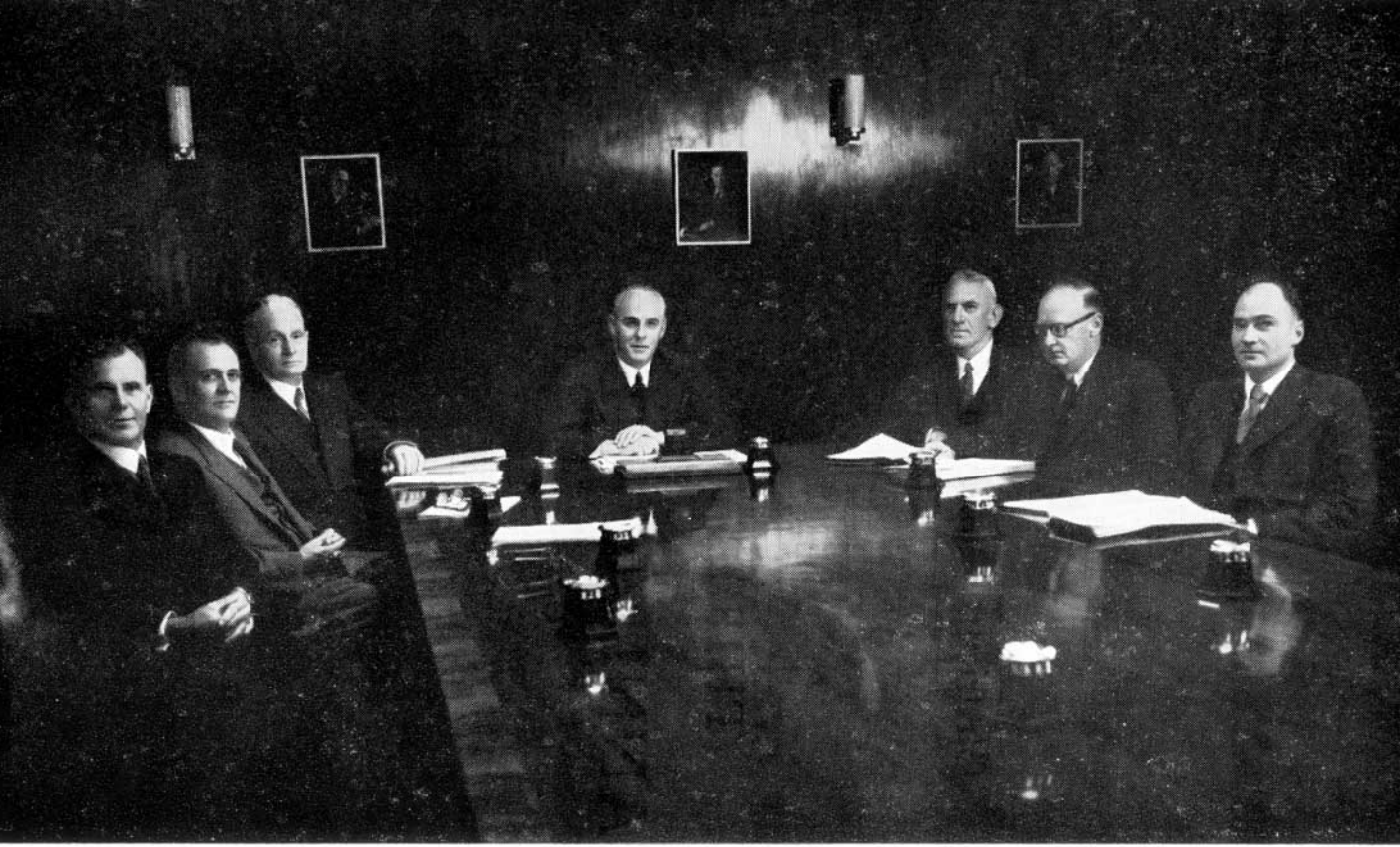


Management Committee.

Left to right: Mr. D. B. Reay, Chief Engineer (Mechanical), Mr. I. de Villiers, Chief Engineer (Electrical), Mr. E. T. Price, Liaison Engineer, Mr. G. R. D. Harding, General Manager (Chairman), Mr. J. van Niekerk, Chief Accountant, Mr. R. H. Gregor, Q.C., Law Adviser and Secretary, Mr. M. T. S. Vos, Committee Clerk.

MEMBERS OF THE

Electricity Supply Commission

Dr. JOHANNES THEOBALD HATTINGH (Chairman)

ROBERT BURNS WATERSTON
(Retired 30-9-56)

WALTER HEINRICH ANDRAG

Dr. REINART LUDWIG STRASZACKER

THOMAS PRICE STRATTEN

IAN GRANGER FLEMING
(Appointed 1-11-56)

CONTENTS

Electricity Supply Commission

Escom House,

Rissik Street,

Johannesburg,

12th July, 1957.

To the Honourable,

The Minister of Economic Affairs,

Pretoria.

Sir,

As required by Section 14 of the Electricity Act, No. 42 of 1922, the Commission has the honour to present its 34th Annual Report, which covers its activities during the year ended 31st December, 1956, and includes brief comments on important developments up to the 30th April, 1957.

INCREASE IN PLANT AND OUTPUT

The year 1956 was notable for the progress of construction in Escom's new power stations. During the year, in all Undertakings, a total of 390,000 kW capacity of electric generating plant and corresponding boiler plant was completed and started to work, and during the first four months of the present year a further 60,000 kW of plant was added to the total.

In terms of money this means that in this period over £25 million value of plant was installed in Escom's power stations, and is now in service.

As reported last year, the control on the maximum demands of consumers of the Rand and Orange Free State Undertaking was lifted in the early months of 1956; so that during the period under review there has not been any restriction upon Escom's consumers due to shortage of power station plant.

The total units sold by Escom during 1956 was 12,019 million units (electricity, air and steam). This is an increase of 9·6 per cent. over the sales for 1955; and although this is lower than the large increase of that year, it is only slightly lower than the average rate of increase over the past seven years. Over this period the average rate of growth has been very nearly 10 per cent. annually.

Further information on the units sold by Undertakings and according to classes of consumers is given on page 13.

NEW DEVELOPMENTS: MAJOR PROJECTS

There has not been any application or investigation during the period covered by this Report which has called for the establishment of a separate new Undertaking of Escom: but development has continued within Escom's existing eight Undertakings and in areas which can be served by expansion of these Undertakings.

Several investigations have been made into potential developments in the Eastern Transvaal. Extensions have been planned to Belfast and Waterval Boven, and to Groblersdal and Marble Hall, and other extensions are in course of negotiation. If Escom is successful in its negotiations, application will be made to the Electricity Control Board for a large extension of the area of supply of its Eastern Transvaal Undertaking, and for the incorporation of the present Sabie Gorge Power Station into the extended Undertaking.

In order to cover its programme of future capital works, Escom applied for and was granted additional borrowing powers in the sum of £49,500,000. The major works covered by this authority are:—

Natal Southern Undertaking.

Extension of Umgeni Power Station, near Pinetown, Natal, to a capacity of 240,000 kW.

Natal Central Undertaking.

Extension of Colenso Power Station, at Colenso, Natal, by the addition of 30,000 kW of new plant.

Eastern Transvaal Undertaking.

Construction of a new Power Station in the Eastern Transvaal area (to be named Komati Power Station): the initial installation has been set down provisionally as 200,000 kW.

Rand and Orange Free State Undertaking.

Extension of Highveld Power Station, near Coalbrook, Orange Free State, to a capacity of 360,000 kW.

All Undertakings.

Extensions of the high voltage transmission systems and further development of the distribution systems in all Undertakings.

USE OF NUCLEAR ENERGY FOR THE GENERATION OF ELECTRICITY

Of the new developments in the power supply industry none holds out greater promise for the future, nor attracts greater public interest, than the use of nuclear energy for the generation of electricity.

Escom power stations which are now being developed or are on the drawing board as definite future stations are all coal-burning stations. This decision rests upon the conditions that prevail at present in South Africa; inter alia, (i) the fact that South Africa possesses large reserves of coal which can be exploited at a comparatively low cost; (ii) in the case of the power systems in which the cost of transporting coal adds greatly to the cost of coal the feature that at present the base load is relatively small; (iii) the extra capital cost of nuclear power stations; (iv) the fact that much of the present engineering in nuclear power stations is experimental.

None-the-less Escom is vitally interested in these new developments, and indeed the members of the Commission consider it essential that Escom should take every opportunity of keeping in touch with these developments.

In August, 1955, representatives of the South African Government, including the Chairman of Escom, Dr. J. T. Hattingh, attended the International Conference on the Peaceful Uses of Atomic Energy, which was held in Geneva, Switzerland. The General Manager of Escom, Mr. G. R. D. Harding, also attended this Conference. During 1956, from the 17th-23rd June, the Chairman, as a representative of the Union Government and the General Manager as the official delegate of the South African National Committee of the World Power Conference, attended the 5th World Power Conference, held in Vienna. At this Conference a number of papers were presented on the use of nuclear energy for power generation.

In January, 1957, a Commission of Enquiry into the Application of Nuclear Power in South Africa was appointed, under the Chairmanship of Mr. D. D. Forsyth; and Mr. I. de Villiers, Chief Engineer (Electrical) of Escom, was appointed a Member of the Commission of Enquiry.

Escom has submitted information in the form of replies to a questionnaire framed by the Commission, and may be called upon to give further evidence.

The findings of the Commission of Enquiry will be awaited with great interest.

KOMATI POWER STATION

The largest single item in the programme for which borrowing powers have been approved is the amount of £14,000,000 which has been authorised for the first stage of Komati Power Station; and it may be of public interest to give some account of the issues which have to be judged and the steps to be taken in the planning and development of a major power station such as this.

The time element is important. Under present conditions overseas and in South Africa, a full five years is required to build and bring into service the first units in a major power station, and this period may be exceeded if the negotiations for water and coal supplies and the station site are, for any reason, unduly protracted: so that planning must begin a full five years before the time when the new power station will be required.

In general the economical size of a station is determined by the size of the system with which it will be interconnected and the annual rate of growth of that system.

Komati Power Station is required to meet the future power requirements of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking. The existing installed capacity in the power stations of these Undertakings is approximately 2,000,000 kW, and a further 420,000 kW will be added to the total by the year 1960. In this instance, therefore Escom contemplates a station of 1,000,000 kW capacity, to provide for the growth of load on these systems from 1961 onwards.

Location of the Power Station. The location of a power station of this size is usually settled by the sources of water and coal.

Escom is at present abstracting large quantities of water from rivers on the Transvaal Highveld—the Vaal River, the Olifants River and the Wilge River—and will abstract even greater quantities when the new power stations Vierfontein, Taaibos, Highveld and Wilge are fully developed. It was not possible to obtain any further water from these rivers for power purposes and it was therefore necessary to obtain water from another river and, in consultation with the Department of Water Affairs, it was found that the nearest adjacent water supply source was the Komati River. The Department of Water Affairs is, at the request of Escom, now constructing a dam on the Komati River at a point approximately eight miles north of Carolina.

There are several proved coal deposits which could provide coal for the proposed station for 25 to 30 years. The mining companies that own these coal deposits have been invited to submit offers for the supply of coal to the Komati Power Station and the siting of the power station must await the replies of these mining companies.

Design of Power Station: Size of Units. The capital cost of a power station, expressed per kW installed, falls markedly with an increase in the size of the turbo-alternator unit; and so also do the costs of operation and maintenance, particularly when pulverised fuel or cyclone fired boilers are used for sets above 30,000 kW.

100 MW sets will be cheaper per kW than 60 MW sets; and these larger sets, which have been developed overseas for installation on very large power systems, also incorporate technological advances, especially in metallurgy, the steam cycle and in methods of cooling. The larger the unit, the higher is the steam pressure that can be economically utilized; and the higher the steam pressure, with its accompanying temperature, the greater will be the possible thermal efficiency of the station.

Highveld Power Station was designed for 60 MW turbo-alternator units, using a steam pressure of 900 lbs. per square inch and a temperature of 900° F.

It is contemplated that Komati Power Station will be built with 100 MW units, using a steam pressure of 1,200 lbs. per square inch and a temperature of 950° F. Under these steam conditions a thermal efficiency of 28·5 per cent. is expected.

Komati Power Station, when it is fully developed, is likely to cost about £55,000,000. The period of construction may extend to 12 or 15 years.

NEW DEVELOPMENTS IN ESCOM'S UNDERTAKINGS

The operating statistics and reports on the year's work on Escom's Undertakings are given in the customary form on pages 23 to 53. New developments in the Undertakings are reviewed briefly in the following notes:—

Cape Western Undertaking. During the year two 30,000 kW turbo-generators and two boilers were taken into service at Salt River Power Station and a further boiler was steamed early in 1957. Salt River No. 2 Power Station is thus completed, up to the stage of four 30,000 kW sets and six boilers.

On the distribution system, extensions were made to provide new supplies and to strengthen existing networks. Looking to the future, the growth of the load is such that 132 kV circuits will be justified in some sections, and plans

are being prepared for the construction of 132 kV circuits from the Salt River Power Stations to the areas Muldersvlei, Firgrove and Wellington.

The Pooling Agreement between Escom and the Cape Town City Council, which was entered into in 1932 and which has been beneficial to both parties for 25 years, was terminated on the 12th May, 1957, as the agreement had served its purpose. Escom and the Cape Town City Council will, in operating their separate electricity undertakings, continue to co-operate to their mutual benefit.

Cape Northern Undertaking. Work has started on the construction of the Kimberley Distribution Station which will receive the input of power **via** the 132 kV interconnector from the Rand and Orange Free State Undertaking transmission system. The additional power is expected to be available in the second half of 1958.

De Beers Consolidated Mines, Ltd., has notified its intention to install electric winders on its mines and to erect a new washing plant; and a large increase in the Company's consumption is expected.

New supplies were given in October to four small diamond mines near Smith's Mine and another at Bellsbank.

A partial supply was given to the Anglo Alpha Cement Co. Ltd., at Ulco in the early part of 1957, and a full supply of the order of 8,000 kW will be given when additional power is made available through the 132 kV interconnection.

Negotiations have been concluded for supplies to two lime works of the Northern Lime Co. Ltd., the one north-west of Taungs and the other at Silverstreams.

Bulk supplies furnished to the Municipalities of Barkly West, Boshoff and Warrenton have continued to increase at a rapid rate, and it is expected that Christiana Municipality will be given a supply towards the end of 1957.

Andalusia Township is now reticulated by Escom, having 242 consumers; and the reticulation of Hartswater Township is also to be carried out by Escom, in terms of an agreement made with the Hartswater Village Management Board.

Border Undertaking. During the year two 15,000 kW turbo-generators (Nos. 1 and 2) and No. 2 boiler in the new West Bank Power Station were brought into service, together with the 66 kV interconnector between East London and King William's Town. The existing power station at King William's Town will be used, when necessary, to meet peak loads; and it may be noted from the operating statistics that due to the higher efficiency of the plant in the new power station, a saving in the figure of lbs. of coal consumed per unit sent out of the station was achieved during the year.

In order to meet future loads, inquiries are being issued for a third set and boiler for West Bank No. 2 Power Station, which will be required about 1960.

The decision of the Grahamstown City Council to purchase part of their requirements from the Commission was reported last year. A start has been made on the construction of the 66 kV transmission line from King William's Town to Grahamstown.

Natal Undertakings. At Umgeni Power Station work continued on Nos. 3 and 4 sets, and the corresponding boiler plant; and this plant is expected to be in commission, one set for the winter of 1957 and the second for the winter of 1958. The extension of Colenso Power Station by one 30,000 kW set and boiler plant is in hand, and this increase in capacity is planned for the end of 1958. Thereafter, further extensions of Umgeni Power Station are planned: but the present forecast of the growth of load on the Natal Undertakings indicates that further provision will have to be made to augment power for these Undertakings and this matter is under consideration.

Eastern Transvaal Undertaking. Information on the planned Komati Power Station is given on page 7. Other new developments in the Eastern Transvaal Undertaking during 1956 include the commencement of supply to Winkelhaak Mines, Limited, the first gold mine in the new Bethal goldfield, and the extension of supply to the South African Railways at Breyten and the Municipalities of Breyten and Carolina.

Plans are being worked out for the electrification of the main railway line between Witbank and the East Rand, and the section between Oogies and Van Dyk's Drift. This electrification will assist in the handling of the coal traffic from the Witbank coalfields, and is expected to be completed for service in April, 1960.

Negotiations have been concluded for supplies to the Railway Administration at Belfast and Waterval Boven.

Negotiations are also proceeding for supplies to Groblersdal and Marble Hall, and the towns of Belfast, Machadodorp, Morgenzon, Trichardt and Hendrina.

Escom has undertaken to carry out the reticulation of electricity in Kinross, Leslie and Devon, and it is expected that consumers in these towns will be connected up during the second half of 1957.

Rand and Orange Free State Undertaking. During 1956 a total of 300,000 kW of additional generating plant was brought into service in the new Power Stations, Vierfontein, Wilge and Taaibos; and a further 60,000 kW machine at Taaibos Power Station was completed in April, 1957. The plant position on the Undertaking was therefore much better than it has been for many years.

Revenue from the sale of electricity and compressed air to Mining Consumers exceeded £10,000,000 for the year; and the units sold (electricity, air and steam) increased to 6,456 million units. The important contribution thus made to the economy of South Africa may be judged from the published figures of the Transvaal and Orange Free State Chamber of Mines. The value of gold output plus the working profit on uranium production for the year 1956 was £217·8 million, an increase of £22·9 million over the figure for the previous year.

Again, the most spectacular development occurred in the Orange Free State Province, where units sold increased by 16·6 per cent. to the total of 1,600 million units for the year.

At the year-end twelve gold mines were connected to the Orange Free State network. Jeanette Gold Mining Co. Ltd., ceased operations early in 1956: but a supply was given to Free State Saaiplaas Gold Mining Company Ltd., in July. It is regretted that mining operations at Merriespruit Gold Mining Company Ltd., were interrupted by flooding of the underground workings, towards the end of the year. The Mining Company is taking steps to de-water the mine.

A further new mine, Riebeeck Gold Mining Company, Ltd., which is situated north-west of Odendaalsrus, is to commence development during this year.

The gold output for 1956 from mines in the O.F.S. area increased to 3,167,011 fine ounces, and the total value of gold output plus the working profit on uranium production from this new gold field amounted to £44·3 million.

A number of new supplies were given to towns in the Orange Free State. Virginia was given a supply in April; Senekal and Winburg took supply from Escom in December, 1956, and Theunissen in March, 1957. Supplies were made available to Frankfort and Villiers in April, 1957.

At the end of 1956 fourteen Municipalities in the O.F.S. Province including Kroonstad which took a partial supply, were supplied in bulk by this Undertaking of Escom and the total sales were over 96 million units.

The sum of the notified demands of these Municipalities exceeded 25,000 kW, and it is estimated that Escom's outlay of capital for power station plant and transmission on behalf of the fourteen Municipalities has been about £1,750,000.

Negotiations were also concluded with Steynsrust Town Council and Thabazimbi Village Management Board.

Other new developments on the Rand and Orange Free State Undertaking include several major extensions to the Reef and Pretoria traction systems of the South African Railways.

Construction is proceeding now on the sections Germiston-Vereeniging and Midway-Vereeniging; and the electrification is to be extended from Vereeniging to Kroonstad, and from Welverdiend to Potchefstroom and Klerksdorp. It has also been decided that the heavily loaded lines which carry the coal traffic from the Witbank coalfields and a new by-pass between Springs and Natalspruit are to be converted to electric traction, and this is being planned for service in 1960.

SUPPLY OF ELECTRICITY TO LOCAL AUTHORITIES

Bulk Supplies. The units sold in bulk to Local Authorities shows a further increase at the high rate of 11·5 per cent.

The total units sold to Local Authorities in 1956 was 2,286 million units, and the sum of the maximum demands (at an average P.F.=·9) was of the order of 475,000 kW.

The higher-than-average rate of increase is due to progressive extension of Escom's systems to serve additional towns and villages, and to the high rate of expansion of the electrical undertakings of these towns in the years immediately following the commencement of bulk supplies.

During 1956 and up to April, 1957, the following new consumers were connected to Escom supply:—

Cape Province:
Stutterheim

Orange Free State:
Frankfort
Senekal
Theunissen
Villiers
Virginia
Winburg

Transvaal:
Breyten
Carolina
Leeudoringstad
Makwassie
Wolmaransstad

Reticulations. At the end of 1956 there were 38,839 domestic consumers supplied direct from Escom's reticulation networks. The total units sold direct to domestic consumers, and for street lighting, was 174 million units. Many more domestic consumers are supplied by Municipalities who take bulk supplies from Escom.

DEVELOPMENT OF ELECTRICITY SUPPLY IN RURAL AREAS

Escom is using each development of its network to towns and villages in the country districts to extend the supply to farms, wherever this is economically practicable.

At the end of 1956 a total of 4,717 farms were receiving supplies of electricity from Escom. Of these only about one-half used the supply for farming purposes.

As money and manpower become available, more work is being done towards the electrical development of the rural areas. Escom's policy is to establish rural electrification as economically as possible.

In spite of economical construction, the capital cost of building farm lines is considerable. For example, three schemes recently constructed to give supplies to 79 farms cost over £68,000 i.e. an average capital outlay of £864 per farm, without allowance for the value of plant in the power station. The farmer, too, may have an appreciable outlay for wiring his house and for the purchase of electric motors and equipment.

Groups of farmers who are very near to each other can be supplied economically even if the consumption of each is small, but if the farmers are two or three miles apart the cost of transmission would generally make the tariff for small supplies unattractive to farmers.

The following is a brief account of developments in the various Undertakings:—

Cape Western Undertaking. During 1956 supplies were given to an additional 149 farms.

The largest farmers' scheme constructed during the year was in the Worcester district, where approximately 30 miles of 11 kV lines and 2 miles of low voltage lines were erected. Seventy-five farmers were connected, and a further six farmers have accepted terms.

Ten miles of 11 kV overhead line were built beyond Prince Alfred Hamlet to give supply to 4 farmers, one of whom notified a demand of 120 kVA. An extension some 11 miles in length north-west of Malmesbury gave supply to 9 farmers; and an extension of the Wolseley 11 kV farmers' scheme of approximately 9 miles was made to connect up 8 additional consumers.

Cape Northern Undertaking. Rural schemes in the Cape Northern Undertaking depend largely on the pumping of water for irrigation purposes.

Sixteen farms in the Barkly West area purchased 1,214,619 units during the year, which was an average of 5,580 units per month per farm, and represented an increase of about 30 per cent. over the previous year's supply. Eleven farms between Riverton and Holpan consumed 237,546 units during the year, which was an average of about 1,800 units per month per farm.

Negotiations are in progress for the supply to Douglas Municipality and the riparian farms around the confluences of the Vaal and Riet Rivers, and the Vaal and Orange Rivers. It is hoped that some 3,000 h.p. of pumping plants in these areas will be converted from oil engines to electric drive as soon as electricity can be made available there.

Negotiations have also commenced for the supply to riparian farms on the Harts River, which now has a perennial flow, due to the drainage of water led on to the Vaalhartz Settlements.

Border Undertaking. An additional 20 farms were connected during 1956. Two new rural distributions have been started, the one will commence at Fort Beaufort to supply farms in the Kat River Valley, and the second will commence at Adelaide to supply farms in the Koonap River Valley.

Natal Undertakings. During the year a total of 57 rural consumers were connected to the Natal Southern Undertaking, including 44 farms. Eight consumers were catered for in the Hidcote rural area, and a further 8 were added to the Eeram East rural scheme: the other new consumers were connected to existing rural networks.

On the Natal Central Undertaking a total of 38 farms and 19 other rural consumers were connected during 1956, including 13 consumers on the Drummond/Assagay Kraal network, and 9 in the Richmond South rural development area.

Eastern Transvaal Undertaking. In the Bethal area a total of 32 miles of 11 kV lines and 5 miles of low voltage lines were constructed for farm supplies. A total of 24 farms and 15 other rural consumers were connected during the year.

Rand and Orange Free State Undertaking. At the year-end construction was proceeding to serve the area around Jackson's Drift, between Johannesburg and Vereeniging, and the first consumers were connected in April, 1957. Progressive development of this scheme is expected to extend over the next eighteen months, and about 70 small farms and smallholdings will be supplied.

Materials have been ordered for a distribution network to be established for the area between Kliprivier and Meyerton, and construction is to begin at the end of 1957. The development of this reticulation will probably extend over two to three years, and it is expected to serve some 400 to 500 new consumers, on small farms, smallholdings and in townships.

Escom approved a rural scheme in the Muldersdrift/Boschkop area to the north of Roodepoort which it is hoped will eventually serve 600 new consumers.

Terms have been offered to the owners of smallholdings in the Sundra/Eloff area, west of Springs, and also to rural areas north of Benoni. Preliminary returns suggest that the reticulation schemes will have to be restricted at first to the more populous portions of these areas.

OUTPUT AND SALES

The total units generated was 13,578 million units, which was an increase of 11·2 per cent. over the corresponding figure for 1955.

Units sold by all Undertakings (electricity, air and steam) increased by 9·6 per cent.

The total units purchased was lower by 82 million units. In terms of the agreement with the Johannesburg Municipality, supply from the Council's system to Escom ceased at 31st August, 1956, and the interchange agreement is now on the basis that the Council will provide capacity in its power stations to meet the day peak on its system, and will look to Escom to supply the additional quantities, up to agreed maxima, that will be required to meet the Council's evening peak.

The supply purchased from Pretoria Municipality was also lower than in 1955 by 29·7 million units.

