



Eskom Centre, Johannesburg
(Photograph by J. G. Boss)

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Electricity Supply Commission

Escom Centre,

204, Smit Street,

Johannesburg,

20th August, 1959.

To the Honourable

The Minister of Economic Affairs,

Pretoria.

Sir,

As required by Section 19 of the Electricity Act, No. 40 of 1958, the Commission has the honour to present its thirty-sixth Annual Report and the Accounts covering its work during the financial year ended at the 31st December, 1958.

The Report includes brief comment on the more important developments which have taken place in the period to the 30th April, 1959.

GENERAL REVIEW

The statistics relating to the supply of electricity by Escom in 1958 show that a steady expansion of mining, industrial, municipal and rural enterprises was maintained at about the same rates as in the previous year. There were increases in sales of electricity to all classes of consumers, amounting in the aggregate to an annual increase of 6.6 per cent, compared with the annual increase of 6.2 per cent in 1957.

Additional plant which was erected and brought into commercial service in Escom's power stations during the year provided an increase in generating capacity of 210,000 kW; and the increase in the quantity of energy sold amounted to 839 million units.

Total Revenue for the year amounted to £32,237,376, compared with £28,625,411 for the previous year.

Total sales of electricity, air and steam, and the rates of annual increase for each class of consumers during the past two years were as follows:—

			1958	1957	Annual Increase 1958	1957
Bulk Supplies:						
Municipal	...	...	2,841,585,359	2,543,879,781	11.7%	11.3%
Direct Supplies:						
Traction	...	...	789,010,929	752,695,755	4.8%	1.8%
Mining	...	...	7,276,868,042	6,935,881,455	4.9%	4.7%
Industrial	...	...	2,488,906,877	2,340,853,128	6.3%	6.6%
Domestic	...	...	201,180,393	185,576,777	8.4%	8.9%
Street Lighting	...	...	4,636,926	4,164,577	11.3%	13.1%
			13,602,188,526	12,763,051,473	6.6%	6.2%

Bulk Supplies to Municipalities. Sales under this heading include the supply of 149 million units to the Cape Town City Council. Escom's agreement with the Council is on the basis that the supply will diminish when the Council has new plant in service in its Athlone Power Station, at present under construction.

Excluding the supply to the Cape Town City Council, the rate of increase in bulk supplies to municipalities was 9 per cent for the year.

In 1958 bulk supplies were commenced from Escom's systems to the following towns and villages: Citrusdal and Gansbaai; Christiana; Berlin, and Grahamstown, the latter being a partial supply; Rodeon and Koster; Steynsrus; and the newly-constituted local authorities of Sasolburg and Stilfontein.

In addition, Escom established new reticulation systems to supply Memel and Paul Roux; Leslie, Devon and Eendracht; and the village of Sabie.

Negotiations were concluded and steps are being taken to furnish bulk supplies to Bredasdorp, Napier and Riviersonderend in the Western Cape; to Cathcart and Komgha in the Eastern Cape; and to the following towns and villages in the Orange Free State: Marquard, Clocolan, Ficksburg, Ladybrand; Excelsior, Tweespruit, Thaba 'Nchu, Dewetsdorp, Wepener; Bloemhof, Hoopstad and Bultfontein. In the Transvaal bulk supplies are to be given to Groblersdal, Machadodorp and Belfast.

Traction Supplies. Important progress was made in extensions of the South African Railways electric traction systems in several parts of the country.

By the end of the year survey work and negotiation of wayleaves for two 132 kV transmission lines from Hex River Power Station to Beaufort West were well advanced and the location of the traction substations for the section of the main line between Touws River and Beaufort West had been agreed with the Railways Administration.

On the Natal systems the Railways installed additional rectifiers at Newcastle and Dannhauser, and good progress has been made towards the completion of the new rectifier substations at Nottingham Road, New Lowlands, Elandslaagte, Hospital Siding and South Portal.

It is of interest that, although the Railways Administration carried more traffic than before, the electrical energy used over the sections served by the Natal Central Undertaking showed a **decrease** of nearly 4 per cent. This saving in power consumption is ascribed to the improvement in operating conditions resulting from doubling the railway track and regrading the line north of Pietermaritzburg, and the replacement of motor-generator substations by rectifier substations.

In the Pretoria area supply was given at the new Cordelfos substation in November, and it is expected that supply will be taken at Eerste Fabriek traction substation in the second half of 1959.

On the Reef system new supplies were furnished during the year at Crown and Alliance substations, and supplies were made available at Katlehong and Jabavu.

During October-November supplies were commenced to the new traction substations at Frederickstad, Potchefstroom, Machavie and Klerksdorp, and the main line between Welverdiend and Klerksdorp is now converted to electric working.

The increase in the traction supplies for the Pretoria and Reef systems, including the extension to Klerksdorp, is shown in the year-end figures. In December, 1958, these supplies amounted to a total of 21.8 million units, compared with the supply of 15.0 million units in the month of December, 1957.

The work on the sections Germiston-Vereeniging and Midway-Vereeniging and the further extension from Vereeniging to Kroonstad is well advanced, and it is expected that the electric service will be inaugurated over these sections during the second half of 1959.

Mining Supplies. A large increase in mining supplies is recorded in the sales of the Cape Northern Undertaking, due largely to the commissioning of a new £1,500,000 washing plant of De Beers Consolidated Mines, Limited, and the installation of a large electric winder in place of steam winders.

Increases in mining supplies furnished from the Natal Central Undertaking (an increase of 13.6 per cent for the year) and the Eastern Transvaal Undertaking (an increase of 32.5 per cent) reflect the development of collieries in the Natal and Witbank coal fields, and, in the case of the Eastern Transvaal Undertaking, the progress in the opening up of the Winkelhaak gold mine in the Bethal area. Winkelhaak Mines, Limited, commenced gold production in December, 1958: and further exploitation of this goldfield is foreshadowed in the public announcement in May, 1959, that applications had been made to the Mining Leases Board for mining leases for two further gold mines in this area.

The opening up of the new goldfields in the Orange Free State and the Far West Rand and Klerksdorp areas have had, and will continue to have a profound effect upon the South African economy. Escom's contribution in the supply of electricity to the mines in these areas is shown in the following table:—

	Electricity supplied by Escom			Mining Development			
				Working Revenue from Gold Production		Working Profit from Uranium Production	
	1958	1957	Increase	1958	1957	1958	1957
	kWh mil.	kWh mil.		£'s mil.	£'s mil.	£'s mil.	£'s mil.
Orange Free State	1634·6	1484·2	10·1%	54·2	47·3	6·4	6·2
Far West Rand	1114·2	1029·9	8·2%	34·3	32·9	2·5	2·3
Klerksdorp	807·0	724·9	11·3%	31·8	28·1	11·5	8·9
Total Gold Mining Industry	6451·0	6153·6	4·8%	215·2	207·7	37·7	33·3

*From figures published by the Transvaal and Orange Free State Chamber of Mines.

The second part of the table gives the figures of working revenue from gold production *plus* working profit from uranium to represent the value of the products of mining: and it is significant that the producing mines in these new areas contributed in 1958 over £140,000,000, i.e. about 55 per cent, of the output of the Gold Mining Industry.

Sales of electricity and compressed air to gold mines in the old areas showed a slight decline.

Industrial Supplies. Industrial supplies provided by Escocom direct to consumers increased by 6.3 per cent, compared with the increase of 6.6 per cent in 1957.

EXTENSIONS OF ESCOM'S UNDERTAKINGS

Escom's application to include the area around Citrusdal in the area of supply of its Cape Western Licence was approved by the Electricity Control Board in June, 1958.

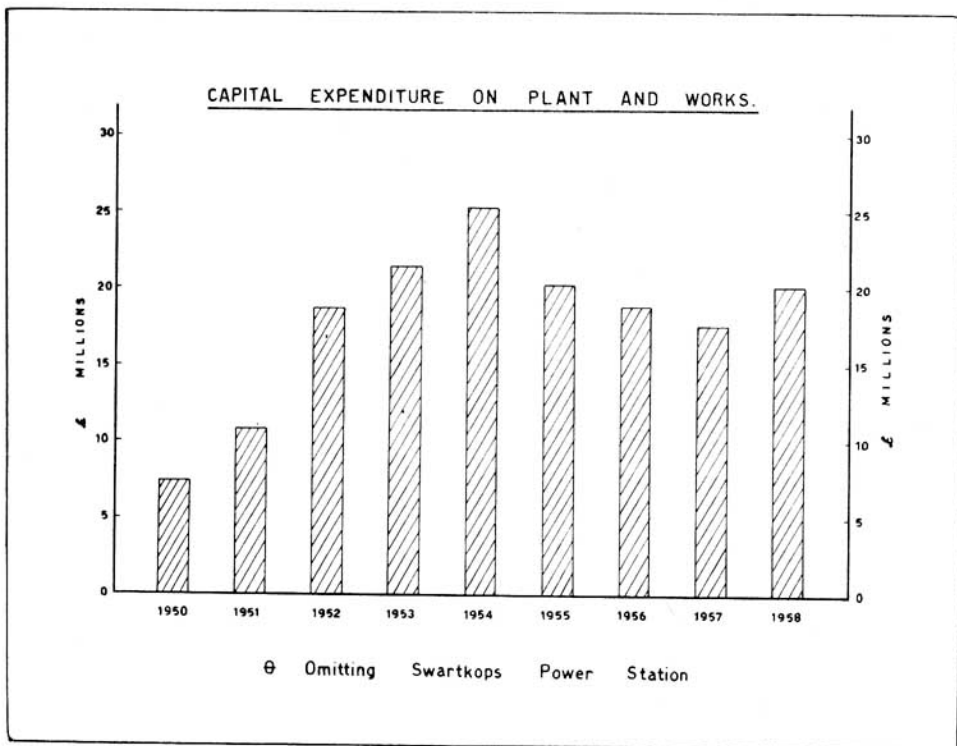
Supply was made available to the Citrusdal Village Management Board at the end of December.

On 30th July, 1958, an application was made to the Electricity Control Board for extensions of the area of supply of the Cape Northern Licence to enable Escom to undertake supplies to the Northern Lime Company Limited, at Silverstreams and

Noordwestelike Koöperatiewe Kaasfabriek, Beperk, at Reivilo. The application was granted by the Board in November, 1958.

CAPITAL EXPENDITURE

Escom's expenditure on capital account for each year from 1950 is represented in the following diagram:—



Total capital expenditure to the 31st December, 1958, was £208,850,449, including expenditure on plant and works in various stages of design and construction which are required to provide for the future supply of electricity in Escom's Undertakings.

Part of Escom's capital expenditure is spent in payment for plant and equipment purchased from overseas: but the larger part remains in South Africa. Even in the building of a new power station, the civil work, building and most of the assembly are carried out by local firms and South African labour: so that payments for such work are made to South African contractors or sub-contractors. In addition, South African materials and components which can be manufactured by local industrial establishments are being offered increasingly in competition with overseas products.

In the supply of power on a nation-wide scale reliability of the supply is of paramount importance, and Escom would fail in its duty if that aspect were neglected in any instance: subject, however to that paramount consideration Escom has followed and will continue to follow a policy of encouragement of local industry.

OVERSEAS LOANS

Towards the end of the year the General Manager and officials of Escom visited Switzerland, West Germany and Britain in pursuance of negotiations for raising loans in those countries.

With a consortium of Swiss Banks as agents, a public loan of 50,000,000 Swiss francs was floated successfully at par on the Swiss money market in January-February, 1959. The loan bears interest at 5 per cent, and is to be repaid over the period 1965-74.

PLANT CAPACITY

The plant taken into service in Escom's power stations during the period May, 1958, to the end of April, 1959, and the capacity of new plant under construction or on order at the 30th April, 1959, are given in the following table:—

	Plant taken into service. May 1958 — April 1959		Plant under construction or on order at April, 1959	
	Boilers	Generators	Boilers	Generators
	lb./hr.	kW	lb./hr.	kW
Cape Western Undertaking: Hex River Power Station	—	—	275,000	30,000
Border Undertaking: West Bank No. 2 Power Station	—	—	170,000	—
Natal Undertakings: Colenso Power Station	200,000	—	200,000	30,000
Umgeni Power Station	—	—	1,300,000	120,000
Eastern Transvaal Undertaking: Komati Power Station	—	—	1,800,000	200,000
Rand and Orange Free State Undertaking: Highveld Power Station	1,100,000	120,000	2,200,000	240,000
Klip Power Station	180,000	—	—	—
Vierfontein Power Station	210,000	30,000	—	—
Wilge Power Station	580,000	60,000	—	—
	2,270,000	210,000	5,945,000	620,000

The principal items of plant which were installed in Escom's power stations at 31st December, 1958, and the total station capacities are given in Annexure "B", Statement No. 1 to this Report.

NEW DEVELOPMENTS IN ESCOM'S UNDERTAKINGS

The operating statistics and the reports on the year's work on each Undertaking are given on pages 21 to 48.

The following brief notes present a resume of the more important new developments in Escom's Undertakings . . .

Cape Western Undertaking. The electrification of the section of main line between Touws River and Beaufort West is planned for 1961, and good progress has been made in the survey work and negotiation of wayleaves for two 132 kV transmission lines to be built from Hex River Power Station to Beaufort West. The location of twelve new traction substations for this section has been determined in collaboration with the South African Railways Administration.

In order to meet the growth of load, including the new traction supplies, additional plant is required at Hex River Power Station, and orders have been placed for one 275,000 lb/hr boiler and a turbo-generator of 30,000 kW capacity.

During the year supplies were commenced to Gansbaai and Citrusdal; and negotiations were concluded for bulk supplies to Bredasdorp, Napier and Rivier-sonderend.

Cape Northern Undertaking. At the end of October, 1958, the high voltage interconnector between Grootkop and Kimberley was brought into service, for the transmission of power in bulk from the pooled power stations of the Rand and Orange Free State Undertaking to the Cape Northern Undertaking. The interconnector is being operated at 132 kV, and at that voltage it is able to carry up to 40,000 kW.

The maximum demands made upon the pooled power stations were 19,092 kW in November, and 16,860 kW in December; and the units supplied during the two months amounted to 19.1 million units.

This additional power enabled a full supply of 7,300 kVA to be given to Anglo Alpha Cement Company, Limited, at Ulco; and made it possible to reduce the loading on the Central Power Station, Kimberley, which had been operated during the first ten months of the year without an adequate reserve.

An additional supply of 3,500 kVA was commenced to Northern Lime Company Limited, on the 8th March, 1958; and a number of smaller consumers are to be connected up during this year.

The loading of the Grootkop-Kimberley interconnector is determined by technical as well as economic considerations: but the large new supplies which were secured for the Undertaking made it possible to ensure that the interconnector carried a substantial load from the outset. This rapid expansion of the Undertaking has enabled Escom to cover the costs of the interconnector with only a small increase in tariffs, so that the interests of the old consumers as well as the new consumers have been served.

Border Undertaking. The major development during the year was the completion of the 66 kV transmission line from King William's Town to Grahamstown, to provide a partial supply to Grahamstown. Supply was initiated from a temporary substation on 24th July, 1958; and the permanent substation was commissioned at the end of January, 1959.

Berlin Village Management Board completed its reticulation system and took supply on 26th September, 1958.

At the year-end the 11 kV line from Grahamstown to Alexandria was nearing completion, and construction commenced on an 11 kV line to Port Alfred. Supply was made available to Alexandria on the 28th January, 1959. The construction of these 11 kV lines will open up a large area between Grahamstown and the coast, for rural development.

The Municipalities of Cathcart and Komgha have accepted Escom's offers of supply.

Natal Undertakings. During the year the capacity of generating plant in the Natal systems was increased by the commissioning of boilers Nos. 7 and 8 and No. 4 set at Umgeni Power Station; and boiler No. 17 at Colenso Power Station was steamed in April, 1959.

Satisfactory progress has been made with the preliminary work on the new Ingagane Power Station, near Newcastle, and an inquiry for the first units was put out early in 1959. Tenders have been received; but at 30th April, 1959, had not been adjudicated.

It is proposed that Ingagane Power Station will feed into the southern networks over a 275 kV transmission system, and survey work and the acquisition of wayleaves for the 275 kV lines have been started.

New developments in connection with the traction supplies given from the Natal systems are referred to on page 37.

By the end of the year the plans for the supply to Feralloys, Limited, new works at Cato Ridge were well advanced. A small supply for construction purposes was given in November, 1958.

The 33 kV line from Richmond to Ixopo was completed and supply was given from this line during April. The 11 kV line from Newcastle to Memel was completed and the electricity reticulation in Memel was inaugurated in May. The 11 kV line from Bethlehem to Paul Roux was completed and supplies were made available in Paul Roux in December. A supply to the village of Impendhle was made available early in 1959.

Eastern Transvaal Undertaking. The major project on this Undertaking at present is the construction of Komati Power Station, which is being built about 20 miles south of Middelburg, Transvaal.

As reported last year, orders have been placed for two turbo-generators each of a capacity of 100,000 kW, and two 900,000 lb/hr boilers. Supplies for construction purposes were made available at the power station site and at the dam being built on the Komati River by the Department of Water Affairs; and satisfactory progress has been made in the layout of the station and in the civil work. The first set is to be completed in September, 1961, and the second four months later.

The supply taken by Winkelhaak Mines, Limited, increased from 17.9 million to 51.7 million units in the 1958 year; and this mine commenced gold production in December, 1958. During the year a start was made on the construction of the second Grootpan/Wildebees 132 kV line, and the Wildebees Distribution Station was equipped with a second 45 MVA transformer. As reported on page 7 it has been announced that two further mines are to be established in this area.

A new 132 kV line from Klipfontein (south of Witbank) to Middelburg was nearing completion at the end of the year, while the 88 kV line from Middelburg to Groblersdal and the 21 kV branch lines Groblersdal — Marble Hall and Groblersdal — Dennilton were completed and ready for commissioning. These new extensions were energised in January 1959 to give a supply to Marble Lime and Associated Industries, Limited, at Marble Hall, and a bulk supply was available to Groblersdal Municipality at the end of April, 1959.

Construction has started on a further extension by means of a 132 kV transmission line from Komati Power Station *via* Witkloof Distribution Station (near the Komati dam) to Machadodorp and Penge. Bulk supplies are to be furnished to Machadodorp and Belfast, and to the asbestos mine of Egnep (Pty.) Limited at Penge.

The supply to the last remaining consumer of the Sabie Undertaking ceased on 30th June, 1958, and in terms of the amendment of the Eastern Transvaal Licence, 1925 (which was reported last year), the Sabie Gorge Power Station was incorporated in the Eastern Transvaal Undertaking. The power station is being used to provide supplies for the village of Sabie and other consumers in the area.

Rand and Orange Free State Undertaking. During the year the last units were installed in the three new power stations, Vierfontein, Wilge and Taaibos, which were designed and built by Escom after it took over the undertaking of The Victoria Falls and Transvaal Power Co. Ltd., in July, 1948. These power stations have now been developed to the full capacities permitted by the resources available at the respective sites, and together they have an installed capacity of 1,080,000 kW. The capital cost to the end of 1958 was just over £57,000,000.

An interesting comparison of costs is provided in the Statement of the Central Electricity Authority of Great Britain that the capital cost of conventional power stations under construction in 1957 for the British Grid was £50 (average) per kilowatt installed.

The construction at Highveld Power Station was maintained in accord with the planned programme, and two 60,000 kW turbo-generators, with their associated boilers, were completed and taken into service early in 1959. Two further sets are to be completed later this year.

The power stations of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking are operated as a common pool of power stations; and the commissioning of the Grootkop-Kimberley interconnector, as reported on page 10 means that the future power requirements of the Cape Northern Undertakings will also be drawn from this group of power stations.

The maximum demand made upon the pooled power stations was 1,713,378 kW — sent out over one hour — in September, 1958.

The increase in supplies furnished in the new mining areas is reported on page 7.

Escom Centre, Johannesburg. A photograph of Escom Centre, the new Headquarters of the Escom organization in Johannesburg, appears on the frontispiece to this Report.

For a number of years passed the accommodation in Escom House had been inadequate, and the staff scattered, several sub-departments and sections of the staff having been accommodated in near-by buildings. With the transfer to Escom Centre, all sections of the Head Office organization, including the staffs concerned with design and drawing office work, and the staff of the Rand and Orange Free State Undertaking, are now accommodated in one building, with a beneficial effect on organization and efficiency.

