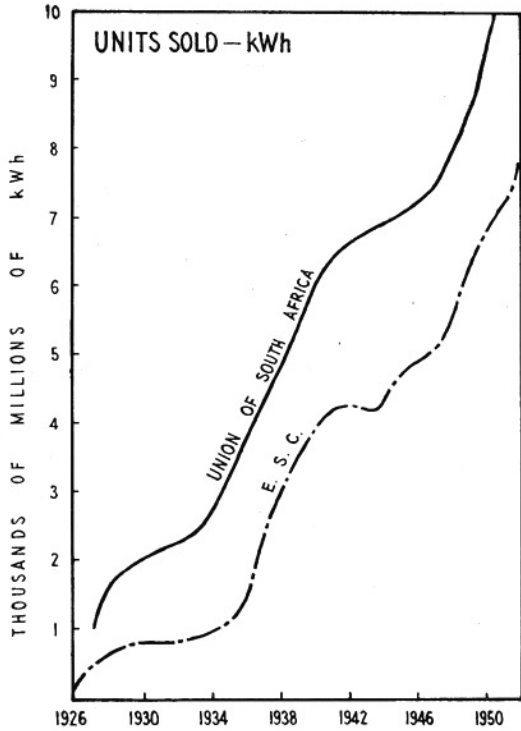
Immovable Property was acquired to the value of	...	...	3,850	0	0
-------------------------------------------------	-----	-----	-------	---	---



**COAL USED AT COMMISSION'S STEAM-RAISING POWER STATIONS**  
Average Cost per ton (2,000 lb)

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

# ANNEXURE C



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