The figures of output and sales for all Undertakings were:—

	1956	1955	Increase
Units generated	13,578,425,364	12,214,458,902	11·2%
Units purchased	257,186,420	339,255,676	—
Units sold	12,019,480,703	10,964,043,148	9·6%

Sales of units by the individual Undertakings were as follows:—

	1956	1955	Increase
Cape Western	585,094,524	527,086,538	11·0%
Cape Northern	78,698,834	73,183,589	7·5%
Border	139,137,041	130,800,794	6·4%
Natal Southern	957,725,952	869,999,813	10·1%
Natal Central	595,383,919	546,403,224	9·0%
Eastern Transvaal	505,857,322	394,612,147	28·2%
Rand and Orange Free State ...	9,151,617,452	8,416,301,964	8·7%
Sabie	5,965,659	5,655,079	5·5%
	12,019,480,703	10,964,043,148	9·6%

Analysis of the total sales according to classes of consumers gives the following totals:—

	1956	1955	Increase
Bulk Supplies:			
Municipal	2,286,481,969	2,051,270,731	11·5%
Direct Supplies:			
Traction	739,743,531	689,737,822	7·2%
Mining	6,622,525,637	6,176,331,487	7·2%
Industrial	2,196,703,199	1,890,092,216	16·2%
Domestic	170,345,636	153,324,975	11·1%
Street Lighting	3,680,731	3,285,917	12·0%
	12,019,480,703	10,964,043,148	9·6%

PLANT CAPACITY

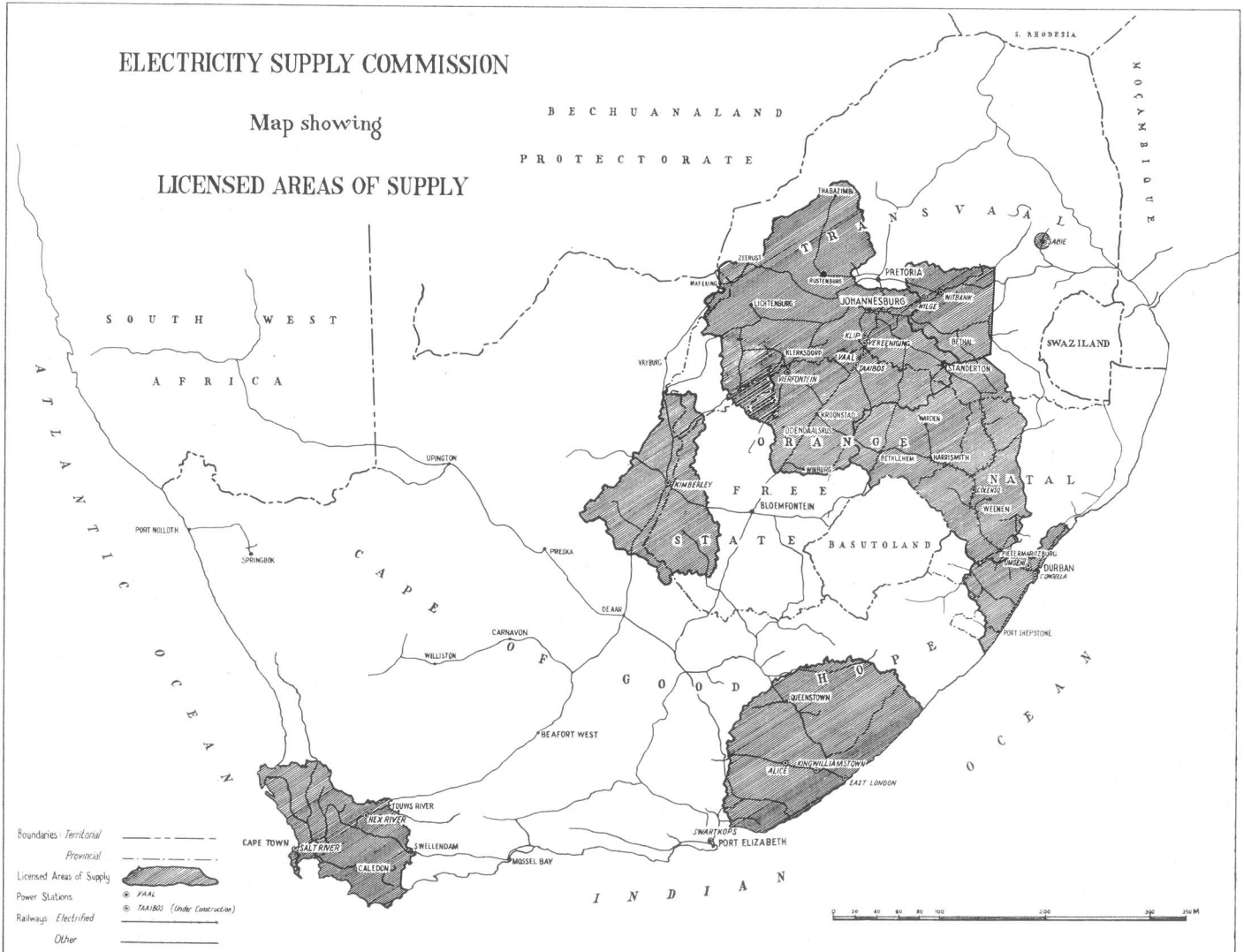
The progress of construction in Escom's new power stations is shown in the following table which sets out the plant which was completed and taken into service during 1956, and the further plant which was completed in the four months up to April, 1957.

	Plant taken into service during 1956		Plant taken into service up to April, 1957	
	Boilers	Generators	Boilers	Generators
	thousands lb/hr	kW	thousands lb/hr	kW
Cape Western Undertaking:				
Salt River No. 2	520,000	60,000	260,000	—
Border Undertaking:				
West Bank No. 2	170,000	30,000	—	—
Rand and Orange Free State Undertaking:				
Taaibos Power Station ...	1,740,000	180,000	580,000	60,000
Vierfontein Power Station	630,000	60,000	210,000	—
Wilge Power Station ...	800,000	60,000	—	—
TOTAL: All Undertakings	3,860,000	390,000	1,050,000	60,000

The capacity of plant which was under construction or on order at the end of April, 1957, is given in the following table:—

	Plant under construction or on order at April, 1957	
	Boilers	Generators
	thousands lb/hr	kW
Natal Undertakings:		
Colenso Power Station	400,000	30,000
Umgeni Power Station	720,000	60,000
Rand and Orange Free State Undertaking:		
Highveld Power Station	2,200,000	240,000
Klip Power Station	180,000	—
Taaibos Power Station	580,000	60,000
Vierfontein	420,000	60,000
Wilge	580,000	60,000
TOTAL: All Undertakings	5,080,000	510,000

The principal items of plant which were installed in Escom's power stations as at 31st December, 1956, and the total station capacities are given in Annexure B, Statement No. 1 to this Report.


ELECTRICITY SUPPLY COMMISSION
Map showing
LICENSED AREAS OF SUPPLY
S. RHODESIA
MOCAMBIQUE
BECHUANALAND
PROTECTORATE
SOUTH WEST
AFRICA
ATLANTIC OCEAN
INDIAN OCEAN
THABAZIMBI
ZEERUST
MAFEKING
RUSTENBURG
PRETORIA
LICHTENBURG
JOHANNESBURG
WITBANK
WILGE
KLIP
VEREENIGING
BETHAL
VRYBURG
KLERKSDORP
VAAL
VAALBOS
STANDERTON
WELKOM
KROONSTAD
ODENDAALSRUS
ORANGE
BETHLEHEM
HARRISMITH
WINBURG
KIMBERLEY
FREE
STATE
BLOEMFONTEIN
NATAL
LADYSMITH
WEENEN
BASUTOLAND
PIETERMARITZBURG
DURBAN
UMGENI
PORT SHEPSTONE
UPINGTON
PORT NOLLOTH
SPRINGBOK
PRIESKA
CAPE OF GOOD HOPE
DE AAR
CARNARVON
WILLISTON
QUEENSTOWN
BEAFORT WEST
ALICE
KING WILLIAMSTOWN
EAST LONDON
TOUWS RIVER
HEX RIVER
CAPE TOWN
SALT RIVER
SWELLENDAM
CALEDON
MOSSEL BAY
SWARTKOPS
PORT ELIZABETH
Boundaries : Territorial
Provincial
Licensed Areas of Supply
Power Stations
VAAL
TAAIBOS (Under Construction)
Railways Electrified
Other
0 20 40 60 80 100 200 300 350 M

AREAS OF SUPPLY AND DEVELOPMENT OF TRANSMISSION SYSTEMS

There was no extension of the areas of supply of Escom's Undertakings, and the total area in which Escom is licensed to supply remains at 118,700 square miles.

As reported on page 6, a large extension of the area of the Eastern Transvaal Undertaking is contemplated.

In summarized form the following lists describe the major transmission lines completed during 1956 and under construction or projected at the end of the year:—

Completed in 1956:	kV	Route Miles
Kimberley to Riverton	66	18
East London—King William's Town	66	34
Vierfontein to Margaret Shaft via Hartebeestfontein No. 41	88	30
Ermelo—Estancia	88	15
Holpan to Union Lime Co.	66	41
Everest—Highveld 2 x 100 miles (Second line scheduled for completion 1957)	275	200
Highveld—Taaibos	132	1½
Virginia—Alma turn in to Everest	132	10
Western Transvaal Water Scheme	88	3
Calcined Products—Westgate	88	12
Heilbron—Frankfort—Villiers	88	60
Virginia—Whites	40	12
Virginia—Henneman	40	16
Virginia—Senekal	40	48
Merriespruit—Winburg—Theunissen and Star Diamonds	40	48
Sallies Turn-in	40	22
Lourens River—Capex	66	5
Lourens River—Sir Lowry's Pass (double circuit)	66	3·3
Lourens River—Sir Lowry's Pass (single circuit)	66	5
Mason's Mill—Pietermaritzburg	88	1
Umkomaas Substation—Umkomaas	11	1
Perdekop—Sandspruit	11	15
Under Construction:		
King William's Town—Grahamstown	66	70
Holpan—Ulco	66	41
Diepsloot—Olifantsfontein	40	17
Westgate—Rand Centre Network	40	25
Grootpan—Wildebees	132	30
Kinross—Leslie—Devon	21	25
North Coast Spur Line (East London)	66	8
Mason's Mill—Umgeni (No. 2 132 kV line)	132	40
Umgeni—Coedmore (double circuit)	132	12
Congella—Booth (double circuit)	88	2
Glencoe—Dundee (first line)	88	7
Richmond—Ixopo	33	25
Bethlehem—Lindley—Petrus Steyn	33	60
Tongaat—Compensation	33	6
Firgrove—Lourens River (2 lines each 5 miles)	66	10
Moorreesburg—De Hoek (near Piketberg) 2 lines each 18 miles	66	36

Projected:	kV	Route Miles
Blackhill—Oogies—Arbor (S.A.R.)	88	60
Blackhill—Kromklip—Van Dyksdrif (S.A.R.) ...	88	30
S.A.R. Alliance	20	1
S.A.R. Crown	40	1
Natalspruit Non-European (S.A.R.)	88	24
Jabavu, Stretford, Argus, Henley on Klip	88	39
Eerste Fabrieke, Cordelfos, Klerksdorp		
Machavie, Potchefstroom, Frederikstad		
Coalbrook, Yser, Leeustroom, Serfontein, Amerika, Yunhill (S.A.R.)	88	4
Extension Vaal—Alma East to Virginia D.S. ...	88	12
Doornfontein—Trident	132	62
Doornfontein—West Wits	132	8
West Wits—Libanon	132	11
Libanon—Westgate	132	22
Taaibos—Westgate	132	67
Taaibos—Doornfontein (second line)	132	55
Trident Turn Ins	88	11
Trident—Swartruggens	88	31
Mallin Diamonds—Swartruggens—Koster	11	25
Vierfontein—Carrdell (2 lines)	132	32
Steynsrus	11	24
Vaal-, Taaibos-, Highveld Pump Houses	20	6
Nevis—Esselen (first route)	275	25
Diepsloot—Bryanston	40	12
Klip (Rosherville) Simmerpan (double circuit) ...	88	36
Witbank—Middelburg—Belfast	88	62
Belfast—Machadodorp—Waterval Boven	21	24
Middelburg—Groblersdal	88	56
Groblersdal—Marble Hall	21	17
Esselen Turn Ins	40	12
Riebeeck G.M.	40	20
Coalbrook, Clydedale, Sasol	40	16
Andalusia—Norlim	66	25
Ulco—Silverstreams	66	42
Grootpan—Wildebees (second line)	132	30
Wellington—Gouda	66	25
Gouda—Moorreesburg	66	25
Sir Lowry's Pass—Bot River	66	15
Colenso—Ladysmith	88	16
Ladysmith—Van Reenen	88	33
Newcastle—Volksrust	88	35
Glencoe—Dundee (second line)	88	10
Tee-lines to S.A.R. substations	88	25
Newcastle—Memel	11	25

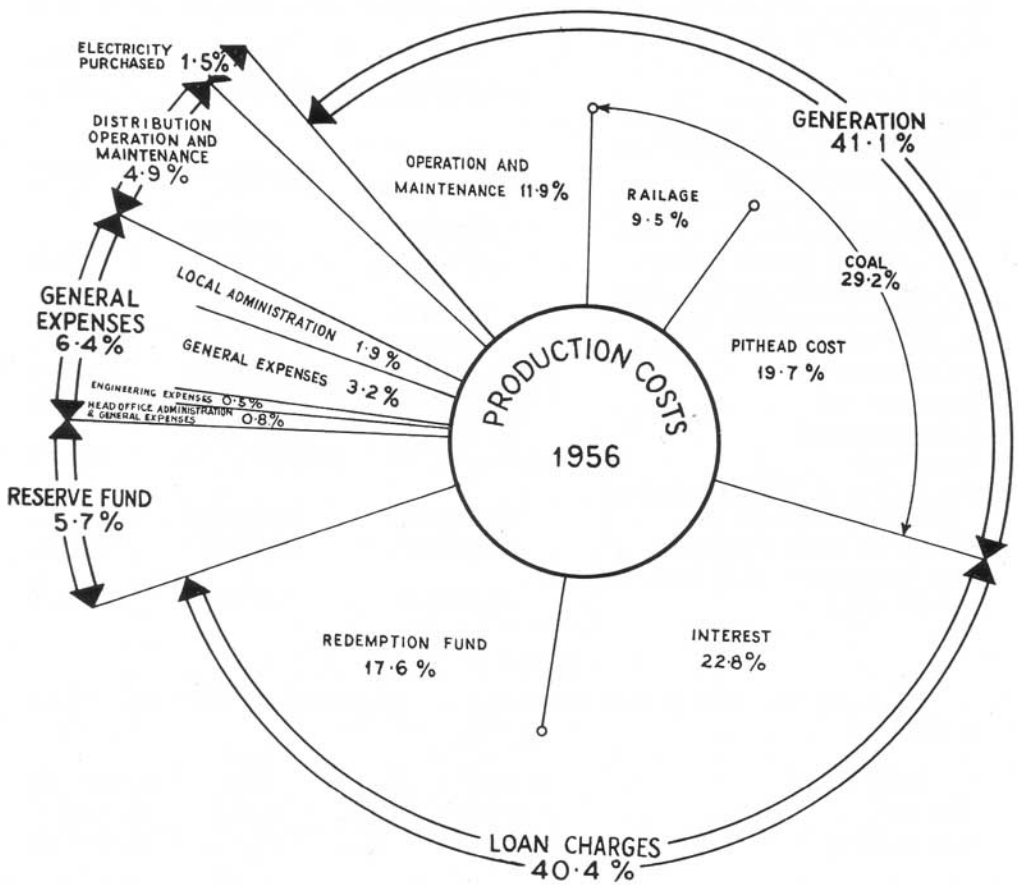
COSTS AND TARIFFS

In all Undertakings, working costs were higher in 1956 than in the previous year. The increase was largely due to the commissioning of new plant, and the fact that plant brought into service in the previous year carried interest and redemption charges for a full year.

The cost of coal continued to increase, except at two power stations.

At the West Bank Power Station, East London, the cost of coal at 40s. 10d. per ton shows a reduction of 11d. per ton. This is due to the fact that the new plant in West Bank No. 2 Power Station uses a different grade of coal—that is, "mixed smalls" instead of "peas". Because of this, coal supplies can now be obtained from the Transvaal at lower cost instead of from Natal.

At Taaibos Power Station the lower price per ton is due to the increase in the Colliery output.



The following changes in Escom's tariffs were effective during 1956:—

Border Undertaking. A new schedule of standard prices was approved for the Undertaking, and introduced from the meter reading date in January, 1956.

There was a surplus on the year's working of £21,733; so that the accumulated deficit was reduced to £131,562.

Rand and Orange Free State Undertaking. A revision of the schedule of standard prices was applied from January, 1956.

Due in large part to a temporary loss of plant in Vaal Power Station and to Native labour shortages which affected coal supplies to Vierfontein Power Station, the year's accounts showed a deficit of £662,345.

An adjustment of tariffs by reduction of the discount rate from 17 per cent. in 1956 to 13 per cent. was made as from January, 1957.

STATISTICAL SUMMARY

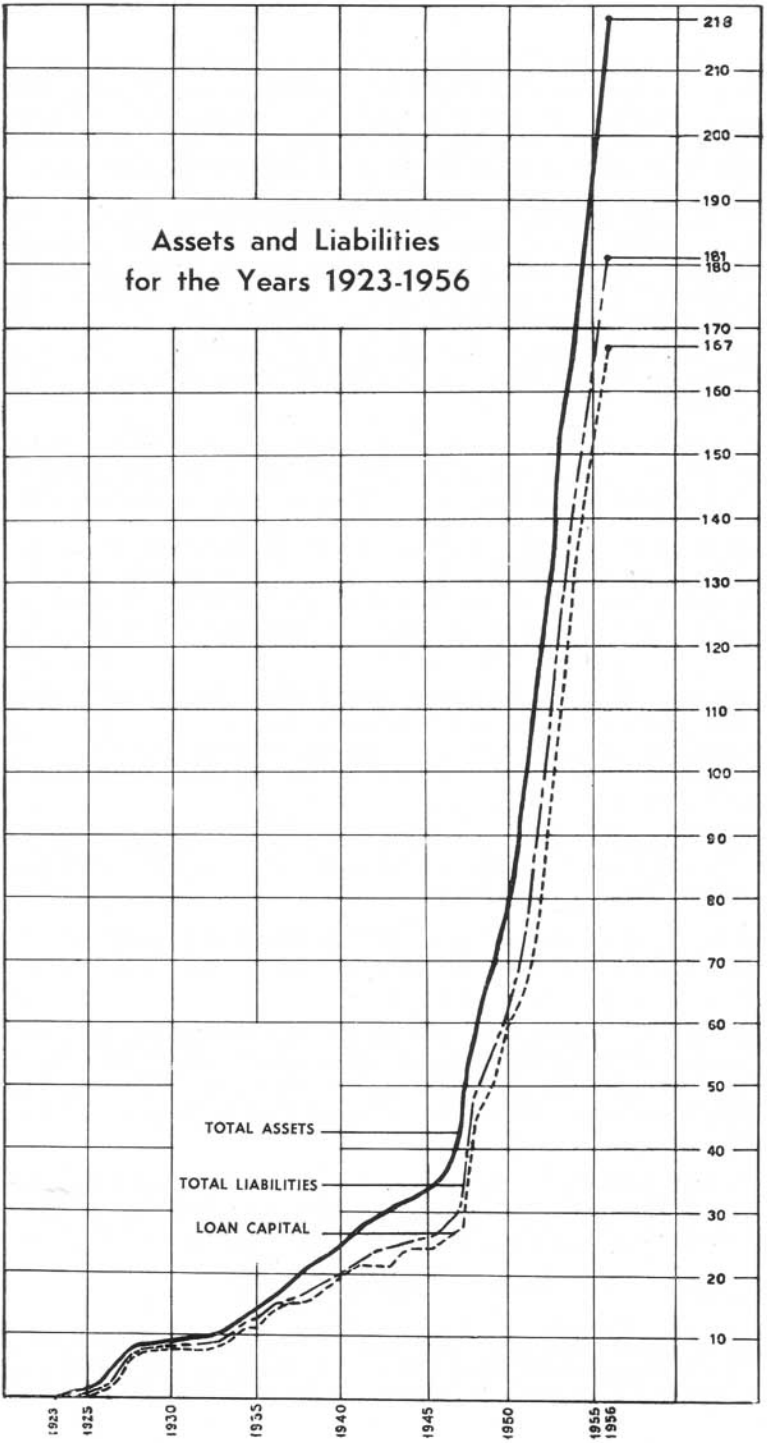
Revenue, production costs, output and sales, and other figures relating to the operation of Escom's Undertakings during the year 1956, with the comparative figures for 1955, are as follows:—

	1956	1955	Increase
Total Revenue	**£25,798,195**	**£22,735,571**	**13·471%**
Total Production Costs (including interest, redemption and reserve fund charges)	**£26,442,095**	**£22,430,974**	**17·882%**
Difference between Revenue and Production Costs ... **Dr.**	**£643,900**	**£304,597**	
Average Price per Unit Sold ...	**0·5142d.**	**0·4967d.**	**3·522%**
Average Revenue per Unit Sold (including Sundry Revenue) ...	**0·5151d.**	**0·4977d.**	**3·507%**
Average Cost per Unit Sold ...	**0·5280d.**	**0·4910d.**	**7·531%**
Units Generated	**13,578,425,364**	**12,214,458,902**	**11·167%**
Units Sent Out	**12,669,815,373**	**11,425,171,203**	**11·066%**
Units Purchased	**257,186,420**	**339,255,676**	—
Units Sold	**12,019,480,703**	**10,964,043,148**	**9·626%**
Total Cost of Coal Consumed (including Railage)	**£7,826,367**	**£6,854,516**	**14·178%**
Railage on Coal Consumed ...	**£2,541,240**	**£2,423,183**	**4·872%**
Coal Consumed (in tons of 2,000 lbs.)	**10,679,763**	**9,920,451**	**7·654%**

FINANCIAL

Loan Capital. During 1956 two local loans totalling £18,250,000 were raised, as follows:—

Date Issued	Amount	Interest	Issue Price	Redeemable
8th May	£8,250,000	5⅛%	£100%	31/8/76-81
16th October	£10,000,000	5⅛%	£100%	31/3/77-82
	£18,250,000			


Assets and Liabilities
for the Years 1923-1956
218
210
200
190
181
180
170
167
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
TOTAL ASSETS
TOTAL LIABILITIES
LOAN CAPITAL
1923
1925
1930
1935
1940
1945
1950
1955
1956

These loans were fully subscribed, but at the year end the amount received on account of the loan issued on the 16th October was £7,542,859. The balance of £2,457,141 payable not later than the 31st January, 1957, in terms of the prospectus, has since been received. At the year end the loans raised locally as Local Registered Stock totalled £146,000,000 of which £2,500,000 had been repaid.

The loan of $19,600,000 U.S.A. from the Export-Import Bank of Washington, equivalent to approximately £7,000,000 bears interest at 4 per cent. per annum and is redeemable over 15 years by equal half-yearly instalments, including interest, the final instalment being due on the 16th August, 1970. The loan is to be used for the provision of power from Wilge Power Station for uranium production and is to be taken up during the period ending the 30th June, 1957. The amount taken up to the 31st December, 1956, was $19,043,715 equivalent to £6,808,381 South African currency.

These amounts less repayments to the International Bank for Reconstruction and Development and to the Export-Import Bank of Washington increased Escom's loan capital at the date of the Balance Sheet to £167,565,895.

Redemption Fund. The amount in the Redemption Fund at the 31st December, 1956, totalled £32,568,030 which in the aggregate, after taking into account the depreciation on the market value of investments exceeded the amounts required for the redemption of the loans in accordance with the provisions of the Act.

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 the 31st December, 1956, was £5,012,576.

Capital Expenditure. Expenditure on Capital Account during the year amounted to £18,863,029 which increased the total capital expenditure at the 31st December, 1956, to £171,034,012.

Expenditure on Capital Account will amount to approximately £283,500,000 on completion of all the works to which Escom is committed and on projected works.

Investments. The book value of securities, representing investments in Government, Municipal and Electricity Supply Commission stocks, held by Escom on behalf of the various funds at 31st December, 1956, was £36,147,333, the nominal value being £36,465,820. The market value of these investments at that date was £32,709,630.

Assets and Liabilities. Escom's total assets at the 31st December, 1956, amounted to £218,135,525, and its total liabilities to £181,081,945 the excess of assets (as shown in the Balance Sheet) over liabilities being £37,053,580.

STAFF

Home Ownership Scheme. The balance at 31st December, 1956, on loans granted to employees to enable them to acquire homes under Escom's Home Ownership Scheme in terms of the 1941 amendment to the Electricity Act, was £863,961.

Personnel. The staff employed by Escom at the 31st December, 1956, numbered 12,977 employees made up as follows:—

	1956	1955	Increase	
Europeans	4,707	4,514	193	4·3%
Non-Europeans ...	8,270	7,976	294	3·7%
	12,977	12,490	487	3·9%

The Commission desires to express to all members of the staff its appreciation of their loyal and conscientious service.

ESCOM'S UNDERTAKINGS

The operation and development of the seperate 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.

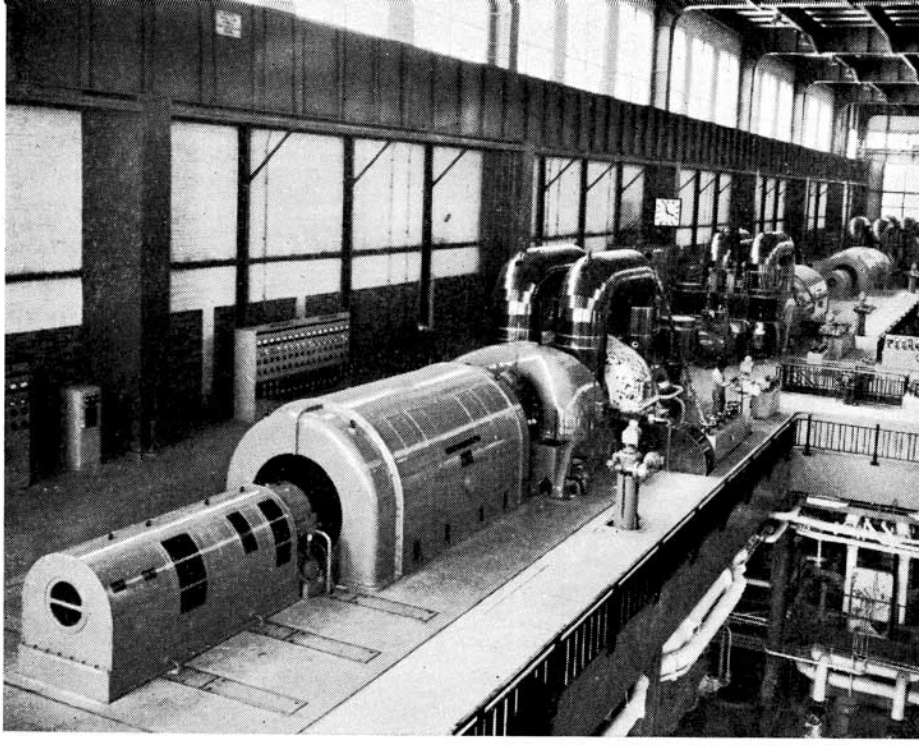
CAPE WESTERN UNDERTAKING

CONSUMERS — Class	Number	SALES — Units	SALES — Increase	Revenue from Sales	Average Price per Unit Sold — 1956	Average Price per Unit Sold — 1955
			%	£	d	d
Traction	2	185,643,122	15·333	810,345	1·0476	1·0602
Bulk	23	147,529,770	10·004	627,519	1·0208	1·0156
Industrial	2,075	146,096,373	8·506	796,530	1·3085	1·3046
Domestic and Lighting	23,748	105,825,259	8·686	663,941	1·5057	1·5206
	25,848	585,094,524	11·005	2,898,335	1·1889	1·1964

	1956	1955	Accumulated to 31.12.56
Total Revenue	£2,916,444	£2,644,643	
Working Costs	£3,060,505	£2,547,544	
Surplus		£97,099	
Deficit	£144,061		£56,257
Capital Expenditure	£1,545,059	£3,587,965	£22,468,148

	Salt River Power Station No. 1		Salt River Power Station No. 2		Hex River Power Station	
	1956	1955	1956	From 2/5/1955	1956	1955
Units Sent Out	34,477,200	118,320,378	365,244,365	124,523,888	205,444,070	219,825,420
Maximum half-hour Demand kW S.O.	58,683	62,496	87,000	57,900	58,400	59,000
Station Peak kW	69,600	68,200	93,000	62,000	60,000	60,800
Load Factor	6·7	21·6	47·8	36·0	40·0	42·4
Thermal Efficiency	13·0	17·2	24·9	24·6	24·1	24·8
FUEL:						
Coal Consumed—tons	27,322	82,708	224,546	93,146	125,520	131,675
Average per unit sent out—lb.	2·256	1·725	1·173	1·209	1·222	1·198
Calorific Value B.Th.U./lb	11,650	11,530	11,670	11,450	11,570	11,470
Total Cost	£531,631*	£358,213*			£254,737	£256,136
Cost per ton	42s. 3d.*	40s. 9d.*			40s. 7d.	38s. 11d.