The transfer to Escom Centre was completed during the months of October/November, 1958, which was only 27 months after the date when the contractor gained access to the site. By this rapid rate of construction Escom was able to relinquish occupation of its old building within the period stipulated in the deed of sale; and tribute must be paid to the Architect and the Principal Contractor for this achievement.

DEVELOPMENT OF ELECTRICITY SUPPLY IN RURAL AREAS

Escom continues to devote special attention to the development of electricity supplies in rural areas.

Amendments have been granted by the Electricity Control Board to the Cape Northern Licence, 1949, and to the Rand Licence prescribing tariffs for rural consumers based upon measurement of the demands by means of ampere-demand meters, and these tariffs will be introduced as soon as the meters become available. Applications for amendment of the rural tariffs in other Undertakings will be made during 1959.

During 1958 a total of 490 additional farms were given supplies of electricity; and the following notes on the work of the separate Undertakings give a picture of the development of rural supplies up to the end of the year:—

Cape Western Undertaking. In the Elgin district an amount of £24,000 was spent on a scheme supplying 22 farms. At Riebeeck West 14 farms were connected at a cost of £14,700. The farm scheme at Kalabaskraal was completed at a cost of £16,000 and an additional 17 farms were supplied with electricity. In the Wellington district work is proceeding on a scheme which will serve 14 farms. In addition to the above new schemes, additional farms were connected to existing networks. A total of 112 additional farms were connected during 1958.

Offers were made to a number of farmers near Langebaan. The cost of a scheme which will cover 50 farms near Citrusdal is being calculated. Applications for power have been received from 40 farmers between Napier and Bredasdorp and this scheme will be investigated early in 1959.

Cape Northern Undertaking. The distribution system in the Vaalharts settlement was extended and an additional 102 plots were connected. Plans were approved for the next group of 50 plots which will be connected in the near future.

Near Delportshope a power line is being erected to the Vaal River where a company (New Vaal Farms Limited) requires a bulk supply for irrigation purposes. An application from the experimental farm near Andalusia has been placed on the waiting list.

Border Undertaking. The rural scheme in the Kat River Valley was completed and power is being supplied to these farms at 22 supply points. A power line was erected to the Dohne experimental farm near Stutterheim, but was not energised at the end of the year as the consumer's installation was not complete.

A scheme which will serve consumers on the coast south of East London is being planned, and will include plot holders and farmers near Cove Ridge and Rock Cliff.

Negotiations are proceeding with a number of farmers on the Great Fish River in the vicinity of Committee's Drift; but to date Escom's prices have not been accepted. Terms have been submitted to farmers between Grahamstown and Alexandria; and if these terms are accepted, supplies will be given from the power line which is being built to Alexandria.

Eastern Transvaal Undertaking. An amount of £52,250 was voted for a farmers' scheme in the Devon district which was planned to serve 44 farms; and at the year-end supplies were given to 24 of these farms. Good progress was made with the scheme between Oogies and Kinross where an additional 19 farms were connected, and in the Bethal district 7 more farms were connected. In addition to the above, 4 farms were supplied from existing reticulations.

Natal Undertakings. In the area served by the Natal Undertakings 133 farms and 235 other rural consumers were connected to Escom's rural networks during 1958.

In the Mooi River area the reticulation systems were extended to 17 farms, and in the Richmond District supplies were given to 15 farms.

A scheme for 27 consumers has been planned for the Ixopo District and another extension near Dalton will cater for 11 consumers. Terms have been offered, but the replies are awaited. Plans have been drawn up to supply 15 additional farmers at Mooi River, 34 at Estcourt and 4 at Willowgrange; and these schemes will be carried out in 1959.

During the year farm schemes were planned for a total of 144 farms in the districts of Amersfoort, Bethlehem, Greytown, Umkomaas and Swinburne, but the prices were considered too high and the schemes were abandoned.

Rand and O.F.S. Undertaking. In the vicinity of Jackson's Drift between Johannesburg and Vereeniging an additional 35 consumers were connected, and at the end of the year 63 small farms and small holdings in this area were supplied with electricity.

Good progress was made with the rural scheme covering the Witkoppen/Beverley area north of Johannesburg. The reticulation system was extended to 31 additional consumers.

Construction was started in the area Muldersdrift/Boschkop/Nooitgedacht, and at the end of the year 16 rural consumers were connected.

Terms were quoted for a large farm scheme in the vicinity of Parys and Vredefort; but many farmers considered that the prices were too high, and it was necessary to limit the first stage to a smaller scheme. Construction on this scheme to serve 37 consumers is scheduled to start at the end of 1959.

In the area north of Benoni a number of owners of farms and small holdings have accepted Escom's prices, and a scheme will be established for this area.

A rural scheme was planned for the Mooi River Valley above and below Potchefstroom. This scheme made provision for about 250 consumers of which about 100 were farmers. Terms were offered to the prospective consumers through the Potchefstroom and District Farmers' Association, and it is expected that replies will be returned shortly.

At the end of the year technical investigations were being made into a number of the rural schemes.

OUTPUT AND SALES

The total of units generated in all Escom Undertakings in 1958 was 15,582 million units; and 164 million units were purchased from outside sources.

Units sold by all Undertakings (electricity, air and steam) amounted to a total of 13,602 million units, which showed an increase of 6.6 per cent over the corresponding figure for 1957.

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

				1958	1957	Increase
Units generated	...	...	...	15,582,562,551	14,638,811,739	6.1%
Units purchased	...	...	...	164,110,757	162,828,351	—
Units sold	...	...	...	13,602,188,526	12,763,051,473	6.6%

Sales of units by individual Undertakings were as follows:—

				1958	1957	Increase
Cape Western	...	...	...	826,039,753	698,563,418	18.2%
Cape Northern	...	...	...	115,244,948	86,080,122	33.9%
Border	...	...	...	152,939,127	143,109,560	6.9%
Natal Southern	...	...	...	1,104,130,375	1,018,709,827	8.4%
Natal Central	...	...	...	616,138,707	621,692,049	—
Eastern Transvaal	...	...	...	584,058,155	536,518,030	8.9%
Rand and Orange Free State	...	...	...	10,200,590,178	9,652,522,674	5.7%
Sabie	...	...	...	3,047,283	5,855,793	—
				13,602,188,526	12,763,051,473	6.6%

An analysis of sales according to classes of consumers is given on page 5.

AREAS OF SUPPLY AND DEVELOPMENT OF TRANSMISSION SYSTEMS

The extensions made in 1958 to the areas of supply of Escom's Undertakings are described on page 7.

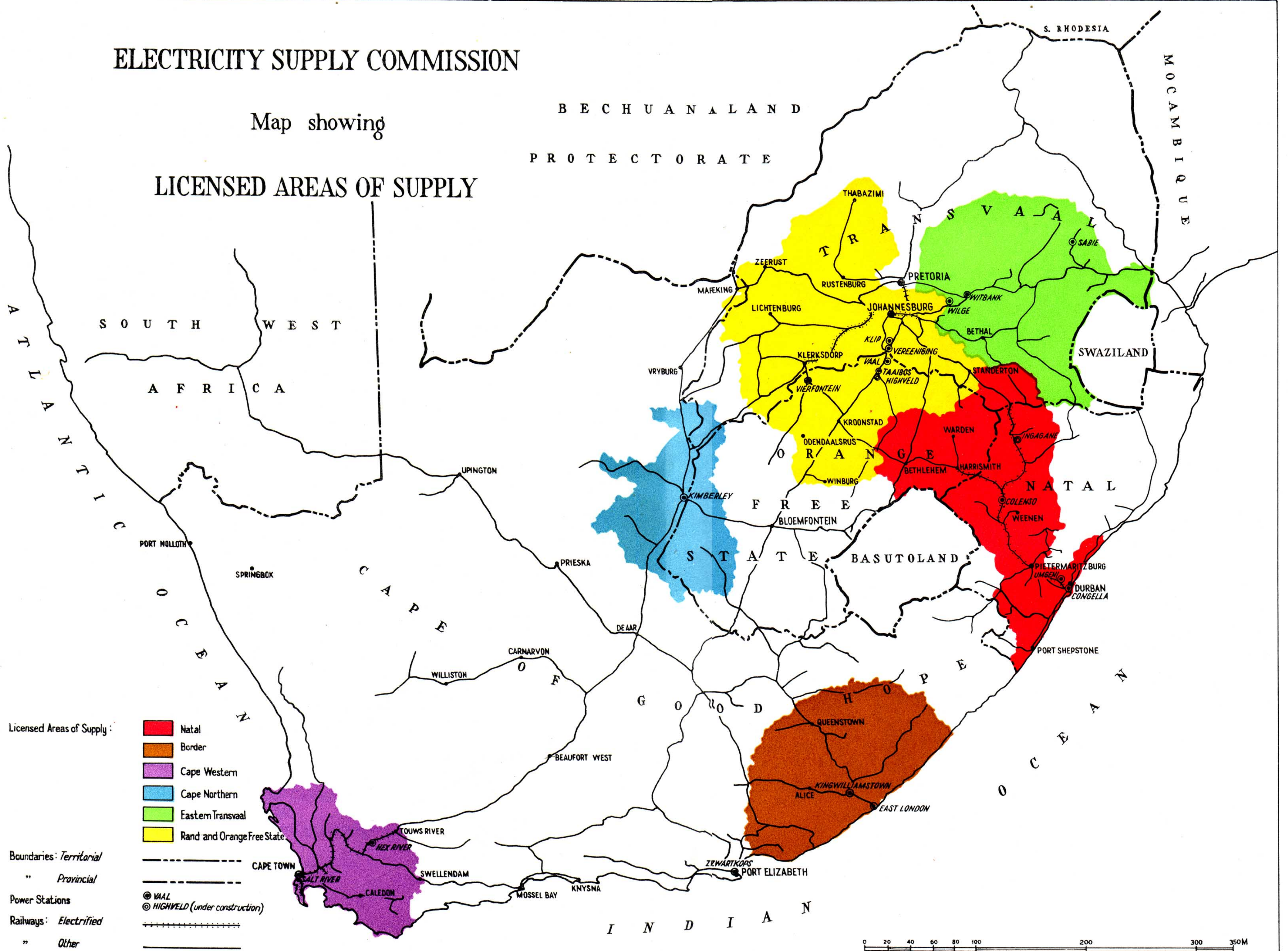
The licenced areas of the Undertakings are shown in colour on the map which appears opposite this page.

The extension of Escom's major transmission systems is indicated in the following list which sets out the more important transmission lines completed during 1958, and the lines under construction or projected at the end of the year:—

ELECTRICITY SUPPLY COMMISSION

Map showing

LICENSED AREAS OF SUPPLY



		Voltage (kV).	Total circuit (Miles)
Completed in 1958			
C.W.U.	Wellington-Gouda	66	25
	Sir Lowry's Pass-Bot River	66	15
B.U.	King Williams' Town-Grahamstown ...	66	65
C.N.U.	Grootkop-Kimberley	132	139½
	Ulco-Silver Streams	132/66	42
E.T.U.	Middelburg-Groblersdal	88	49
R. & O.F.S. U.	Highveld-Everest (2nd line)	275	98½
	Doornfontein-Trident	132	62
	Virginia-Everest Turn-ins	132	6
	Taaibos-Westgate	132	67
	Vierfontein-Carrdell (1½ Double Circuits) ...	132	51
	Westgate-Libanon-West Wits	132	31
	Klip-Rosherville (Double circuit)	88	56
	Trident-Swartruggens	88	35
	Various system extensions for S.A.R., Mines etc.	88	48
	Everest network	42	26
	S.A.R. supplies	42	25
	Various system extensions	42	33
Under Construction 1.1.1959.			
C.W.U.	Bot River-Klipdale	66	45
C.N.U.	Norlim-Reivilo-Borrelskop	66	38
N.U.	Umgeni-Coedmore (Double circuit) ...	132	24
	Various S.A.R. Supplies	88	25
	Colenso-Ladysmith	88	16
	Ladysmith-Van Reenen	88	33
	Glencoe-Newcastle	88	32
	Glencoe-Dundee (2nd line)	88	10
E.T.U.	Witbank-Middelburg	132	18
	Grootpan-Wildebees (2nd line)	132	31½
R. & O.F.S. U.	Nevis-Esselen (2 lines)	275	54
	Taaibos-Doornfontein (2nd Line)	132	55
	Various Network Extensions	88	32
Projected 1.1.59.			
C.W.U.	Wellington-Paarl (3rd line)	66	4
	Hex River-Beaufort West (2 lines)	132	220
	Salt River-Muldersvlei-Wellington-Hex River	132	76
	Muldersvlei-Firgrove	132	18
C.N.U.	Kimberley-Ulco	132	57
	Silver Streams-Manganore-Sishen	132	57
	Sishen-Kuruman-Riries-Hotazel	66	50
N.U.	Georgedale-Northdene (Double Circuit) ...	88	32
	T. lines to Feralloys, Cato Ridge	132	6
E.T.U.	Komati-Witkloof-Machadodorp-Lydenburg- Penge	132	186
	Grootpan-Kromklip-Vandyksdrift (2 lines) ...	88	44
	Vandyksdrift-Komati	88	7
	Grootpan-Blackhill (2 lines)	88	20
	Grootpan-Oogies (2 lines)	88	4
	Grootpan-Arbor (2 lines)	88	30

R. & O.F.S. U. Komati-Nevis (2 lines)	...	...	...	275	134
Carrdell-Watershed	...	...	...	132	70
Senekal-Marquard-Clocolan-Ficksburg- Ladybrand	...	...	...	88	95

COSTS AND TARIFFS, 1958.

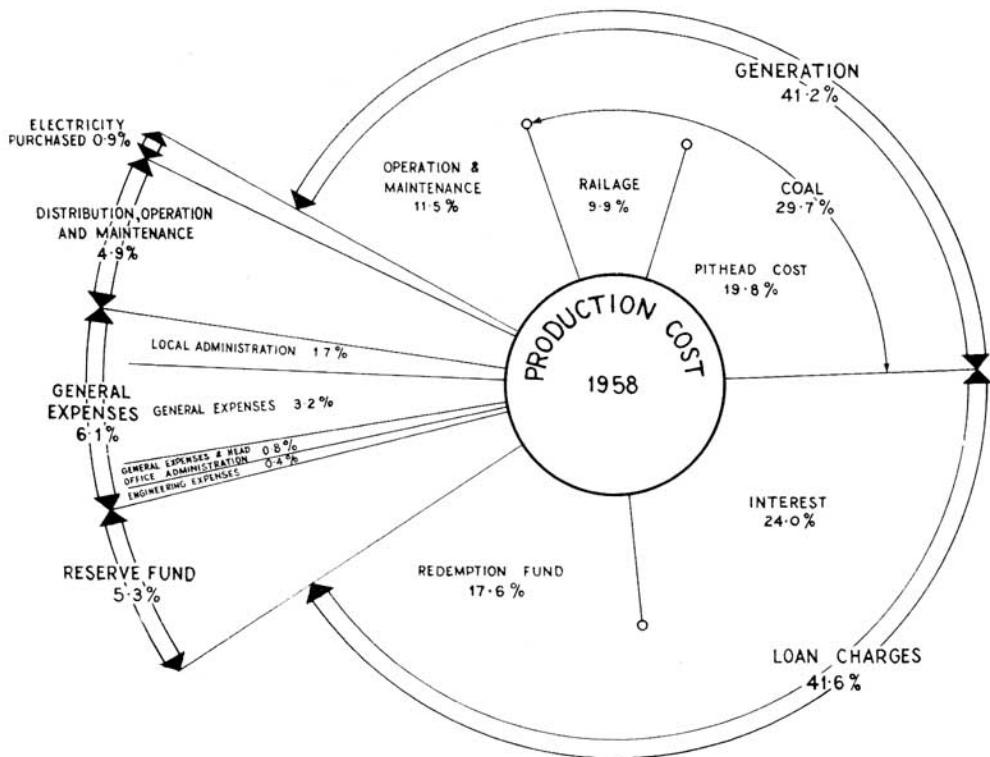
Escom's production costs showed an increase of 10.9 per cent in 1958, against an increase of only 6.6 per cent in units sold.

These figures show that the upward trend in costs of production is not yet at an end.

During the year a revision of railway rates which increased the railage on coal by 10-15 per cent, was introduced from 1st July, 1958; and an increase of 1s. 3d. per ton in the control price of coal was allowed from 1st September, 1958. These increases are reflected in Escom's costs for the year. The total cost of coal consumed (including railage on coal) amounted to £9,519,701, which was an increase of 10.3 per cent over the 1957 cost, against the increase of only 5.5 per cent in the quantity of coal burnt.

As the cost of coal accounts for nearly 30 per cent of Escom's production costs, the following figures are of special interest.

Over the past five years the total of units generated in Escom's power stations has increased by 46 per cent; but, due to the greater efficiencies of the plant in its new power stations, the quantity of coal burnt has only increased by 34.4 per cent. In



spite of this saving in coal burnt, the expenditure on coal including railage increased by 68 per cent.

During the year the following changes were made in Escom's tariffs:—

With effect from the month of January, 1958, the discount rate on the tariffs of the Rand and Orange Free State Undertaking was reduced from 13 per cent to 7 per cent., and from the same date the surcharge on tariffs for the Eastern Transvaal Undertaking was raised from a 25 per cent surcharge to 30 per cent surcharge.

On the Cape Western Undertaking an increase in tariffs of 5 per cent was introduced with effect from the meter reading month of August, 1958.

In order to take into account the fundamental change in the cost structure of the Cape Northern Undertaking resulting from the interconnection with the pooled power stations of the Rand and Orange Free State Undertaking, and also the increases in operating costs at the Central Power Station, Kimberley, a complete revision of tariffs for the Cape Northern Undertaking was necessary. An application was made to the Electricity Control Board on the 22nd December, 1958. After a public hearing, the application was granted by the Board on the 24th February, 1959, for introduction from the statistical month of April, 1959. It was estimated that, the general increase under the new tariffs would be less than 3 per cent.