*For Salt River Power Stations Nos. 1 and 2.



The turbine room at Salt River Power Station showing three of the four 30,000 kW. sets.

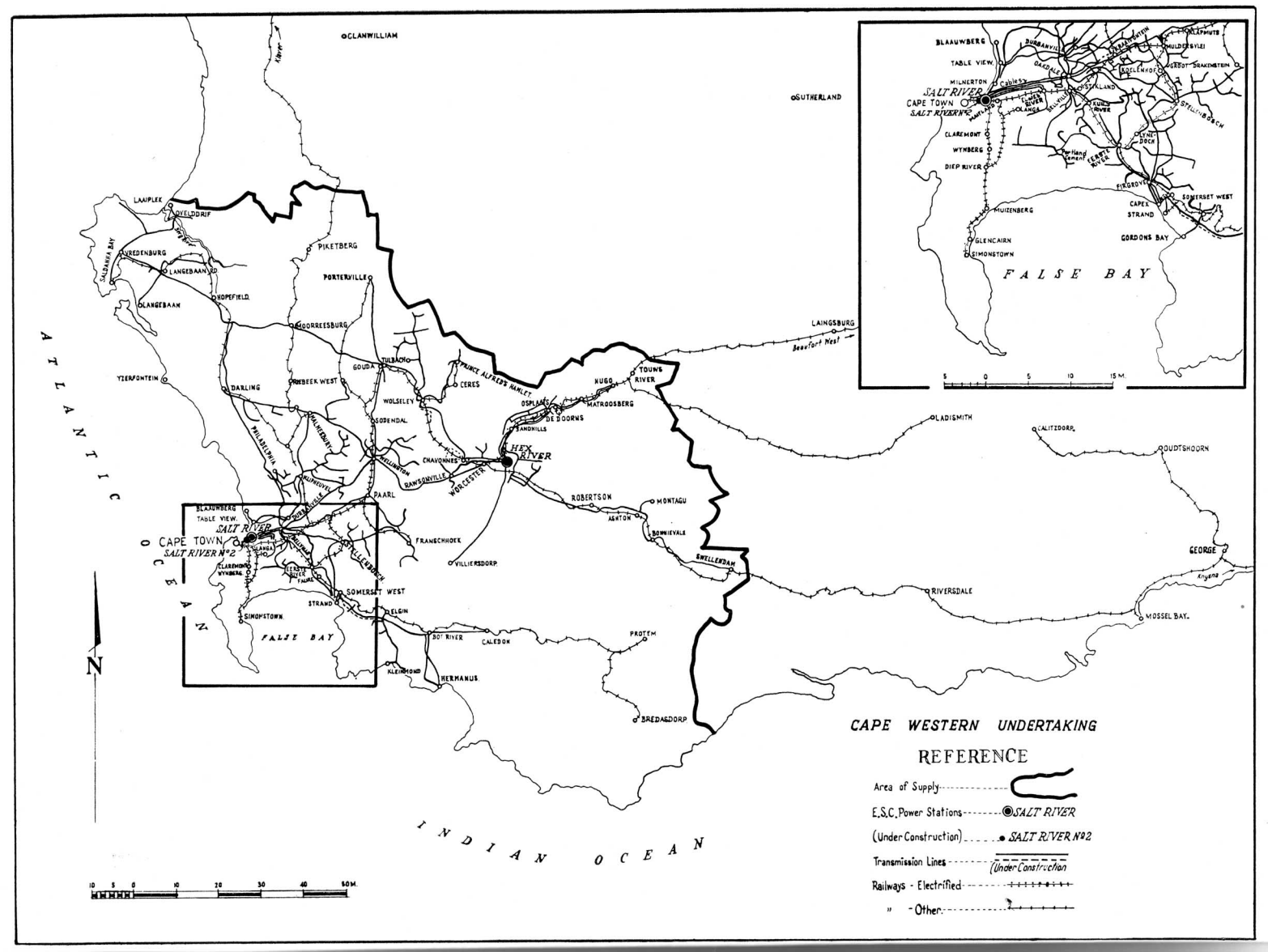
General. Throughout the year the Escom Power Stations at Salt River were operated together with the Cape Town City Council's Power Stations in accordance with the 1932 Pooling Agreement.

At Hex River Power Station a total of 205,444,070 units were sent out, of which 126,095,718 units were sent out from the station in terms of the Pooling Agreement, and 79,348,352 units were sold to the Pool under the arrangement mentioned in the last Annual Report i.e. the arrangement to run plant at Hex River Power Station as much as possible so as to reduce the running hours of the less efficient plant at Salt River No. 1.

On two occasions during the year load was curtailed to parts of the system due to minor power station troubles. There was no load shedding due to lack of plant.

Output and Sales. Units sold during 1956 were 585,094,524, which was an increase of 10·38 per cent. over the units sold for 1955. Electric Traction showed an increase of 13·22 per cent. and the remainder of the system an increase of 9·08 per cent. on units sold.

Coal. At the beginning of 1956 there were adequate stocks of coal, and supplies continued to exceed consumption until by mid-March a total of 25,000 tons was stored on site. Thereafter, consumption increased and supplies decreased until by mid-July there was practically no ground stock at all. The situation improved after July and at the end of the year the stock had been built up to 15,000 tons. The full storage area at Salt River site is now available and can accommodate approximately 45,000 tons.


CLANWILLIAM
SUTHERLAND
LAINGSBURG
Beaufort West
LADISMITH
CALITZDORP
OUDTSHOORN
GEORGE
MOSSEL BAY
RIVERSDALE
LAIPLEK
VREDENBURG
SALDANHA BAY
LANGEBAAN
HOPEFIELD
PIKETBERG
PORTERVILLE
MOORREESBURG
YZERFONTEIN
DARLING
GOUDA
TULBAGH
CERES
PRINCE ALFRED'S HAMLET
WOLSELEY
REBEEK WEST
KUILS RIVER
KRAAIFONTEIN
WILLOWMORE
MALMESBURY
PAARL
WELLINGTON
CHAVONNES
WORCESTER
HEX RIVER
OSPLAAS
DE DOORNS
MATROOSBERG
TOUWS RIVER
KUGO
SANDHILLS
ROBERTSON
MONTAGU
ASHTON
BONNIEVALE
SWELLENDAM
FRANSCHHOEK
VILLIERSDORP
BLAAUWBERG
TABLE VIEW
SALT RIVER
CAPE TOWN
SALT RIVER No 2
CLAREMONT
WYNBERG
KENILWORTH
RONDEBOSCH
CONSTANTIA
WYNBERG
SIMONSTOWN
FALSE BAY
STRAND
SOMERSET WEST
ELGIN
BOT RIVER
CALEDON
KLEMMOND
HERMANUS
PROTEA
BREDASDORP
ATLANTIC OCEAN
INDIAN OCEAN
N
10 5 0 10 20 30 40 50 M.
BLAAUWBERG
TABLE VIEW
SALT RIVER
CAPE TOWN
SALT RIVER No 2
MILNERTON
Cables
DURBANVILLE
KRAAIFONTEIN
MALMESBURY
MULDERSVLEI
ADELENKOP
GROOT DRAKENSTEIN
STELLENBOSCH
KUILS RIVER
CLAREMONT
WYNBERG
DIEP RIVER
LYNEDOCH
FIRGROVE
SOMERSET WEST
CAPE STRAND
MUIZENBERG
GLENCAIRN
SIMONSTOWN
GORDONS BAY
FALSE BAY
5 0 5 10 15 M.
CAPE WESTERN UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
SALT RIVER
(Under Construction)
SALT RIVER No 2
Transmission Lines
(Under Construction)
Railways - Electrified
" - Other

Salt River No. 1 Power Station. This station being the oldest and least efficient on the Undertaking, was operated almost entirely for peak loads and as stand-by when plant at the other stations was taken out of service for maintenance or repairs. The light loading of this station permitted a plant maintenance programme to be carried out on boilers and turbines with little overtime work on the part of the maintenance staff.

There were no interruptions to supply as a result of any failure in this station during the review year.

Salt River No. 2 Power Station. During the year boilers Nos. 4 and 5 were commissioned in January and September respectively, and No. 6 boiler was commissioned early in 1957.

Turbo-generators Nos. 3 and 4 were commissioned in July and December respectively.

Although this completes the main construction work, there remains a considerable amount of painting and other finishing-off to be done. Minor troubles on Nos. 1, 2 and 3 machines will also engage the contractors' attention during 1957.

The civil engineering work is complete except for tiling of the floors, installation of fire hydrants and the clearing and tidying of the grounds.

At the beginning of 1956 two turbo-generators and three boilers were available, and with the commissioning of the additional plant mentioned above, Salt River No. 2 Power Station was able to take an increasing share of the system load. Running hours on plant in Salt River No. 1 were further reduced. The consequence has been an appreciable reduction in coal consumption rate and gain in overall thermal efficiency.

Hex River Power Station. This station was in continuous operation throughout the year, and there was no involuntary outage of plant. The output, however, was approximately 14 million units less than for 1955, as the station was not required to assist the Pool to the same extent on account of the commissioning of new plant at Salt River No. 2 Power Station.

Operation was satisfactory and routine maintenance was effected according to schedule.

No. 3 turbo-generator was out of service for seven months of the year to allow contractors to carry out modifications that are expected to reduce steam consumption. Work was still in progress at the end of the year.

Major Transmission System. The growth of load on the Undertaking's Distribution System has made it clear that a 132 kV network will be needed during the course of the next few years. For this development two sites for major substations were purchased; one at Muldersvlei and one at Firgrove. The purchase of a third at Wellington was under negotiation at the end of the year. The selection of suitable routes for the proposed 132 kV feeders is in hand.

Construction work commenced on two 66 kV lines from Moorreesburg to the De Hoek Cement Factory near Piketberg, to supply the factory and the town of Piketberg. It was expected that this supply will be available in May, 1957.

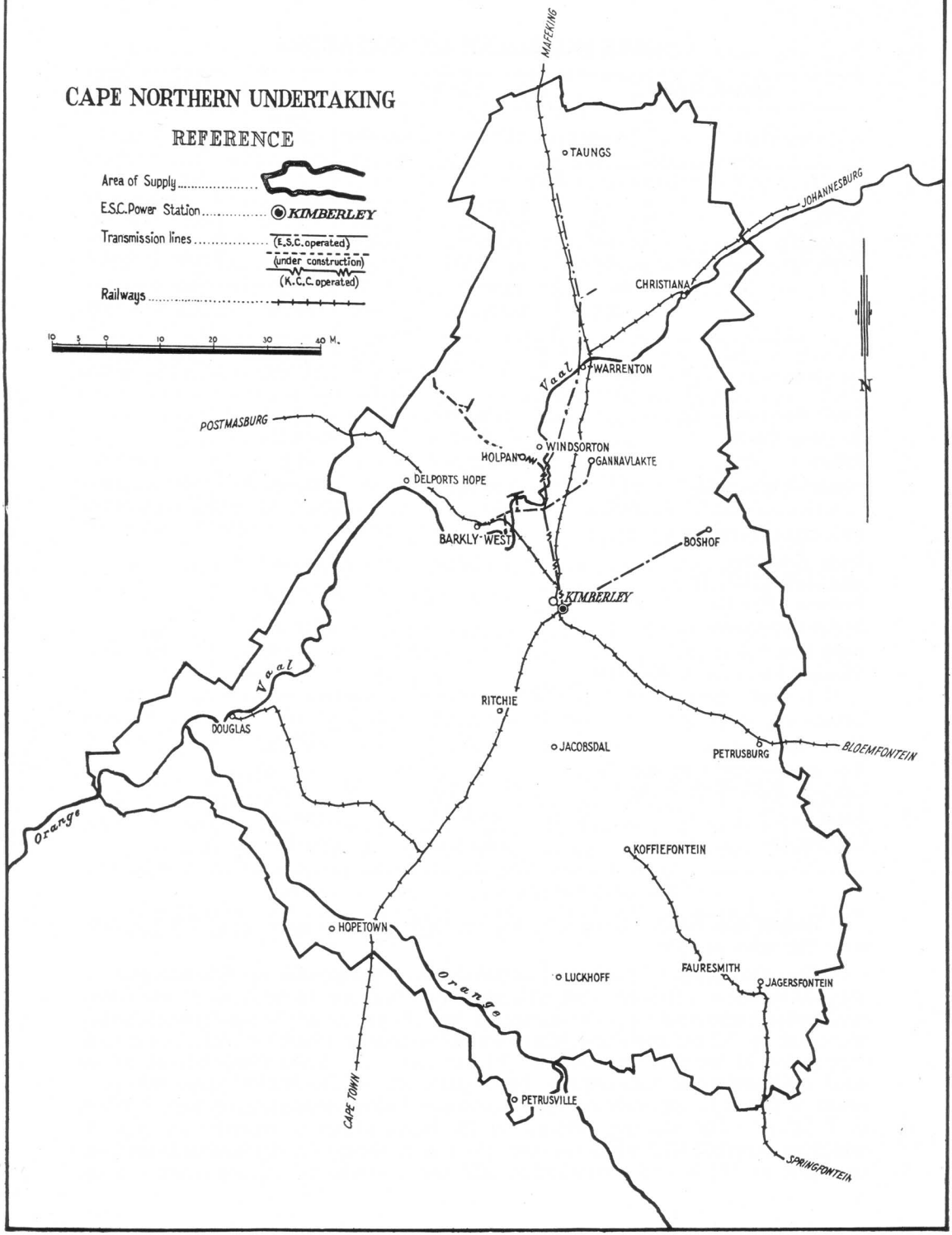
Construction of the 66 kV substations at Stellenbosch and Cape Explosive Works was completed during the year, and work on the Lourens River substation progressed as material became available. Due to the delay in the delivery of transformers it was not possible to change the Oakdale—Stellenbosch—Capex network from 33 to 66 kV working until April, 1957.

Bulk Supply and Industrial Consumers. No new bulk supply was connected during the year; but 25 industrial consumers in the large user category were given supplies totalling just over 1,000 kVA.

Development of Urban Distribution. In the urban areas of Goodwood, Parow and Bellville, the units sold during the year increased by 21·25 per cent. although it is noteworthy that the demand of 29·8 MVA recorded for these areas is only 1·7 per cent. higher than for the previous year. This is a marked improvement in load factor.

Development of Rural Supplies. Extensions were made to the rural networks and 434 consumers were connected, which included 149 farmers.

Financial. For the year's working there was a deficit of £144,061, which when set against the surplus previously accumulated gives a deficit of £56,526 at the end of 1956.


CAPE NORTHERN UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Station
KIMBERLEY
Transmission lines
(E.S.C. operated)
(under construction)
(K.C.C. operated)
Railways
10 5 0 10 20 30 40 M.
MAFEKING
TAUNGS
JOHANNESBURG
CHRISTIANA
WARRENTON
Vaal
N
POSTMASBURG
WINDSORTON
HOLPAN
GANNAVLAKTE
DELPORTS HOPE
BARKLY-WEST
BOSHOF
KIMBERLEY
Vaal
RITCHIE
DOUGLAS
JACOBSDAL
PETRUSBURG
BLOEMFONTEIN
Orange
KOFFIEFONTEIN
HOPETOWN
LUCKHOFF
FAURESMITH
JAGERSFONTEIN
Orange
CAPE TOWN
PETRUSVILLE
SPRINGFONTEIN

CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1956	1955
			%	£	d	d
Bulk	4	50,885,521	6·521	215,923	1·0184	0·9973
Mining	8	24,751,856	3·085	126,021	1·2219	1·2127
Industrial	62	2,294,832	79·051	35,190	3·6803	3·7778
Domestic and Lighting	299	766,625	538·046	10,443	3·2692	2·4652
	373	78,698,834*	7·536	387,577	1·1820	1·1191

	1956	1955	Accumulated to 31.12.56
Total Revenue	£388,003	£342,674	
Working Costs	£408,919	£344,604	—
Deficit	£20,916	£1,930	£20,738
Capital Expenditure	£253,742	£253,071	£1,932,458
CENTRAL POWER STATION—			
Units Sent Out	74,726,900	70,011,696	
Maximum half-hour Demand kW S.O.	17,600	17,118	
Station Peak kW	19,300	18,100	
Load Factor %	48·3	46·8	
Thermal Efficiency % Sent Out ...	12·4	12·3	
COAL:			
Consumption—tons	84,498	80,462	
Average per unit sent out—lb ...	2·262	2·299	
Calorific Value B.Th.U./lb ...	12,180	12,050	
Total Cost	£138,656	£123,995	
Cost per ton	32s. 10d.	30s. 10d.	

*This total includes sales of units re-purchased.

Output and Sales. Units sold during 1956 show an increase of 7·5 per cent. over the sales in 1955.

The Kimberley City Council increased its consumption by 5·5 per cent. to 49,182,150 units. Barkly West Municipality continued to expand its electricity undertaking and consumption increased by 31 per cent. Boshof Municipality increased by 9·2 per cent. and Warrenton Municipality which has only had a bulk supply for 21 months increased by 30 per cent. De Beers Consolidated Mines Ltd. increased their consumption by 2 per cent. to 23,555,619 units; but as a result of power factor correction the maximum demand was reduced from 8 MVA to 7 MVA. The increase notified by De Beers Mines is reported on page 9. and it is expected that when the new plant is working, the demand will increase to about 11 MVA and consumption will rise to about 50 million units a year.

The Irrigation Department's Central Construction workshops, which previously supplied a limited amount of power to 200 domestic consumers in Andalusia took 260,315 units.

Andalusia Township, now reticulated by Escom and having 242 consumers used 515,056 units during the first year. Food and Feed Industries, Ltd., at Pokwani consumed 257,280 units, and the Vaalhartz Landbou Koöperasie at Magogong 178,800 units.

Kimberley Gypsum Supplies, Ltd., increased its mining operations at Gannavlakte by 55 per cent. consuming 214,137 units. Pretoria Portland Cement Co. Ltd., continued taking a supply at its Gypsum quarry until the end of November and used 743,400 units.

New Developments. During the year, work commenced on the construction of the Kimberley Distribution Station and most of the civil work was completed, including the extension of the railway siding. Structural steelwork for the 132 kV and 66 kV busbars was erected and the relay house has been built.

A new 66 kV line from Kimberley to Langleg was connected to the 33/66 kV concrete transmission line from Riverton to Holpan. This concrete pole line was taken over from the Kimberley City Council and a new 11 kV line erected to supply the existing river farmers on route.

Warrenton, Andalusia and Riverton substations were consequently converted from 33 kV to 66 kV operation.

From the end of the concrete line at Holpan a 66 kV line was erected and commissioned to supply two additional 66/11 kV substations at Harts and Ulco.

Harts substation was commissioned on the 1st October and supplies were given to four small diamond mines near Smith's mine and a recently proclaimed diamond fissure at Bellsbank.

A partial supply was given to the Anglo Alpha Cement Company at Ulco in the early part of 1957 and the Company's full requirements of approximately 8,000 kW will be provided when additional power becomes available via the 132 kV interconnector from the Rand and Orange Free State network. This interconnector is to be commissioned in the second half of 1958.

Negotiations were completed with the Hartswater Village Management Board and the reticulation to this township is proceeding.

Power Station. During the period under review, the remaining two generating sets Nos. 1 and 2 were transferred from the Vlei to the new mechanical draught cooling towers, and tests were taken which indicated that the cooling towers will cool almost 30 MW under the worst atmospheric conditions.

The peak demand on the station increased by 2·0 MW to 19·1 MW and the units sent out increased by 6·72 per cent. to 74,726,900 units.

Financial. The revenue account for the year showed a deficit of £20,916 on a total revenue of £388,003.

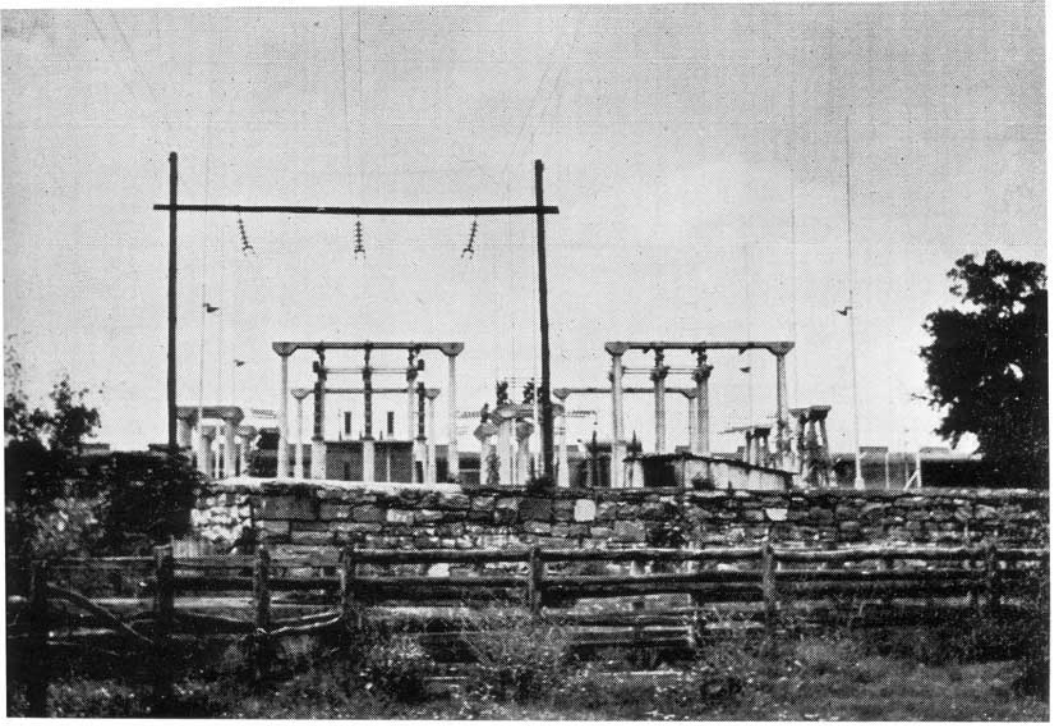
BORDER UNDERTAKING

CONSUMERS — Class	Number	SALES — Units	Increase or Decrease	Revenue from Sales	Average Price per Unit Sold 1956	Average Price per Unit Sold 1955
			%	£	d	d
Bulk	8	126,702,780	+7·215	594,892	1·1268	0·8430
Industrial	96	3,872,904	−3·112	38,582	2·3909	2·1178
Domestic and Lighting	2,360	8,503,106	+1·095	83,032	2·3436	1·9924
Steam—Industrial	(a)	58,251	(a)	269	1·1079	1·0753
	2,464	139,137,041 (b)	+6·373	716,775	1·2364	0·9562

	1956	1955	Accumulated to 31.12.56
Total Revenue	£717,993	£522,345	
Working Costs	£696,260	£570,784	
Deficit		£48,439	£131,562
Surplus	£21,733		
Capital Expenditure	£497,042	£823,689	£4,062,795

	East London West Bank No. 1 and No. 2		King William's Town			
	1956	1955	1956 Steam	1955 Steam	1956 Oil	1955 Oil
Units Sent Out	130,793,987	116,307,889	7,848,812	13,907,090	69,788	121,620
Maximum Half-hour Demand kW S.O. ...	31,720	25,220	3,940	3,780	900	900
Load Factor %	46·9	52·6	37·8	42·4	In parallel with steam plant	
Thermal Efficiency % S.O.	15·8	13·6	12·6	13·4		
FUEL:						
Coal Consumed—tons ...	120,490	121,671	8,556 (c)	14,674 (d)		
Average per Unit Sent Out	1·842	2·092	2·163	2·077		
Calorific Value B.Th.U./lb	11,730	12,030	12,590	12,550		
Total Cost	£246,040	£254,028	£20,026	£33,511		
Cost per ton	40s. 10d.	41s. 9d.	46s. 10d.	45s. 8d.		
Fuel Oil consumed—lb					69,788	72,161
Fuel Oil per unit S.O.—lb					0·571	0·593

(a) Industrial Steam Supplies ceased in April.
(b) This total includes sales of units re-purchased.
(c) Includes 66 tons for Live Steam Supply.
(d) Includes 233 tons for Live Steam Supply.



The King William's Town end of the 132 kV. interconnector between this town and East London.

Development of the Undertaking. The new West Bank Power Station came into operation in July, 1956. Consequently, the 66 kV interconnector between East London and King William's Town was energised and the King William's Town Station ceased continuous operation. By the end of the year the West Bank Power Stations were supplying the whole of the Border Undertaking's requirements; and thus the third stage of the integration of the Border Undertaking was completed during the year.

Bulk supply to the Stutterheim Municipality was commenced in October last.

A start was made on the 70 mile 66 kV line to Grahamstown; and a survey is being made of the Port Alfred, Alexandria, Bathurst area with the view to offering terms to these Municipalities and possibly other consumers.

Negotiations are continuing with the Berlin Village Management Board.

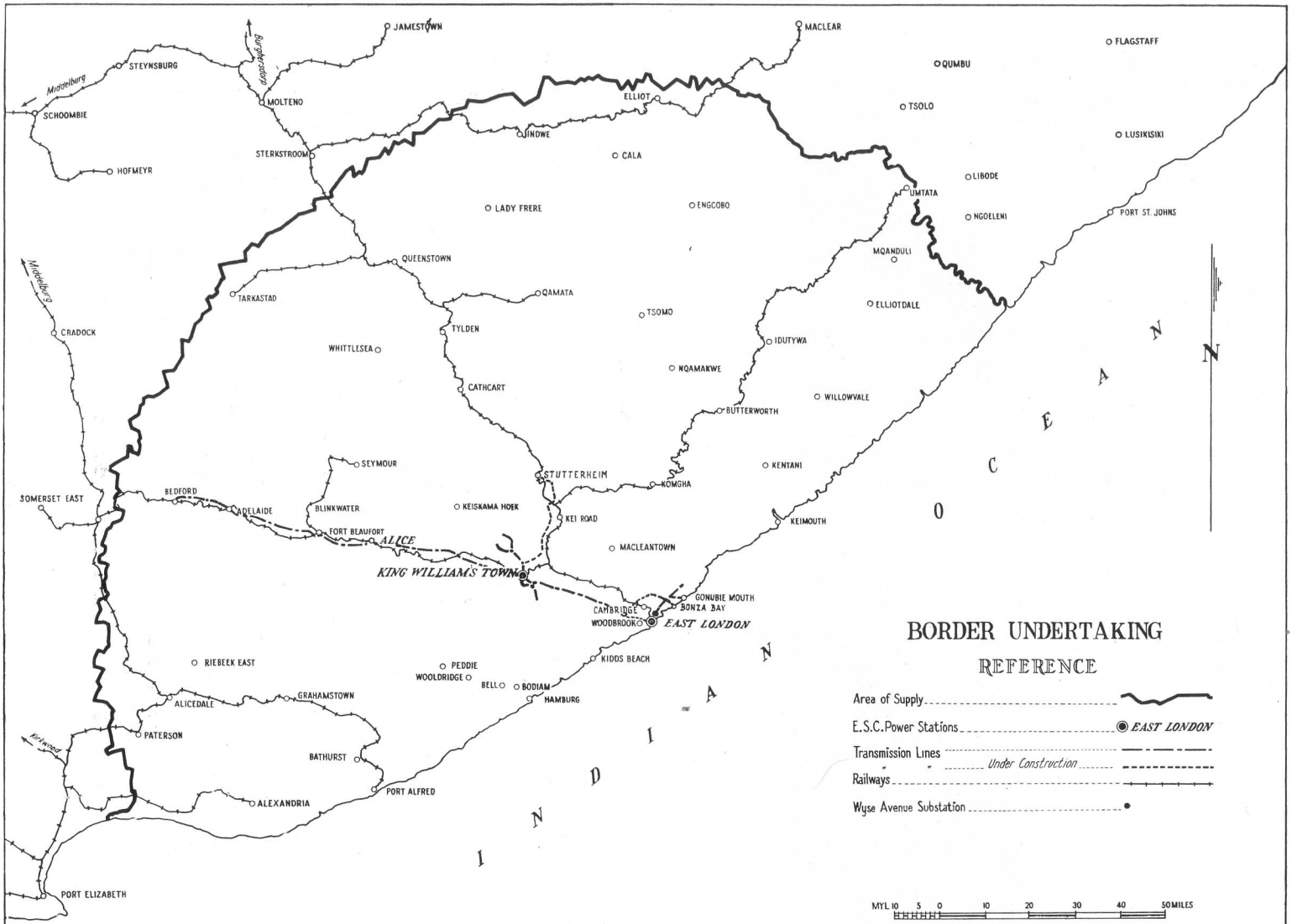
Work commenced on the 66 kV spur line to feed into the North Coast System. This will take the place of the present arrangement whereby the supplies to the area are fed via East London Municipal mains.

Citrus farmers in the Kat Valley area and another group on the Koonap River, south of Adelaide, accepted terms for supply.

Output and Sales. The total sales for the Undertaking during the year were 6·37 per cent. higher than the corresponding figure for 1955. Area increases were:—

East London	7·08%
King William's Town	2·42%
Alice	5·3%

A total of 114 new consumers was added to the System.


JAMESTOWN
MACLEAR
FLAGSTAFF
QUMBU
STEYNSBURG
Middelburg
Burgersdorp
MOLTENO
ELLIOT
TSOLO
SCHOOMBIE
JINDWE
LUSIKISIKI
STERKSTROOM
CALA
HOFMEYR
LIBODE
UMTATA
LADY FRERE
ENGCOBO
NGOELENI
PORT ST. JOHNS
MQANDULI
QUEENSTOWN
Middelburg
TARKASTAD
QAMATA
TSOMO
ELLIOTDALE
CRADOCK
TYLDEN
IDUTYWA
WHITTLESEA
MQAMAKWE
CATHCART
WILLOWVALE
BUTTERWORTH
SEYMOUR
STUTTERHEIM
KENTANI
KOMGHA
SOMERSET EAST
BEDFORD
ADELAIDE
BLINKWATER
KEISKAMA HOEK
KEI ROAD
KEIMOUTH
FORT BEAUFORT
ALICE
MACLEANTOWN
KING WILLIAMS TOWN
GONUBIE MOUTH
CAMBRIDGE
BONZA BAY
WOODBROOK
EAST LONDON
RIEBEEK EAST
PEDDIE
KIDDS BEACH
WOOLDRIDGE
BELLO
BODIAM
HAMBURG
GRAHAMSTOWN
ALICEDALE
PATERSON
Kirkwood
BATHURST
ALEXANDRIA
PORT ALFRED
PORT ELIZABETH
INDIAN OCEAN
BORDER UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
EAST LONDON
Transmission Lines
" " Under Construction
Railways
Wyse Avenue Substation
MYL 10 5 0 10 20 30 40 50 MILES

West Bank Power Stations. The earlier commissioning of Boiler No. 1 in West Bank No. 2 Power Station more than made up for the shortfall of steaming capacity in West Bank No. 1 Power Station and all demands for power were met during the year. Major overhauls and repairs to plant in West Bank No. 1 Power Station were continued during the year.

Two points of interest are reflected in the operating statistics for the West Bank Power Stations. Although the units sent out increased from 116 million units to 130 million units, which was an increase of 12·5 per cent, the total cost of coal showed a saving of about £8,000. The reduction in coal consumed is due to the higher efficiency of the new plant; and the reduction in the price of coal from 41s. 9d. to 40s. 10d. is due to the fact that the new boiler plant uses a different grade of coal. Coal for the Border Undertaking is now purchased from the Transvaal. The calorific value is lower, but the Transvaal coal including railage to East London is somewhat cheaper.

Units purchased by the East London City Council increased by 6·91 per cent. over the corresponding figure for 1955. The maximum demand was 28,796 kVA as compared with 26,380 kVA for the previous year.

The North Coast system continued to expand, and 67 new consumers were added to the system. This was reflected in the units fed into the system which increased by 19·15 per cent. The maximum demand rose from 524 kVA in 1955 to 570 kVA for the year 1956. Development in the Beaconhurst Estates Township continues.

King William's Town. King William's Town Power Station ceased continuous operation on the 13th June, 1956, and all supplies to this area and to Stutterheim and Bedford are generated at the West Bank Power Stations. The King William's Town Power Station is being retained to serve as a peak load station, if required. Thirty-six new consumers were connected to the King William's Town reticulation system, including the Izeli Convent which was a Large User, and a group of seven farmers in the Balassi area.

Steam supplies to two industrial consumers were discontinued, as a consequence of King William's Town Power Station ceasing operation.

Alice. Several minor low voltage extensions were completed and improvements generally to the reticulation system carried out. An additional 9 consumers were added during the year. The Crossley Diesel Generator Set was sold.

Financial. The new Schedule of Standard Prices, referred to in last year's Report became applicable to all consumers in January and the Undertaking's revenue account reflected a surplus of £21,733 for the year. The accumulated deficit was thus reduced to £131,562.

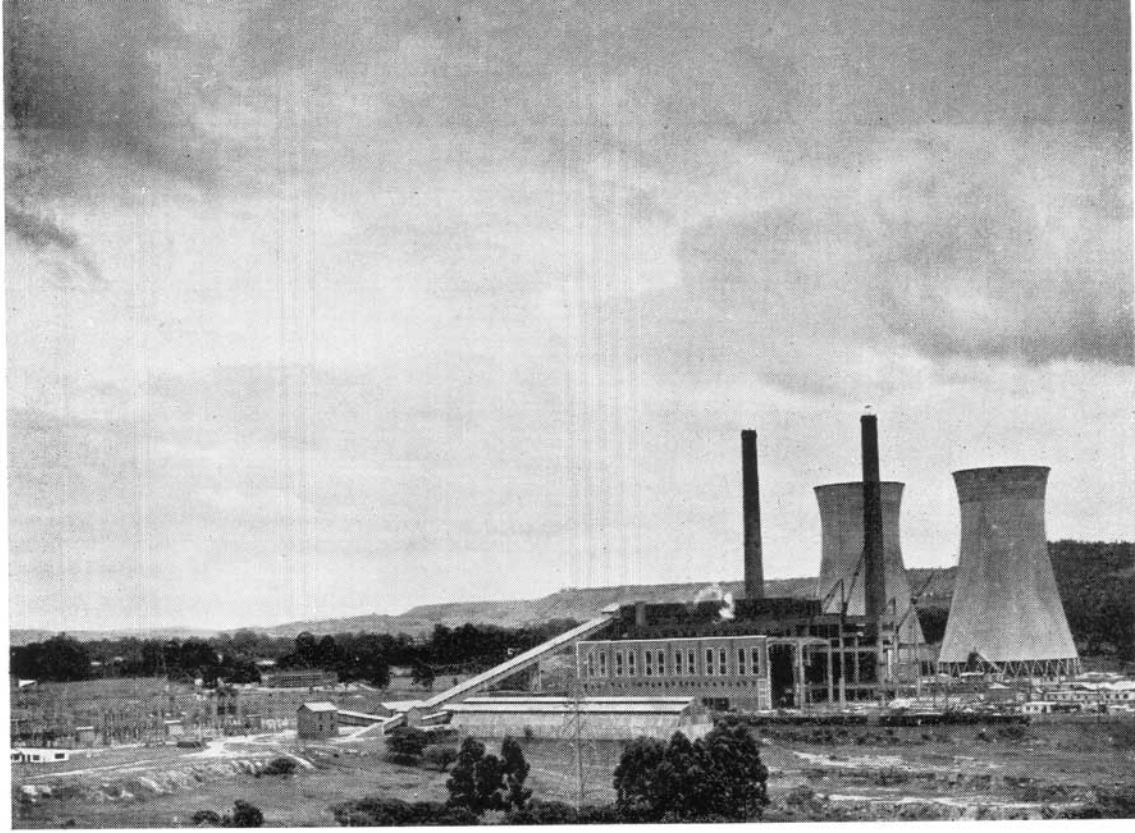
NATAL SOUTHERN UNDERTAKING

CONSUMERS — Class	Number	SALES — Units	SALES — Increase	Revenue from Sales	Average Price per Unit Sold — 1956	Average Price per Unit Sold — 1955
			%	£	d	d
Traction	1	68,616,765	4·515	204,566	0·7155	0·6968
Bulk	2	836,053,380	10·574	2,348,166	0·6741	0·6555
Industrial	285	29,729,038	8·517	144,500	1·1665	1·1235
Domestic and Lighting	5,174	23,326,769	11·904	192,971	1·9854	1·9394
	5,462	957,725,952*	10·083	2,890,203	0·7243	0·7041

	1956	1955	Accumulated to 31.12.56
Total Revenue	£2,891,677	£2,554,383	
Working Costs	£2,776,509	£2,450,975	
Surplus	£115,168	£103,408	£158,501
Capital Expenditure	£1,968,335	£1,481,837	£16,277,387

	Congella Power Station Nos. 1 and 2 — 1956	Congella Power Station Nos. 1 and 2 — 1955	Umgeni Power Station — 1956	Umgeni Power Station — 1955	Port Shepstone Power Station — 1956	Port Shepstone Power Station — 1955	Ixopo Power Station — 1956
Units Sent Out	750,133,309	711,404,210	284,854,290	228,614,583	74,898	92,591	364,088
Maximum half-hour Demand kW S.O.	167,685	155,285	58,585	57,800	3,276	3,410	
Station Peak kW	179,400	174,500	62,100	62,000	3,410	3,450	
Load Factor %	50·9	52·4	55·4	59·0			
Thermal Efficiency %	19·9	20·2	23·0	21·8			
FUEL:							
Coal Consumed	551,487	506,163	187,551	155,639			
Average per unit sent out	1·470	1·423	1·317	1·362			
Calorific Value B.Th.U./lb	11,650	11,870	11,260	11,470			
Total Cost	£895,434	£793,000	£310,093	£255,538			
Cost per ton	32s. 6d.	31s. 4d.	33s. 1d.	32s. 10d.			
Fuel Oil consumed—lb					46,092	54,069	120,000
Fuel Oil per unit sent out—lb.					0·615	0·590	1·180

*This total includes sales of units re-purchased.



Further extensions are being planned for the Umgeni Station near Pinetown, Natal.

Output and Sales. The total units sold increased by 10·08 per cent. as compared with the increase of 11·9 per cent. in 1955.

During the year the units taken from the pooled stations by the Natal Southern Undertaking amounted to 967,187,402 kWh, an increase of 9·73 per cent., and the system maximum half-hour demand was 199,220 kW, an increase of 9·2 per cent.

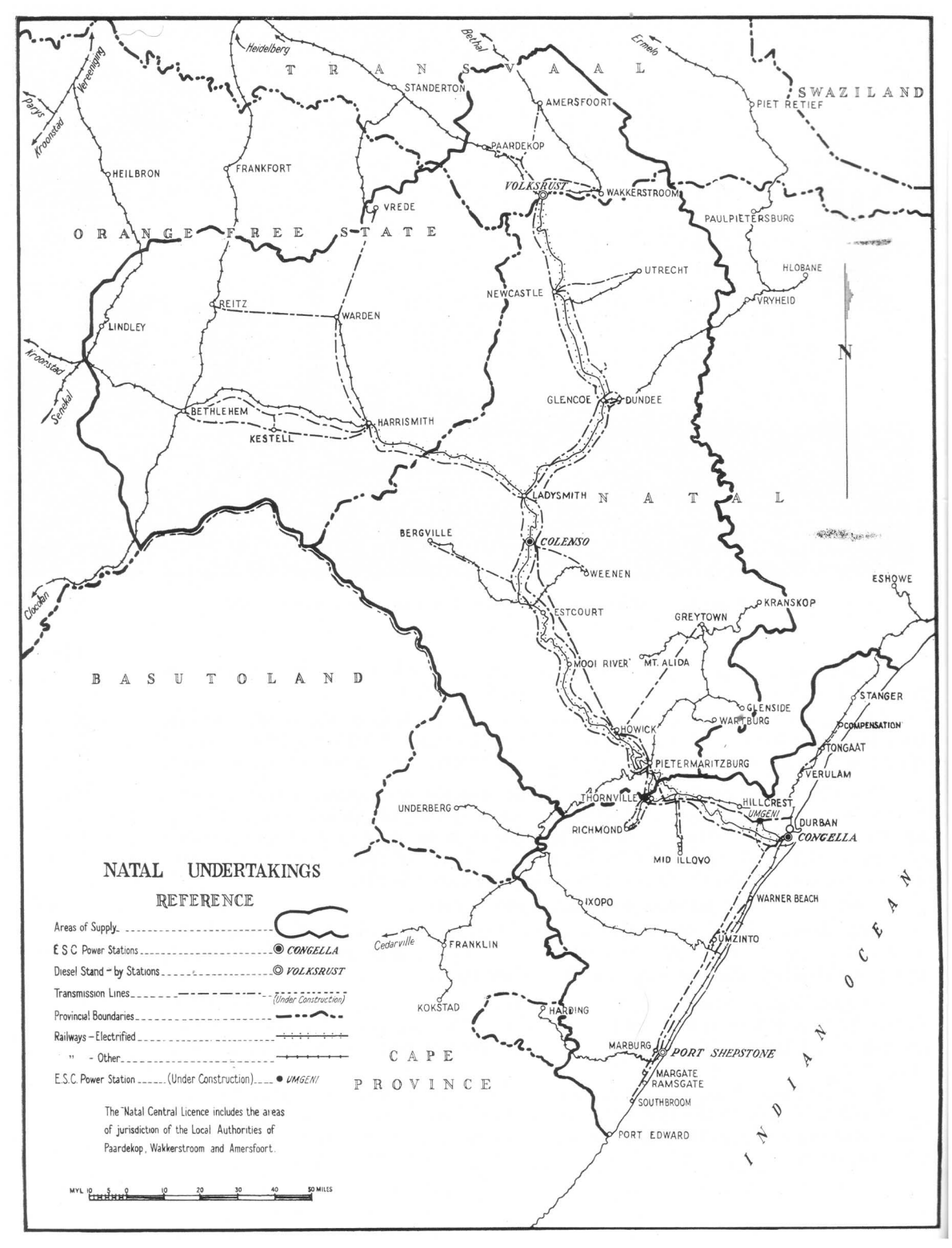
Congella Power Station. Congella Power Station was operated with Umgeni Power Station and Colenso Power Station as a system of pooled power stations for the Natal Undertakings. At Congella there were eight partial interruptions to supply for periods of from 4 to 49 minutes. Three of these interruptions were due to wet coal; and the others to a variety of minor faults.

Condenser 7 was retubed with cupro-nickel tubes.

Ash disposal is by dumping the ash alongside the main road to the Bluff. Several methods of reducing the dust blown from the dumping sites were tried, and a satisfactory solution has now been developed.

Umgeni Power Station. No major plant was commissioned during 1956. Delays have occurred in the construction of the "A" extensions and No. 3 turbo-generator and Boilers Nos. 5 and 6 are now expected to be commissioned about May, 1957.

Both turbines have been overhauled. Turbine 2 was overhauled by the Contractors in an endeavour to achieve the guaranteed steam consumption. Clearances were set too fine and further work is required before the official test can be carried out.


Heidelberg
Bethal
Ermelo
Vereeniging
Parys
Kroonstad
TRANSVAAL
SWAZILAND
STANDERTON
AMERSFOORT
PIET RETIEF
PAARDEKOP
HEILBRON
FRANKFORT
VOLKSRUST
WAKKERSTROOM
VREDE
PAULPIETERSBURG
ORANGE FREE STATE
UTRECHT
HLOBANE
NEWCASTLE
VRYHEID
REITZ
WARDEN
LINDLEY
N
Kroonstad
Senekal
GLENCOE
DUNDEE
BETHLEHEM
HARRISMITH
KESTELL
LADYSMITH
NATAL
BERGVILLE
COLENSO
WEENEN
ESHOWE
Clocolan
ESTCOURT
KRANSKOP
GREYTOWN
MOOI RIVER
MT. ALIDA
BASUTOLAND
STANGER
GLENSIDE
COMPENSATION
HOWICK
WARTBURG
TONGAAT
PIETERMARITZBURG
VERULAM
UNDERBERG
THORNVILLE
HILLCREST
UMGENI
DURBAN
RICHMOND
CONGELLA
MID ILLOVO
IXOPO
WARNER BEACH
UMZINTO
Cedarville
FRANKLIN
KOKSTAD
HARDING
MARBURG
PORT SHEPSTONE
MARGATE
RAMSGATE
SOUTHBROOM
PORT EDWARD
CAPE PROVINCE
INDIAN OCEAN
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, Wakkerstroom and Amersfoort.
MYL 10 5 0 10 20 30 40 50 MILES

Boiler 1 was out for three months for modifications by the Contractors to improve the efficiency of the dust collector.

The output was restricted during portion of February to assist the Durban Corporation which was short of water. The water position is expected to be satisfactory from the middle of 1957.

Distribution. During the year, 40·73 miles of transmission and distribution lines were erected and energised at 6·6 kV and above. 16·75 miles of 6·6 kV line were taken over from the Glenbain Hydro-electric Power Company at Ixopo. 6·32 miles of 33 kV line along the railway track on the South Coast were taken out of commission and a further 5·0 miles were converted for operation at 11 kV.

The construction of the second 132 kV Umgeni/Mason's Mill line was commenced.

Further servitudes were obtained for the two 132 kV lines from Umgeni to Coedmore substation. Negotiations in connection with the purchase of a suitable substation site at Coedmore are in progress. The double-circuit 88 kV structures which are to replace the existing 88 kV structures along the railway track between Congella and Booth were delivered to site and the Administration commenced installing the foundations for them.

Supply at 88 kV was given to the new S.A. Railways rectifier substation at Umbilo in July. Two 2,500 kVA 88/11 kV transformers were installed at Umzinto to replace the two 1,000 kVA units there.

Further progress was made with the modifications to the 88 kV substation at Thornville Junction and with the erection of the new 88 kV substation at Richmond. It is hoped to place these in commission towards the middle of 1957.

Servitudes were obtained for the Richmond/Ixopo 33 kV line and survey work was commenced.

Supplies were given to two new large power users on the South Coast, the Lower South Coast Regional Water Supply Corporation's Purification Works at Marburg and Messrs. Roberts Construction, Umtentweni. One large power user terminated supply, namely the Umkomaas Waterworks.

The maximum demand of the South Coast system increased from 8,600 kVA to 9,600 kVA. This is an increase of 11·6 per cent. The total units sold to the South Coast increased by 11·3 per cent.

291 new consumers were connected on the South Coast, 205 on the Inland System of the Natal Southern Undertaking (including 155 taken over from Glenbain Hydro-electric Company at Ixopo) and 33 on the North Coast.

The diesel station at Port Shepstone was kept in service for stand-by purposes and was operated for a total of 33·9 hours during the year.

A start was made on the erection of the 33 kV line from Tongaat to Compensation and of the 33/11 kV stepdown substation at Compensation to provide a part supply to Stanger Municipality.

The maximum demand of the North Coast System increased by 12·8 per cent. to 924 kVA. The units sold increased by 14·7 per cent.

Rural Supplies. A report on rural development appears on page 13.

Financial. The revenue account showed a surplus of £115,168 on the year's working. The accumulated surplus at 31st December, 1956, was £158,501.

NATAL CENTRAL UNDERTAKING

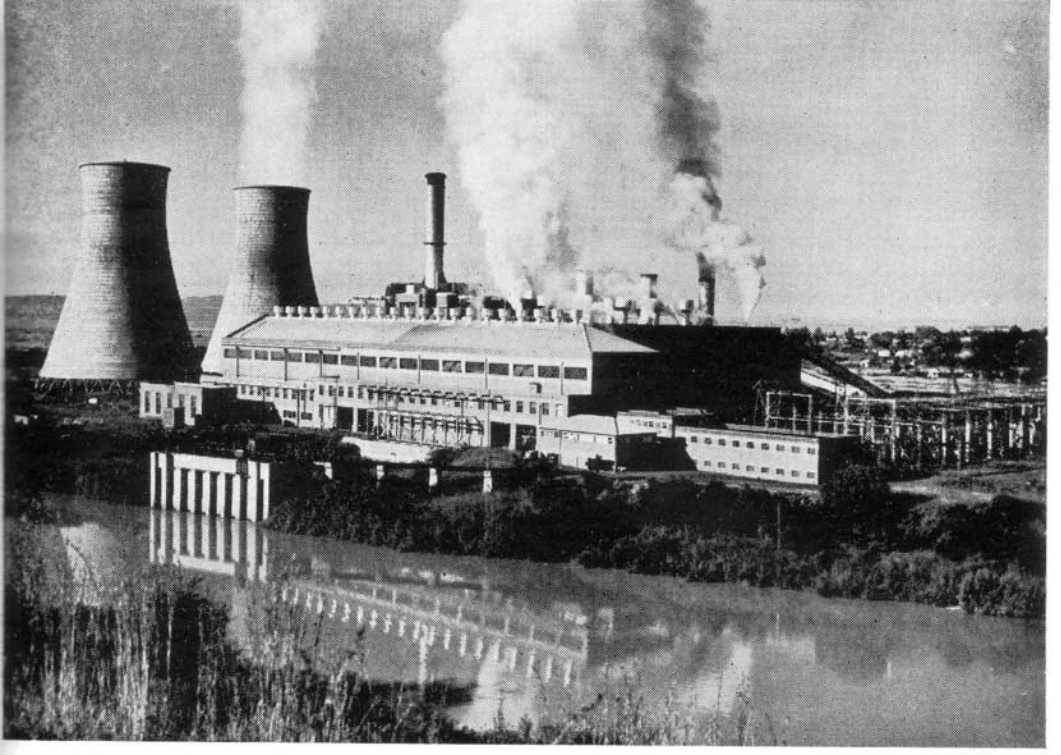
CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease		1956	1955
			%	£	d	d
Traction	1	284,664,516	+ 6·820	936,082	0·7892	0·7633
Bulk	15	215,885,401	+10·215	706,031	0·7849	0·7887
Mining	12	27,473,464	− 5·838	102,931	0·8992	0·8969
Industrial	500	53,695,471	+26·118	214,005	0·9565	0·9559
Domestic and Lighting	4,123	13,665,067	+11·241	124,574	2·1879	2·1817
	4,651	595,383,919	+ 8·964	2,083,623	0·8399	0·8264

	1956	1955	Accumulated to 31.12.56
Total Revenue	£2,093,337	£1,888,555	
Working Costs	£2,041,695	£1,831,498	
Surplus	£51,642	£57,057	£97,154
Capital Expenditure	£235,517	Cr. £466,443	£9,621,840
COLENSO POWER STATION—			
Units Sent Out	560,389,120	523,242,840	
Maximum half-hour Demand kW S.O.	118,410	109,940	
Station Peak kW	135,000	127,000	
Load Factor %	53·9	54·3	
Thermal Efficiency % Sent Out ...	18·1	18·3	
COAL:			
Consumption—tons	442,218	407,060	
Average per unit sent out—lb	1·578	1·556	
Calorific Value B.Th.U./lb ...	11,930	11,970	
Total Cost	£598,110	£512,800	
Cost per ton	27s. 1d.	25s. 2d.	

Output and Sales. The total units sold increased by 8·96 per cent. as compared with 2·6 per cent. in 1955, the low figure for last year being due to the transfer of a section of the Natal Central area to the Natal Southern Undertaking.

The sales to the various categories of consumers are shown in the operating statistics. Supplies for traction purposes now amount to 47·8 per cent. of the total sales, as compared with 48·8 per cent. last year.

The sum of the notified maximum half-hour demands of all consumers other than the Railway Administration was 81,365 kVA as against 76,624 kVA in 1955.



Growth of load on the Natal Undertakings has necessitated the extension of the Colenso Station by one 30,000 kW. set.

During the year, the units taken from the pooled generating stations by the Natal Central Undertaking amounted to 628,189,317, an increase of 7·97 per cent., and the system maximum half-hour demand was 117,375 kW, an increase of 6·3 per cent.

Colenso Power Station. Two partial interruptions to supply, both due to operating errors, occurred, the outage times being two minutes and seventeen minutes respectively. On both occasions the interruptions were to all load north of Colenso.

De-rating of the boilers in Station 2 was considered, but it has now been decided to proceed with extensive modifications to improve their performance.