STATISTICAL SUMMARY

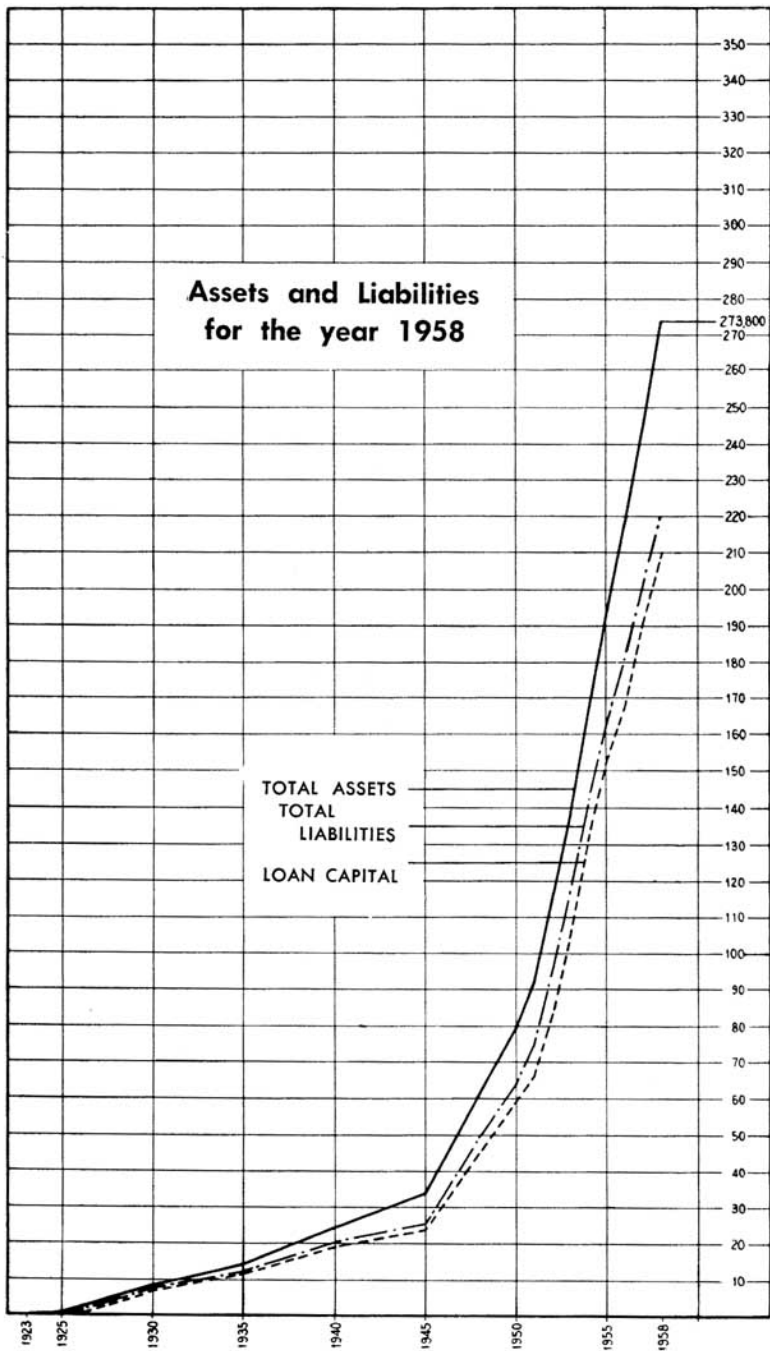
Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's undertakings during the year 1958, with the comparative figures for 1957, are as follows:—

	1958	1957	Increase
Total Revenue	£32,237,376	£28,625,411	12·618%
Total Production Costs (including interest, redemption and reserve fund charges)	£31,942,182	£28,814,184	10·856%
Difference between Revenue and Production Costs	£295,194	Dr. £188,773	—
Average Price per Unit sold ...	0·5680d.	0·5374d.	5·694%
Average Revenue per Unit sold (including sundry revenue) ...	0·5690d.	0·5383d.	5·709%
Average Cost per Unit Sold ...	0·5638d.	0·5418d.	4·055%
Units Generated	15,582,562,551	14,638,811,739	6·447%
Units sent out	14,515,812,628	13,640,104,029	6·420%
Units purchased	164,110,757	162,828,351	—
Units sold	13,602,188,526	12,763,051,473	6·575%
Total cost of coal consumed (including railage)	£9,519,701	£8,628,033	10·335%
Railage on coal consumed ...	£3,182,275	£2,838,920	12·095%
Coal consumed (in tons of 2,000 lbs.)	11,887,426	11,266,237	5·514%

FINANCIAL

Loan Capital. During 1958 two local loans totalling £23,000,000 were raised as follows:—

Date Issued		Amount	Interest	Issue Price	Redeemable
10th April	...	£12,000,000	$5\frac{3}{8}\%$	£100%	31/10/78–83
14th October	...	11,000,000	$5\frac{5}{8}\%$	£100%	31/3/79–84
		<hr/>			
		<u>£23,000,000</u>			



These loans were fully subscribed, but at the year end the amount received on account of the loan issued on the 14th October was £8,900,008. The balance of £2,099,992 payable not later than the 31st January, 1959 in terms of the prospectus, has since been received. At the year end the loans raised locally as Local Registered Stock totalled £192,000,000 of which £2,500,000 had been repaid.

The Commission's loan capital at the date of the Balance Sheet was £209,774,486.

Redemption Fund. The amount in the Redemption Fund at the 31st December, 1958, totalled £44,769,519 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, 1958 was £7,881,987.

Capital Expenditure. Expenditure on Capital Account during the year amounted to £20,217,860 which increased the total capital expenditure at the 31st December, 1958, to £208,850,449.

Expenditure on Capital Account will amount to approximately £286,800,000 on completion of all the works to which the Commission is committed and on projected works.

Investments. The book value of securities, representing investment in Government, Municipal and Electricity Supply Commission stocks held by the Commission on behalf of the various funds at 31st December, 1958, was £51,540,001, the nominal value being £51,804,166. The market value of these investments at that date was £46,805,380.

Assets and Liabilities. The Commission's total assets at the 31st December, 1958, amounted to £273,876,955 and its total liabilities to £220,073,991, the difference being £53,802,964 which is represented by the amounts in the redemption, reserve and sinking funds and loans repaid, less balance on revenue account.

STAFF

Home Ownership Scheme. The balance at 31st December, 1958, on loans granted to employees to enable them to acquire homes under the Commission's Home Ownership Scheme in terms of the Electricity Act, was £1,022,142.

Personnel. The staff employed by the Commission at the 31st December, 1958, numbered 14,312 employees made up as follows:—

	1958	1957	Increase	
Europeans	5,206	4,913	293	6·0%
Non-Europeans... ..	9,106	8,508	598	7·0%
	14,312	13,421	891	6·6%

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

ESCOM'S UNDERTAKINGS

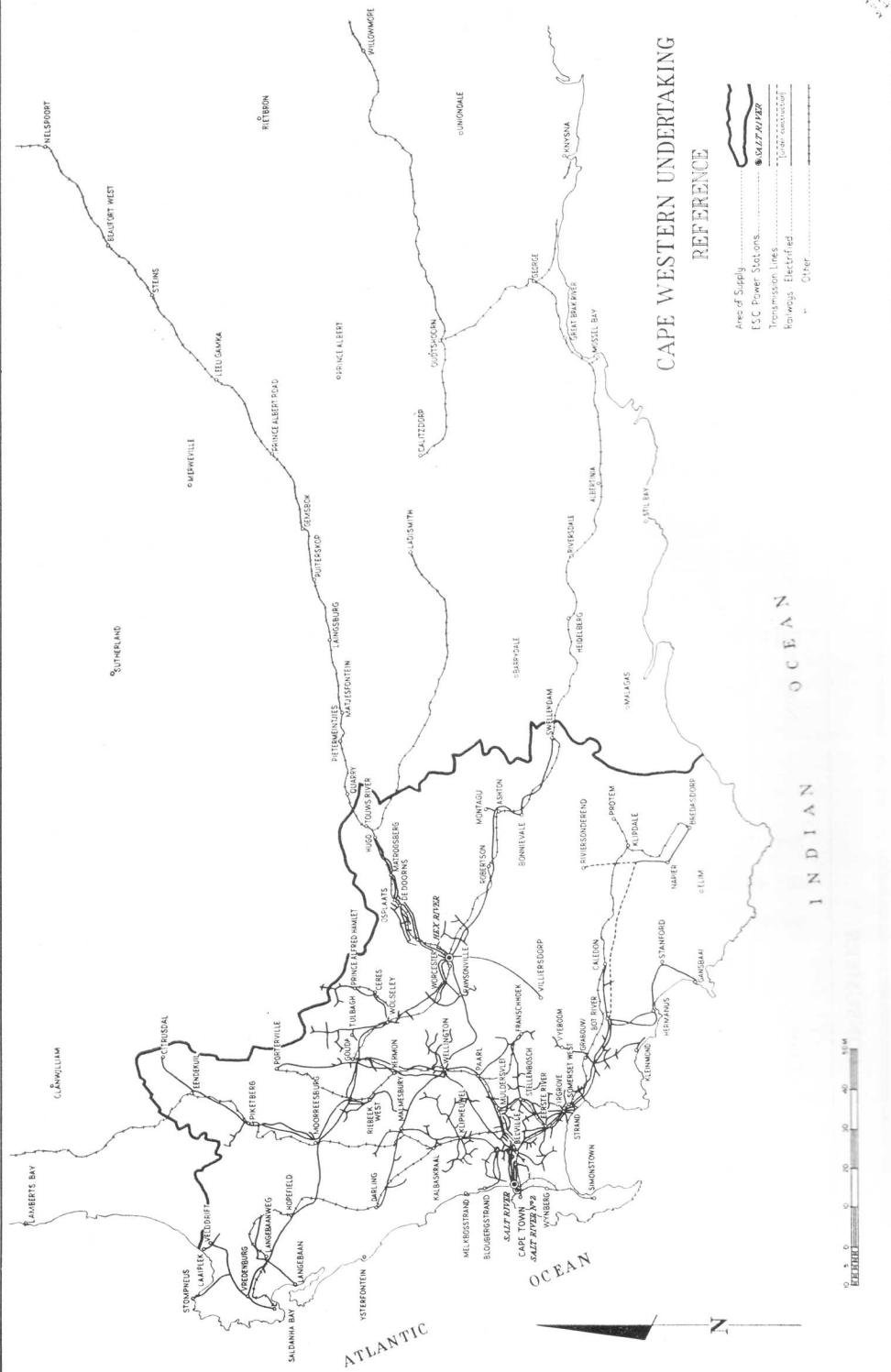
The operation and development of the separate Undertakings are reviewed in detail in the following pages.

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	SALES			Average Price per Unit Sold		
	Class	Number	Units	Increase	Revenue from Sales	
Traction	2	200,969,260	Per cent	£	d.	
Bulk	26	319,132,569	4·120	884,824	1·0366	
Industrial	2,174	187,747,052	35·082	1,366,804	1·0279	
Domestic and Lighting	25,570	118,190,872	19·048	999,579	1·2888	
			5·916	790,372	1·5432	
	27,772	826,039,753	18·248	4,041,579	1·1758	
		1958	1957		Accumulated to 31.12.58	
Total Revenue		£4,059,302	£3,436,471			
Working Costs		£4,061,626	£3,547,014			
Deficit		£2,324	£110,543		£169,124	
Capital Expenditure		£949,051	£1,223,268		£24,640,467	
CONSUMERS		Salt River Power Station No. 1			Hex River Power Station	
Class	No. 1		No. 2		1958	
	1958	1957	1958	1957	1958	1957
Units Sent Out	38,189,410	4,399,490	642,827,610	568,986,770	204,997,310	185,488,310
Maximum half-hour Demand kW S.O.	52,824	29,109	120,330	123,448	59,400	58,400
Station Peak kW	60,000	32,500	129,500	135,000	61,800	60,400
Load Factor %	8·3	1·7	61·0	52·6	39·4	36·3
Thermal Efficiency % S.O.	15·4	6·5	26·8	26·4	23·1	23·2
FUEL:						
Coal Consumed—tons	29,447	8,619	351,207	316,325	130,072	117,864
Average per unit sent out—lb.	1·877	4·515	1·077	1·108	1·269	1·271
Calorific Value B.Th.U./lb	11,830	11,680	11,830	11,680	11,620	11,550
Total Cost	£868,669*	£711,612*			£295,482	£246,239
Cost per ton	45s. 8d.*	43s. 10d.*			45s. 5d.	41s. 9d.

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



CAPE WESTERN UNDERTAKING

REFERENCE

- Area of Supply
- ESC Power Stations
- Transmission Lines
- Railways, Electrified
- Other



ATLANTIC OCEAN

OCEAN

INDIAN OCEAN

General. Throughout the year the Cape Town City Council took supply from this Undertaking as a bulk supply consumer; but the two systems continued to be operated in parallel, and no operational difficulties were experienced with City Council supply.

Two interruptions to consumers occurred during the year, due to incidents involving power station equipment: but there was no damage to plant, and supplies were restored after short periods. There was no restriction due to shortage of power station plant.

Output and Sales. The increase in units sold during 1958, as compared with 1957 must be read in the light of the increase in units sold to the Cape Town City Council. The growth of Escom's Undertaking excluding the units sold to the Council, amounted to an increase of 9.5% compared with the previous year.

Revenue increased by 11.65%, the higher percentage being due to the fact that from August 1958 tariffs were raised by a surcharge of 5% on all electricity charges, except extension charges.

Coal. The supply of coal generally was satisfactory, although in September stocks at Salt River were reduced to approximately two days consumption. From this time until the end of the year large consignments were received and coal stock rose to some 40,000 tons. The calorific value was slightly higher than in 1957, and the grading remained much the same.

Salt River No. 1 Power Station. With Salt River No. 2 Power Station carrying the largest percentage of the load, and Hex River Power Station doing most of the regulating, the demands on Salt River No. 1 were of short duration and at odd times. Maintenance work on boiler plant was continued, the largest single item being the complete retubing of the superheater in No. 4 boiler.

The stator of No. 5 machine suffered damage from a stator fault in June, but was repaired and returned to service in September.

Salt River No. 2 Power Station. Operation of the boiler plant was improved by the removal of two half rows of generating tubes; but the increased primary superheater temperature brought to light weaknesses in the steam attemperating arrangements, which caused the outage of several units. This trouble has not been satisfactorily settled, and is still under discussion by contractors and consultants.

The repairs to horizontal joints and high pressure glands on Nos. 2 and 3 turbo-generators were completed during the year. These machines together with Nos 1 and 4 are giving satisfactory service, and are proving capable of giving continuous service at specified heat rates.

Asphalting of roads and improvement of grounds have greatly enhanced the appearance of the site.

Hex River Power Station. Since most of the system regulation is effected from this station the overall thermal efficiency is less than was attained under more stable load conditions. The boiler plant still gives excellent service, but as expected after six years operation, replacement of some minor components has become necessary.

The turbine contractor effected modification to Nos 2 and 3 machines, gaining possibly $\frac{1}{2}$ per cent on efficiency thereby. While the machines were out of commission for this purpose, station personnel carried out maintenance on the ancillary equipment.

Major Transmission System. Negotiations for suitable routes for the 132 kV lines to link the Salt River Power Stations with the load centres, Firgrove, Muldersvlei and Wellington, progressed steadily, and at the end of the year 85 per cent of the Salt River-Muldersvlei, 90 per cent of the Muldersvlei-Firgrove and 65 per cent of the Muldersvlei-Wellington wayleaves were secured.

Progress in the survey and planning of the 132 kV Hex River-Beaufort West lines required for the electrification of the track between Touws River and Beaufort West is reported on page 6.

The second 66 kV line from Wellington to Gouda was completed in June, and shortly thereafter two lines were erected to the new Ongegund Factory of the Cape Portland Cement Company at Riebeeck West. Structural work on the new substation for this supply and the extensions to the existing Wellington and Gouda Substations required to accommodate the additional Gouda and Moorreesburg lines respectively were also completed. This completed the network extensions and additions required for augmenting supplies to these areas.

The new 66 kV substations at Bot River and Hermanus, were completed and equipped in the second half of the year, and in November, the network from Lourens River-Bot River-Hermanus was changed over from 33 kV to 66kV working, in time for the summer peak loads in the area.

Bulk Supply and Industrial Consumers. Two new bulk supply consumers were connected during the year when supplies were made available to the Municipalities of Citrusdal and Gansbaai. 15 Industrial consumers in the category of large users of which three are temporary supplies, were given supplies, totalling about 875 kVA.

Development of Urban Distribution. In the urban areas of Goodwood, Parow and Bellville the units sold during the year increased by 13·4 per cent. The demand of 31·4 MVA recorded for these areas was 2·9 per cent higher than for the previous year.

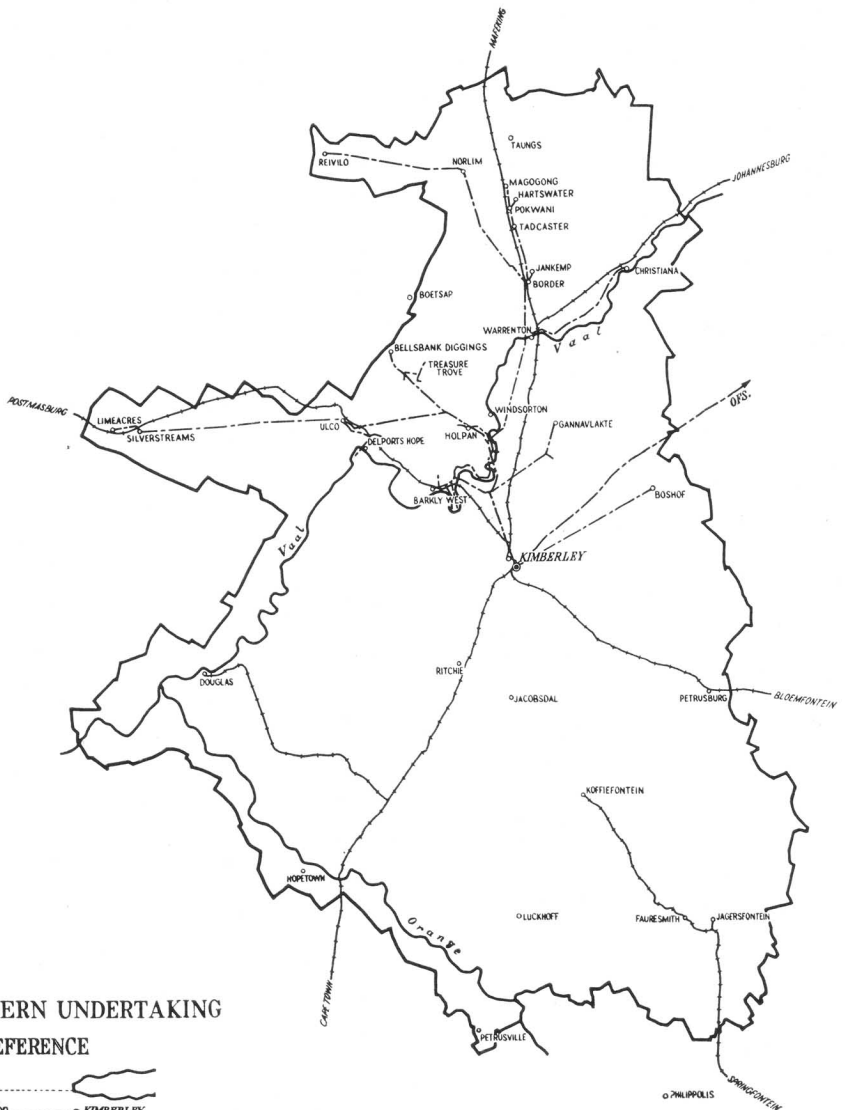
Development of Rural Supplies. During the year the Undertaking handled 495 applications for supplies in the Rural areas. Of these, 367 were connected, including 112 farms, 10 large users and two bulk consumers, Citrusdal and Gansbaai, as mentioned above.

Details of farm schemes completed in 1958 are given on page 13.





Negotiations with potential consumers in rural areas are continuously in progress, and several meetings with farmers' unions were held during the year. As the rural system extends further inland where the areas are less populated, economic difficulties inevitably arise, and as a consequence negotiations are protracted. Everything, however, is being done to keep construction costs as low as possible, and to provide supplies to as many farmers and other rural consumers as possible.

Financial. As explained in the last Report, it was necessary to raise the tariffs in order to balance the Undertaking's accounts, and a surcharge of 5 per cent was applied from August, 1958.

There was a small deficit of £2,324 on the year's working: and at 31st December 1958, the accumulated deficit stood at £169,124.



CAPE NORTHERN UNDERTAKING REFERENCE

- Area of Supply 
- ESC Power Station  KIMBERLEY
- Transmission lines 
- Railways  (Under construction)

CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1958	1957
Bulk	5	54,936,600	Per cent.	£	d.	d.
Mining	9	37,261,327	10·182	233,032	1·0180	1·0131
Industrial	76	20,875,024	45·343	196,519	1·2658	1·3344
Domestic & Lighting... ..	594	2,171,997	126·570	127,335	1·4640	1·8175
	684	115,244,948	58·549	26,120	2·8862	3·1343
			33·881	583,006	1·2141	1·2286
		1958	1957	Accumulated to 31.12.58		
Total Revenue		£583,602	£441,066			
Working Costs		£565,993	£447,303			
Deficit			£6,237	£9,366		
Surplus		£17,609				
Capital Expenditure		£686,812	£571,960	£3,191,230		
CENTRAL POWER STATION—						
Units Sent Out		98,486,424	86,996,327			
Maximum half-hour Demand kW S.O. }		24,627	20,935			
Station Peak kW		27,200	22,600			
Load Factor %		45·7	47·4			
Thermal Efficiency % S.O.		12·5	12·4			
COAL:						
Coal consumed—tons		108,080	98,021			
Average per unit sent out—lb... ..		2·195	2·253			
Calorific Value B.Th.U./lb.		12,410	12,240			
Total Cost		£193,925	£166,623			
Cost per ton		35s. 11d.	34s. 0d.			