Distribution System. During the year 53·39 miles of transmission and distribution lines were erected and energised at 6·6 kV and above. This includes a section of 88 kV line, 1·48 miles in length, at Newcastle to replace a portion of the line along the railway track affected by modifications to the Newcastle railway station yard.

The work of turning the original Pietermaritzburg/Congella 88 kV line into Mason's Mill substation, referred to last year, has not yet been carried out as it is essential to have the installation of the supervisory equipment for the control of Mason's Mill from Pietermaritzburg Substation completed first.

Work was commenced on the construction of the new 88 kV substation at Dundee and on the erection of the 88kV line from Glencoe.

At Pietermaritzburg the modifications and additions necessary for the change-over of the Corporation supply from 6·6 kV to 88 kV are in hand.

At Wesselsnek two 2,500 kVA 88/11 kV transformers were installed in place of the 1,000 kVA units in order to cater for the increased load on the substation.

The growth of municipal load at Estcourt has necessitated the installation of an additional 2,400 kVA transformer.

At Cedara the Railway Administration commissioned a temporary rectifier substation to run in parallel with Escom's motor-generator set pending the completion of a new rectifier substation at Hospital Siding and another at South Portal.

As the Administration's programme for the doubling of the railway tracks between Pietermaritzburg and Ladysmith progresses towards completion, heavier loads are being imposed on the traction substations and with the motor-generator sets nearing the end of their useful life, the position is likely to prove very difficult until the Administration has completed the installation of the new rectifier substations at various points along the route.

During November a severe storm caused damage to a number of bushings on the 88 kV breakers at Ballengeich Substation. The damaged insulators were replaced.

It was found that many of the welded joints on the structures of the Newcastle/Volksrust 88 kV track line were breaking away and repairs were carried out by the Administration. Similar trouble is being experienced on the Harrismith/Bethlehem 88 kV Line 2, and the Administration will be asked to attend to this line also.

Preliminary investigations were made into a cross-country route for an 88 kV line between Ladysmith and Harrismith to parallel or replace the existing track line. The Administration will proceed shortly with the deviation of the entire section of railway track between Ladysmith and Van Reenen.

Construction work was commenced on the 33 kV line from Bethlehem to Lindley and Petrus Steyn. Erection of the 6·6/33 kV step-up substation at Bethlehem was also commenced.

Several breakages of conductors on the Warden/Reitz and Warden/Vrede lines were experienced during the winter, and inspection of the lines indicated that breaking of the conductor strands was taking place due to vibration fatigue. It has been decided to replace the conductors over the whole length of the line and it is proposed to purchase and instal temporary diesel generating sets in order to maintain supplies to the towns of Reitz and Vrede while the replacement of conductors is in progress.

The 11 kV line from Sandspruit to Perdekop was constructed and supplies were given to 61 reticulation consumers in Perdekop. Work was commenced on reticulating the village at Swinburne.

The new workshop and office building at Pietermaritzburg was completed and put into use.

During the year six large power users were connected on the Undertaking and two large power users terminated their supplies.

Rural Supplies. A report on development of rural supplies appears on page 13.

Financial. The revenue account for the year shows a surplus of £51,642, so that the accumulated surplus at 31st December, 1956, amounted to £97,154.

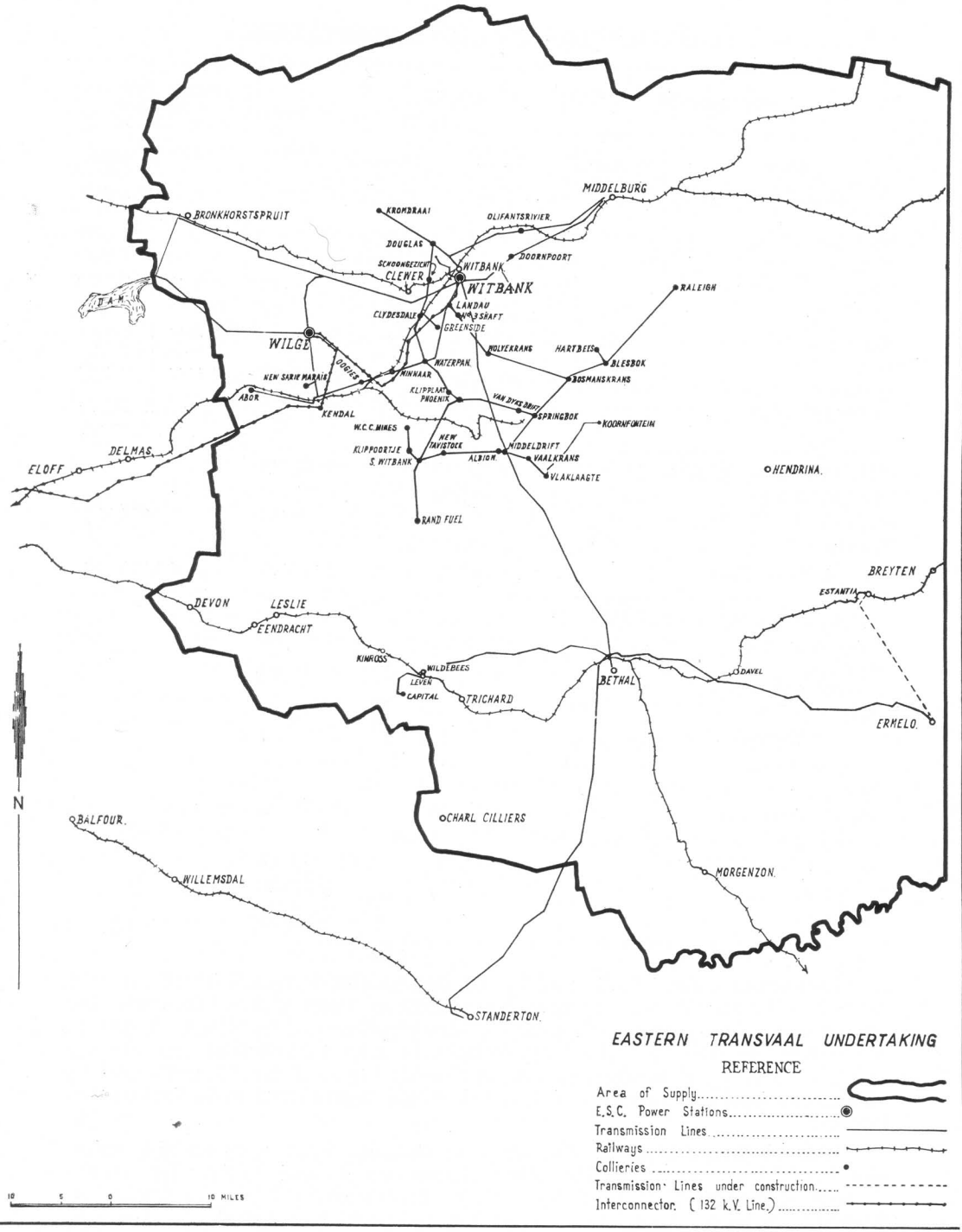
EASTERN TRANSVAAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1956	1955
			%	£	d	d
Traction	1	20,298,909	14·226	40,147	0·4747	0·4649
Bulk	7	28,803,467	26·965	78,238	0·6519	0·5022
Mining	35	108,312,036	12·415	268,065	0·5940	0·5256
Industrial	59	346,486,762	35·280	469,216	0·3250	0·3298
Domestic and Lighting	772	1,956,148	16·454	17,769	2·1801	2·0969
	874	505,857,322	28·191	873,435	0·4144	0·4011

	1956	1955	Accumulated to 31.12.56
Total Revenue	£877,389	£663,516	
Working Costs	£882,546	£654,399	
Surplus		£9,117	£18,969
Deficit	£5,157		
Capital Expenditure	£552,741	£415,995	£5,095,699
WITBANK POWER STATION:			
Units Sent Out	664,547,752	755,472,929	
Maximum one hour Demand kW S.O.	116,472	117,509	
Load Factor %	65·0	73·4	
Thermal Efficiency % Sent Out	15·5	16·7	
COAL:			
Consumption—tons	649,760	705,935	
Average per unit sent out—lb ...	1·955	1·869	
Calorific Value B.Th.U./lb. ...	11,230	10,940	
Total Cost	£333,490	£267,441	
Cost per ton	10s. 3d.	7s. 7d.	

Output and Sales. Units sold by the Undertaking increased by 28 per cent. over the sales for the previous year, large increases being recorded for each class of consumer. The increase in supplies to Municipalities and to Mining Consumers is reported on page 10. The large increase in sales to industrial consumers is due to the increase in production of Rand Carbide Ltd., and the full year's working of the new works of Ferrometals, Limited, which was referred to in the previous Report.

Witbank Power Station. The operating statistics show an appreciable reduction in units sent out from the power station and in load factor. Due to the increase in the cost of coal and the relatively low thermal efficiency of the station, Witbank Power Station is now a regulating and peak load station.


MIDDELBURG
BRONKHORSTSPRUIT
KROMDRAAI
OLIFANTSRIVIER
DOUGLAS
DOORNPOORT
SCHOONGEZICHT
WITBANK
CLEWER
WITBANK
RALEIGH
LANDAU
CLYDESDALE
No. 3 SHAFT
GREENSIDE
WILGE
ROLYEKRANS
HARTBEES
BLESBOK
WATERPAN
NEW SARIE MARAIS
DORGES
MINNAAR
BOSMANSKRANS
KLIPPLAAT
PHOENIX
ABOR
VAN DYKS DRIFT
SPRINGBOK
KENDAL
KOORNFONTEIN
W.C.C. MINES
NEW TAVISTOCK
DELMAS
KLIPPOORTJE
S. WITBANK
MIDDELDRIFT
ALBION
VAALKRANS
ELOFF
VLAKLAAGTE
HENDRINA
RAND FUEL
BREYTEN
ESTANTIA
DEVON
LESLIE
EENDRACHT
KINROSS
WILDEBEES
LEVER
CAPITAL
TRICHARD
BETHAL
DAVEL
ERMELO
N
BALFOUR
CHARL CILLIERS
WILLEMSDAL
MORGENZON
STANDERTON
10 5 0 10 MILES
EASTERN TRANSVAAL UNDERTAKING
REFERENCE
Area of Supply
E.S.C. Power Stations
Transmission Lines
Railways
Collieries
Transmission Lines under construction
Interconnector. (132 k.V. Line.)

An additional 30,000 kVA coupling transformer 21 kV/132 kV was installed in the power station in January, 1957.

Distribution System. Wayleaves were obtained for the Grootpan—Wildebees 132 kV line, and line material was assembled at Minnaar and Kinross. At Wildebees Distribution Station near Leven Siding the site was levelled, foundation work commenced and some steelwork erected. As rail facilities are not yet available to this Distribution Station, much time was spent in off-loading equipment at Kinross Station and transporting it to the site.

On the 88 kV system 16 miles of 88 kV line from Ermelo to Estancia was completed early in March, 1956. The main stepdown substation at Estancia and the 21/2·2 kV substation were completed to give supply to Marsfield Colliery and Messrs. Cooke & Sons' Mill at Estancia at the beginning of August.

Two 88 kV lines each 5·4 miles from Wildebees Distribution Station to Capital Substation were erected, and supply on a temporary basis to Winkelhaak Mines, Limited, was commenced in January, 1956.

Work on the permanent substation at Winkelhaak was carried out as far as possible; but due to delays in deliveries of certain equipment, this work had not been completed by the end of the year.

Towards the end of the year the second Peterson coil and two 88 kV circuit breakers were received for the Witbank Step-up substation. A further two 88 kV circuit breakers were received for the Middeldrift Substation, but installation work could not be undertaken before the end of the year.

Work commenced on the telephone carrier installation between Witbank and Bethal and was nearly completed by the end of the year.

A 21 kV line from Estancia to Carolina via Breyten was erected and the substation at Carolina and Breyten were equipped to give supplies to these two towns and to the S.A. Railways at Breyten.

From Wilge Power Station some 14 miles of 21 kV line were erected to supply the two shafts of Argent Lead & Zinc Company Ltd.

In Witbank two new outdoor substations with 21 kV duplicate busbars were erected in connection with the supply to Witbank Municipality. The work involved the deviation of many 21 kV and 6·6 kV cables from the old Municipal substation. The load was transferred in stages from the old to the new substations. On completion of the work the switchgear in the old substation was dismantled and the building converted into temporary office accommodation.

Increased loads at various substations necessitated alterations and/or additions in respect of transformers etc.

11 kV and below. Over two miles of 11 kV line and a new substation were erected in order to give a supply to Bellevue Colliery (near Ermelo). Spitzkop Colliery, a small consumer near Ermelo, was also connected.

During the year sixty-three new reticulation consumers were added, thirty-one of these being farmers.

Arrangements are in hand for the supplies to Kinross, Leslie and Devon.

Financial. There was no change in the tariff in force on the Undertaking. Due to the increases in the costs on the pooled power stations a deficit of £5,157 was incurred on the year's working.

RAND AND ORANGE FREE STATE UNDERTAKING

CONSUMERS		SALES			Average Price per Unit Sold	
Class	Number	Units	Increase or Decrease	Revenue from Sales	1956	1955
			%	£	d.	d.
ELECTRICITY:						
Traction	1	180,520,219	+ 0·927	357,007	0·4746	0·4649
Bulk	66	876,313,350	+13·382	1,645,335	0·4506	0·4386
Mining	110	6,278,762,362	+ 7·842	10,267,800	0·3925	0·3833
Industrial	413	1,604,926,874	+13·462	2,667,419	0·3989	0·3929
Domestic and Lighting	2,468	19,983,393	+25·661	92,814	1·1151	1·1042
	3,058	8,960,506,198	+ 9·217			
AIR AND STEAM:						
Bulk	1	4,308,300	+17·807			
Mining	13	117,260,260	−10·915			
Industrial	30	9,542,694	+ 2·081			
	44	191,111,254	− 9·846	860,237	1·0803	0·7375
	3,102	9,151,617,452	+ 8·737	15,890,642	0·4167	0·4020

	1956	1955	Accumulated to 31.12.56
Revenue	£15,902,987	£14,109,222	
Working Costs	£16,565,332	£14,021,152	
Surplus		£88,070	
Deficit	£662,345		£849,883
Capital Expenditure	£13,700,833	£14,160,328	£110,706,147

RAND AND ORANGE FREE STATE UNDERTAKING—(continued)

	Brakpan Power Station		Klip Power Station	
	1956	1955	1956	1955
Electricity Units Sent Out	82,763,872	102,286,271	2,474,278,848	2,561,734,727
Maximum Load One-hour kW S.O.	41,352	42,023	349,865	367,850
Load Factor %	22·8	27·8	80·5	79·5
Thermal Efficiency % Sent Out	12·5	12·6	20·1	20·4
COAL:				
Consumption—tons	111,758	135,449	2,190,677	2,243,024
Average per unit sent out—lb	2·701	2·648	1·771	1·751
Calorific Value B.Th.U./lb	10,080	10,190	9,580	9,530
Total Cost	£90,565*	£104,535*	£1,761,884	£1,621,164
Cost per Ton	15s. 0d.	14s. 2d.	16s. 1d.	14s. 5d.

	Rosherville Power Station		Simmerpan Power Station	
	1956	1955	1956	1955
Electricity Units Sent Out	166,346,408	139,967,608	47,741,957	60,995,327
Maximum Load One-hour kW S.O.	43,467	46,156	27,227	34,736
Load Factor %	43·6	34·6	20·0	20·0
Thermal Efficiency % Sent Out	10·4	10·0	9·2	9·4
COAL:				
Consumption—tons	277,318	238,194	89,619	110,846
Average per unit sent out—lb	3·334	3·404	3·754	3·635
Calorific Value B.Th.U./lb	9,840	9,990	9,870	10,010
Total Cost	£364,625*	£328,368*	£75,689	£89,990
Cost per Ton	17s. 2d.	16s. 6d.	16s. 11d.	16s. 3d.

*Includes cost of coal for compressed air.

RAND AND ORANGE FREE STATE UNDERTAKING—(continued)

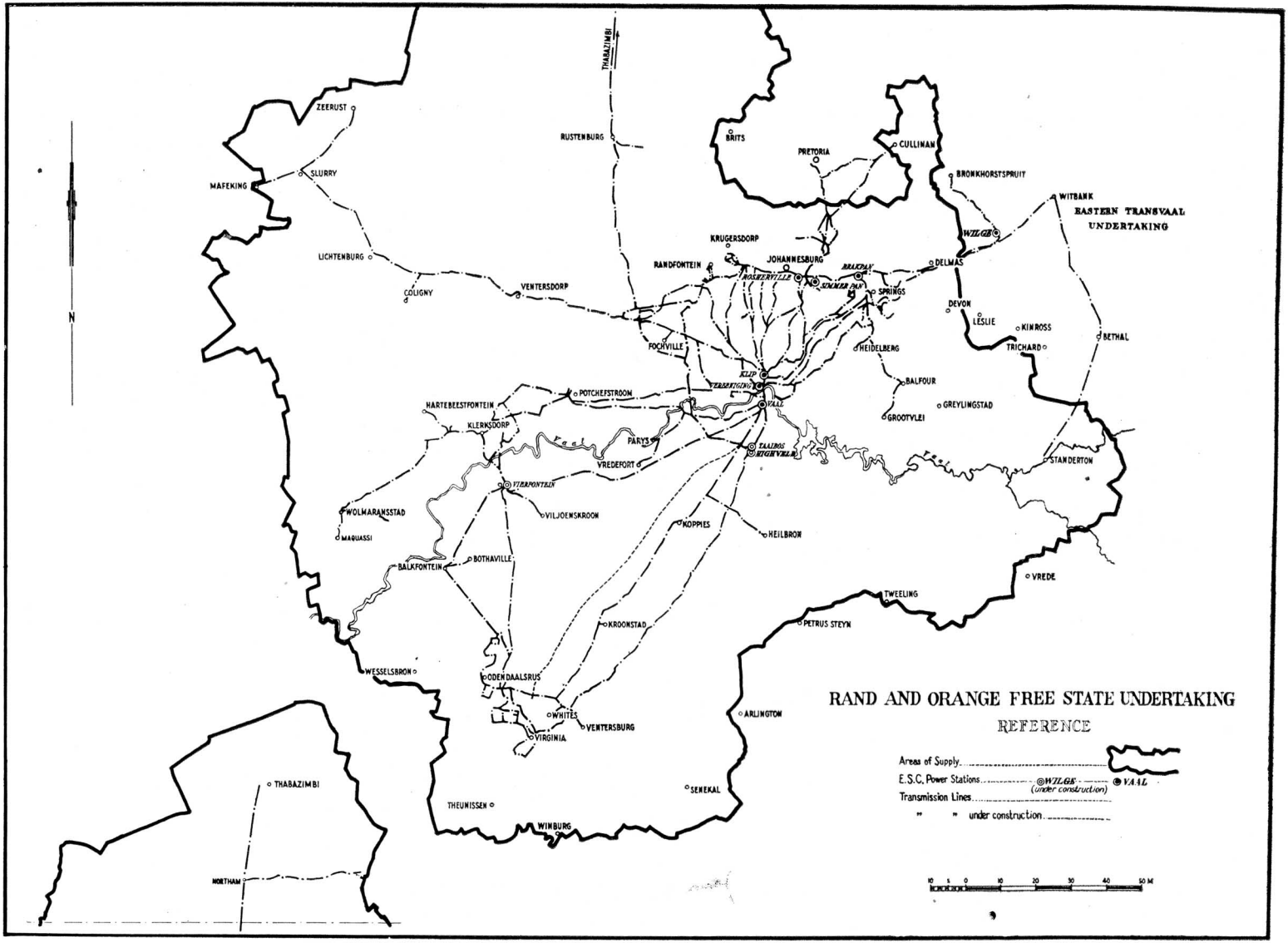
	Taaibos Power Station		Vaal Power Station		Wilge Power Station	
	1956	1955	1956	1955	1956	1955
Electricity Units Sent Out	1,601,003,719	757,819,158	1,685,714,335	2,106,479,013	929,539,514	462,067,967
Maximum Load One-hour kW S.O.	277,392	168,177	284,686	301,185	167,383	111,949
Load Factor % ...	65·6	51·4	67·4	79·8	63·2	47·1
Thermal Efficiency % S.O.	26·3	26·5	22·7	22·8	25·1	23·5
COAL:						
Consumption—tons ...	1,114,059	541,563	1,413,356	1,748,487	640,452	335,198
Average per unit sent out—lb.	1·392	1·429	1·677	1·660	1·378	1·451
Calorific Value B.Th.U./lb.	9,300	9,020	8,960	9,010	9,870	10,010
Total Cost	£408,262	£236,419	£502,314	£624,009	£252,086	£129,998
Cost per ton	7s. 4d.	8s. 9d.	7s. 1d.	7s. 2d.	7s. 10d.	7s. 9d.

	Vereeniging Power Station		Vierfontein Power Station	
	1956	1955	1956	1955
Electricity Units Sent Out	722,716,224	790,523,367	1,758,287,089	1,429,127,750
Maximum Load—One-hour kW S.O.	141,226	141,275	280,356	226,948
Load Factor %	58·3	63·9	71·4	71·9
Thermal Efficiency % Sent Out	15·9	16·0	23·1	22·7
COAL:				
Consumption—tons	863,420	948,756	1,401,498	1,149,087
Average per Unit Sent Out—lb	2·389	2·400	1·594	1·608
Calorific Value B.Th.U./lb	9,000	8,870	9,270	9,350
Total Cost	£366,841	£387,346	£675,884	£478,025
Cost per ton	8s. 6d.	8s. 2d.	9s. 8d.	8s. 4d.

	Brakpan Power Station		Rosherville Power Station	
	1956	1955	1956	1955
Compressed Air Units Sent out			109,969,900	118,258,700
Steam Units Sent Out	6,272,390	8,009,640		
COAL:				
Consumption—tons	9,033	11,698	146,625	159,016
Average per unit sent out—lb	2·880	2·921	2·667	2·689
Calorific Value B.Th.U./lb	10,080	10,190	9,840	9,990

	Canada Dam Compressor Station		Robinson Compressor Station	
	1956	1955	1956	1955
Compressed Air Units Sent Out	34,143,500	39,142,500	41,684,000	45,368,600
Electric Input—kWh exc. Trans. losses ...	41,978,901	46,763,332	53,188,638	57,933,280
Air Units Sent Out/kWh per cent.	81·33	83·70	78·37	78·31

	Modder B and New Modder Compressor Stations	
	1956	1955
COMPRESSED AIR:		
Units Sent Out	7,741,103	9,196,664
Electric Input kWh	8,192,828	10,641,833
Air Units Sent Out/kWh per cent.	88·04	86·42


THABAZIMBI
ZEERUST
RUSTENBURG
BRITS
PRETORIA
CULLINAN
BRONKHORSTSPRUIT
WITBANK
EASTERN TRANSVAAL
UNDERTAKING
MAFEKING
SLURRY
KRUGERSDORP
WZLGS
LICHTENBURG
RANDFONTEIN
JOHANNESBURG
BRAKPAN
DELMAS
ROODEPOORT
SUMMER PAN
SPRINGS
COLIGNY
VENTERSDORP
DEVON
LESLIE
KINROSS
BETHAL
TRICHARD
FOCHVILLE
HEIDELBERG
KLIP
VERSTERKING
VAAL
BALFOUR
POTCHEFSTROOM
HARTEBEESTFONTEIN
GREYLINGSTAD
GROOTVLEI
KLERKSDORP
Vaal
PARYS
TAALBOS
HIGHVELD
STANDERTON
VREDEFORT
VIERFONTEIN
WOLMARANSSTAD
VILJOENSKROON
KOPPIES
HEILBRON
MAQUASSI
BOTHAVILLE
BALKFONTEIN
VREDE
TWEELING
KROONSTAD
PETRUS STEYN
WESSELSBRON
ODENDAALSRUS
WHITES
VENTERSBURG
VIRGINIA
ARLINGTON
SENEKAL
THABAZIMBI
THEUNISSEN
WINBURG
NORTHAM
N
RAND AND ORANGE FREE STATE UNDERTAKING
REFERENCE
Areas of Supply
E.S.C. Power Stations
@WZLGS (under construction)
VAAL
Transmission Lines
" " under construction
10 5 0 10 20 30 40 50 M

Output and Sales. During the year there was a further decline in mining activity on the Central Rand, and in the amount of power (electricity and air) used by the old mines in this area.

Nevertheless, the total sales of electricity increased to 8,960 million units for the year, which was an increase of 9·2 per cent. over the corresponding figure for 1955.

Total sales (electricity, air and steam) were 9,151 million units.

As reported last year, the restrictions which had been imposed upon consumers' maximum demands during the period of shortage of generating plant, were lifted in the early months of 1956: and it may be noted that the annual increases in the units sold to the main categories of consumers, namely, about 8 per cent. annually for mining and about 13½ per cent. annually for bulk supplies to municipalities and industrial consumers, are the average rates of increase which have been experienced on this Undertaking over a long period.

Generating Plant Capacity. The capacity of plant which was taken into service, and the capacity of plant under construction or on order, in the new power stations, Vierfontein, Wilge and Taaibos Power Stations, are given on pages 10 and 14 of this Report; and further particulars of the principal equipment installed in these stations at 31st December, 1956, are set out in Annexure B, Statement No. 1.

At April, 1957, inquiries were made for a further two turbo-generators and boiler plant for Highveld Power Station, to increase the installed capacity to 360,000 kW. The first two sets at Highveld Power Station are expected to be in service at the end of 1958.

The capacity of the pooled power stations of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking is to be further increased by the addition of the new Komati Power Station, referred to earlier in this Report.