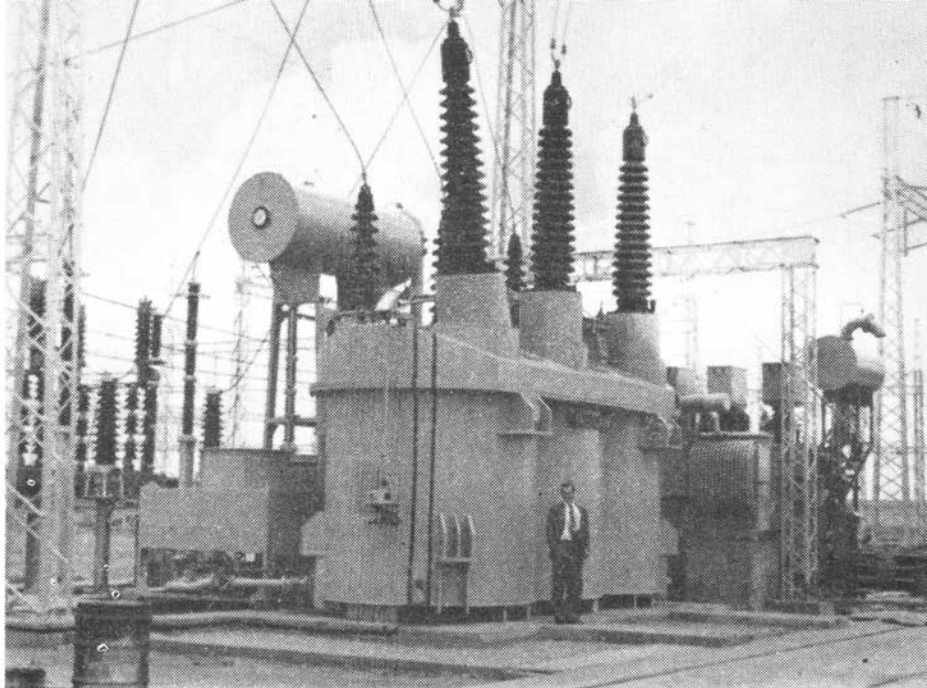
Area of Supply. The extension of the area of supply of the Cape Northern Licence, 1949, is reported on page 7.

General. The completion and commissioning of the Grootkop-Kimberley 132 kV interconnector, which is reported on page 10 marks a notable step forward in the development of the Cape Northern Undertaking.

The interconnecting transmission line, together with the Kimberley stepdown substation, involved a capital cost of about £900,000; so that the initial loading of the line at about 20 MW provided an increase in the amount of generating plant available to the Undertaking at a capital cost appreciably lower than the cost that would be involved in building another small power station in the Kimberley area; and the cost of producing electricity in the pit-head power stations of the Rand and O.F.S. Undertaking is a good deal lower than the cost of production at the Central Power Station, Kimberley. It will be noted from the revenue account published on page 68 that the cost of 19.1 million units of electricity purchased from the pooled power stations in 1958, but without allowance for the costs of the interconnector, was about 0·4d per unit.

Negotiations for further development of the Undertaking in the Postmasburg and Kuruman areas have reached an advanced stage, and a new 132 kV line from

A 275/132/42 kV 150 MVA auto-transformer at the Everest distribution station from which power is transmitted to Free State consumers.



Kimberley to Postmasburg with a 66 kV extension to Kuruman, is being planned. Present indications are that in this area an additional 7,500 kVA of load will be connected up. In several instances supplies from Escom will bring about a saving amounting to about one half of the costs that are incurred by these consumers at present in generating their own power supplies.

Sales of Electricity. The total units sold in 1958 was 115.24 million units, an increase of 33.9 per cent above the total for the previous year. The greater part of this increase was taken by the large consumers De Beers Consolidated Mines, Limited, Anglo Alpha Cement Company Limited at Ulco and Northern Lime Company Limited, at Taungs.

The supply to the Kimberley City Council showed an increase of 9.3 per cent over the previous year; and the total of bulk supplies to the smaller towns, including Christiana which was connected up in February, 1958, increased by one-third.

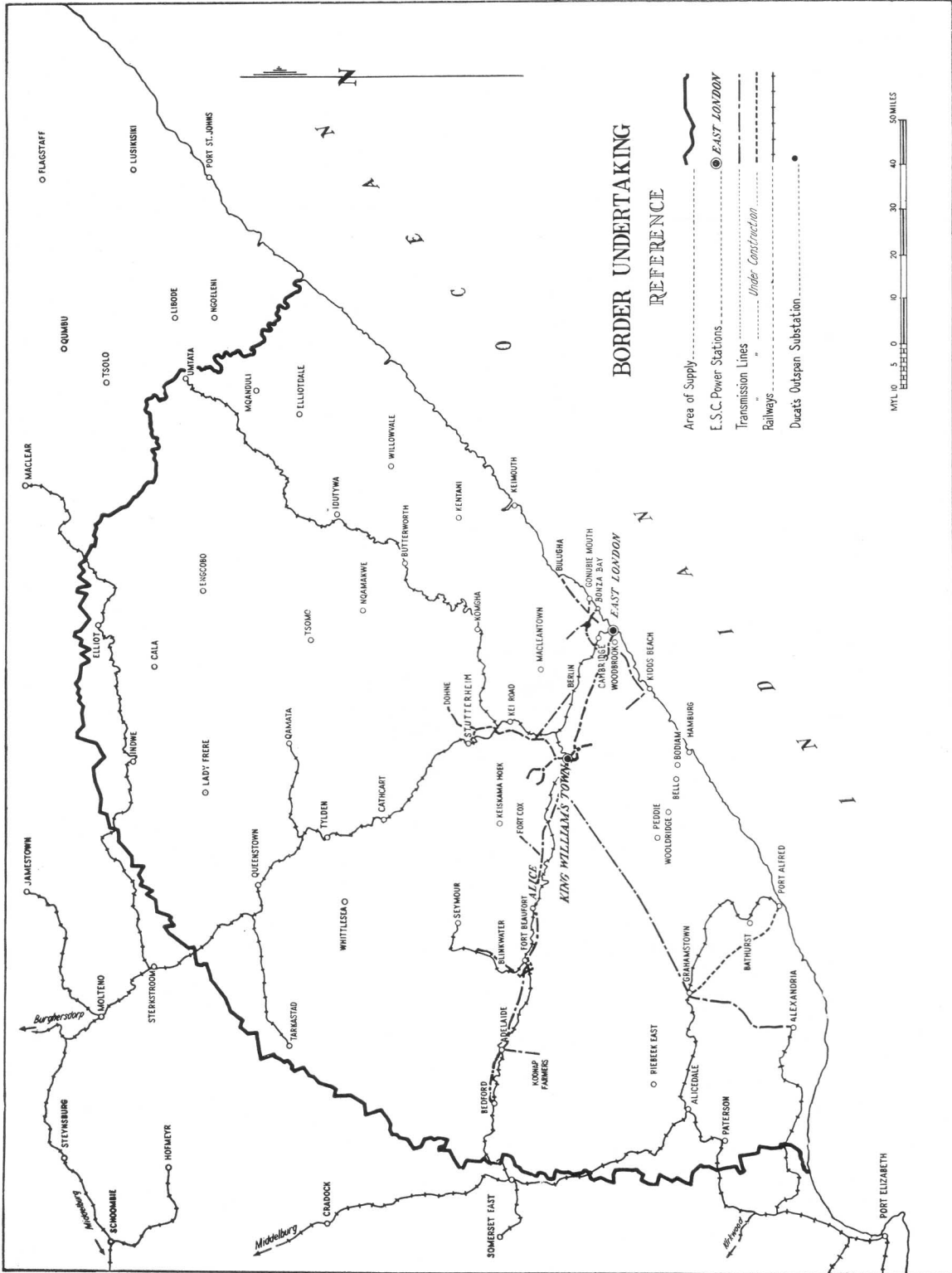
The first 105 plottolders in the Vaalharts Irrigation Scheme, including new consumers connected during the year, used 182,117 units; but it is expected that the use of electricity by these consumers will increase in time.

Central Power Station, Kimberley. During 1958 112.5 million units were generated at the Central Power Station, which was an increase of 14.1 per cent over the output of the previous year. The maximum half-hour demand S.O. was 24,627 kW, and the station peak 27,200 kW.

During the six months prior to the commissioning of the Grootkop interconnector, all six machines were required to run six days per week; so that for the greater part of the year the station was operated with little or no stand-by.

Financial. The application for revision of the tariffs for this Undertaking is reported on page 17.

The revenue account for 1958 showed a surplus of £17,609, compared with the deficit of £6,237 in 1957. There was an accumulated deficit at the year end of £9,366.



BORDER UNDERTAKING

REFERENCE

- Area of Supply.....
- E.S.C. Power Stations.....
- Transmission Lines.....
- Railways.....
- Ducats' Outpost Substation.....

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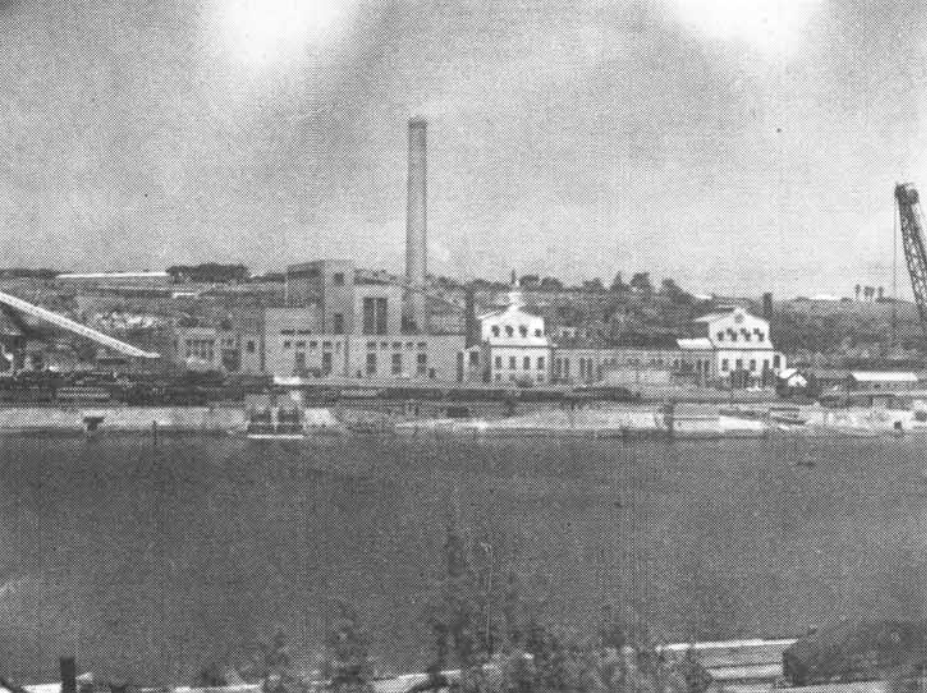
BORDER UNDERTAKING

CONSUMERS		SALES			Average Price per Unit Sold	
		Number	Units	Increase		
Class	Number	Units	Per cent.	£	d.	d.
Bulk	7	138,880,480	6.428	664,153	1.1502	1.1374
Industrial	205	5,265,652	27.578	51,169	2.3322	2.2779
Domestic and Lighting	2,378	9,092,995	3.665	90,651	2.3926	2.3939
	2,590	152,939,127	6.869	805,973	1.2648	1.2473
		-	-	1957	Accumulated to 31.12.58	
Total Revenue		£807,169		£745,778		
Working Costs		£799,543		£746,668		
Surplus		£7,626				
Deficit				£890		£124,826
Capital Expenditure		£138,933		£363,841		£4,565,569

	East London West Bank No. 1 and No. 2		King William's Town (standby)	
	1958	1957	1958	1957
Units Sent Out	157,360,900	144,466,562	69,692	83,920
Maximum half-hour Demand kW S.O.	33,462	30,050	2,400	2,900
Load Factor %	53.7	54.9	—	—
Thermal Efficiency % S.O.	20.1	19.4	—	11.7
			1958	1957
Units Sent Out			Steam	Steam
Maximum half-hour Demand kW S.O.			69,692	83,920
Load Factor %			2,400	2,900
Thermal Efficiency % S.O.			—	11.7
			1958	1957
Units Sent Out			Steam	Oil
Maximum half-hour Demand kW S.O.			103	2,305
Load Factor %			2.955	12,680
Thermal Efficiency % S.O.			£248	£237
			48s. 1d.	48s. 5d.
			—	—
			—	—
			5,893	7,363
			0.561	0.564

FUEL:

Coal Consumed—tons	115,685	110,936	103	98
Average per Unit Sent Out	1.470	1.536	2.955	2.305
Calorific Value B.Th.U./lb	11,560	11,430	—	12,680
Total Cost	£254,246	£231,354	£248	£237
Cost per Ton	43s. 11d.	41s. 9d.	48s. 1d.	48s. 5d.
Fuel Oil consumed—lb.	—	—	—	—
Fuel Oil per unit S.O.—lb.	—	—	—	—



A view across the river of the West Bank Nos. 1 and 2 power stations at East London.

Output and Sales. Total units sold during 1958 increased by 6·87 per cent over the sales in 1957.

The supply taken by the East London Municipality increased by 4·66 per cent to 132,770,000 units, while the maximum demand increased from 27,240 kVA in 1957 to 28,650 kVA in 1958.

Sales in the coastal area, excluding East London Municipality, increased by 9·83 per cent. In the inland areas there was a large increase in units sold due to the commencement of supply to Grahamstown Municipality in July, from which date Grahamstown took a part supply of 2,375,000 units. Excluding Grahamstown, the increase in sales for the inland area was 9·41 per cent.

74 New consumers were connected during the year, bringing the total number up to 2,590.

The system maximum half hour demand was 33,462 kW as compared with 30,050 kW in 1957.

West Bank Power Stations. No major plant was commissioned during the year; but erection of the third 170,000 lb/hr boiler in No. 2 Power Station was commenced in the latter part of the year. This boiler is scheduled for steaming early in 1960.

Modifications to the smaller boilers in West Bank No. 1 Station were completed.

No. 1 Station was used to augment the output of West Bank No. 2 Station when necessary and supplied 13·4 per cent of the total units generated during the year.

The efficiency of the combined stations, based on units sent out, increased from 19·4 per cent in 1957 to 20·1 per cent in 1958, despite greater use being made of the plant in the old Station.

The installation of the boiler house lift was completed.

King William's Town Power Station. This station was retained as stand-by, the 1,000 kW Diesel set being operated regularly on test.

In December, during a prolonged outage of the 66kV Interconnector, the station was on load for about 16 hours and carried the full inland load until supply could be restored from East London.

Development of the Undertaking. The erection of the King William's Town/Grahamstown 66 kV line was completed and a temporary step-down substation was installed to commence supply to Grahamstown in July. The equipping of the permanent stepdown substation was delayed by the late arrival of transformers, but was nearing completion at the close of the year.

The remaining section of the Fort Beaufort/Kat Valley line was completed in July, and supply is now being given to 20 rural consumers on this scheme.

The first section of a scheme to supply consumers in the South Coast area, near East London, was nearing completion, supply being commenced to the first group of consumers in November. An extension of this scheme to give supply to consumers in the area as far South as Kidds Beach and to a pine-apple canning factory in the area was nearing completion at the end of the year.

A step-down substation was established at Middledrift, and in October supply was commenced to the Fort Cox Agricultural College over 3½ miles of 11 kV line.

The Grahamstown/Alexandria 11 kV transmission line was completed in December, but commencement of a supply to Alexandria was dependent upon completion of the permanent substation at Grahamstown, which was scheduled for mid-January.

Construction of the Grahamstown/Port Alfred 11 kV line was commenced in November.

Short spurs from the King William's Town/Stutterheim line, to provide supply to the Railways at Amabele and Blaney, were completed in September. Bulk supply to the Berlin Village Management Board was started in October.

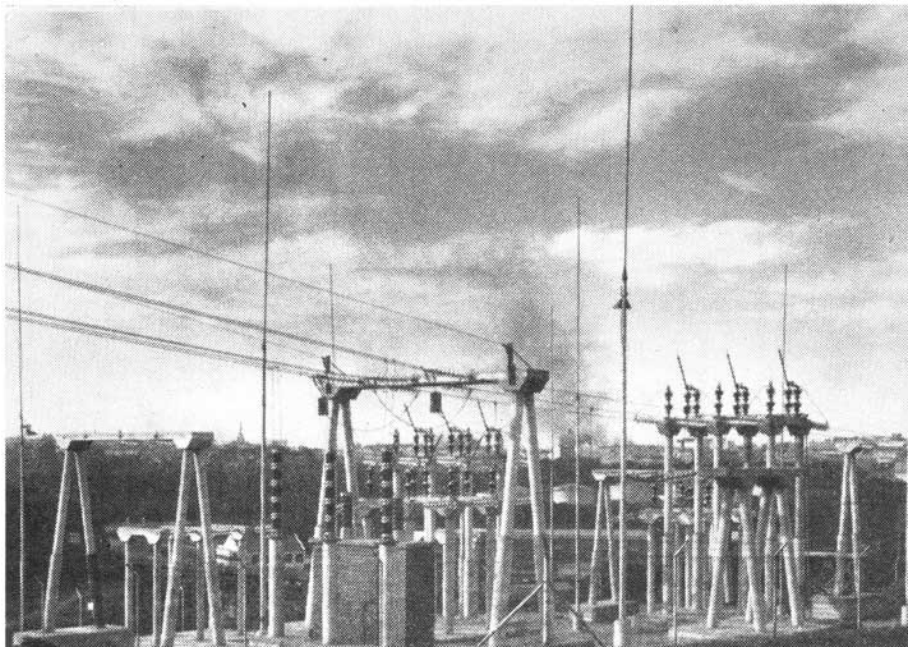
Supply to a group of consumers at Kwelegha Village was commenced in December.

Negotiations are in hand for supplies to Middledrift Village, Kei Road Village and the Municipality of Keiskama Hoek. Terms have been offered to Komgha Municipality.

Financial. There was no change in the tariffs in force on the Undertaking.

The Revenue Account for the year showed a surplus of £7,626, the total revenue being £807,169. The accumulated deficit was thus decreased to £124,826.

The 33kV/66 kV step-up substation at East London: start of Escom's inland service which has now been extended to Grahamstown and Alexandria.



NATAL SOUTHERN UNDERTAKING

	CONSUMERS				SALES			Average Price per Unit Sold	
	Class	Number	Units	Increase	Revenue from Sales				
						1958	1957		
Traction	1	79,951,009	Per cent 14·911	£ 227,416	d. 0·6827	d. 0·7277		
Bulk	3	958,797,273	7·602	2,768,217	0·6929	0·6852		
Industrial	295	37,182,237	16·058	184,670	1·1920	1·1692		
Domestic and Lighting	5,768	28,199,856	8·312	239,869	2·0414	2·0166		
		6,067	1,104,130,375*	8·385	3,420,172	0·7434	0·7373		
Total Revenue	1958	1957	Accumulated to 31.12.58				
Working Costs	£3,422,996	£3,132,105					
Surplus	£3,488,726	£11,713	£81,058				
Deficit	£65,730	£1,730,724					
Capital Expenditure	£1,515,779		£19,523,890				
			Umgeni Power Station	Port Shepstone Power Station	Ixopo Power Station				
			1958	1957	1958	1957	1958	1957	
Units Sent Out		538,823,900	403,696,650	89,458	59,720	26,336	444,674	
Maximum half-hour Demand kw S.O.		116,400	84,600	3,374	2,962	Ceased operating 25/5/58		
Station Peak kW		126,000	92,000	3,440	3,300			
Load Factor %		52·8	54·5					
Thermal Efficiency % S.O.		23·3	22·9					
			Congella Power Station Nos. 1 and 2						
			1958	1957					
FUEL:			669,798,060	730,376,340					
Coal Consumed—tons		134,982	154,088					
Average per unit sent out		147,000	173,000					
Calorific Value B.Th.U./lb		56·6	54·1					
Total Cost		20·0	19·8					
Cost per ton		494,185	550,713					
Fuel Oil Consumed—lb.		11,540	11,410					
Fuel Oil per unit S.O.—lb.		£885,705	£942,451					
			35s. 10d.	34s. 3d.					
			37s. 2d.	34s. 11d.					
			349,576	266,654					
			1,298	1,321					
			11,300	11,280					
			£649,800	£464,995					
			37s. 2d.	34s. 11d.					
			54,184	35,995					
			0·606	0·596					
			33,516	97,456					
			1·273	1·037					

*This total includes sales of units re-purchased.

Operation of the Pooled Power Stations. Congella and Umgeni Power Stations, together with Colenso Power Station of the Natal Central Undertaking, were operated as pooled power stations and in parallel throughout the year, except for short periods. The output from the pooled power stations increased from 1704.1 million units in 1957 to 1787.9 million units in 1958, an increase of 4.9 per cent.