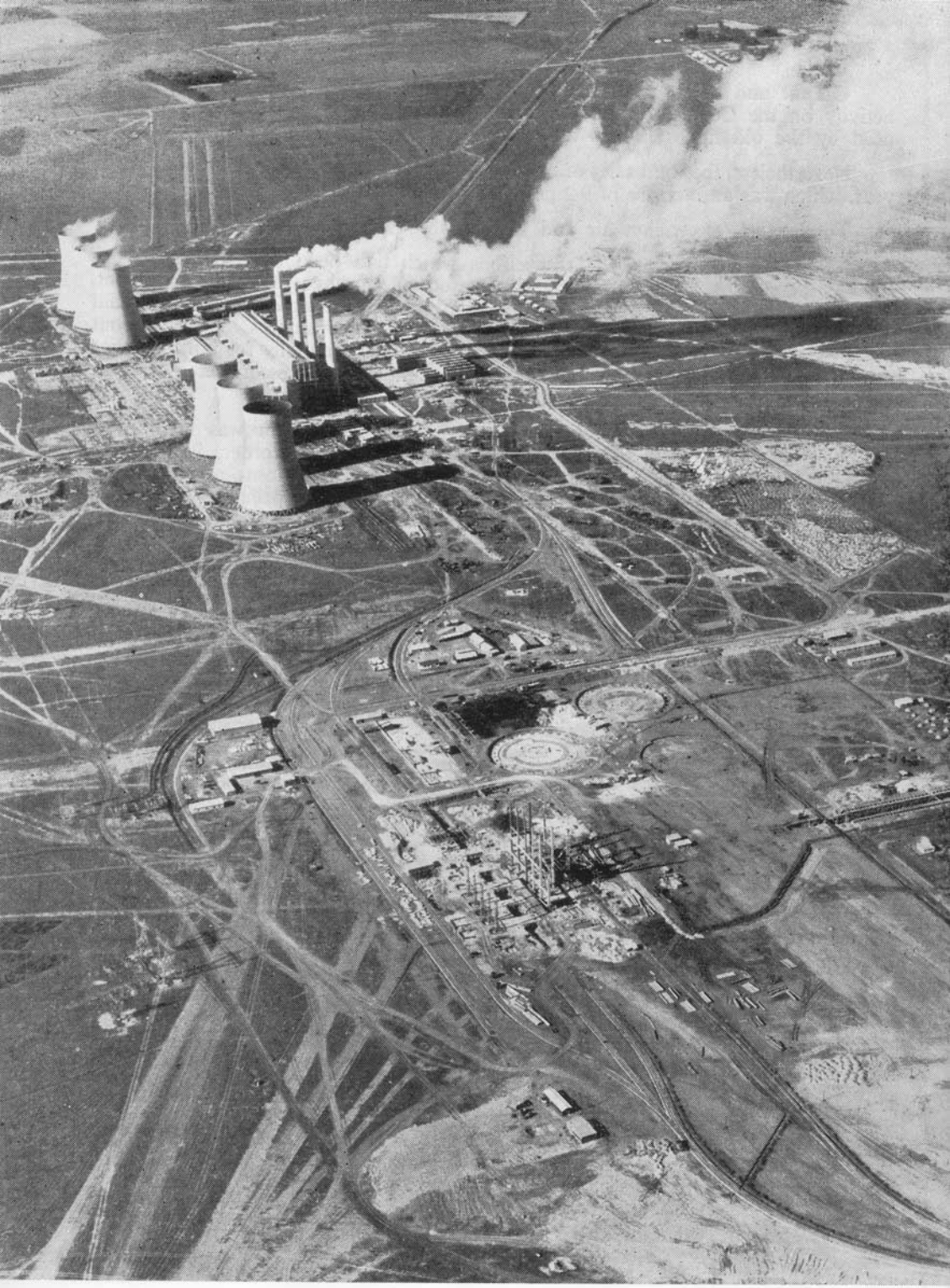
Operation of the Pooled Power Stations. Again the significant feature of the statistical tables is the increase in the output from the new power stations, Vierfontein, Wilge and Taaibos, and particularly the large increase from Taaibos Power Station.

It was mentioned in the last Report that a breakdown of a turbo-generator in Vaal Power Station occurred in December, 1955, and a further two machines of similar design were taken out of service as a precaution. Modifications were made to the three sets, which were returned to service in July-October, 1956; but the loss of this plant in Vaal Power Station for the first half of the year is reflected in the substantial drop in the output of that Station. The loss in output was made up by increased loading on the other power stations in the pool, and by increased purchases from the Municipalities of Johannesburg and Pretoria: but, as the cost of generation at Vaal Power Station is low, the year's accounts were affected adversely.

The maximum load carried by the pooled power stations during 1956 was 1,515,830 kW, recorded in June. This was an increase of 127,000 kW over the maximum load in 1955.

The maximum demands recorded by the Undertakings in 1956 were:—

Rand and Orange Free State Undertaking ...	1,447,483 kW (June)
Eastern Transvaal Undertaking	74,457 kW (November)



The Taaibos Power Station with the Highveld Station under construction in the foreground.

Distribution System. The development of the supplies to the new mines and other consumers in the O.F.S. goldfield, and the supplies to Municipalities in the Orange Free State are dealt with on pages 10 and 11 of the Report.

Due to the development of new mines and the expansion of uranium production on mines on the Far West Rand and in the Klerksdorp area, the load on these sections of the network increased substantially in 1956: and further increases have been notified. Two additional mines, Western Ultra Deep Levels, Limited, and a mine to be established by Johannesburg Consolidated Investment Co. Ltd., have been nominated as New Consumers in the Far West Rand area.

During the year the first of the two 275 kV transmission lines between Highveld Power Station and Everest Distribution Station (O.F.S. Goldfields) was completed and energised temporarily at 132 kV; and the construction of the second 275 kV line was well advanced at the end of the year.

In order to meet the growth of load in the new mining areas in the Orange Free State, Klerksdorp, the Far West Rand and Rustenburg, major extensions of the transmission and distribution systems are necessary. The following works under construction or projected at the end of the year indicate the programme of extensions to be completed during 1957 and 1958:—

Distribution Stations:

Alma (Extensions)	132/40 kV	Add	60 MVA
Everest (O.F.S. Goldfields)	275/132/40 kV		450 MVA
Cardell (Klerksdorp area)	132/88 kV		270 MVA
Esselen (North Rand area)	132/88 kV		240 MVA
Trident (near Rustenburg)	132/88 kV		120 MVA
Virginia (Extensions)	132/88 kV	Add	60 MVA
Libanon (Extensions)	132/40 kV	Add	90 MVA
Doornfontein (Extensions)	132/40 kV	Add	90 MVA
Watershed (near Lichtenburg) ...	132/88 kV		120 MVA

Transmission Lines:

132 kV line Doornfontein—Trident	68	miles
132 kV Taaibos Power Station—Westgate	50	miles
132 kV line Westgate—Libanon—West Wits—Doornfontein ...	38½	miles
132 kV line Cardell—Watershed	60	miles
132 kV line Vierfontein Power Station—Watershed	60	miles

Particulars of the new transmission and distribution lines of 88 kV and below which were constructed during 1956 and the lines under construction or projected at the year-end are given in the lists on pages 17 and 18.

Financial. An explanation of the revision of tariffs which was introduced from January, 1956, was given in the last Report.

The Revenue Account for the year shows a deficit in the year's working of £662,345; and it was therefore necessary to adjust the tariffs for the financial year 1957 by reduction of the discount rate from 17 per cent. in 1956 to 13 per cent. for the year 1957.

SABIE UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1956	1955
			%	£	d	d
Mining	1	5,965,659	5·492	10,365	0·4170	0·4324

	1956	1955	Accumulated to 31.12.56
Total Revenue	£10,365	£10,233	
Working Costs	£10,320	£10,018	
Surplus	£36	£215	£326
Capital Expenditure	—	—	£96,170
SABIE POWER STATION—			
Units Sent Out	6,094,000	5,837,200	
Maximum half-hour Demand kW S.O.	1,180	1,100	
Station Peak kW	1,250	1,175	
Load Factor	58·8	60·6	
RAINFALL at Power Station:			
Inches	58·9	84·89	
Millimetres	1,496	2,156	

The plant in the hydro-electric power station continued to give satisfactory service.

The whole of the output was taken by one mining concession at cost.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES — 1956

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	Extensions	Tenders
Morgenzon	Christiana	Nelspruit
Rodeon	Heidelberg	Warmbaths
Thabazimbi	Johannesburg	
	Kempton Park	
	Klerksdorp (2)	
	Naboomspruit	
	Potchefstroom	
	Rensburg	
	Warmbaths	

ORANGE FREE STATE:

New Schemes	Extensions	Tenders
Steynsrus	Bothaville (2)	Bethulie
	Hoopstad	Bloemfontein (13)
	Kroonstad	Kroonstad
	Senekal	Lindley
	Theunissen	Senekal
		Villiers (2)
		Winburg

NATAL:

Extensions
Eshowe
Ladysmith
Mooi River
Pietermaritzburg

CAPE:

New Schemes	Extensions	Tenders
Berlin	Barkly East	Albertinia
Brandvlei (2)	Burgersdorp	Burgersdorp
Lamberts Bay	Carnarvon	Clanwilliam (2)
Port Nolloth (2)	Elliot	Cradock (4)
	Engcobo	Graaff-Reinet
	Hopetown	Mossel Bay
	Laingsburg	Oudtshoorn (2)
	Matatiele	Port Nolloth
	Upington	Queenstown (2)
		Somerset East
		Upington
		Vryburg (2)

SOUTH WEST AFRICA:

New Schemes	Extensions	Tenders
Karibib	Gobabis	Karasburg
	Windhoek	Mariental
		Otjiwarongo

Up to the 31st December, 1956, a total of 1,579 reports on Municipal Supply Schemes had been submitted by the Commission. Of these 253 were in respect of new schemes, 749 were in respect of extension schemes and 577 were reports on tenders.

ANNEXURES

The Commission submits for the 1956 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—Natal Southern Undertaking
Account No. 7—Natal Central Undertaking
Account No. 8—Eastern Transvaal Undertaking
Account No. 9—Rand and Orange Free State 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, 1956.
Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1956.
Statement No. 3—Units sold to all consumers during the past thirty-two years.
Statement No. 4—Units sold and number of consumers, 1956.
Statement No. 5—Power Station Statistics, 1956.
Statement No. 6—PowerPurchased, 1956.
Statement No. 7—Water consumed by power stations, 1956.
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 1956.
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.

J. THEO HATTINGH,
Chairman.

ANNEXURE A

THE REPORT OF THE AUDITORS

Johannesburg,

22nd May, 1957.

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, 1956.

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, 1956, we have taken into account the market value of the investments at that date.

In the aggregate the value of the Fund at 31st December, 1956, was in excess of the sum required for the redemption of the respective loans in terms of the Schedule to the Electricity Act (as amended). In the case of long term loans, the redemption period does not exceed the maximum term of the respective loans. In the case of medium term loans, for periods of 17 years or less, the period of redemption is between 22 and 25 years.

The Minister has fixed the dates from which provision for redemption of Loans Nos. 27, 29 and 31 commenced at 1st June, 1956, 1st October, 1956, and 1st April, 1957, respectively.

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, 1956.

OVERSEAS LOANS

Repayments of capital, in respect of Overseas Loans, as laid down in the Loan Agreements, take the place of contributions to Redemption Fund normally required to be made for loans issued by the Commission.

In the case of Loan 28 from the International Bank for Reconstruction and Development, which has to be repaid by half-yearly instalments over a period of $8\frac{1}{2}$ years, contributions are charged to Revenue Accounts of Undertakings on a 25 years sinking fund basis, the shortfall being met from local loans.

VERIFICATION OF LANDED PROPERTIES, RIGHTS AND INVESTMENTS

We have verified the existence of the Titles of the landed properties and of the rights and investments as shown in the records of the Commission.

HEAD OFFICE ADMINISTRATION, ENGINEERING AND GENERAL EXPENSES

The net expenditure under this heading, after crediting Fees for reporting on Power Schemes of Local Authorities and amounts chargeable to Revenue Accounts under other headings, has been allocated to:—

(a) Capital and Reserve Fund Expenditure.

(b) Revenue Accounts of all Undertakings in commercial operation.

The amount allocated to Revenue Accounts of Undertakings has been apportioned by the Commission. We have no reason to disagree with the apportionment so made.

REVENUE ACCOUNTS

The following is a summary of the operations of the Commission's undertakings for 1955 and 1956.

	Surplus/Deficit		Amounts Set Aside to Reserve Fund	
	1955	1956	1955	1956
Cape Western	+ £97,099	− £144,061	£136,902	£186,100
Cape Northern	− 1,930	− 20,916	6,000	7,500
Border	− 48,439	+ 21,733	15,000	28,700
Natal Southern	+ 103,408	+ 115,168	100,000	100,000
Natal Central	+ 57,057	+ 51,642	75,000	75,000
Eastern Transvaal ...	+ 9,117	− 5,157	65,000	65,000
Rand & O.F.S.	+ 88,070	− 662,345	773,377	1,054,900
Sabie	+ 215	+ 36	—	—
	+£304,597	−£643,900	£1,171,279	£1,517,200
Brought forward from previous year		−£139,590		
Accumulated Deficit at end of year		−£783,490		

The overall deficit of £643,900 on the operations for the year is principally due to the results at Cape Western Undertaking, and Rand and Orange Free State Undertaking. Among a number of factors that have caused these losses, has been the introduction of new plant, which during the year under review was not fully employed but will be required to meet increasing demands in the near future. At both of these undertakings contributions to Reserve Fund were increased in keeping with the increased plant in operation.

Although the deficit of the Rand and Orange Free State Undertaking is large in amount, it is in fact less than five per cent. of the gross revenue of the Undertaking. From the information given to us it appears that steps are being taken or are contemplated with a view to extinguishing the accumulated deficits within a reasonable period.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1956 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.

Yours faithfully,

ALEX. AIKEN & CARTER.

HALSEY, BUTTON & PERRY.

ACCOUNTS

STATISTICAL AND OTHER STATEMENTS

UNION STATISTICS

Electricity Supply Commission.

Incorporated under the Electricity Act, 1922.

BALANCE SHEET at 31st DECEMBER, 1956.

Loan Capital (As per Schedule No. 3)		£167,565,895
Creditors and Credit Balances		9,365,561
Current Liabilities and Provisions	£7,540,620	
Interest Accrued on Loan Capital	1,303,239	
Deferred Liabilities for Assets and Rights Acquired	59,702	
Amount Received on account of the sale of Escom House	462,000	
Temporary Advances		4,150,489
Amount due to Bankers less Cash on Current Accounts and on hand	3,119,489	
Advances at Call	1,031,000	
Redemption Fund (As per Account No. 1)		32,568,030
Sinking Fund		6,829
Reserve Fund (As per Account No. 2)		5,012,576
Loan Capital and Deferred Liabilities Repaid less Assets Sold		249,635
Loan Capital repaid (As per Schedule No. 3)	5,126,444	
Deferred Liabilities repaid	308,825	
	5,435,269	
Less—Cost of Assets sold proceeds of which have been paid into the Redemption Fund in terms of the Act	5,185,634	
		£218,919,015

NOTE—

In addition to the liabilities shown above the Commission is committed to the extent of approximately £39,100,000 for expenditure on Capital Account and £418,000 chargeable against Reserve Fund.

In addition to the annual contributions the Commission is committed to pay £65,102 annually to the Electricity Supply Commission Pension and Provident Fund for the period ending 31st December, 1969, and £11,027 during 1970.

The Commission is committed to purchase £500,000 Electricity Supply Commission 5 per cent. Local Registered Stock 1967/70 and £1,250,000 4½ per cent. Local Registered Stock 1975/80 from a stockholder at par during the period 1957 to 1958 and 1957 to 1960 respectively.

The cost of Escom House, Johannesburg, sold under deed of sale dated the 16th August, 1954, for £800,000 is included in the expenditure on Capital Account, as this property will be transferred to the purchaser only when occupation is given in terms of the deed of sale.

Expenditure on Capital Account (Excluding Cost of Assets Sold) (As per Schedule No. 1)		£171,034,012
Land and Rights	£1,586,068	
Buildings and Civil Works	36,225,466	
Machinery and Plant	133,222,478	
Movable Plant and Equipment (Less depreciation)		997,538
Workshop Equipment, Instruments, Tools and Loose Plant	489,138	
Transportation Equipment	329,958	
Furniture and Office Equipment	178,442	
Stores and Materials		6,701,891
Debtors and Debit Balances		3,254,751
Current Debtors less Reserves	2,264,754	
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	133,209	
Housing Loans to Employees Secured by First Mortgages, less Reserve	856,188	
Investment of Redemption Fund (As per Schedule No. 2) (Market Value £28,317,169)		31,469,419
Investment of Sinking Fund Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £6,213)		6,868
Investment of Reserve Fund Amount invested in Stocks and Securities of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £4,386,248)		4,671,046
Balance on Revenue Accounts (As per Accounts Nos. 3 to 10)		783,490
Cape Western Undertaking	56,257	
Cape Northern Undertaking	20,738	
Border Undertaking	131,562	
Natal Southern Undertaking	Cr. 158,501	
Natal Central Undertaking	Cr. 97,154	
Eastern Transvaal Undertaking	Cr. 18,969	
Rand and Orange Free State Undertaking	849,883	
Sabie Undertaking	Cr. 326	
		£218,919,015

Referred to in our Report of 22nd May, 1957.

Johannesburg,
15th April, 1957.

J. THEO. HATTINGH, Chairman.
J. VAN NIEKERK, Chief Accountant.

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

Electricity Supply Commission.

SCHEDULE No. 1.

Schedule of Expenditure on Capital Account at 31st December, 1956.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1955	Year ended 31st December, 1956	Total at 31st December, 1956
RAND AND ORANGE FREE STATE UNDERTAKING:			
Rand.			
Land and Rights	£369,267	£29,426	£398,693
Buildings and Civil Works	2,427,281	514,375	2,941,656
Machinery and Plant	16,053,846	675,479	16,729,325
	£18,850,394	**£1,219,280**	**£20,069,674**
Klip Power Station.			
Land and Rights	£128,911	£9,949	£138,860
Buildings and Civil Works	1,676,991	6,745	1,683,736
Machinery and Plant	4,845,849	68,779	4,914,628
	£6,651,751	**£85,473**	**£6,737,224**
Vaal Power Station.			
Land and Rights	£5,347	£1	£5,348
Buildings and Civil Works	2,357,400	25,594	2,382,994
Machinery and Plant	8,517,009	49,947	8,566,956
	£10,879,756	**£75,542**	**£10,955,298**
Vierfontein Power Station.			
Land and Rights	£34,207	—	£34,207
Buildings and Civil Works	4,737,693	£58,831	4,796,524
Machinery and Plant	12,600,147	2,295,169	14,895,316
	£17,372,047	**£2,354,000**	**£19,726,047**
Taaibos Power Station.			
Land and Rights	£16,239	£8,086	£24,325
Buildings and Civil Works	5,311,922	471,422	5,783,344
Machinery and Plant	10,702,288	4,765,180	15,467,468
	£16,030,449	**£5,244,688**	**£21,275,137**
Wilge Power Station.			
Land and Rights	£4,054	£1	£4,055
Buildings and Civil Works	2,625,985	241,661	2,867,646
Machinery and Plant	6,801,985	587,214	7,389,199
	£9,432,024	**£828,876**	**£10,260,900**
Highveld Power Station.			
Land and Rights	£3,811	£8,003	£11,814
Buildings and Civil Works	51,527	1,483,618	1,535,145
Machinery and Plant	175	25,274	25,449
	£55,513	**£1,516,895**	**£1,572,408**
Rand Extension.			
Land and Rights	£67,982	£9,147	£77,129
Buildings and Civil Works	398,218	14,254	412,472
Machinery and Plant	8,831,888	499,681	9,331,569
	£9,298,088	**£523,082**	**£9,821,170**
Greater Rand Extension and Orange Free State.			
Land and Rights	£16,232	£77,467	£93,699
Buildings and Civil Works	625,198	16,294	641,492
Machinery and Plant	7,793,862	1,759,236	9,553,098
	£8,435,292	**£1,852,997**	**£10,288,289**
Total Rand and Orange Free State Undertaking:			
Land and Rights	£646,050	£142,080	£788,130
Buildings and Civil Works	20,212,215	2,832,794	23,045,009
Machinery and Plant	76,147,049	10,725,959	86,873,008
	£97,005,314	**£13,700,833**	**£110,706,147**

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1955	Year ended 31st December, 1956	Total at 31st December, 1956
CAPE WESTERN UNDERTAKING:			
Land and Rights	£98,041	£69,300	£167,341
Buildings and Civil Works	4,352,511	730,277	5,082,788
Machinery and Plant	16,472,537	745,482	17,218,019
	£20,923,089	**£1,545,059**	**£22,468,148**
CAPE NORTHERN UNDERTAKING:			
Land and Rights	£2,294	—	£2,294
Buildings and Civil Works	230,660	Cr. £64,515	166,145
Machinery and Plant	1,445,762	318,257	1,764,019
	£1,678,716	**£253,742**	**£1,932,458**
BORDER UNDERTAKING:			
Land and Rights	£7,902	£6	£7,908
Buildings and Civil Works	800,206	111,335	911,541
Machinery and Plant	2,757,645	385,701	3,143,346
	£3,565,753	**£497,042**	**£4,062,795**
NATAL SOUTHERN UNDERTAKING:			
Land and Rights	£145,909	£3,957	£149,866
Buildings and Civil Works	3,469,175	397,756	3,866,931
Machinery and Plant	10,693,968	1,566,622	12,260,590
	£14,309,052	**£1,968,335**	**£16,277,387**
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£132,182	Cr. £16,085	£116,097
Buildings and Civil Works	1,632,952	57,431	1,690,383
Machinery and Plant	7,621,189	194,171	7,815,360
	£9,386,323	**£235,517**	**£9,621,840**
EASTERN TRANSVAAL UNDERTAKING:			
Land and Rights	£32,645	£1,854	£34,499
Buildings and Civil Works	914,720	33,513	948,233
Machinery and Plant	3,595,593	517,374	4,112,967
	£4,542,958	**£552,741**	**£5,095,699**
SABIE UNDERTAKING:			
Land and Rights	£510	—	£510
Buildings and Civil Works	60,491	—	60,491
Machinery and Plant	35,169	—	35,169
	£96,170	—	**£96,170**
HEAD OFFICE:			
Land	£319,423	—	£319,423
Buildings and Equipment	344,185	£109,760	453,945
	£663,608	**£109,760**	**£773,368**
SUMMARY:			
Land and Rights	£1,384,956	£201,112	£1,586,068
Buildings and Civil Works	32,017,115	4,208,351	36,225,466
Machinery and Plant	118,768,912	14,453,566	133,222,478
	£152,170,983	**£18,863,029**	**£171,034,012**

Johannesburg,
15th April, 1957.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Schedule of Investments of the Redemption Fund at 31st December, 1956.

SCHEDULE No. 2.

INVESTMENTS. LOCAL REGISTERED STOCKS.	Nominal Value	Book Value
Electricity Supply Commission—		
4⅛ per cent. 1953/63	£114,775	£114,650
3¾ per cent. 1954/64	913,531	911,408
3½ per cent. 1959/64	196,897	195,722
3¼ per cent. 1956/66	354,350	328,142
3½ per cent. 1957/67	362,177	341,937
3¾ per cent. 1959/64	656,160	623,356
3⅜ per cent. 1960/65	446,750	431,563
3¼ per cent. 1961/66	517,925	492,414
3¼ per cent. 1965/70	555,900	537,522
3 per cent. 1967/73	641,300	613,079
3 per cent. 1968/74	1,148,900	1,121,899
3⅛ per cent. 1968/73	6,643,000	6,601,857
3½ per cent. 1969/74	301,600	289,800
3¾ per cent. 1969/74	58,700	55,569
3⅜ per cent. 1965/67	50,200	48,679
3¾ per cent. 1934/67	618,000	604,067
3⅜ per cent. 1964/68	102,500	100,187
4¼ per cent. 1934/67	503,700	489,726
5 per cent. 1964/67	325,450	318,674
5 per cent. 1966/68	359,050	354,616
5 per cent. 1967/69	428,300	422,995
5 per cent. 1968/70	217,520	212,242
5 per cent. 1967/70	1,702,550	1,677,769
5 per cent. 1971/74	753,800	747,441
5 per cent. 1971/75	1,494,900	1,480,143
4⅝ per cent. 1975/80	4,756,350	4,740,954
4⅞ per cent. 1975/80	2,796,950	2,771,463
5⅛ per cent. 1976/81	2,000,000	1,975,000
5⅛ per cent. 1977/82	350,000	345,625
The Government of the Union of South Africa—		
3½ per cent. 1953/58	25,000	24,824
3½ per cent. 1955/65	2,300	2,300
3 per cent. 1956/61	40,000	39,289
3 per cent. 1957/66	535,000	522,722
3 per cent. 1958/68	15,000	14,849
3 per cent. 1959/69	100,000	94,750
3 per cent. 1960/70	343,700	331,746
Municipal—		
Johannesburg:		
3¼ per cent. 1956/66	1,600	1,600
3⅜ per cent. 1959	6,200	6,200
3¾ per cent. 1960/65	20,000	19,056
3½ per cent. 1962/67	129,000	119,245
3½ per cent. 1965	1,200	1,200
3¼ per cent. 1965/70	294,000	284,895
3 per cent. 1967/77	30,000	30,000
Cape Town:		
3¾ per cent. 1960/65	2,000	2,000
3¼ per cent. 1962/67	225,000	222,568
3 per cent. 1976	100,000	95,588
Durban:		
3½ per cent. 1962/72	115,500	90,090
3¼ per cent. 1965/75	45,000	41,484
3¼ per cent. 1966/76	50,000	50,000
3 per cent. 1967/77	334,000	320,320
	31,788,735	31,263,225
Interest Accrued		206,194
	£31,788,735	£31,469,419
Market Value	£28,317,169	

ALLOCATION OF INVESTMENTS TO LOANS. Loan No.	Local Registered Stocks.	Nominal Value	Book Value including Interest Accrued
3	£500,000 4¾ per cent. 1953/63	£485,325	£483,658
5	£6,750,000 3¾ per cent. 1954/64	5,328,681	5,303,630
6	£2,500,000 3½ per cent. 1959/64	1,853,497	1,847,571
7	£2,000,000 3¼ per cent. 1956/66	1,457,350	1,437,032
8	£2,000,000 3½ per cent. 1957/67	1,284,477	1,266,892
9	£2,000,000 3¾ per cent. 1959/64	1,237,860	1,216,800
10	£1,500,000 3⅜ per cent. 1960/65	878,350	869,797
11	£2,000,000 3¼ per cent. 1961/66	1,013,025	989,361
12	£2,500,000 3¼ per cent. 1965/70	1,052,000	1,022,282
13	£3,000,000 3 per cent. 1967/73	893,800	858,831
14	£3,000,000 3 per cent. 1968/74	729,600	697,221
15	£15,000,000 3⅛ per cent. 1968/73	5,777,000	5,701,488
16	£3,000,000 3½ per cent. 1969/74	717,300	706,647
17	£3,000,000 3¾ per cent. 1969/74	572,000	566,466
18	£5,250,000 3⅜ per cent. 1965/67	844,200	834,776
19	£3,000,000 3⅜ per cent. 1964/67	419,000	411,535
21	£5,000,000 3⅜ per cent. 1964/68	589,500	588,555
22	£4,500,000 4¼ per cent. 1964/67	417,050	416,782
23	£5,000,000 5 per cent. 1964/67	331,100	330,527
25	£3,500,000 5 per cent. 1966/68	196,300	196,031
26	£4,000,000 5 per cent. 1967/69	270,450	270,559
27	£4,250,000 5 per cent. 1968/70	216,520	214,917
29	£8,000,000 5 per cent. 1967/70	426,550	426,248
31	£8,000,000 5 per cent. 1971/74	438,850	438,132
32	£10,000,000 5 per cent. 1971/75	418,900	418,198
33	£8,000,000 4⅝ per cent. 1975/80	3,486,350	3,500,759
34	£8,000,000 4¾ per cent. 1975/80	130,700	132,285
35	£8,250,000 5⅛ per cent. 1976/81	20,000	19,962
	Future—not yet raised	303,000	302,477
		£31,788,735	£31,469,419

Johannesburg,
15th April, 1957.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

SCHEDULE No. 3.

LOAN CAPITAL AT 31st DECEMBER, 1956.

Loans Nos. 1 and 2, £8,000,000, repaid out of subsequent loans.

Loan No.			Outstanding	Repaid
		LOCAL REGISTERED STOCKS.		
3:	£500,000	4¾ per cent. 1953/63	£500,000	
4:	£2,500,000	4½ per cent. 1953		£2,500,000
5:	£6,750,000	3¾ per cent. 1954/64	6,750,000	
6:	£2,500,000	3½ per cent. 1959/64	2,500,000	
7:	£2,000,000	3¼ per cent. 1956/66	2,000,000	
8:	£2,000,000	3½ per cent. 1957/67	2,000,000	
9:	£2,000,000	3¾ per cent. 1959/64	2,000,000	
10:	£1,500,000	3¾ per cent. 1960/65	1,500,000	
11:	£2,000,000	3¼ per cent. 1961/66	2,000,000	
12:	£2,500,000	3¼ per cent. 1965/70	2,500,000	
13:	£3,000,000	3 per cent. 1967/73	3,000,000	
14:	£3,000,000	3 per cent. 1968/74	3,000,000	
15:	£15,000,000	3½ per cent. 1968/73	15,000,000	
16:	£3,000,000	3½ per cent. 1969/74	3,000,000	
17:	£3,000,000	3¾ per cent. 1969/74	3,000,000	
18:	£5,250,000	3¾ per cent. 1965/67	5,250,000	
19:	£3,000,000	3¾ per cent. 1964/67	3,000,000	
21:	£5,000,000	3¾ per cent. 1964/68	5,000,000	
22:	£4,500,000	4¼ per cent. 1964/67	4,500,000	
23:	£5,000,000	5 per cent. 1964/67	5,000,000	
25:	£3,500,000	5 per cent. 1966/68	3,500,000	
26:	£4,000,000	5 per cent. 1967/69	4,000,000	
27:	£4,250,000	5 per cent. 1968/70	4,250,000	
29:	£8,000,000	5 per cent. 1967/70	8,000,000	
31:	£8,000,000	5 per cent. 1971/74	8,000,000	
32:	£10,000,000	5 per cent. 1971/75	10,000,000	
33:	£8,000,000	4⅝ per cent. 1975/80	8,000,000	
34:	£8,000,000	4⅞ per cent. 1975/80	8,000,000	
35:	£8,250,000	5¼ per cent. 1976/81	8,250,000	
36:	£10,000,000	5⅛ per cent. 1977/82 (Payable in full not later than the 31st January, 1957, in terms of the Prospectus)		
		Fully Paid £6,486,200		
		Partly Paid 1,056,659		
			7,542,859	
	£146,000,000	Total Local Registered Stocks ...	£141,042,859	£2,500,000
		INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.		
20:	£10,732,422	$30,000,000 4 per cent. 1954/70	9,323,028	1,409,394
28:	£9,608,677	$30,000,000 4¾ per cent. 1955/63 £10,726,956		
		Less repaid out of local loans ... 1,118,279	9,130,427	478,250
		£9,608,677		
		EXPORT-IMPORT BANK OF WASHINGTON.		
24:	£7,000,000	$19,600,000 4 per cent. (to be taken up during the period ending 30th June, 1957). Amount received to 31st December, 1956, £6,808,381	6,459,581	348,800
		COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED.		
30:	£2,000,000	5 per cent. 1954/68	1,610,000	390,000
	£175,341,099		£167,565,895	£5,126,444

Johannesburg.
15th April, 1957.

J. VAN NIEKERK, Chief Accountant.

Electricity Supply Commission.

Redemption Fund Account for the Year ended 31st December, 1956.

Balance as per Balance Sheet		£32,568,030
Cape Western Undertaking	£3,523,561	
Cape Northern Undertaking	149,594	
Border Undertaking	196,459	
Natal Southern Undertaking	2,446,847	
Natal Central Undertaking	3,567,875	
Eastern Transvaal Undertaking	1,062,592	
Rand and Orange Free State Undertaking	16,289,032	
Sabie Undertaking	25,637	
Head Office	282,919	
Assets Sold	5,023,514	
	£32,568,030	

Loan No.	Local Registered Stocks.		
3	£500,000 4¾ per cent. 1953/63	£499,213	
5	£6,750,000 3¾ per cent. 1954/64	5,626,613	
6	£2,500,000 3½ per cent. 1959/64	1,891,664	
7	£2,000,000 3¼ per cent. 1956/66	1,447,740	
8	£2,000,000 3½ per cent. 1957/67	1,347,178	
9	£2,000,000 3¾ per cent. 1959/64	1,261,577	
10	£1,500,000 3¾ per cent. 1960/65	874,915	
11	£2,000,000 3¼ per cent. 1961/66	1,053,946	
12	£2,500,000 3¼ per cent. 1965/70	1,063,985	
13	£3,000,000 3 per cent. 1967/73	949,983	
14	£3,000,000 3 per cent. 1968/74	743,887	
15	£15,000,000 3½ per cent. 1968/73	5,395,850	
16	£3,000,000 3½ per cent. 1969/74	701,569	
17	£3,000,000 3¾ per cent. 1969/74	620,113	
18	£5,250,000 3¾ per cent. 1965/67	892,430	
19	£3,000,000 3¾ per cent. 1964/67	482,498	
21	£5,000,000 3¾ per cent. 1964/68	636,070	
22	£4,500,000 4¼ per cent. 1964/67	463,120	
23	£5,000,000 5 per cent. 1964/67	412,950	
25	£3,500,000 5 per cent. 1966/68	276,747	
26	£4,000,000 5 per cent. 1967/69	286,562	
27	£4,250,000 5 per cent. 1968/70	271,291	
29	£8,000,000 5 per cent. 1967/70	526,181	
31	£8,000,000 5 per cent. 1971/74	522,084	
32	£10,000,000 5 per cent. 1971/75	493,273	
33	£8,000,000 4⅝ per cent. 1975/80	3,389,026	
34	£8,000,000 4½ per cent. 1975/80	172,030	
35	£8,250,000 5¼ per cent. 1976/81	81,272	
36	£10,000,000 5⅛ per cent. 1977/82	78,597	
	Future—not yet raised	105,666	
		£32,568,030	£32,568,030

J. VAN NIEKERK, Chief Accountant.

Balance at 31st December, 1955, brought forward ...			£28,003,861
		Loan No.	
Cape Western Undertaking ...	£2,873,997	3	£498,648
Cape Northern Undertaking ...	97,599	5	5,307,197
Border Undertaking	121,458	6	1,747,632
Natal Southern Undertaking ...	1,998,179	7	1,361,713
Natal Central Undertaking ...	3,211,581	8	1,256,439
Eastern Transvaal Undertaking ...	944,912	9	1,170,957
Rand and Orange Free State Undertaking	13,447,149	10	804,818
		11	966,653
Sabie Undertaking	25,637	12	965,175
Head Office	259,835	13	790,337
Assets Sold	5,023,514	14	636,099
		15	4,699,185
	£28,003,861	16	564,756
		17	513,615
		18	710,222
		19	381,995
		21	473,048
		22	320,734
		23	254,130
		25	172,080
		26	159,977
		27	149,876
		29	285,708
		31	248,854
		32	199,740
		33	3,312,425
		34	9,261
		Future	42,587
			£28,003,861

Amounts contributed during the year as per Revenue Accounts		3,473,495
Cape Western Undertaking	481,413	
Cape Northern Undertaking	46,635	
Border Undertaking	68,073	
Natal Southern Undertaking	354,919	
Natal Central Undertaking	214,117	
Eastern Transvaal Undertaking	76,659	
Rand and Orange Free State Undertaking	2,232,562	
Sabie Undertaking	Dr. 883	
Other Contributions		16,525
Proceeds of Sales of Fixed Property		53,944
Interest earned on Investments		1,020,205
		£32,568,030

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 22nd May, 1957.

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

Electricity Supply Commission.

Reserve Fund Account for the Year ended 31st December, 1956.

Expenditure during the year on Replacements and Betterment		£353,746
Cape Western Undertaking	£29,548	
Cape Northern Undertaking	506	
Border Undertaking	20,763	
Natal Southern Undertaking	57,102	
Natal Central Undertaking	22,462	
Eastern Transvaal Undertaking	20,227	
Rand and Orange Free State Undertaking	202,882	
Sabie Undertaking	256	
Balance as per Balance Sheet		5,012,576
Cape Western Undertaking	674,530	
Cape Northern Undertaking	47,748	
Border Undertaking	7,379	
Natal Southern Undertaking	312,189	
Natal Central Undertaking	769,094	
Eastern Transvaal Undertaking	282,341	
Rand and Orange Free State Undertaking	2,906,569	
Sabie Undertaking	12,726	
		£5,366,322

Balance at 31st December, 1955, brought forward		£3,675,509
Cape Western Undertaking	£494,763	
Cape Northern Undertaking	38,988	
Border Undertaking	Dr. 459	
Natal Southern Undertaking	258,050	
Natal Central Undertaking	686,946	
Eastern Transvaal Undertaking	227,144	
Rand and Orange Free State Undertaking	1,957,610	
Sabie Undertaking	12,467	
Amounts set aside during the year as per Revenue Accounts		1,517,200
Cape Western Undertaking	186,100	
Cape Northern Undertaking	7,500	
Border Undertaking	28,700	
Natal Southern Undertaking	100,000	
Natal Central Undertaking	75,000	
Eastern Transvaal Undertaking	65,000	
Rand and Orange Free State Undertaking	1,054,900	
Profit on Redemption of Investment		626
Interest earned on Investments		172,987
		£5,366,322

Johannesburg,
15th April, 1957.

J. Van NIEKERK, Chief Accountant.

Electricity Supply Commission.

CAPE WESTERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Proportion of Pooled Costs (as per attached statement) ...	£1,269,933	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	254,737	
Water, Oil, Waste and Stores	13,440	
Salaries and Wages	36,180	
Other Expenses	719	
Maintenance—		
Stores	3,149	
Salaries and Wages	31,180	
Other Expenses	3,487	
	1,612,825	
Less—Electricity from Hex River Power Station charged to Pooled Costs	105,798	
		£1,507,027
Distribution.		
Operation and Maintenance—		
Stores	38,600	
Salaries and Wages	205,981	
Other Expenses	31,144	
		275,725
General Expenses.		
Local Administration and Technical Management	99,963	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	177,968	
Head Office Administration Expenses	30,833	
Head Office Engineering Expenses	18,958	
	327,722	
Less—Charged to Pooled Costs	38,541	
		289,181
Capital Charges.		
Interest	919,787	
Redemption Fund	481,413	
Instalments and Provision for Repayment of Overseas Loan ...	118,246	
Instalments and Provision for Repayment of Deferred Liabilities for Assets Acquired	244	
Amount set aside to Reserve Fund	186,100	
	1,705,790	
Less—Charged to Pooled Costs	717,218	
		988,572
		£3,060,505
Balance brought down		£144,061
		£144,061

Sales of Electricity.		
Traction Supplies	£810,345	
Bulk Supplies	627,519	
Industrial Supplies	796,530	
Domestic and Lighting Supplies	663,941	
		£2,898,335
Other Revenue		18,109
		2,916,444
Balance carried down		144,061
		£3,060,505
Balance at 31st December, 1955, brought forward		£87,804
Balance as per Balance Sheet		56,257
		£144,061

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission and City of Cape Town.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1956.

Generation.		
Operation and Maintenance—		
Fuel	£1,500,548	
Water, Oil, Waste and Stores	90,962	
Salaries, Wages and Other Expenses	441,058	
		£2,032,568
Electricity Purchased.		
Electricity purchased from Hex River Power Station		105,798
General Expenses.		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)		70,690
Capital Charges.		
Interest	526,420	
Redemption Fund	330,983	
Provision for Repayment of Overseas Loan	74,871	
Reserve Fund	133,687	
		1,065,961
		£3,275,017

Allocation in Terms of Agreement—		
Electricity Supply Commission	£1,269,933	
City of Cape Town	1,999,648	
		£3,269,581
Sundry Revenue		5,436
		£3,275,017

Cape Town,
15th April, 1957.

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

Electricity Supply Commission.

CAPE NORTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Operation—		
Fuel	£138,657	
Water, Oil, Waste and Stores	10,889	
Salaries and Wages	28,700	
Other Expenses	10,388	
Maintenance—		
Stores	3,934	
Salaries and Wages	16,355	
Other Expenses	2,000	
		£210,923
Electricity Purchased.		
Electricity Purchased		33,120
Distribution.		
Operation and Maintenance—		
Stores	1,718	
Salaries and Wages	2,266	
Other Expenses	1,975	
		5,959
General Expenses.		
Local Administration and Technical Management	9,708	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	8,769	
Head Office Administration Expenses	2,127	
Head Office Engineering Expenses	1,307	
		21,911
Capital Charges.		
Interest	80,773	
Redemption Fund	46,635	
Instalments and Provision for Repayment of Overseas Loans	2,098	
Amount set aside to Reserve Fund	7,500	
		137,006
		£408,919
Balance brought down		£20,916
		£20,916

Sales of Electricity.		
Bulk Supplies	£215,923	
Mining Supplies	126,021	
Industrial Supplies	35,190	
Domestic Supplies	10,443	
		£387,577
Other Revenue		426
		388,003
Balance carried down		20,916
		£408,919
Balance as 31st December, 1955, brought forward		£178
Balance as per Balance Sheet		20,738
		£20,916

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

BORDER UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Operation—		
Fuel	£266,710	
Water, Oil, Waste and Stores	5,734	
Salaries and Wages	52,563	
Other Expenses	5,089	
Maintenance—		
Stores	9,842	
Salaries and Wages	28,007	
Other Expenses	7,092	
		£375,037
Electricity Purchased.		
Electricity Purchased		11,237
Distribution.		
Operation and Maintenance—		
Stores	1,550	
Salaries and Wages	14,551	
Other Expenses	2,738	
		18,839
General Expenses.		
Local Administration and Technical Management	23,784	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	21,673	
Head Office Administration Expenses	6,379	
Head Office Engineering Expenses	3,922	
		55,758
Capital Charges.		
Interest	126,269	
Redemption Fund	68,073	
Instalments and Provision for Repayment of Overseas Loans	5,393	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	6,954	
Amount set aside to Reserve Fund	28,700	
		235,389
		696,260
Balance carried down		21,733
		£717,993
Balance at 31st December, 1955, brought forward		£153,295
		£153,295

Sales of Electricity.		
Bulk Supplies	£594,892	
Industrial Supplies	38,582	
Domestic and Lighting Supplies	83,032	
		£716,506
Sales of Steam		269
Other Revenue		1,218
		£717,993
Balance brought down		£21,733
Balance as per Balance Sheet		131,562
		£153,295

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

NATAL SOUTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Proportion of Pooled Costs (as per attached statement) ...	£2,442,326	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	1,773	
Water, Oil, Waste and Stores	245	
Salaries and Wages	1,653	
Other Expenses	161	
Maintenance—		
Stores	346	
Salaries and Wages	1,117	
Other Expenses	705	
	—	£2,448,326
Electricity Purchased.		
Electricity Purchased		12,522
Distribution.		
Operation and Maintenance—		
Stores	9,137	
Salaries and Wages	46,499	
Other Expenses	14,957	
	70,593	
Less—Charged to Pooled Costs (Interconnector)	180	
	—	70,413
General Expenses.		
Local Administration and Technical Management	54,894	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	68,171	
Head Office Administration Expenses	30,833	
Head Office Engineering Expenses	18,958	
	172,856	
Less—Charged to Pooled Costs	113,526	
	—	59,330
Capital Charges.		
Interest	557,721	
Redemption Fund	354,919	
Instalments and Provision for Repayment of Overseas Loans	91,105	
Sinking Fund	120	
Amount set aside to Reserve Fund	100,000	
	1,103,865	
Less—Charged to Pooled Costs	917,947	
	—	185,918
		2,776,509
Balance carried down		115,168
		£2,891,677
Balance as per Balance Sheet		£158,501
		£158,501

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Sales of Electricity.		
Traction Supplies	£204,566	
Bulk Supplies	2,348,166	
Industrial Supplies	144,500	
Domestic and Lighting Supplies	192,971	
	———	£2,890,203
Other Revenue	6,862	
Less—Credited to Pooled Costs	5,388	
	———	1,474
		£2,891,677
Balance at 31st December, 1955, brought forward		£43,333
Balance brought down		115,168
		£158,501

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

ACCOUNT No. 7.

NATAL CENTRAL UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Proportion of Pooled Costs (as per attached statement)	£1,532,426	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	52	
Water, Oil, Waste and Stores	12	
Salaries and Wages	73	
Other Expenses	21	
Maintenance—		
Stores	8	
Salaries and Wages	81	
Other Expenses	9	
	—	£1,532,682
Distribution.		
Operation and Maintenance—		
Stores	28,193	
Salaries and Wages	92,201	
Other Expenses	14,619	
	135,013	
Less—Charged to Pooled Costs (Interconnector)	444	
		134,569
General Expenses.		
Local Administration and Technical Management	64,031	
General Expenses (including Maintenance of Quarters. Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	67,623	
Head Office Administration Expenses	30,833	
Head Office Engineering Expenses	18,958	
	181,445	
Less—Charged to Pooled Costs	84,544	
		96,901
Capital Charges.		
Interest	385,316	
Redemption Fund	214,117	
Instalments and Provision for Repayment of Overseas Loans	31,596	
Amount set aside to Reserve Fund	75,000	
	706,029	
Less—Charged to Pooled Costs	428,486	
		277,543
		2,041,695
Balance carried down		51,642
		£2,093,337
Balance as per Balance Sheet		£97,154
		£97,154

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Sales of Electricity.		
Traction Supplies	£936,082	
Bulk Supplies	706,031	
Mining Supplies	102,931	
Industrial Supplies	214,005	
Domestic and Lighting Supplies	124,574	
		£2,083,623
Other Revenue	17,197	
Less—Credited to Pooled Costs	7,483	
		9,714
		£2,093,337
Balance at 31st December, 1955, brought forward		£45,512
Balance brought down		51,642
		£97,154

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

NATAL SOUTHERN AND NATAL CENTRAL UNDERTAKINGS.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1956.

Generation.

Operation—		
Fuel	£1,803,638	
Water, Oil, Waste and Stores	68,828	
Salaries and Wages	201,636	
Other Expenses	41,447	
Maintenance—		
Stores	96,615	
Salaries and Wages	210,617	
Other Expenses	19,715	
		£2,442,496

Interconnector.

Operation and Maintenance—		
Stores	35	
Salaries and Wages	501	
Other Expenses	88	
		624

General Expenses.

Local Administration and Technical Management	48,302	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	80,232	
Head Office Administration and Engineering Expenses	69,536	
		198,070

Capital Charges.

Interest	676,728	
Redemption Fund	416,904	
Instalments and Provision for Repayment of Overseas Loans	122,701	
Reserve Fund	130,100	
		1,346,433
		£3,987,623

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Allocation.

Natal Southern Undertaking	£2,442,326	
Natal Central Undertaking	1,532,426	
		£3,974,752
Sundry Revenue		12,871
		£3,987,623

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

EASTERN TRANSVAAL UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Proportion of Pooled Costs (as per attached statement)		£664,881
Electricity Purchased.		
Electricity Purchased		33,870
Distribution.		
Operation and Maintenance—		
Stores	£4,997	
Salaries and Wages	16,381	
Other Expenses	2,417	
		23,795
General Expenses.		
Local Administration and Technical Management	24,345	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	43,139	
Head Office Administration Expenses	29,770	
Head Office Engineering Expenses	18,304	
	115,558	
Less—Charged to Pooled Costs	59,587	
		55,971
Capital Charges.		
Interest	140,649	
Redemption Fund	76,659	
Instalments and Provision for Repayment of Overseas Loans ...	16,411	
Amount set aside to Reserve Fund	65,000	
	298,719	
Less—Charged to Pooled Costs	194,690	
		104,029
		£882,546
Balance brought down		£5,157
Balance as per Balance Sheet		18,969
		£24,126

Sales of Electricity.		
Traction Supplies	£40,147	
Bulk Supplies	78,238	
Mining Supplies	268,065	
Industrial Supplies	469,216	
Domestic and Lighting Supplies	17,769	
		£873,435
Other Revenue	7,176	
Less—Credited to Pooled Costs	3,222	
		3,954
		877,389
Balance carried down		5,157
		£882,546
Balance at 31st December, 1955, brought forward		£24,126
		£24,126

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

RAND AND ORANGE FREE STATE UNDERTAKING

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Proportion of Pooled Costs (as per attached statement)	£12,801,904	
Other Operation and Maintenance Costs—		
Operation—		
Fuel	132,734	
Water, Oil, Waste and Stores	18,584	
Salaries and Wages	77,292	
Other Expenses	646	
Maintenance—		
Stores	26,245	
Salaries and Wages	79,555	
Other Expenses	5,764	
		£13,142,724
Distribution.		
Operation and Maintenance—		
Stores	181,518	
Salaries and Wages	583,081	
Other Expenses	21,335	
	785,934	
Less—Charged to Pooled Costs (Interconnector)	23,801	
		762,133
General Expenses.		
Local Administration and Technical Management	253,504	
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	464,343	
Head Office Administration Expenses	80,976	
Head Office Engineering Expenses	49,788	
	848,611	
Less—Charged to Pooled Costs	591,461	
		257,150
Capital Charges.		
Interest	3,881,663	
Redemption Fund	2,232,562	
Instalments and Provision for Repayment of Overseas Loans	964,820	
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	5,230	
Amount set aside to Reserve Fund	1,054,900	
	8,139,175	
Less—Charged to Pooled Costs	5,735,850	
		2,403,325
		£16,565,332
Balance at 31st December, 1955, brought forward		£187,538
Balance brought down		662,345
		£849,883

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
15th April, 1957.

Sales of Electricity.		
Traction Supplies	£357,007	
Bulk Supplies	1,645,335	
Mining Supplies	10,267,800	
Industrial Supplies	2,667,419	
Domestic and Lighting Supplies	92,844	
		£15,030,405
Sales of Air and Steam		860,237
Other Revenue	78,719	
Less—Credited to Pooled Costs	66,374	
		12,345
		15,902,987
Balance carried down		662,345
		£16,565,332
Balance as per Balance Sheet		£849,883
		£849,883

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

RAND AND ORANGE FREE STATE AND EASTERN TRANSVAAL UNDERTAKINGS.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1956.

Generation.		
Operation—		
Fuel	£4,722,963	
Water, Oil, Waste and Stores	93,227	
Salaries and Wages	859,486	
Other Expenses	33,591	
Maintenance—		
Stores	258,325	
Salaries and Wages	622,298	
Other Expenses	39,939	
		£6,629,829
Electricity Purchased.		
Electricity Purchased		301,163
Interconnector.		
Operation and Maintenance—		
Stores	5,735	
Salaries and Wages	17,408	
Other Expenses	658	
		23,801
General Expenses.		
Local Administration and Technical Management	197,258	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	339,877	
Head Office Administration and Engineering Expenses	113,913	
		651,048
Capital Charges.		
Interest	2,791,884	
Redemption Fund	1,497,406	
Instalments and Provision for Repayment of Overseas Loans	885,780	
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	5,230	
Reserve Fund	750,240	
		5,930,540
		£13,536,381

Allocation.		
Rand and Orange Free State Undertaking	£12,801,904	
Eastern Transvaal Undertaking	664,881	
		£13,466,785
Sundry Revenue		69,596
		£13,536,381

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
15th April, 1957.

Referred to in our Report of 22nd May, 1957.

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

Electricity Supply Commission.

SABIE UNDERTAKING.

Revenue Account for the Year ended 31st December, 1956.

Generation.		
Operation—		
Water, Oil, Waste and Stores	£119	
Salaries and Wages	6,011	
Other Expenses	2	
Maintenance—		
Stores	33	
Salaries and Wages	311	
Other Expenses	21	
	—	£6,497
Distribution		
Operation and Maintenance—		
Stores	63	
Salaries and Wages	659	
Other Expenses	175	
	—	897
General Expenses.		
Local Administration and Technical Management	491	
General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.)	930	
Head Office Administration Expenses	892	
Head Office Engineering Expenses	548	
	—	2,861
Capital Charges.		
Interest	957	
Redemption Fund ... Cr.	883	
	—	74
		10,329
Balance carried down		36
		£10,365
Balance as per Balance Sheet		£326
		£326

J. VAN NIEKERK, Chief Accountant.

Johannesburg.
15th April, 1957.

Sales of Electricity.	
Mining Supplies	£10,365
	£10,365
Balance at 31st December, 1955, brought forward	£290
Balance brought down	36
	£326

Referred to in our Report of 22nd May, 1957.

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

ANNEXURE B

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1956.

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	King William's Town	Steam	4·5	1 3	10·0 12·0	2 1	1·5 0·5		
		Oil				1	1·0		
	West Bank No. 1	Steam	32·0	6 4	21·5 55·0	1 2 3	1·5 4·0 7·5		
	West Bank No. 2	Steam	30·0	2	170·0	2	15·0		
Cape Northern 14,800	Central, Kimberley	Steam	30·0	8 4	30·0 75·0	1 1 2 2	3·0 5·0 5·0 6·0		
Cape Western 12,600	Salt River No. 1	Steam	90·3	2 6	60·0 100·0	3 3	10·0 20·0	1	0·3
	Salt River No. 2	Steam	120·0	5	260·0	4	30·0		
	Hex River	Steam	60·0	4	200·0	3	20·0		
Eastern Transvaal 6,000	Witbank	Steam	128·0	20 2	70·0 80·0	6	20·0	1	8·0
Natal Central 20,500	Colenso Nos. 1 and 2	Steam	135·0	8 4 5	60·0 80·0 180·0	5 3	12·0 25·0		
	Volksrust	Oil	0·5	—	—	2	0·25		

Natal Southern	Congella Nos. 1 and 2	Steam	206·0	6 4 8	60·0 100·0 200·0	3 1 1 3	12·0 20·0 30·0 40·0		
4,000	Ixopo	Hydro Oil	0·3	—	—	1 1 2	0·125 0·046 0·075		
	Port Shepstone	Oil	3·4	—	—	2 2	0·7 1·0		
	Umgeni	Steam	30·0	4	180·0	2	30·0		
Rand & O.F.S. 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	48·0	32 8	38·0 48·0	5	9·6		
	Simmerpan	Steam	28·0	8	48·0	2 2	3·0 11·0		
	Taaibos	Steam	360·0	6	580·0	6	60·0		
	Vaal	Steam	318·0	18	180·0	9	33·0	3	7·0
	Vereeniging	Steam	157·5	20 2 6	45·0 60·0 180·0	3 3	20·0 32·5		
	Vierfontein	Steam	300·0	16	210·0	10	30·0		
	Wilge	Steam	180·0	4 4	125·0 400·0	2 2	30·0 60·0		
Sabie 200	Sabie Gorge	Hydro	1·35	—	—	3	0·45		

SUMMARY:

Total Number of Boilers	273	
Total Boiler House Rating	31,943,000 lb./hr.	
Total Number of Main Generators	128	Capacity 2,707·57 MW
Total Number of House Sets	9	Capacity 57·30 MW
Total Plant Capacity (Electricity)		2,764·87 MW

Major Items of Plant Commissioned 1956.