The units taken by the two Undertakings were:—

	1958	1957	Increase or Decrease
Natal Southern Undertaking	1,124,098,077	1,036,874,515	8.4% Increase
Natal Central Undertaking ...	663,793,743	667,269,185	0.5% Decrease

Coal supplies were generally satisfactory in quantity; but trouble was experienced with the quality of coal received from one colliery supplying Colenso Power Station, until the matter was rectified.

Sales of Electricity. The total units sold increased by 8.4 per cent, as compared with the increase of 6.4% in 1957.

The sum of the maximum half-hour demands of all consumers in the large user category, excepting the traction supplies to the South African Railways, was 225,544 kVA as compared with 219,090 kVA recorded in 1957.

Congella Power Station. Units sent out from the Congella Power Stations showed a further decrease in 1958, as additional plant became available at Umgeni Power Station, and Congella No. 1 Station was closed down at night throughout the year. The number of fire failures was decreased considerably, one contributory factor being the provision of hot air to feeders to prevent sticking of the coal in the feeders.

The new water clarification plant for closed circuit operation of the hydro-vac and ashing systems was completed in September, and although the capacity of the plant seems to be inadequate for continuous full-load operation, the advantages of the plant have been evident in the reduction of ash-laden water into the Corporation drains.

The installation of the water softening plant will be started early in the new year.

Generator 6 rotor was modified and rewound at Rosherville and returned to the Station in October. Similar modifications will be made to the rotor of Generator 8 during 1959.

Extensive reblading of the turbines in No. 2 Station have been found necessary.

Work proceeded with the installation of metering voltage transformers to improve the accuracy of the metering to Durban Corporation.

The 33 kV indoor switchgear modifications were continued in the fitting of new contact drive rods and blast tubes and at the year end only two breakers were outstanding.

The method of earthing the 33 kV neutral system has been under investigation for some time by Head Office, and equipment for this purpose will be ordered shortly.

Umgeni Power Station. Boilers 7 and 8 were commissioned in April and August respectively. Generator 4 was synchronised for the first time on the 30th April and loaded to 30 MW (its full capacity) on 28th May, on completion of the h.p. heater pipework.

Work has continued on the dust collectors in an endeavour to obtain satisfactory operation and Boiler 1 was out of commission during the year for this purpose for no less than 915 hours. Official tests were carried out on the dust collectors of Boiler 6 in March.



ORANGE FREE STATE

TRANSVAAL

NATAL

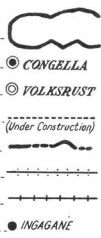
BASUTOLAND

CAPE PROVINCE

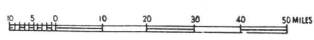
INDIAN OCEAN

NATAL UNDERTAKINGS
REFERENCE

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



The Natal Central licence includes the areas of jurisdiction of the Local Authorities of Perdekop, Wakkerstroom and Amersfoort.



Official acceptance tests were carried out in March on Turbine 3.

Work on site started for the "B" Extensions, comprising two 60 MW turbo-generators and their associated boilers.

Distribution System. During the year 79.05 miles of transmission and distribution lines were erected and energised at 6.6 kV and above, and 5.7 miles of underground 11 kV cables were installed on the North and South Coast systems.

A quarter mile section of 33 kV line along the Railway line on the South Coast remains and is still operated at 11 kV.

The temporary 88 kV substation at Umgababa was put into commission in May and good progress was made with the construction of the permanent substation at that point.

The new 88/11 kV substation at Shongweni was completed in September and supply at 11 kV to the Shongweni/CatoRidge/Drummond area is now available from this substation.

The construction of the 132-88-kV substation at Coedmore was well in hand at the year-end, as was the construction of the 132 kV lines to this point from Umgeni.

The deviation and doubling of the 88 kV line along the railway track between Congella and Booth were nearing completion at the year end; but this work, which is being carried out by the Railway's staff, is subject to frequent interruptions to suit traffic conditions.

The survey of the routes for the 88 kV T-lines to the new traction substations at Northdene, Kloof and Alverstone were completed and contracts were placed for the erection of these lines, which are due to be commissioned early in 1959.

The supply to Ixopo by means of the 33 kV line from Richmond was started in April.

Supplies were given to seven new power users on the Natal Southern Undertaking, and one large user was converted to a small power supply.

The maximum demand of the South Coast system increased from 11,000 kVA to 13,000 kVA.

The maximum demand of the North Coast system increased by 18.2 per cent to 1,500 kVA.

The diesel station at Port Shepstone was kept in service for standby purposes. The aggregate running hours of the four machines was 134 hours during the year.

Rural Supplies. During the year 59 rural consumers were connected on the Natal Southern Undertaking.

Financial. The revenue account for the Undertaking for 1958 showed a deficit of £65,730 as compared with £11,713 in 1957. This has reduced the accumulated surplus on this Undertaking to £81,058; and it is expected that the accumulated surplus will be extinguished during 1959.

The comparative figures for costs and revenue for the Natal Southern Undertaking are:—

					1958	1957	% Increase
Costs	...	...	...	...	£3,488,726	£3,143,818	10.97
Revenue	...	...	...	...	£3,422,996	£3,132,105	9.29

NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase/Decrease		1958	1957
Traction	1	276,004,052	Per cent - 3·897	£ 959,437	d. 0·8343	d. 0·8007
Bulk	17	241,479,222	+ 6·218	845,631	0·8405	0·8177
Mining	15	34,385,858	+13·652	132,434	0·9243	0·8822
Industrial	553	47,384,668	-23·332	197,602	1·0008	0·9052
Domestic and Lighting ...	4,778	16,884,907	+11·890	145,733	2·0714	2·1617
	5,364	616,138,707	- 0·893	2,280,837	0·8884	0·8543
					Accumulated to 31.12.58	
Total Revenue		£2,288,071		£2,219,648		
Working Costs		£2,338,053		£2,231,577		
Surplus						£35,243
Deficit		£49,982		£11,929		
Capital Expenditure		£782,745		£361,114		£10,765,699
COLENSO POWER STATION— Nos. 1 and 2—						
Units Sent Out		579,269,860		570,070,710		
Maximum half-hour Demand kW S.O. }		121,530		114,500		
Station Peak kW		134,000		132,000		
Load Factor %		54·4		56·8		
Thermal Efficiency % S.O.		18·6		18·7		
COAL:						
Coal consumed—tons		451,722		444,595		
Average per unit sent out—lb... ..		1·560		1·560		
Calorific Value B.Th.U./lb.		11,750		11,710		
Total Cost		£670,346		£636,958		
Cost per ton		29s. 8d.		28s. 8d.		

During the reconditioning of the 33 kV line to Vrede, temporary power stations were established at Vrede and Reitz; the units sent out were 381,350 and the fuel consumed 294,954 lb.

Operation of the Pooled Power Stations. In terms of the Licence Colenso Power Station was operated with Congella and Umgeni Power Stations as a group of stations serving the Natal Undertakings. The statistics of output and the units taken by each Undertaking from the pooled stations are given on page 33.

Sales of Electricity. The total units sold decreased by 0.9 per cent as compared with 1957, the drop being attributable mainly to the termination of supply to one large consumer at Ballengeich. There was also a reduction of nearly 4 per cent in the units sold for traction purposes, this decrease being attributed to the improvement in operating conditions which was brought about by doubling the railway track and regrading the line north of Pietermaritzburg, and the replacement of motor-generator substations by rectifier substations.

The sum of the maximum half-hour demands of all large power users, other than the traction supplies to the Railway Administration, was 91,035 kVA as against 85,969 kVA in 1957.

Colenso Power Station. Continuity of supply was maintained throughout the year, and it is pleasing to be able to report that partial interruptions to traction supplies to avoid over-loading at the Station showed a considerable reduction in number and total duration.

Loading has increased and records were established with total units generated of 616,334,780 kWh, and in the maximum output from the station.

277,776 tons of coal other than mixed smalls were received during the year.

Work has started on the "D" Extensions, comprising one 30,000 kW turbo-generator and two boilers, and it is hoped that these will be brought into service during 1959.

The rainfall recorded was 26.131 inches, the maximum fall during any one month being 7.555 inches in January.

Distribution System. During the year 121.07 miles of transmission and distribution lines were erected and energised at 6.6 kV and above, and 18.64 miles of overhead line in this voltage class were converted or dismantled.

Contracts were placed for a third 88 kV line between Colenso and Ladysmith, the 88 kV line along the cross-country route between Ladysmith and Van Reenen and the 88 kV line between Glencoe and Newcastle, to enable the Green line between these points to be removed from its existing route along the railway track.

The South African Railways added second rectifiers at Newcastle and Dannhauser in February and April respectively, and work was well in hand towards completion of their new rectifier substations at Nottingham Road, New Lowlands, Elandslaagte, Hospital Siding and South Portal.

The restringing of the 33 kV lines between Warden and Reitz and Vrede was completed, and arrangements are being made to sell the four 125 kV diesel-generating sets installed to maintain supplies during the restringing.

Supplies to the towns of Memel and Paul Roux were given in May and December respectively. In both cases Escom is doing the reticulation.

During the year five large power users were connected up and the same number discontinued their supplies. 68 new rural consumers were connected.

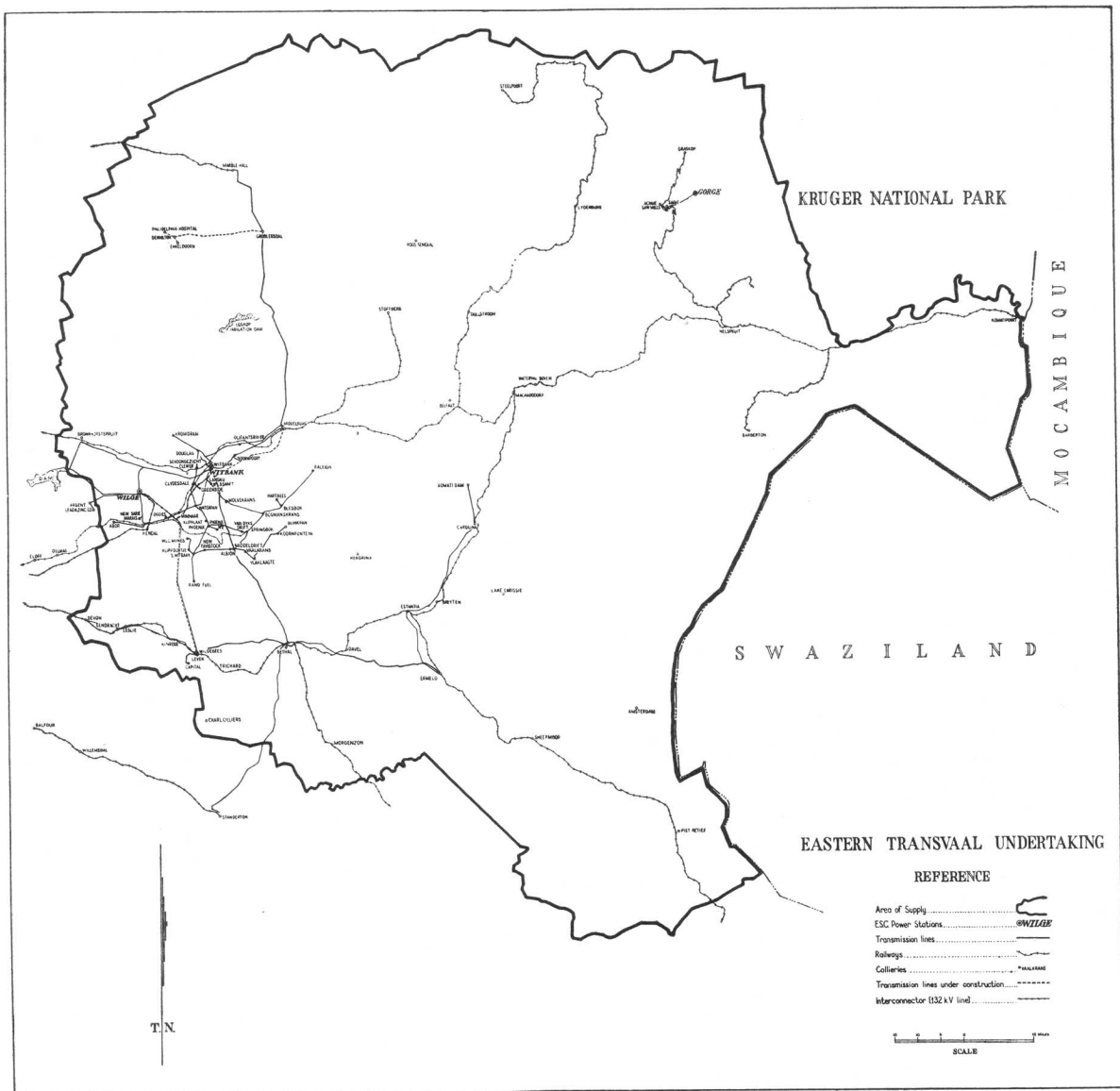
Financial. A deficit of £49,982 is shown in the revenue account for the year 1958, as against a deficit of £11,929 in 1957. The accumulated surplus on this Undertaking has been decreased from £85,225 to £35,243.

The comparative figures of costs and revenue for 1957 and 1958 are:—

		1958	1957	% Increase
Costs	... ..	£2,338,052	£2,231,577	4.77
Revenue	... ..	£2,288,071	£2,219,648	3.08

EASTERN TRANSVAAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Decrease/Increase		1958	1957
Traction	1	30,156,074	Per cent + 39·825	£ 58,055	d. 0·4620	d. 0·5013
Bulk	8	38,809,084	+ 19·319	99,488	0·6152	0·6615
Mining	38	174,892,403	+ 32·476	474,369	0·6510	0·5998
Industrial	175	337,363,350	- 3·095	494,244	0·3516	0·3363
Domestic and Lighting ...	1,156	2,837,244	+ 24·965	32,733	2·7688	2·3884
	1,378	584,058,155	+ 8·861	1,158,889	0·4762	0·4362
		1958	1957	Accumulated to 31.12.58		
Total Revenue		£1,162,531	£978,165			
Working Costs		£1,146,167	£970,132			
Surplus		£16,364	£8,033	£43,366		
Capital Expenditure		£1,433,996	£800,482	£7,330,177		
WITBANK POWER STATION—						
Units Sent Out		605,087,239	634,099,895	Statistics for Sabie Power Station 1958 (part of this Undertaking since 1/7/58) are shewn under Sabie Undertaking.		
Maximum one-hour Demand kW S.O. }		111,139	116,653			
Load Factor %		62·2	62·1			
Thermal Efficiency % S.O. ...		15·2	15·6			
COAL:						
Coal consumed—tons		601,870	616,666			
Average per unit sent out—lb....		1·989	1·945			
Calorific Value B.Th.U./lb. ...		11,310	11,280			
Total Cost		£315,123	£319,654			
Cost per ton		10s. 6d.	10s. 4d.			



Sales of Electricity. The over-all increase in units sold was 8.9 per cent, but larger increases were recorded in units sold to the South African Railways for the Pretoria traction system, to mining consumers and in domestic and lighting supplies.

The new traction substation at Cordelfos was brought into commission in November, 1958, and the supply to Eerste Fabrieke is expected to commence in the second half of the year.

The supply taken by Winkelhaak Mines, Limited, increased from 17.9 million units in 1957 to 51.7 million units in 1958. The mine was listed as a producing mine in December, 1958.

The decrease in the supply to industrial consumers is due to a reduction of 23.7 million units in the supply taken by Rand Carbide, Limited.

Komati Power Station. A report on the progress of construction of Komati Power Station is given on page 11.

Sabie Power Station. The last consumer supplied with electricity in terms of the Sabie Licence, 1933, terminated his supply at 30th June, 1958, and from 1st July, 1958, the Sabie Hydro-electric Power Station was incorporated in the enlarged Eastern Transvaal Undertaking. The Station was operated from 1st July, 1958, for the supply to the Sabie village and other consumers in the vicinity. The reticulation taken over serves 77 domestic and business consumers and 3 large users.

The operating statistics for the Sabie Power Station for the full year are given on page 48.

Witbank Power Station. The reduction in output from 634.1 million units to 605.1 million units for 1958 reflects the role of Witbank Power Station as a regulating and peak load station. Further reductions are to be expected with the commissioning of additional plant at Wilge and Komati Power Stations.

Distribution System. A report upon the development of the 132 kV transmission system and associated substations is given on page 11.

The 88 kV line from Middelburg to Groblersdal and Groblersdal Substation were completed during the year, and the line was commissioned in January, 1959.

Wayleaves have been secured, and construction has commenced on the 88 kV lines which will provide supplies for the electrification of the Witbank system of railways.

The capacity of Step-up Substation was increased by the installation of a 24 MVA three phase transformer; and a second bank of transformers was installed in Middeldrift Substation. Additional equipment was installed in Bethal and Estancia substations.

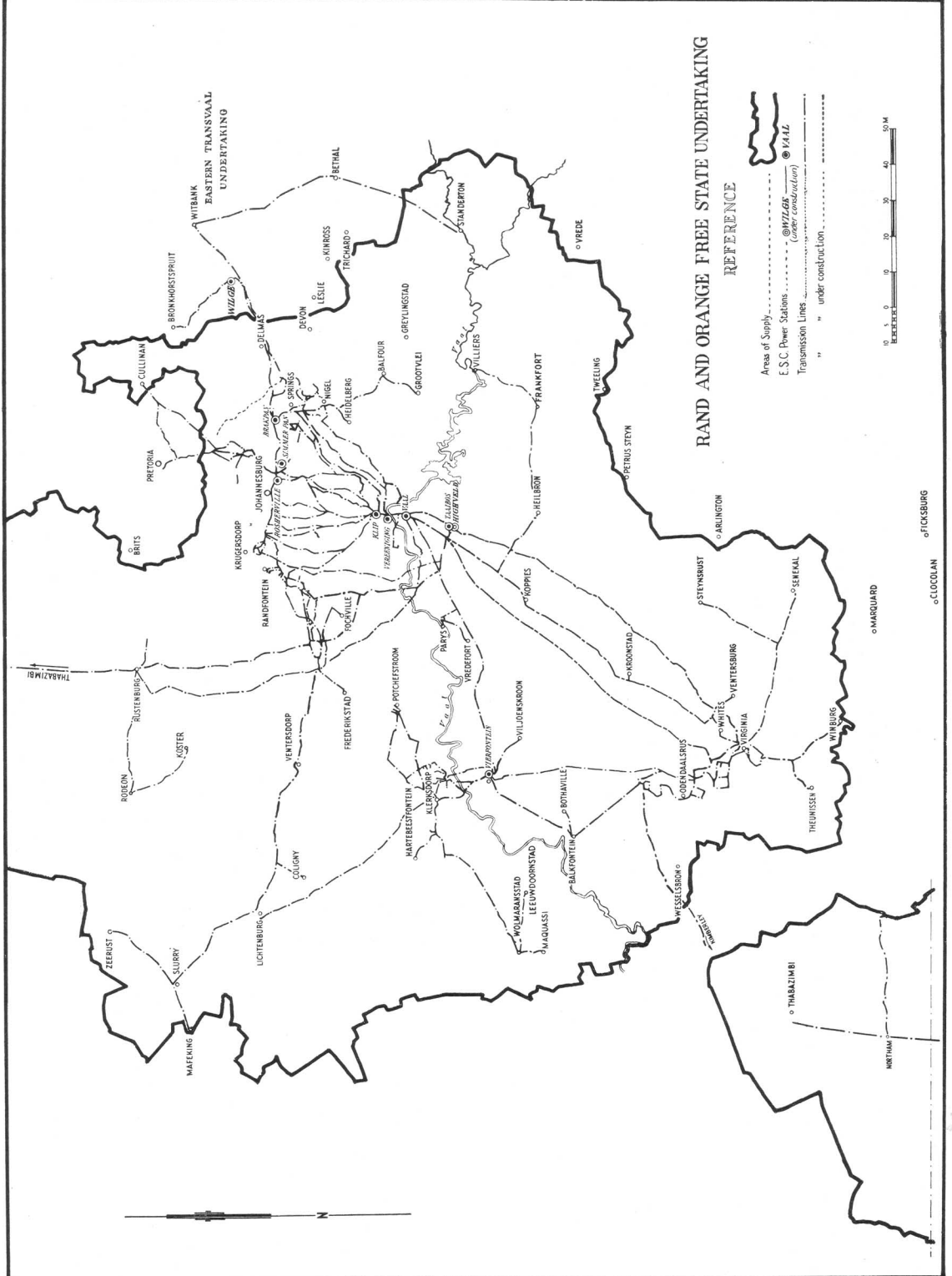
About 38 miles of new 21 kV lines were constructed including the lines Groblersdal-Marble Hall, Groblersdal-Dennilton and Carolina-Komati Dam; and the reconstruction of the Middelburg-Steam-Middelburg Town line was completed.

89 miles of overhead lines of 11 kV, 6.6 kV and 2.2 kV, together with 64 transformers and 14 miles of low voltage lines were erected during the year.

188 new reticulation consumers were given supplies, 54 of these being farmers.

Financial. In order to cover the estimated costs the surcharge on the Undertaking's standard tariffs was increased from 25 per cent to 30 per cent, with effect from January, 1958.

The Revenue Account for the year disclosed a surplus of £16,364, which increased the accumulated surplus to £43,366 at 31st December, 1958.



RAND AND ORANGE FREE STATE UNDERTAKING

REFERENCE

- Area of Supply
- E.S.C. Power Stations
- Transmission Lines
- under construction.



- of Ficksburg
- of Hartswater
- of Lichtenburg
- of Slurry
- of Zeerust

RAND AND ORANGE FREE STATE UNDERTAKING

		CONSUMERS			SALES		Revenue from Sales	Average Price per Unit Sold	
		Class	Number	Units	Increase Per cent	£		1958	1957
ELECTRICITY:									
Traction	1	201,930,534	11·356	457,021	0·5432	d.	0·5012
Bulk	71	1,086,064,045	11·634	2,338,688	0·5168		0·4865
Mining	112	6,886,623,292	4·408	12,714,998	0·4431		0·4141
Industrial	738	1,843,959,056	7·318	3,409,562	0·4438		0·4197
Domestic and Lighting	3,421	28,439,448	15·545	145,517	1·2280		1·1062
Electricity Supplied to Eastern Transvaal Undertaking	—	—	—	11,759	—		—
			4,343	10,047,016,375	5·837				
					Increase or Decrease				
AIR AND STEAM:									
Bulk	1	3,786,086	+0·920				
Mining	11	140,657,879	-3·800				
Industrial	26	9,129,838	-4·930				
			38	153,573,803	-3·757	820,512	1·2823		1·1979
			4,381	10,200,590,178	+5·678	19,898,057	0·4682		0·4387
Summary:									
				1958		1957		Accumulated to 31.12.58	
Total Revenue	£19,919,852		£17,661,346			
Working Costs	£19,548,066		£17,716,669			
Deficit			£55,323			£533,420
Surplus	£371,786					
Capital Expenditure	£14,112,026		£11,878,494			£136,696,667

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Vaal Power Station		Wilge Power Station	
	1958	1957	1958	1957
Electricity Units Sent Out	1,932,693,303	1,965,742,693	1,020,417,371	878,246,959
Maximum Load	283,109	285,150	170,531	168,495
One-hour kW S.O.	77.9	78.7	68.3	59.5
Load Factor %	22.0	22.3	24.7	25.1
Thermal Efficiency % S.O.				
COAL:				
Coal consumed—tons	1,662,633	1,681,747	718,503	608,662
Average per unit sent out—lb.	1.721	1.711	1.408	1.386
Calorific Value B.Th.U./lb.	9,000	8,960	9,790	9,790
Total Cost	£600,336	£608,545	£326,537	£270,129
Cost per ton	7s. 3d.	7s. 3d.	9s. 1d.	8s. 11d.

	Vereeniging Power Station		Vierfontein Power Station	
	1958	1957	1958	1957
Electricity Units Sent Out	710,773,141	655,350,288	1,771,316,833	1,616,881,102
Maximum Load	134,296	135,318	304,164	283,920
One-hour kW S.O.	60.4	55.3	66.5	65.0
Load Factor %	14.9	15.1	23.5	23.1
Thermal Efficiency % S.O.				
COAL:				
Coal consumed—tons	902,882	821,940	1,409,954	1,315,579
Average per unit sent out—lb.	2.541	2.508	1.592	1.627
Calorific Value B.Th.U./lb.	9,010	8,990	9,140	9,150
Total Cost	£444,498	£377,596	£862,510	£723,558
Cost per ton	9s. 10d.	9s. 2d.	12s. 3d.	11s. 0d.

	Brakpan Power Station		Klip Power Station	
	1958	1957	1958	1957
Electricity Units Sent Out	30,940,707	44,874,517	2,534,332,050	2,433,984,482
Maximum Load	26,459	32,021	388,860	368,805
One-hour kW S.O. }	13.3	16.0	74.4	75.3
Load Factor %	11.4	12.6	19.8	19.9
Thermal Efficiency % S.O.				
COAL:				
Coal Consumed—tons	46,579	60,371	2,251,281	2,145,543
Average per unit sent out—lb.	3.011	2.691	1.777	1.763
Calorific Value B.Th.U./lb.	9,930	10,060	9,680	9,720
Total Cost	£46,469*	£55,865*	£2,019,793	£1,863,689
Cost per ton	17s. 3d.	16s. 6d.	17s. 11d.	17s. 4d.
Rosherville Power Station				
		1958	1957	1958
Electricity Units Sent Out		66,866,374	130,085,506	2,807,609,121
Maximum Load		39,477	44,083	387,506
One-hour kW S.O. }		19.3	33.7	82.7
Load Factor %		9.4	10.6	26.9
Thermal Efficiency % S.O.				
COAL:				
Coal consumed—tons		122,633	213,482	1,995,399
Average per unit sent out—lb.		3.414	3.282	1.313
Calorific Value B.Th.U./lb.		9,880	9,820	8,920
Total Cost		£250,129*	£326,061*	£835,885
Cost per ton		19s. 2d.	18s. 9d.	8s. 5d.
		1958	1957	1958
Electricity Units Sent Out		2,807,609,121	2,454,148,592	387,353
Maximum Load		387,506	387,353	72.3
One-hour kW S.O. }		82.7	72.3	26.8
Load Factor %		26.9	26.8	
Thermal Efficiency % S.O.				
COAL:				
Coal consumed—tons		1,995,399	1,713,952	1.397
Average per unit sent out—lb.		1.313	1.313	9.110
Calorific Value B.Th.U./lb.		8,920	9,110	£652,724
Total Cost		£835,885	£652,724	7s. 7d.
Cost per ton		8s. 5d.	7s. 7d.	

*Includes cost of coal for compressed air.

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Brakpan Power Station		Rosherville Power Station	
	1958	1957	1958	1957
Compressed Air Units Sent Out	..	..	..	..
Steam Units Sent Out	..	..	..	..
COAL:				
Coal consumed—tons	7,283	7,200	138,332	134,722
Average per unit sent out—lb.	3·164	2·829	2·881	2·590
Calorific Value B.Th.U./lb.	9,930	10,060	9,880	9,820
	4,603,260	5,090,115	96,044,000	104,024,300

	Canada Dam Compressor Station		Robinson Compressor Station	
	1958	1957	1958	1957
Compressed Air Units Sent Out	..	..	..	..
Electric Input—kWh ex.c Trans. Losses	20,547,800	23,560,000	41,769,600	34,211,600
Air Units Sent Out/kWh per cent	24,730,132	28,547,477	53,383,866	43,695,310
	83·09	82·53	78·24	78·30

Sales of Electricity and Compressed Air. Total sales by the Undertaking (electricity, air and steam units) amounted to 10,200 million units in 1958, which was an increase of 5.7 per cent on the sales figure for 1957.

The increase in supplies for the Reef traction system and the extension of railway electrification to Klerksdorp are reported on page 6.

The increase in electricity supplies to mining consumers of only 4.4 per cent, coupled with a further reduction in sales of air and steam, is the lowest rate of increase experienced in the post-war period: but the figures for the early months of 1959 suggest that the rate of increase in mining supplies will be greater in 1959 than in the past two years.

The high load factors on the supplies taken by the gold mines was commented upon in the last Annual Report. This feature has persisted, as is shown in the following figures of the average monthly load factors of the supplies to gold mining companies under the Group Agreement:—

Year						Average monthly load factor
1955	...	...	...	...	...	76.1 per cent
1956	...	...	...	...	...	75.7 per cent
1957	...	...	...	...	...	76.9 per cent
1958	...	...	...	...	...	77.2 per cent

Some figures showing the quantities of electricity consumed in the new mining areas, in comparison with the old area, are given on page 7. A significant feature from the aspect of electricity supply is that the consumption of electricity per ton milled is appreciably higher in the new areas. For example, in 1958 the consumption in the O.F.S. goldfields area was 155 units per ton milled, compared with only 68 units per ton milled in the old area.

The supplies furnished as bulk supplies to municipalities continued to grow at the high rate of 11.6 per cent.

Supplies to consumers classified as industrial, that is large power users, increased by 7.3 per cent.

Generating Plant Capacity. A total of 150,000 kW of generating plant was installed in the Taaibos, Vierfontein and Wilge Power Stations in 1958, and an additional 180,000 lb/hr. boiler was installed at Klip Power Station.

Highveld Power Station was started up in January, 1959, and the first two sets, each of 60,000 kW capacity, were taken into commercial service in February and April, 1959.

Operation of the Pooled Power Stations. The total output from the pooled power stations amounted to 11,613 million units in 1958. The electricity taken by the individual Undertakings at the power station busbars was as follows:—

		Maximum demand in the year	Total units
Rand and O.F.S. Undertaking	...	1,637,699 kW	11,031.6 million kWh
Eastern Transvaal Undertaking	...	86,581 "	562.7 " "
Cape Northern Undertaking	...	19,092 "	19.1 " "

The output from Vierfontein Power Station was restricted during the early months of the year by limitations of coal supply due to a shortage of Native labour

at Vierfontein Colliery. The coal cost at this station was aggravated further by stock-piling coal, as a precautionary measure. By the end of the year the Native labour position was restored to normal; and, with the additional plant available at Taaibos and Highveld Power Stations and developments of the major transmission which gave a greater flexibility in loading of Vierfontein Power Station, stock-piling of coal was discontinued.

Taaibos Power Station achieved the record output from a single power station of 2,807 million units for the year, which surpassed the previous record of 2,762 million units sent out from Klip Power Station in 1952. The total cost per unit sent out from Taaibos Power Station was .2692d.

The cost of generation per unit sent out from the pooled power stations of the Rand and Eastern Transvaal Undertakings was .3195d.

Distribution System. The two 275 kV transmission lines from Highveld Power Station to Everest Distribution Station in the Orange Free State which had been extended temporarily to Alma Distribution Station were operated at 132 kV throughout the year.

Everest Distribution Station was commissioned in February, 1959, from which date one of the 275 kV lines was operated at the higher voltage. Part of the 40 kV distribution network was transferred from Virginia Distribution Station to Everest Distribution Station.

Cardell Distribution Station in the Klerksdorp area was commissioned in November, 1958.

In the Far West Rand area, extensions were completed at Libanon and Doornfontein Distribution Stations, and the extensions to West Wits Distribution Station are expected to be in service for the winter of 1959. The first 132 kV bank of transformers at Westgate Distribution Station was commissioned in September, 1958, and the second bank in February, 1959.

During 1958 an additional 240 miles of overhead power lines of 6.6 kV and above were added to the main distribution system. Additional transformers of an aggregate capacity of 505,055 kVA were installed at power stations, while transformer capacity installed in Distribution Stations and in consumers substations was increased by 1,063,896 kVA to the total of 6,506,594 kVA.

Particulars of the more important new transmission and distribution lines which were constructed in 1958 and the lines under construction or projected at the year-end are given in the lists on page 15.

Financial. Tariffs for the financial year were adjusted by reduction of the discount rate to 7 per cent, from the commencement of the year; and the Revenue Account shows a surplus of £371,786 on a total revenue of £19,919,852. The accumulated deficit was thus reduced to £533,420 at the 31st December, 1958.

A further reduction of the general discount rate from 7 per cent to 3 per cent was made for the year 1959.

SABIE UNDERTAKING

CONSUMERS		SALES	Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units		1958	1957
*Mining to 30/6/58.. ..	1	3,047,283	£ 5,613	d. 0·4421	d. 0·4436
			1958	1957	
Total Revenue			£5,613	£10,832	
Working Costs			£5,768	£11,003	
Deficit			£155	£171	
SABIE POWER STATION—1958					
Units Sent Out			4,674,700	5,981,921	
Maximum half-hour Demand kW S.O. ₂ }			1,220	1,200	
Station Peak kW ²			1,240	1,230	
Load Factor % S.O.			43·7	56·9	
RAINFALL at Power Station:					
Inches			56·2	50·7	
Millimetres			1,429	1,288	

*Sabie Undertaking was incorporated in the Eastern Transvaal Undertaking since 1st July, 1958 in terms of the Amended Licence.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES — 1958

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
Alexandra Township	Barberton	
Duiwelskloof	Groblersdal	
Roedtan	Pietersburg	
Stilfontein	Piet Retief	

ORANGE FREE STATE:

New Schemes	Extensions	Tenders
	Bothaville	Dewetsdorp
	Clocolan	Ficksburg
	Dewetsdorp	Wesselsbron (2)
	Ficksburg	

NATAL:

New Schemes	Extensions	Tenders
	Mooi River	
	Stanger	

CAPE:

New Schemes	Extensions	Tenders
Pofadder	Britstown (2)	Beaufort West
Vosburg	Calvinia	Brandvlei
	Cape Town	George
	Dordrecht	Jeffrey's Bay
	Kenhardt	Kuruman (2)
	Komgha	Ladismith
	Kuruman	Pearston
	Middelburg	Phillipstown
	Port St. John's	Pofadder
	Sutherland	Port Elizabeth
	Tarkastad	Umtata
	Umtata	Victoria West

SOUTH WEST AFRICA:

New Schemes	Extensions	Tenders
		Windhoek (5)

Up to the 31st December, 1958, a total of 1,702 reports on Municipal Supply Schemes had been submitted by the Commission. Of these 266 were in respect of new schemes, 810 were in respect of extension schemes and 626 were reports on tenders.

ANNEXURES

The Commission submits for the year 1958 with this Report:—

ANNEXURE A — AUDITOR'S 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—Sabié 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, 1958.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1958.

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

Statement No. 4—Units sold and number of consumers, 1958.

Statement No. 5—Power Station Statistics, 1958.

Statement No. 6—Power purchased, 1958.

Statement No. 7—Water consumed by power stations, 1958.

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 1958.

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. Mouton

Chairman.

THE REPORT OF THE AUDITORS

*The Chairman and Members,
Electricity Supply Commission,
Johannesburg.*

Johannesburg,
14th May, 1959.

GENTLEMEN,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December 1958.

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 1958 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 1958 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 1958, was in excess of the sum required for the redemption of the respective loans in terms of the Schedule to the Electricity Act 1958. 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 date from which provision for redemption of Loan No. 34 commenced at 1st October 1958.

Application has been made to the Minister to fix 1st May 1959 as the date from which provision for redemption of Loan No. 35 shall commence.

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 1958.

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 No. 28 from the International Bank for Reconstruction and Development, which has to be repaid by half-yearly instalments over a period of 8½ 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 1957 and 1958:—

	<i>Surplus +</i> <i>Deficit -</i>		<i>Amounts set aside to</i> <i>Reserve Fund</i>	
	1957	1958	1957	1958
Cape Western	- £110,543	- £2,324	£150,000	£135,000
Cape Northern	- 6,237	+ 17,609	7,500	17,500
Border... ..	- 890	+ 7,626	40,400	41,600
Natal Southern	- 11,713	- 65,730	160,000	150,000
Natal Central	- 11,929	- 49,982	120,000	110,000
Eastern Transvaal	+ 8,033	+ 16,364	65,000	65,000
Rand & O.F.S.	- 55,323	+ 371,786	850,000	1,196,000
Sabie	- 171	- 155	—	—
	<u>- £188,773</u>	<u>+ £295,194</u>	<u>£1,392,900</u>	<u>£1,715,100</u>
Brought forward from previous year		- £972,263		
Accumulated Deficit at end of year as detailed in Balance Sheet... ..		<u>£677,069</u>		

The year's operations have resulted in an overall surplus of £295,194 as compared with a deficit of £188,773 in the previous year. The amount set aside to Reserve Fund has been increased from £1,392,900 in 1957 to £1,715,100.

It is anticipated by the Commission, that the accumulated deficit of the Cape Western Undertaking amounting to £169,124 will be reduced by a small surplus in the current financial year.

The accumulated deficit of the Border Undertaking has been reduced to £124,826 and it is expected that this amount will be further reduced by a small surplus in the current year.

The deficits for 1958 in the operations of the Natal Southern and Natal Central Undertakings have reduced the accumulated surpluses brought forward to £81,058 and £35,243 respectively.

The accumulated surplus of the Eastern Transvaal Undertaking has been increased to £43,366, whilst the accumulated deficit of the Rand and O.F.S. Undertaking has been decreased to £533,420 and a further surplus is anticipated by the Commission, for the current year.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1958 and, subject to the foregoing remarks, in terms of Section 18 (8) of the Electricity Act, 1958, 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 results of trading.
- (c) Due provision has been made for the redemption and repayment of moneys borrowed by or advanced to the Commission.
- (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 13 as prescribed.
- (f) All our requirements as Auditors have been complied with and carried out.

Yours faithfully,

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

ACCOUNTS

STATISTICAL AND OTHER STATEMENTS

UNION STATISTICS

Electricity Supply Commission.

Established under the Electricity Act, 1922.

BALANCE SHEET at 31st DECEMBER, 1958.

Loan Capital	£209,774,486	Expenditure on Capital Account (Excluding Cost of Assets Sold)		£208,850,449
(As per Schedule No. 3)		(As per Schedule No. 1)		
Creditors and Credit Balances	9,100,150	Land and Rights	£2,049,528	
Current Liabilities and Provisions	£7,116,674	Buildings and Civil Works	43,686,488	
Interest Accrued on Loan Capital	1,965,740	Machinery and Plant	163,114,433	
Deferred Liabilities for Assets and Rights Acquired	17,736			
Temporary Advances	1,199,355	Moveable Plant and Equipment (Less depreciation)		1,304,535
Amount due to Bankers less Cash on Current Accounts and on hand		Workshop Equipment, Instruments, Tools and Loose Plant	663,746	
Redemption Fund (As per Account No. 1)	44,769,519	Transportation Equipment	465,439	
Sinking Fund	3,867	Furniture and Office Equipment	175,350	
Reserve Fund (As per Account No. 2)	7,881,987	Stores and Materials		8,088,808
Loan Capital and Deferred Liabilities Repaid less Assets Sold	1,824,660	Debtors and Debit Balances		4,093,126
Loan Capital repaid (as per Schedule No. 3)	7,599,008	Current Debtors	2,936,117	
Deferred Liabilities repaid	350,790	Entire Share Capital of the Rand Mines Power Supply Company Limited	600	
	7,949,798	Expenditure on Investigations in terms of Section 4 (1) (b) of the Electricity Act 1958 and Payments in Advance	134,303	
<i>Less</i> —Cost of Assets sold proceeds of which have been paid into the Redemption Fund in terms of the Act and Cost of Assets scrapped	6,125,138	Housing Loans to Employees Secured by First Mortgages	1,022,142	
		Investment of Redemption Fund (As per Schedule No. 2)		43,564,170
		(Market Value £39,285,683)		
		Investment of Sinking Fund		7,222
		Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £6,501)		
		Investment of Reserve Fund		7,968,609
		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 £7,513,196)		
		Balance on Revenue Accounts (As per Accounts Nos. 3 to 9)		677,069
		Cape Western Undertaking	169,124	
		Cape Northern Undertaking	9,366	
		Border Undertaking	124,826	
		Natal Southern Undertaking	Cr. 81,058	
		Natal Central Undertaking	Cr. 35,243	
		Eastern Transvaal Undertaking	Cr. 43,366	
		Rand and Orange Free State Undertaking	533,420	
	<u>£274,554,024</u>			<u>£274,554,024</u>

NOTE—

In addition to the liabilities shown above the Commission is committed to the extent of approximately £47,200,000 for expenditure on Capital Account and £793,000 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.

Referred to in our Report of 14th May, 1959.

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

Johannesburg,
2nd April, 1959.

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

Electricity Supply Commission.