Salt River No. 2 ... ... 2-30 MW Generators
Taaibos ... ... 3-60 MW Generators
Vierfontein ... ... 2-30 MW Generators
West Bank No. 2 ... ... 2-15 MW Generators
Wilge ... ... 1-60 MW Generator

Statement No. 1—(continued)

COMPRESSED AIR POWER STATIONS: RAND UNDERTAKING

Name of Station	Number of Sets	Type	Compressor Output, h.p.		Drive
			Each	Total	
Electric Driven					
Canada Dam	1	Turbo	3,000	22,200	Electric Motor
Compressor Station	4	Turbo	4,800		
	3	Turbo	2,000	14,000	,,
	1	Turbo	2,150		,,
Robinson Compressor Station	1	Turbo	2,850		,,
	1	Turbo	3,000		,,
	1	Recip.	380	1,080	,,
At New Modder Mine ...	1	Recip.	700		,,
	1	Recip.	270	5,500	,,
	1	Recip.	380		,,
At Modder B Mine	2	Recip.	700		,,
	1	Recip.	1,300		,,
	1	Turbo	2,150		,,
Steam Driven					Recip. Steam Engines
	3	Recip.	800	5,050	
Brakpan Power Station ...	1	Turbo	2,650		Steam Turbine
	1	Turbo	2,500	48,800	,,
	1	Turbo	4,400		,,
Rosherville Power Station ...	3	Turbo	6,000		,,
	2	Turbo	7,100		,,
	1	Turbo	9,700		,,
Total Compressed Air Sets	31		96,630 = 72,086 kW		

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1956.

Undertaking	Number	MVA
Border	155	74·7
Cape Northern	142	74·4
Cape Western	2,324	769·9
Eastern Transvaal	467	410·8
Natal Central	1,288	454·2
Natal Southern	699	462·3
Rand	3,021	9,395·2
Sabie	13	3·6
At Compressor Stations, Rand	48	352·0
TOTALS	8,157	11,997·1

TRANSMISSION LINES AND CABLES: CIRCUIT MILES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1956.

OVERHEAD TRANSMISSION LINES

Undertaking	275 kV	132 kV	88 Kv	66 kV	40 kV	33 kv	22 kV	21 kV	20 kV	11 kV	6·6 kV	3·3 kV	2·0 kV 2·1 kV 2·2 kV	525 V	380/ 220 V	Totals
Border ...	—	—	—	33·00	—	67·70	—	—	—	102·25	—	3·50	—	—	60·62	267·07
Cape Northern	—	—	—	—	—	—	—	—	—	140·00	84·00	—	—	—	—	224·00
Cape Western	—	—	—	384·58	—	236·65	—	—	—	816·19	258·28	—	—	—	494·74	2,190·44
Eastern Transvaal	—	—	167·85	—	—	—	—	302·79	—	51·75	16·22	—	31·40	—	39·21	609·22
Natal Central ..	—	74·69	564·24	—	—	197·64	34·45	—	—	662·50	180·61	0·15	0·95	—	149·46	1,864·69
Natal Southern ...	—	57·12	149·09	—	—	6·65	—	—	—	327·68	61·52	—	—	—	198·84	800·90
Rand and O.F.S.	—	947·71	1,704·31	—	988·00	—	—	—	119·78	142·69	92·49	—	10·30	—	95·13	4,100·41
Sabie	—	—	—	—	—	—	7·20	—	—	—	—	—	—	—	1·00	8·20
Totals ...	—	1,079·52	2,585·49	417·58	988·00	508·64	41·65	302·79	119·78	2,243·06	693·12	3·65	42·65	—	1,039·00	10,064·93

UNDERGROUND CABLES

Border ...	—	—	—	—	—	—	—	—	—	17·10	—	2·34	—	—	—	19·44
Cape Western	—	—	—	23·32	—	70·03	—	—	—	72·45	1·98	0·91	—	—	42·09	210·78
Eastern Transvaal	—	—	—	—	—	—	—	20·61	—	2·29	1·17	—	—	—	0·06	24·13
Natal Central ..	—	—	—	—	—	—	—	—	—	2·57	3·49	1·89	—	—	2·86	10·81
Natal Southern ...	—	—	—	—	—	2·15	—	—	—	5·45	0·36	0·03	—	—	4·88	12·87
Rand and O.F.S.	—	—	—	—	1·66	—	—	—	82·72	23·33	101·66	1·69	26·51	1·67	18·69	257·93
Totals ...	—	—	—	23·32	1·66	72·18	—	20·61	82·72	123·19	108·66	6·86	26·51	1·67	68·58	535·96

*Includes 10 kV.

TOTAL OVERHEAD LINES AND UNDERGROUND CABLES: 10,601 CIRCUIT MILES.

STATEMENT No. 2

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1956.

Undertaking	Electric Power Stations	BOILERS		GENERATORS		Transmission Lines and Cables Circuit Miles	TRANSFORMERS	
		No.	Continuous Maximum Rating Each, thousand lb/hr	No.	Normal Rating Each MW		No.	Total Capacity MVA
Border	West Banks Nos. 1 and 2	—	—	—	—	7	61	9
Cape Northern ...	Central, Kimberley	—	—	—	—	21	38	46
Cape Western	Salt River No. 2	1	260	—	—	44	98	45
Eastern Transvaal ...	Witbank	—	—	—	—	—	64	162
Natal Central		2	200	1	30·0	—	58	17
Natal Southern ...	Umgeni	4	180	2	30·0	60	131	50
Rand	Highveld	4	550	4	60·0	643	235	3,055
	Klip	1	180	—	—			
	Taaibos	2	580	2	60·0			
	Vierfontein	3	210	2	30·0			
	Wilge	1	580	1	60·0			

SUMMARY:

Number of Boilers	18	... ...	C.M.R. 6,130,000 lb/hr.
Number of Generators	12	... ...	Total Rating 570·0 MW
Transmission Lines	..	... ...	775 Circuit Miles
Transformers	685	... ...	Rating 3,384 MVA

STATEMENT No. 3

UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST THIRTY-TWO YEARS.

Million Units

Year	Border	Cape Northern	Cape Western	Eastern Transvaal	Klip	Natal Central	Natal Southern	Rand & O.F.S.	Sabie	Vaal	**Totals**
1925									0·08		**0·08**
1926			0·3	160·0		0·7			0·7		**161·7**
1927			5·8	439·1		104·2			1·9		**551·0**
1928			31·0	464·3		114·2	15·6		2·8		**627·9**
1929			47·9	543·1		123·9	78·9		3·2		**797·0**
1930			49·8	619·0		117·1	99·1		4·6		**889·6**
1931			52·1	603·4		101·1	103·9		6·6		**867·1**
1932			64·2	610·3		100·3	109·8		6·1		**890·7**
1933			100·7	639·4		109·2	118·5		6·3		**974·1**
1934			73·6	648·3		124·9	131·1		7·3		**985·2**
1935			80·0	727·9		154·3	149·8		7·2		**1,119·2**
1936			85·8	696·4	557·0	171·5	170·4		6·9		**1,688·0**
1937			94·0	684·5	1,349·9	210·6	189·4		7·2		**2,535·6**
1938			98·8	768·1	1,666·9	234·9	209·5		7·2		**2,985·4**
1939			106·5	767·7	2,193·2	266·2	233·7		6·4		**3,573·7**
1940			119·8	853·3	2,566·6	281·1	242·7		6·7		**4,070·2**
1941			136·2	862·6	2,675·9	302·4	270·3		6·6		**4,254·0**
1942			151·8	873·4	2,707·8	307·7	273·8		6·3		**4,320·8**
1943			145·7	849·1	2,669·1	312·4	293·4		5·9		**4,275·6**
1944			158·7	889·2	2,703·6	336·0	321·6		6·7		**4,415·8**
1945			165·9	830·7	2,643·0	333·2	348·8		6·6	377·9	**4,706·1**
1946			184·6	896·9	2,614·3	347·0	369·7		7·4	582·5	**5,002·4**
1947	56·2		198·6	887·7	2,547·2	346·0	402·6		7·6	668·6	**5,114·5**
1948	69·2		222·4	633·2	1,207·4	367·9	448·7	2,185·7	7·3	435·1	**5,576·9**
1949	68·7		249·5	358·3		371·8	513·0	4,653·9	7·0		**6,222·2**
1950	79·9	53·9	271·9	378·5		406·5	561·8	5,151·8	6·3		**6,910·6**
1951	88·0	58·5	303·5	386·8		433·4	617·0	5,563·2	6·1		**7,456·5**
1952	97·7	61·3	341·2	425·0		454·0	655·6	6,039·6	6·1		**8,080·5**
1953	107.8	67.1	375.5	409.9		492.3	713.2	6,560·0	6.4		**8,732.2**
1954	118·2	70·7	436·2	270·5		532·5	777·7	7,465·2	5·6		**9,676·6**
1955	130·8	73·2	527·1	394·6		546·4	870·0	8,416·3	5·6		**10,964·0**
1956	139·1	78·7	585·1	505·9		595·4	957·7	9,151·6	6·0		**12,019·5**

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 and up the North 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 & O.F.S. Undertaking.

(4) From 1/1/55 the Durban Undertaking was designated the Natal Southern Undertaking; the boundaries between N.S.U. and N.C.U. were adjusted by the transfer of consumers from N.C.U. to N.S.U.

UNITS SOLD AND NUMBER OF CONSUMERS, 1956 (Electricity, Air and Steam)

ELECTRICITY

Undertaking	TRACTION			BULK			MINING			INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number Consumers
	Units	Per cent. Traction	No. Cons.	Units	Per cent. Bulk	No. Cons.	Units	Per cent. Mining	No. Cons.	Units	Per cent. Industrial	No. Cons.	Units	Per cent. Domestic and Lighting	No. Cons.	Units	Per cent. Total Units Sold	
Border				126,702,780	5·585	8			8	3,872,904	0·177	96	8,503,106	4·886	2,360	139,078,790	1·176	2,464
Cape Northern ..				50,885,521	2·243	4	24,751,856	0·384		2,294,832	0·105	62	766,625	0·441	299	78,698,834	0·665	373
Cape Western ...	185,643,122	25·096	2	147,529,770	6·503	23				146,096,373	6·680	2,075	105,825,259	60·810	23,748	585,094,524	4·947	25,848
E. Transvaal ...	20,298,909	2·744	1	28,803,467	1·269	7	108,312,036	1·681	35	346,486,762	15·842	59	1,956,148	1·124	772	505,857,322	4·277	874
Natal Central ...	284,664,516	38·481	1	215,885,401	9·516	15	27,473,464	0·426	12	53,695,471	2·455	500	13,665,067	7·852	4,123	595,383,919	5·033	4,651
Natal Southern	68,616,765	9·276	1	836,053,380	36·259	2				29,729,038	1·359	285	23,326,769	13·404	5,174	957,725,952	8·097	5,462
Rand and O.F.S.:	180,520,219	24·403	1	876,313,350	38·625	66	6,278,762,362	97·417	110	1,604,926,874	73·382	413	19,983,393	11·483	2,468	8,960,506,198	75·755	3,058
Sabie							5,965,659	0·092	1							5,965,659	0·050	1
Total Electricity ...	739,743,531	100·000	6	2,282,173,669	100·000	125	6,445,265,377	100·000	166	2,187,102,254	100·000	3,490	174,026,367	100·000	38,944	11,828,311,198	100·000	42,731
Percentage of Total	6·254			19·294			54·490			18·491			1·471			100·000		

AIR AND STEAM

Border: Steam ..										58,251	0·607	*				58,251	0·031	*
Rand and O.F.S. Air				4,308,300	100·000	1	170,987,870	96·461	12	9,542,694	99·393	30				184,838,864	96·688	43
Steam ...							6,272,390	3·539	1							6,272,390	3·281	1
Total Air and Steam				4,308,300	100·000	1	177,260,260	100·000	13	9,600,945	100·000	30				191,169,505	100·000	44
Per cent. of Total				2·254			92·724			5·022						100·000		

*Supply ceased May

ELECTRICITY, AIR AND STEAM

Grand Total, all Sales	739,743,531		6	2,286,481,969		126	6,622,525,637		179	2,196,703,199		3,520	174,026,367		38,944	12,019,480,703		42,775
Per cent. of Grand Total	6·155			19·023			55·098			18·276			1·448			100·000		

By Provinces:—
ELECTRICITY, AIR AND STEAM

Cape	185,643,122	25·096	2	330,924,638	14·473	35	24,537,719	0·370	7	152,308,930	6·933	2,230	114,945,382	66·050	26,320	808,359,791	6·725	28,594
Natal	343,289,093	46·406	2	1,026,680,701	44·902	13	27,473,464	0·415	12	81,384,025	3·705	638	32,205,070	18·506	7,252	1,511,032,353	12·572	7,916
O.F.S.	9,992,188	1·351		125,309,398	5·480	21	1,418,531,533	21·420	17	83,117,697	3·784	101	1,641,480	0·943	647	1,638,592,296	13·633	787
Transvaal ...	200,819,128	27·147	2	803,567,232	35·145	57	5,151,982,921	77·795	143	1,879,892,547	85·578	551	25,234,435	14·501	4,725	8,061,496,263	67·070	5,478

Electricity ... ... 98·410
Air and Steam ... 1·590
} per cent. of total sales.

POWER STATION OPERATING STATISTICS: YEAR 1956.

STATEMENT No. 5

STEAM ELECTRIC (20 STATIONS)

Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS ½ Hour (or Hour) Sent Out kW	MAXIMUM DEMANDS Peak kW	Station Load Factor % Sent Out	Coal Burned Tons (2,000 lb)	LB OF COAL Per Unit Generated	LB OF COAL Per Unit Sent Out	Calorific Value of Coal B.Th.U. as Recd. (Weighted Average)	B.Th.U. PER UNIT Generated	B.Th.U. PER UNIT Sent Out	OVERALL THERMAL EFFICIENCY % Generated	OVERALL THERMAL EFFICIENCY % Sent Out
Brakpan	90,637,156	82,763,872	Hour 41,352	—	22·8	111,758	2·466	2·701	10,080	24,860	27,230	13·7	12·5
Central, Kimberley ...	82,958,100	74,726,900	17,600	19,300	48·3	84,498	2·037	2·262	12,180	24,810	27,550	13·8	12·4
Colenso No. 1 and No. 2 ...	594,999,050	560,389,120	118,410	135,000	53·9	442,218	1·486	1·578	11,930	17,730	18,830	19·2	18·1
Congella No. 1 and No. 2	809,592,975	750,133,309	167,685	179,400	50·9	551,487	1·362	1·470	11,650	15,870	17,130	21·5	19·9
Hex River	216,685,000	205,444,070	58,400	60,000	40·0	125,520	1·159	1·222	11,570	13,410	14,140	25·4	24·1
King William's Town ...	8,310,050	7,848,812	3,940*	4,100*	37·8	8,490	2·043	2·163	12,590	25,720	27,230	13·3*	12·5*
Klip	2,651,570,266	2,474,278,848	Hour 349,865	—	80·5	2,190,677	1·652	1·771	9,580	15,830	16,970	21·6	20·1
Rosherville	176,580,695	166,346,408	Hour 43,467	—	43·6	277,318	3·141	3·334	9,840	30,910	32,810	11·0	10·4
Salt River No. 1	39,835,232	34,477,200	58,683	69,600	6·7	27,322	1·952	2·256	11,650	22,780	26,330	15·0	13·0
Salt River No. 2	385,707,600	365,244,365	87,000	93,000	47·8	224,546	1·110	1·173	11,670	12,950	13,690	26·3	24·9
Simmerpan	50,767,565	47,741,957	Hour 27,227	—	20·0	89,619	3·531	3·754	9,870		37,050	9·8	9·2
Taaibos	1,737,459,628	1,601,003,719	Hour 277,792	—	65·6	1,114,059	1·282	1·392	9,300	11,920	12,950	28·6	26·3
Umgeni	303,775,800	284,854,290	58,585	62,100	55·4	187,551	1·235	1·317	11,260	13,910	14,830	24·5	23·0
Vaal	1,788,801,327	1,685,714,335	Hour 284,686	—	67·4	1,413,356	1·580	1·677	8,960	14,160	15,030	24·1	22·7
Vereeniging	774,873,258	722,716,224	Hour 141,226	—	58·3	863,420	2·229	2·389	9,000	20,060	21,500	17·0	15·9
Vierfontein	1,880,803,521	1,758,287,089	Hour 280,356	—	71·4	1,401,498	1·490	1·594	9,270	13,810	14,780	24·7	23·1
West Bank No. 1 and No. 2 (No. 2 from 26/4/56)	139,696,500	130,793,987	31,720	33,800	47·0	120,490	1·725	1·842	11,730	20,230	21,610	16·9	15·8
Wilge	1,003,919,562	929,539,514	Hour 167,383	—	63·2	640,452	1·276	1·378	9,870	12,590	13,600	27·1	25·1
Witbank	718,007,209	664,547,752	Hour 116,472	—	65·0	649,760	1·810	1·955	11,230	20,330	21,950	16·8	15·5
Grand Totals	13,454,980,494	12,546,851,771				10,524,039							

*Includes Diesel Plant.

HYDRO ELECTRIC (2 STATIONS)

Power Station	Units Generated	Units Sent Out	Maximum Demands kW ½ Hr. Sent Out	Maximum Demands kW 2 Mins. Generated	Station Load Factor Sent Out	Rain Inches	Rain mm.
Ixopo ...	262,388	262,388	—	—	—	—	—
Sabie ...	6,257,100	6,094,000	1,180	1,250	58·8	58·9	1,496

STEAM GENERATION (2 STATIONS)

Station	Units Generated	Units Sent Out	Coal Burned Tons of 2,000 lb.	lb. Coal Per Unit Sent Out	Max. Sustained Load over 1 Hour kW	Load Factor %
Brakpan	6,316,610	6,272,390	9,033	2·880	4,235	16·9
King William's Town	58,251	58,251	66			
Total Steam	6,374,861	6,330,641	9,099			

POWER STATION OPERATING STATISTICS: YEAR 1956

DIESEL ELECTRIC (4 STATIONS):

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Fuel Consumed		Lub. Oil Galls.
			½ Hour	2 Mins.	Total lb	Per kWh Sent Out	
Ixopo	101,700	101,700	—	—	120,000	1·180	153
King William's Town ...	122,150	122,150	900	1,000	69,788	0·571	46
Port Shepstone	75,801	74,898	3,276	3,410	46,092	0·615	—
Volksrust	8,170	7,925	400	400	5,110	0·654	46
TOTALS	307,821	306,673			240,990		245

(2) COMPRESSED AIR GENERATION (5 STATIONS):

Station	Type*	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 ...	Steam	110,242,700	109,969,900	59·2	146,625	2·667	—	—	63,080 (June)	33·5
Robinson ...	Electric	41,684,000	41,684,000	22·4	—	—	53,188,638	78·37		
Canada Dam ...	Electric	34,143,500	34,143,500	18·4	—	—	41,978,901	81·33		
Air Pipe-line Totals		186,070,200	185,797,400		146,625		95,167,639			
Other Air Stations:—										
Modder B and New Modder	Electric	7,741,103	7,741,103				8,792,828	88·04		
Total Air ...		193,811,303	193,538,503		146,625		103,960,367			

*Electrically Driven Compressors are fed from the Electric Distribution System of the Rand Undertaking.

GENERATION SUMMARY:

TOTAL COAL BURNED
= Steam Driven Generating Stations + Compressed Air Steam Driven Stations + Steam Sales.
= 10,524,039 + 146,625 + 9·099.
= 10,679,763 tons of 2,000 lb. (Increase of 759,312 over 1955 or 7·654%).

TOTAL UNITS GENERATED
= Electricity (Steam + Hydro + Diesel) + Air Units Generated at Steam Driven Stations + Steam Units Generated.
Steam 13,454,980,494
= Hydro 6,519,488 } 13,461,807,803 + 110,242,700 + 6,374,861.
Diesel 307,821
= 13,578,425,364. (Increase of 1,363,966,462 or 11·167% over 1955).

TOTAL UNITS SENT OUT
= 12,669,815,373. (93·308% of Generated).

STATEMENT No. 6

POWER PURCHASED.

Undertaking	Purchased From	Maximum Demands	UNITS	
Border	East London, Municipality of ...	601 kVA		2,017,737
Cape Northern	Kimberley, City of (ceased October)	2,160 kVA		4,643,245
Eastern Transvaal	Pretoria City of—at Pinedene ...	—		20,298,909
Natal Southern	Durban, City of At Canelands ... ... At Warner Beach	924 kVA 1,900 kVA	2,662,174 440,850	3,103,024
Rand and O.F.S.	Johannesburg, City of ex Orlando at Bantjes Substation at Rosherville Switching Station	64,800 kW* (May)	75,020,573 6,912,470	81,933,043
	Pretoria, City of at North Rand	34,000 kW (Aug.)		145,190,462
				227,123,505

*Simultaneous Demand.

TOTAL UNITS PURCHASED, 257,168,420
(2·142% of Units Sold)

Note re Cape Western Undertaking:

Under the Pooling Agreement, the E.S.C. received 504,298,913 units from the Pool, which figure includes 399,721,565 units sent out from Salt River Stations No. 1 and No. 2, and 79,348,352 units sent out from Hex River Power Station.

STATEMENT No. 7

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1956

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border	24		16
Cape Northern	74		72
Cape Western	68	152	
Natal Southern	345		
Natal Central	29	240	
Rand (including Witbank Power Station)	287	11,048	557

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 1956.

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1956).

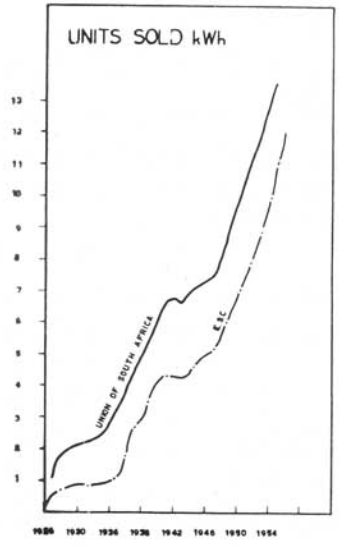
Cape Western Undertaking	
Immovable property acquired for considerations amounting to	£65,447 1 0
Servitudes acquired—capitalised payments amounting to ...	£1,452 0 11
Natal Central Undertaking	
Immovable property acquired for considerations amounting to	£270 0 0
Servitudes acquired—capitalised payments amounting to ...	£3,295 6 11
Natal Southern Undertaking	
Immovable property acquired for considerations amounting to	£250 0 0
Servitudes acquired—capitalised payments amounting to ...	£13,365 12 5
Eastern Transvaal Undertaking	
Immovable property acquired for considerations amounting to	£325 6 11
Servitudes acquired—capitalised payments amounting to ...	£187 10 0
Border Undertaking	
Servitudes acquired—capitalised payments amounting to ...	£997 10 0
Rand and Orange Free State Undertaking	
Immovable property acquired for considerations amounting to	£111,185 9 10
Servitudes acquired capitalised payments amounting to ...	£13,300 17 3
Servitude acquired—option moneys paid amounting to ...	£3,779 13 1
Property hired on Lease—annual rentals amounting to ...	£2,100 0 0
Head Office	
Property hired on Lease—Adelphi, London	£8,500 0 0

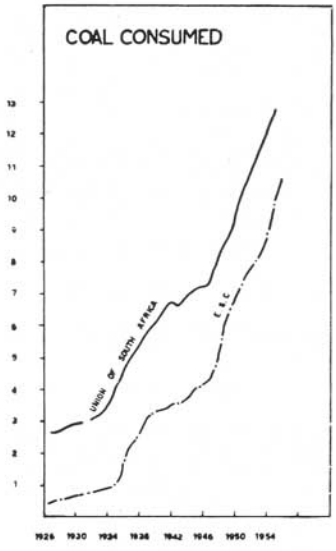
COAL USED AT COMMISSION'S STEAM-RAISING POWER STATIONS

Average Cost per ton (2,000 lb)

Power Station	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Brakpan	—	—	7 9	7 8	8 9	8 10	9 7	10 1	13 4	14 2	15 0
Colenso	10 11	11 4	11 6	12 9	13 2	14 3	18 6	19 11	21 6	25 2	27 1
Congella	15 7	16 4	16 4	18 0	19 5	20 0	23 6	25 4	27 2	31 4	32 6
East London ...	—	26 7	26 11	28 6	30 5	31 6	34 0	35 4	37 10	41 9	40 10
Hex River	—	—	—	—	—	—	32 10	35 4	37 0	38 11	40 7
Kimberley, Central	—	—	—	—	23 1	24 4	26 4	27 9	29 1	30 10	32 10
Klip	4 4	4 5	4 1	4 7	5 0	7 7	9 8	11 7	13 1	14 5	16 1
King William's Town	—	—	27 10	29 6	31 8	33 1	37 2	39 9	42 5	45 8	46 10
Rosherville ...	—	—	8 3	8 5	9 5	10 7	12 9	15 0	15 6	16 6	17 2
Salt River ...	25 9	28 1	28 5	29 6	32 5	33 10	35 3	37 5	41 0	40 9	42 3
Simmerpan ...	—	—	8 4	8 3	9 6	9 9	10 9	11 3	15 6	16 3	16 11
Taaibos	—	—	—	—	—	—	—	—	8 11	8 9	7 4
Umgeni	—	—	—	—	—	—	—	—	30 9	32 10	33 1
Vaal	6 0	5 7	4 11	4 9	5 4	5 11	6 8	6 10	6 10	7 2	7 1
Vereeniging ...	—	—	4 11	4 10	5 5	5 9	6 9	7 3	7 8	8 2	8 6
Vierfontein ...	—	—	—	—	—	—	—	9 5	8 2	8 4	9 8
Wilge	—	—	—	—	—	—	—	—	8 1	7 9	7 10
Witbank	2 9	3 4	4 0	3 9	4 2	4 6	5 10	6 11	7 0	7 7	10 3

ANNEXURE C





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