Schedule of Expenditure on Capital Account at 31st December, 1958.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1957.	Year ended 31st December, 1958.	Total at 31st December, 1958.
RAND AND ORANGE FREE STATE UNDERTAKING:			
Rand.			
Land and Rights	£418,064	£66,776	£484,840
Buildings and Civil Works	3,255,309	655,572	3,910,881
Machinery and Plant	17,274,104	909,211	18,183,315
	£20,947,477	£1,631,559	£22,579,036
Klip Power Station.			
Land and Rights	£138,860	—	£138,860
Buildings and Civil Works	1,684,504	£2,054	1,686,558
Machinery and Plant	5,214,781	107,249	5,322,030
	£7,038,145	£109,303	£7,147,448
Vaal Power Station.			
Land and Rights	£5,348	£84	£5,432
Buildings and Civil Works	2,395,653	10,220	2,405,873
Machinery and Plant	8,615,275	25,634	8,640,909
	£11,016,276	£35,938	£11,052,214
Vierfontein Power Station.			
Land and Rights	£30,985	£19	£31,004
Buildings and Civil Works	4,832,781	35,394	4,868,175
Machinery and Plant	16,204,921	241,506	16,446,427
	£21,068,687	£276,919	£21,345,606
Taaibos Power Station.			
Land and Rights	£24,412	Cr. £8,694	£15,718
Buildings and Civil Works	6,013,067	Cr. 45,797	5,967,270
Machinery and Plant	17,018,284	219,056	17,237,340
	£23,055,763	£164,565	£23,220,328
Wilge Power Station.			
Land and Rights	£4,055	—	£4,055
Buildings and Civil Works	2,997,746	£179,083	3,176,829
Machinery and Plant	8,538,884	879,662	9,418,546
	£11,540,685	£1,058,745	£12,599,430
Highveld Power Station.			
Land and Rights	£12,241	£17,464	£29,705
Buildings and Civil Works	2,778,724	1,615,240	4,393,964
Machinery and Plant	2,556,738	4,711,302	7,268,040
	£5,347,703	£6,344,006	£11,691,709
Rand Extension.			
Land and Rights	£98,277	£4,627	£102,904
Buildings and Civil Works	539,320	156,058	695,378
Machinery and Plant	10,733,094	2,743,869	13,476,963
	£11,370,691	£2,904,554	£14,275,245
Greater Rand Extension and Orange Free State.			
Land and Rights	£149,018	£29,802	£178,820
Buildings and Civil Works	671,359	217,696	889,055
Machinery and Plant	10,378,837	1,338,939	11,717,776
	£11,199,214	£1,586,437	£12,785,651
Total Rand and Orange Free State Undertaking:			
Land and Rights	£881,260	£110,078	£991,338
Buildings and Civil Works	25,168,463	2,825,520	27,993,983
Machinery and Plant	96,534,918	11,176,428	107,711,346
	£122,584,641	£14,112,026	£136,696,667

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1957.	Year ended 31st December, 1958.	Total at 31st December, 1958.
CAPE WESTERN UNDERTAKING:			
Land and Rights	£199,394	£21,055	£220,449
Buildings and Civil Works	5,199,711	Cr. 120,648	5,079,063
Machinery and Plant	18,292,311	1,048,644	19,340,955
	£23,691,416	£949,051	£24,640,467
CAPE NORTHERN UNDERTAKING:			
Land and Rights	£7,078	£3,445	£10,523
Buildings and Civil Works	334,685	4,960	339,645
Machinery and Plant	2,162,655	678,407	2,841,062
	£2,504,418	£686,812	£3,191,230
BORDER UNDERTAKING:			
Land and Rights	£9,338	£1,786	£11,124
Buildings and Civil Works	915,752	6,588	922,340
Machinery and Plant	3,501,546	130,559	3,632,105
	£4,426,636	£138,933	£4,565,569
NATAL SOUTHERN UNDERTAKING:			
Land and Rights	£153,199	£5,992	£159,191
Buildings and Civil Works	4,025,715	204,632	4,230,347
Machinery and Plant	13,829,197	1,305,155	15,134,352
	£18,008,111	£1,515,779	£19,523,890
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£153,309	Cr. £14,733	£138,576
Buildings and Civil Works	1,761,382	283,472	2,044,854
Machinery and Plant	8,068,263	514,006	8,582,269
	£9,982,954	£782,745	£10,765,699
EASTERN TRANSVAAL UNDERTAKING:			
Land and Rights	£114,967	£144,497	£259,464
Buildings and Civil Works	1,082,364	116,005	1,198,369
Machinery and Plant	4,698,850	1,173,494	5,872,344
	£5,896,181	£1,433,996	£7,330,177
SABIE UNDERTAKING:			
Land and Rights	£510	Cr. £510	—
Buildings and Civil Works	60,491	Cr. 60,491	—
Machinery and Plant	35,169	Cr. 35,169	—
	£96,170	Cr. £96,170	—
HEAD OFFICE:			
Land	£319,423	Cr. £60,560	£258,863
Buildings and Equipment	1,122,639	755,248	1,877,887
	£1,442,062	£694,688	£2,136,750
SUMMARY:			
Land and Rights	£1,838,478	£211,050	£2,049,528
Buildings and Civil Works	39,671,202	4,015,286	43,686,488
Machinery and Plant	147,122,909	15,991,524	163,114,433
	£188,632,589	£20,217,860	£208,850,449

Electricity Supply Commission.

Schedule of Investments of the

Redemption Fund at 31st December, 1958.

INVESTMENTS.		Nominal Value	Book Value	ALLOCATION OF INVESTMENTS TO LOANS.		Nominal Value.	Book Value including Interest accrued.	
LOCAL REGISTERED STOCKS.				Loan No.	Local Registered Stocks.			
Electricity Supply Commission—								
4 per cent.	1953/63	£117,900	£117,723	3	£500,000 4 $\frac{3}{8}$ per cent.	1953/63	£485,450	£484,235
3 per cent.	1954/64	953,244	947,741	5	£6,750,000 3 $\frac{3}{8}$ per cent.	1954/64	6,144,894	6,119,897
3 per cent.	1959/64	198,997	197,618	6	£2,500,000 3 $\frac{1}{2}$ per cent.	1959/64	2,185,597	2,180,458
3 per cent.	1956/66	355,750	329,361	7	£2,000,000 3 $\frac{1}{2}$ per cent.	1956/66	1,638,750	1,618,826
3 per cent.	1957/67	367,877	346,843	8	£2,000,000 3 $\frac{1}{2}$ per cent.	1957/67	1,545,177	1,527,681
3 per cent.	1959/64	656,160	623,356	9	£2,000,000 3 $\frac{3}{8}$ per cent.	1959/64	1,487,360	1,467,159
3 per cent.	1960/65	448,000	432,682	10	£1,500,000 3 $\frac{3}{8}$ per cent.	1960/65	1,030,600	1,022,248
3 per cent.	1961/66	524,435	497,985	11	£2,000,000 3 $\frac{1}{2}$ per cent.	1961/66	1,274,535	1,250,727
3 per cent.	1965/70	556,900	538,353	12	£2,500,000 3 $\frac{1}{2}$ per cent.	1965/70	1,298,000	1,270,138
3 per cent.	1967/73	648,194	618,373	13	£3,000,000 3 per cent.	1967/73	1,250,694	1,217,056
3 per cent.	1968/74	1,155,300	1,126,747	14	£3,000,000 3 per cent.	1968/74	1,001,000	969,264
3 per cent.	1968/73	6,654,300	6,610,599	15	£15,000,000 3 $\frac{1}{2}$ per cent.	1968/73	6,868,300	6,788,827
3 per cent.	1969/74	306,600	293,678	16	£3,000,000 3 $\frac{1}{2}$ per cent.	1969/74	930,300	920,409
3 per cent.	1969/74	65,900	61,480	17	£3,000,000 3 $\frac{3}{8}$ per cent.	1969/74	839,200	833,877
3 per cent.	1965/67	51,600	49,911	18	£5,250,000 3 $\frac{3}{8}$ per cent.	1965/67	1,292,600	1,283,958
3 per cent.	1964/67	621,680	607,290	19	£3,000,000 3 $\frac{3}{8}$ per cent.	1964/67	692,680	685,790
3 per cent.	1964/68	102,900	100,534	21	£5,000,000 3 $\frac{3}{8}$ per cent.	1964/68	944,900	947,151
4 per cent.	1964/67	523,550	508,189	22	£4,500,000 4 $\frac{1}{2}$ per cent.	1964/67	771,900	771,258
5 per cent.	1964/67	345,900	338,826	23	£5,000,000 5 per cent.	1964/67	746,550	748,236
5 per cent.	1966/68	376,650	371,829	25	£3,500,000 5 per cent.	1966/68	498,900	500,733
5 per cent.	1967/69	430,212	424,869	26	£4,000,000 5 per cent.	1967/69	532,362	534,670
5 per cent.	1968/70	228,720	223,283	27	£4,250,000 5 per cent.	1968/70	522,720	522,956
5 per cent.	1967/70	2,211,800	2,176,793	29	£8,000,000 5 per cent.	1967/70	1,035,800	1,030,200
5 per cent.	1971/74	799,300	789,058	31	£8,000,000 5 per cent.	1971/74	1,096,350	1,102,852
5 per cent.	1971/75	1,539,600	1,523,621	32	£10,000,000 5 per cent.	1971/75	1,143,600	1,149,918
4 per cent.	1975/80	4,777,150	4,760,011	33	£8,000,000 4 $\frac{5}{8}$ per cent.	1975/80	3,692,150	3,707,657
4 per cent.	1975/80	4,052,150	4,026,324	34	£8,000,000 4 $\frac{7}{8}$ per cent.	1975/80	505,900	512,001
5 per cent.	1976/81	2,010,000	1,984,949	35	£8,250,000 5 $\frac{1}{8}$ per cent.	1976/81	360,000	364,189
5 per cent.	1977/82	361,500	357,118	36	£10,000,000 5 $\frac{1}{2}$ per cent.	1977/82	486,500	492,181
5 per cent.	1976/82	1,817,500	1,794,779	37	£11,000,000 5 $\frac{1}{2}$ per cent.	1976/82	323,500	323,324
5 per cent.	1977/83	4,707,340	4,673,274	38	£12,000,000 5 $\frac{1}{2}$ per cent.	1977/83	1,030,340	1,036,451
5 per cent.	1978/83	1,600,050	1,580,049	39	£12,000,000 5 $\frac{3}{8}$ per cent.	1978/83	180,050	179,843
5 per cent.	1979/84	1,880,000	1,856,500					
The Government of the Union of South Africa—								
3 $\frac{1}{2}$ 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:								
3 $\frac{1}{2}$ per cent.	1956/66	1,600	1,600					
3 per cent.	1959	6,200	6,200					
3 per cent.	1960/65	20,000	19,056					
3 $\frac{1}{2}$ per cent.	1962/67	129,000	119,245					
3 $\frac{1}{2}$ per cent.	1965	1,200	1,200					
3 $\frac{1}{2}$ per cent.	1965/70	294,000	284,895					
3 per cent.	1967/77	30,000	30,000					
Cape Town:								
3 $\frac{3}{8}$ per cent.	1960/65	2,000	2,000					
3 $\frac{1}{2}$ per cent.	1962/67	225,000	222,568					
3 per cent.	1976	100,000	95,588					
Durban:								
3 $\frac{1}{2}$ per cent.	1962/72	115,500	90,090					
3 $\frac{1}{2}$ per cent.	1965/75	45,000	41,484					
3 $\frac{1}{2}$ per cent.	1966/76	50,000	50,000					
3 per cent.	1967/77	334,000	320,320					
		43,836,659	43,179,648					
Interest Accrued			384,522					
		£43,836,659	£43,564,170			£43,836,659	£43,564,170	
Market Value		£39,285,683						

Electricity Supply Commission.

LOAN CAPITAL AT 31st DECEMBER, 1958.

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

Loan No.	Local Registered Stocks	Outstanding	Repaid
3:	£500,000 4½ per cent. 1953/63	£500,000	
4:	£2,500,000 4½ per cent. 1953		£2,500,000
5:	£6,750,000 3½ per cent. 1954/64	6,750,000	
6:	£2,500,000 3½ per cent. 1959/64	2,500,000	
7:	£2,000,000 3½ per cent. 1956/66	2,000,000	
8:	£2,000,000 3½ per cent. 1957/67	2,000,000	
9:	£2,000,000 3½ per cent. 1959/64	2,000,000	
10:	£1,500,000 3½ per cent. 1960/65	1,500,000	
11:	£2,000,000 3½ per cent. 1961/66	2,000,000	
12:	£2,500,000 3½ 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 3½ per cent. 1969/74	3,000,000	
18:	£5,250,000 3½ per cent. 1965/67	5,250,000	
19:	£3,000,000 3½ per cent. 1964/67	3,000,000	
21:	£5,000,000 3½ per cent. 1964/68	5,000,000	
22:	£4,500,000 4½ 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 4½ per cent. 1975/80	8,000,000	
34:	£8,000,000 4½ per cent. 1975/80	8,000,000	
35:	£8,250,000 5½ per cent. 1976/81	8,250,000	
36:	£10,000,000 5½ per cent. 1977/82	10,000,000	
37:	£11,000,000 5½ per cent. 1976/82	11,000,000	
38:	£12,000,000 5½ per cent. 1977/83	12,000,000	
39:	£12,000,000 5½ per cent. 1978/83	12,000,000	
40:	£11,000,000 5½ per cent. 1979/84		
	(Payable in full not later than the 31st January, 1959, in terms of the Prospectus)		
	Fully Paid £7,805,350		
	Partly Paid 1,094,658		
		8,900,008	
£192,000,000	Total Local Registered Stocks	£187,400,008	£2,500,000
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT			
20:	£10,732,422 \$30,000,000 4 per cent. Repayable by half-yearly instalments 1954/70	8,285,926	2,446,496
28:	£7,732,771 \$30,000,000 4½ per cent. Repayable by half-yearly instalments 1955/63		
	Less repaid out of local loans ..		
		£10,726,956	
		2,994,185	
		<u>£7,732,771</u>	
		6,819,841	912,930
EXPORT-IMPORT BANK OF WASHINGTON.			
24:	£7,008,293 \$19,600,000 4 per cent. Repayable by half-yearly instalments 1956/70	5,918,711	1,089,582
COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED			
30:	£2,000,000 5 per cent. Repayable by half-yearly instalments 1954/68	1,350,000	650,000
		<u>£209,774,486</u>	<u>£7,599,008</u>

Electricity Supply Commission.

ACCOUNT No. 1.

Redemption Fund Account for the Year ended 31st December, 1958.

Balance as per Balance Sheet		£44,769,519	Balance at 31st December, 1957, brought forward	£37,939,309
Cape Western Undertaking	£5,061,336		Cape Western Undertaking	£4,281,498
Cape Northern Undertaking	280,838		Cape Northern Undertaking	209,658
Border Undertaking	414,441		Border Undertaking	299,214
Natal Southern Undertaking	3,551,581		Natal Southern Undertaking	2,949,444
Natal Central Undertaking	4,354,188		Natal Central Undertaking	3,940,665
Eastern Transvaal Undertaking	1,385,140		Eastern Transvaal Undertaking	1,198,880
Rand and Orange Free State Undertaking	23,568,030		Rand and Orange Free State Undertaking	19,703,510
Head Office	716,347		Sabie Undertaking	25,637
Assets Sold	5,437,618		Head Office	307,289
	<u>£44,769,519</u>		Assets Sold	5,023,514
				<u>£37,939,309</u>
				<u>£37,939,309</u>
			Amounts contributed during the year as per Revenue Accounts	4,387,230
			Cape Western Undertaking	558,097
			Cape Northern Undertaking	59,565
			Border Undertaking	98,602
			Natal Southern Undertaking	452,427
			Natal Central Undertaking	225,093
			Eastern Transvaal Undertaking	104,783
			Rand and Orange Free State Undertaking	2,889,101
			Sabie Undertaking	438
				<u>16,741</u>
			Other Contributions	
			Transfer from Sabie Undertaking to Eastern Transvaal Undertaking	
			Eastern Transvaal Undertaking	25,637
			Sabie Undertaking	25,637
				<u>849,893</u>
			Proceeds of Sales of Fixed Property	
			Profit on Redemption of Investment	176
			Interest Earned on Investments	1,576,170
				<u>£44,769,519</u>
				<u>£44,769,519</u>

J. VAN NIEKERK, Chief Accountant.

Johannesburg,

2nd April, 1959.

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 1958, subject to the remarks contained in our report dated 14th May, 1959.

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

Electricity Supply Commission.

ACCOUNT No. 2.

Reserve Fund Account for the Year ended 31st December, 1958.

Expenditure during the year on Replacements and Betterment		£343,170
Cape Western Undertaking	£22,697	
Cape Northern Undertaking	1,687	
Border Undertaking	6,528	
Natal Southern Undertaking	84,249	
Natal Central Undertaking	52,879	
Eastern Transvaal Undertaking	20,788	
Rand and Orange Free State Undertaking	154,114	
Sabie Undertaking	228	
Balance as per Balance Sheet		7,881,987
Cape Western Undertaking	961,006	
Cape Northern Undertaking	76,365	
Border Undertaking	72,491	
Natal Southern Undertaking	492,983	
Natal Central Undertaking	1,002,771	
Eastern Transvaal Undertaking	407,144	
Rand and Orange Free State Undertaking	4,869,227	

£8,225,15

Balance at 31st December, 1957, brought forward		£6,188,127
Cape Western Undertaking	£807,356	
Cape Northern Undertaking	57,705	
Border Undertaking	35,106	
Natal Southern Undertaking	405,676	
Natal Central Undertaking	901,459	
Eastern Transvaal Undertaking	335,436	
Rand and Orange Free State Undertaking	3,634,847	
Sabie Undertaking	10,542	
Amounts set aside during the year as per Revenue Accounts		1,715,100
Cape Western Undertaking	135,000	
Cape Northern Undertaking	17,500	
Border Undertaking	41,600	
Natal Southern Undertaking	150,000	
Natal Central Undertaking	110,000	
Eastern Transvaal Undertaking	65,000	
Rand and Orange Free State Undertaking	1,196,000	
Transfer from Sabie Undertaking to Eastern Transvaal Undertaking		
Eastern Transvaal Undertaking	10,803	
Sabie Undertaking	Dr. 10,803	
Profit on Redemption of Investment		275
Interest earned on Investments		321,655

£8,225,157

Electricity Supply Commission.

ACCOUNT No. 3.

CAPE WESTERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.		Sales of Electricity.	
Operation—		Traction Supplies	£884,824
Fuel	£1,164,151	Bulk Supplies	1,366,804
Water and Stores	25,367	Industrial Supplies	999,579
Salaries and Wages	143,215	Domestic and Lighting Supplies	790,372
Other Expenses	2,927	Other Revenue	£4,041,579
Maintenance—			17,723
Stores	19,482	Balance carried down	4,059,302
Salaries and Wages	153,626		2,324
Other Expenses	15,317		
	£1,524,085		
Distribution.			
Operation and Maintenance—			
Stores	18,143		
Salaries and Wages	235,858		
Other Expenses	31,284		
	285,285		
General Expenses.			
Local Administration and Technical Management	106,079		
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ..	205,773		
Head Office Administration Expenses	35,187		
Head Office Engineering Expenses	18,219		
	365,258		
Capital Charges.			
Interest	1,096,939		
Redemption Fund	558,097		
Instalments and Provision for Repayment of Overseas Loans	96,698		
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	264		
Amount set aside to Reserve Fund	135,000		
	1,886,998		
	£4,061,626		
Balance at 31st December, 1957, brought forward	£166,800	Balance as per Balance Sheet	£169,124
Balance brought down	2,324		
	£169,124		
			£169,124

Johannesburg,
2nd April, 1959.

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 14th May, 1959.

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

Electricity Supply Commission.

ACCOUNT No. 4.

CAPE NORTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.			
Operation—			
Fuel	£193,925		
Water and Stores	22,539		
Salaries and Wages	30,555		
Other Expenses	13,220		
Maintenance—			
Stores	3,516		
Salaries and Wages	19,261		
Other Expenses	480		
	£283,496		
Electricity Purchased.			
Proportion of Pooled Costs of Rand and Orange Free State and Eastern Transvaal Undertakings	27,736		
Electricity supplied by Rand and Orange Free State Undertaking	4,412		
	32,148		
Distribution.			
Operation and Maintenance—			
Stores	2,191		
Salaries and Wages	8,228		
Other Expenses	2,723		
	13,142		
General Expenses.			
Local Administration and Technical Management	14,868		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	12,299		
Head Office Administration Expenses	2,427		
Head Office Engineering Expenses	1,256		
	30,850		
Capital Charges.			
Interest	127,689		
Redemption Fund	59,565		
Instalments and Provision for Repayment of Overseas Loans	1,603		
Amount set aside to Reserve Fund	17,500		
	206,357		
	565,993		
Balance carried down	17,609		
	£583,602		
Balance at 31st December, 1957, brought forward	£26,975		
	£26,975		
Sales of Electricity.			
Bulk Supplies		£233,032	
Mining Supplies		196,519	
Industrial Supplies		127,335	
Domestic Supplies		26,120	
		£583,006	
Other Revenue			596
			£583,602
			£17,609
			9,366
			£26,975

Referred to in our Report of 14th May, 1959.

J. VAN NIEKERK, Chief Accountant.

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

Johannesburg,
 2nd April, 1959.

Electricity Supply Commission.

ACCOUNT No. 5.

BORDER UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.			
Operation—			
Fuel	£254,565		
Water and Stores	4,112		
Salaries and Wages	45,850		
Other Expenses	3,171		
Maintenance—			
Stores	7,184		
Salaries and Wages	29,087		
Other Expenses	3,037		
	£347,006		
Electricity Purchased.			
Electricity Purchased		597	
Distribution.			
Operation and Maintenance—			
Stores	2,656		
Salaries and Wages	19,830		
Other Expenses	4,360		
	26,846		
General Expenses.			
Local Administration and Technical Management	24,210		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	28,528		
Head Office Administration Expenses	7,280		
Head Office Engineering Expenses	3,770		
	63,788		
Capital Charges.			
Interest	207,673		
Redemption Fund	98,602		
Instalments and Provision for Repayment of Overseas Loans	8,400		
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	5,031		
Amount set aside to Reserve Fund	41,600		
	361,306		
		799,543	
Balance carried down		7,626	
		£807,169	
			£807,169
Balance at 31st December, 1957, brought forward	£132,452		
			£7,626
			124,826
	£132,452		£132,452

Referred to in our Report of 14th May, 1959.

J. VAN NIEKERK, Chief Accountant.

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

Johannesburg,
2nd April, 1959.

Electricity Supply Commission.

ACCOUNT No. 6.

NATAL SOUTHERN UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.	
Proportion of Pooled Costs (as per attached statement)	£3,056,550
Other Operation and Maintenance Costs—	
Operation—	
Fuel	1,030
Water and Stores	80
Salaries and Wages	1,216
Other Expenses	77
Maintenance—	
Stores	229
Salaries and Wages	705
Other Expenses	127
	£3,060,014
Electricity Purchased.	
Electricity Purchased	20,789
Distribution.	
Operation and Maintenance—	
Stores	11,222
Salaries and Wages	65,709
Other Expenses	22,020
	98,951
Less—Charged to Pooled Costs (Interconnector)	556
	98,395
General Expenses.	
Local Administration and Technical Management	64,434
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	81,610
Head Office Administration Expenses	35,187
Head Office Engineering Expenses	18,219
	199,450
Less—Charged to Pooled Costs	128,912
	70,538
Capital Charges.	
Interest	732,537
Redemption Fund	452,427
Instalments and Provision for Repayment of Overseas Loans	93,555
Amount set aside to Reserve Fund	150,000
	1,428,519
Less—Charged to Pooled Costs	1,189,529
	238,990
	£3,488,726
Balance brought down	£65,730
Balance as per Balance Sheet	81,058
	£146,788

Sales of Electricity.	
Traction Supplies	£227,416
Bulk Supplies	2,768,217
Industrial Supplies	184,670
Domestic and Lighting Supplies	239,869
	£3,420,172
Other Revenue	8,714
Less—Credited to Pooled Costs	5,890
	2,824
	3,422,996
Balance carried down	65,730

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 14th May, 1959.

Johannesburg,
2nd April, 1959.ALEX. AIKEN & CARTER,
HALSEY, BUTTON & PERRY,
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, 1958.

Generation.		Allocation.	
Operation—		Natal Southern Undertaking	£3,056,550
Fuel	£2,205,851	Natal Central Undertaking	<u>1,741,004</u>
Water and Stores	84,238		£4,797,554
Salaries and Wages	223,202	Sundry Revenue	14,246
Other Expenses	39,052		
Maintenance—			
Stores	121,247		
Salaries and Wages	242,022		
Other Expenses	<u>27,266</u>		
	£2,942,878		
Interconnector.			
Operation and Maintenance—			
Stores	447		
Salaries and Wages	1,528		
Other Expenses	<u>368</u>		
	2,343		
General Expenses.			
Local Administration and Technical Management	58,266		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	88,354		
Head Office Administration and Engineering Expenses	<u>75,506</u>		
	222,126		
Capital Charges.			
Interest	818,828		
Redemption Fund	505,363		
Instalments and Provision for Repayment of Overseas Loans	126,162		
Reserve Fund	<u>194,100</u>		
	1,644,453		
	<u>£4,811,800</u>		
			<u>£4,811,800</u>

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 14th May, 1959.

Johannesburg,
2nd April, 1959.

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

Electricity Supply Commission.

ACCOUNT No. 8.

EASTERN TRANSVAAL UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.			Sales of Electricity.	
Proportion of Pooled Costs (as per attached statement)	£781,724		Fraction Supplies	£58,055
Other Operation and Maintenance Costs—			Bulk Supplies	99,488
Operation—			Mining Supplies	474,369
Water and Stores	47		Industrial Supplies	494,244
Salaries and Wages	2,802		Domestic and Lighting Supplies	32,733
Other Expenses	137		Other Revenue	6,847
Maintenance—			<i>Less—Credited to Pooled Costs</i>	3,205
Stores	91	£784,980		£1,158,889
Salaries and Wages	177			
Other Expenses	2			
	<u> </u>			
Electricity Purchased.				
Electricity Purchased	47,183			
Electricity Supplied by Rand and Orange Free State Undertaking	11,759	58,942		
	<u> </u>			
Distribution.				
Operation and Maintenance—				
Stores	8,954			
Salaries and Wages	31,157			
Other Expenses	12,283			
	<u> </u>	52,394		
General Expenses.				
Local Administration and Technical Management	29,089			
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	52,357			
Head Office Administration Expenses	34,713			
Head Office Engineering Expenses	17,974			
	<u> </u>			
<i>Less—Charged to Pooled Costs</i>	134,133			
	<u> </u>	58,326		
		75,807		
Capital Charges.				
Interest	192,436			
Redemption Fund	104,783			
Instalments and Provision for Repayment of Overseas Loans	17,415			
Amount set aside to Reserve Fund	65,000			
	<u> </u>			
<i>Less—Charged to Pooled Costs</i>	379,634			
	<u> </u>	205,590		
		174,044		
		<u> </u>		
		1,146,167		
Balance carried down		16,364		
		<u> </u>		
		£1,162,531		£1,162,531
Balance as per Balance Sheet	£43,366		Balance at 31st December, 1957, brought forward	£27,002
	<u> </u>		Balance brought down	16,364
	£43,366			<u> </u>
				£43,366

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 14th May, 1959.

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

Electricity Supply Commission.

ACCOUNT No. 9.

RAND AND ORANGE FREE STATE UNDERTAKING.

Revenue Account for the Year ended 31st December, 1958.

Generation.			
Proportion of Pooled Costs (as per attached statement)	£14,903,613		
Other Operation and Maintenance Costs—			
Operation—			
Fuel	139,483		
Water and Stores	21,765		
Salaries and Wages	84,805		
Other Expenses	1,389		
Maintenance—			
Stores	38,395		
Salaries and Wages	109,468		
Other Expenses	697		
	£15,299,615		
Distribution.			
Operation and Maintenance—			
Stores	220,883		
Salaries and Wages	700,783		
Other Expenses	21,290		
	942,956		
<i>Less—Charged to Pooled Costs (Interconnector)</i>	28,681		
<i>Less—Charged to Cape Northern Undertaking</i>	4,412		
	909,863		
General Expenses.			
Local Administration and Technical Management	240,415		
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	565,033		
Head Office Administration Expenses	92,214		
Head Office Engineering Expenses	47,748		
	945,410		
<i>Less—Charged to Pooled Costs</i>	624,717		
	320,693		
Capital Charges.			
Interest	4,936,145		
Redemption Fund	2,889,101		
Instalments and Provision for Repayment of Overseas Loans	983,581		
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	2,753		
Amount set aside to Reserve Fund	1,196,000		
	10,007,580		
<i>Less—Charged to Pooled Costs</i>	6,989,685		
	3,017,895		
Balance carried down		19,548,066	
		371,786	
		£19,919,852	
Balance at 31st December, 1957, brought forward		£905,206	
		£905,206	
		£19,919,852	
Sales of Electricity.			
Traction Supplies		£457,021	
Bulk Supplies		2,338,688	
Mining Supplies		12,714,998	
Industrial Supplies		3,409,562	
Domestic and Lighting Supplies		145,517	
		£19,065,786	
Sales of Air and Steam		820,512	
		19,886,298	
Electricity Supplied to Eastern Transvaal Undertaking			11,759
Other Revenue		99,055	
<i>Less—Credited to Pooled Costs</i>		77,260	
		21,795	

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 14th May, 1959.

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

Johannesburg,
2nd April, 1959.

Electricity Supply Commission.

RAND AND ORANGE FREE STATE AND EASTERN TRANSVAAL UNDERTAKINGS.

Statement of Pooled Costs and Allocation for the Year ended 31st December, 1958.

Generation.		Allocation.	
Operation—			
Fuel	£5,593,123	Rand and Orange Free State Undertaking	£14,903,613
Water and Stores	111,722	Eastern Transvaal Undertaking	781,724
Salaries and Wages	911,521	Cape Northern Undertaking	27,736
Other Expenses	12,477		
Maintenance—			
Stores	361,994	Sundry Revenue	80,465
Salaries and Wages	697,844		
Other Expenses	18,923		
	£7,707,604		
Electricity Purchased.			
Electricity Purchased	178,935		
Interconnector.			
Operation and Maintenance—			
Stores	6,975		
Salaries and Wages	20,853		
Other Expenses	853		
	28,681		
General Expenses.			
Local Administration and Technical Management	183,852		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	376,183		
Head Office Administration and Engineering Expenses	123,008		
	683,043		
Capital Charges.			
Interest	3,509,878		
Redemption Fund	1,958,147		
Instalments and Provision for Repayment of Overseas Loans	903,762		
Instalment and Provision for Payment of Deferred Liability for Rights Acquired	2,753		
Reserve Fund	820,735		
	7,195,275		
	£15,793,538		£15,793,538

Referred to in our Report of 14th May, 1959.

J. VAN NIEKERK, Chief Accountant.

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

Electricity Supply Commission.

ACCOUNT No. 10.

SABIE UNDERTAKING.

Revenue Account for the Six Months ended 30th June, 1958.

Generation.			
Operation—			
Water and Stores	£80		
Salaries and Wages	3,114		
Other Expenses	72		
Maintenance—			
Stores	72		
Salaries and Wages	214		
Other Expenses	126		
	£3,678		
Distribution.			
Operation and Maintenance—			
Stores	7		
Salaries and Wages	313		
Other Expenses	81		
	401		
General Expenses.			
Local Administration and Technical Management	354		
General Expenses (including Maintenance of Quarters, Insurance, Pension Fund Contributions, etc.)	579		
Head Office Administration Expenses	474		
Head Office Engineering Expenses	246		
	1,653		
Capital Charges.			
Interest	474		
Redemption Fund	Cr. 438		
	36		
		£5,768	
Balance brought down		£155	£5,768
		£155	£155

Referred to in our Report of 14th May, 1959.

J. VAN NIEKERK, Chief Accountant.

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

Johannesburg,
2nd April, 1959.

ANNEXURE B

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1958.

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 (Stand-by)	Steam	4.5	1	10.0	2	1.5			
		Oil		3	12.0	1	0.5			
						1	1.0			
	West Bank No. 1	Steam	32.0	6	21.5	1	1.5			
				4	55.0	2	4.0			
						3	7.5			
Cape Northern 15,700	West Bank No. 2	Steam	30.0	2	170.0	2	15.0			
	Central, Kimberley	Steam	30.0	8	30.0	1	3.0			
				4	75.0	3	5.0			
Cape Western 12,600	Salt River No. 1	Steam	90.3	2 6 6 4	60.0 100.0 260.0 200.0	3 3 4 3	10.0 20.0 30.0 20.0	} 1	0.3	
	Salt River No. 2	Steam	120.0							
	Hex River	Steam	60.0							
Eastern Transvaal 25,700	Sabie Gorge	Hydro	1.35	—	—	3	0.45			
	Witbank	Steam	128.0	20	70.0	6	20.0	1	8.0	
Natal Central 20,500	Colenso Nos. 1 and 2 Volksrust	Steam	135.0	8	60.0	5	12.0			
		Oil	0.5	4	80.0	3	25.0			
					5	180.0	2	0.25		

Natal Southern 4,000	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	
	Port Shepstone Umgeni	Oil Steam	3·4 120·0	— 8	— 180·0	2 2 4	0·7 1·0 30·0	
Rand & O.F.S. 39,300	Brakpan	Steam	48·0	2 9	28·0 45·0	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	24 8	38·0 48·0	5	9·6	
	Taaibos	Steam	480·0	8	580·0	8	60·0	
	Vaal	Steam	318·0	18	190·0	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	360·0	19	210·0	12	30·0	
	Wilge	Steam	240·0	{ 4 4 1	125·0 400·0 580·0	2 3	30·0 60·0	

SUMMARY:

Total Number of Boilers	..	..	..	..	..	..	..	..	260
Total Boiler House Rating	..	..	..	..	..	..	..	..	34,322,000 lb./hr.
Total Number of Main Generators	..	..	..	..	..	..	..	..	127 Capacity 2,979·25
Total Number of House Sets	..	..	..	..	..	..	..	..	9 Capacity 57·30

Total Plant Capacity (Electricity) 3,036·55

Major Items of Plant Commissioned 1958

Taaibos	..	..	..	..	..	..	..	..	1—60 MW Generator
Umgeni	..	..	..	..	..	..	..	..	1—30 MW Generator
Vierfontein	..	..	..	..	..	..	..	..	2—30 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	
<i>Electric Driven</i>					
Canada Dam	1	Turbo	3,000	22,200	Electric Motor
Compressor Station	4	Turbo	4,800		
<i>Steam Driven</i>					
Robinson Compressor Station . .	3	Turbo	2,000	14,000	..
	1	Turbo	2,150		,
	1	Turbo	2,850		..
	1	Turbo	3,000		..
Brakpan Power Station	3	Recip.	800	5,050	Recip. Steam Engines
	1	Turbo	2,650		Steam Turbine
Rosherville Power Station . .	1	Turbo	2,500	48,800	..
	1	Turbo	4,400		..
	3	Turbo	6,000		..
	2	Turbo	7,100		..
	1	Turbo	9,700		..
Total Compressed Air Sets	23		90,050 = 67·177 MW		

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1958

Undertaking	Number	MVA
Border	227	77·6
Cape Northern	348	137·9
Cape Western	2,647	844·7
Eastern Transvaal	688	573·3
Natal Central	1,492	537·0
Natal Southern	900	553·2
Rand	3,528	11,281·4
At Compressor Stations, Rand	43	340·6
TOTALS	9,873	14,345·7

TRANSMISSION LINES AND CABLES: CIRCUIT MILES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1958.

(a) TRANSMISSION LINES

Undertaking	275kV	132kV	88kV	66kV	40kV	33kV	22kV	21kV	20kV	11kV	6-6kV	3-3kV	2-0kV 2-1kV 2-2kV	525V	380/220V	Totals
Border	—	—	—	102-00	—	67-70	—	—	—	186-04	—	3-50	—	—	67-71	426-95
Cape Northern .. .	—	138-50	—	128-50	—	—	—	—	—	198-75	—	4-50	—	—	12-00	482-25
Cape Western .. .	—	—	—	510-97	—	163-20	—	—	—	1,013-09	265-08	—	—	—	823-15	2,775-49
Eastern Transvaal ..	—	—	167-85	—	—	—	—	375-64	—	173-49	19-90	6-74	32-74	—	61-43	869-19
Natal Central .. .	—	74-69	570-11	—	—	253-71	35-90	—	—	773-88	221-08	0-15	0-95	—	167-75	2,098-22
Natal Southern .. .	—	94-92	161-04	—	—	40-11	—	—	—	392-75	52-90	—	—	—	230-64	972-36
Rand & O.F.S. .. .	—	1,081-98	1,884-50	—	1,097-76	—	—	—	121-55	233-72	100-16	—	2-51	—	157-87	4,680-05
Totals .. .	—	1,421-49	2,783-50	741-47	1,097-76	524-72	35-90	375-64	121-55	2,971-72	659-12	14-89	36-20	—	1,520-55	12,304-51

(b) UNDERGROUND CABLES

Undertaking	275kV	132kV	88kV	66kV	40kV	33kV	22kV	21kV	20kV	11kV	6-6kV	3-3kV	2-0kV 2-1kV 2-2kV	525V	380/220V	Totals
Border	—	—	—	—	—	—	—	—	—	19-00	—	3-34	—	—	—	22-34
Cape Western .. .	—	—	—	23-32	—	69-18	—	—	—	87-79	3-59	1-39	—	—	55-22	240-49
Eastern Transvaal ..	—	—	—	—	—	—	—	20-54	—	3-17	1-17	0-50	—	—	0-16	25-54
Natal Central .. .	—	—	—	—	—	—	—	—	—	2-64	3-55	1-89	—	—	3-10	11-18
Natal Southern .. .	—	—	—	—	—	2-15	—	—	—	15-92	0-07	—	—	—	9-60	27-74
Rand & O.F.S. .. .	—	—	—	—	2-38	—	—	—	86-03	29-17	117-84	1-26	20-38	1-59	26-80	285-45
Totals .. .	—	—	—	23-32	2-38	71-33	—	20-54	86-03	157-69	126-22	8-38	20-38	1-59	94-88	612-74

TOTAL WORKING:—LINES AND CABLES: 12,917.25

STATEMENT No. 2

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1958.

Undertaking	Electric Power Stations	BOILERS		GENERATORS		Trans-mission 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 Bank No. 2	1	170	—	—	61	1	1·0
Cape Northern	Central, Kimberley	—	—	—	—	95	44	3·8
Cape Western	Hex River	1	275	1	30·0	68	103	24·9
Eastern Transvaal	Witbank	—	—	—	—	98	106	155·3
Natal Central	Colenso	2	200	1	30·0	116	48	142·7
Natal Southern	Umgeni	5	180	2	60·0	24	54	261·3
Rand	{ Highveld Komati	6 2	550 900	6 2	60·0 100·0	299	172	1,639·3

SUMMARY:

Number of Boilers	17	.. .. .	C.M.R. 6,845,000 lb./hr.
Number of Generators	12	.. .. .	Total Rating 740·0 MW
Transmission Lines .. .. .	.. .. .	.. .. .	761 Circuit Miles
Transformers	528	.. .. .	Rating 2,228·3 MVA

STATEMENT No. 3

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

Million Units

Year	Border	Cape Northern	Cape Western	Eastern Transvaal	Klip	Natal Central	Natal Southern	Rand & O.F.S.	Sabie	Vaal	Totals
1925			0.3	160.0		0.7			0.08		0.08
1926			5.8	439.1		104.2			0.7		161.7
1927			31.0	464.3		114.2	15.6		1.9		551.0
1928			47.9	543.1		123.9	78.9		2.8		627.9
1929			49.8	619.0		117.1	99.1		3.2		789.0
1930			52.1	603.4		101.1	103.9		4.6		889.6
1931			64.2	610.3		100.3	109.8		6.6		867.1
1932			100.7	639.4		109.2	118.5		6.1		890.7
1933			73.6	648.3		124.9	131.1		7.3		974.1
1934			80.0	727.9		154.3	149.8		7.2		985.2
1935			85.8	696.4	557.0	171.5	170.4		6.9		1,119.2
1936			94.0	684.5	1,349.9	210.6	189.4		7.2		1,688.0
1937			98.8	768.1	1,666.9	234.9	209.5		7.2		2,535.6
1938			106.5	767.7	2,193.2	266.2	233.7		6.4		2,985.4
1939			119.8	853.3	2,566.6	281.1	242.7		6.7		3,573.7
1940			136.2	862.6	2,675.9	302.4	270.3		6.6		4,254.0
1941			151.8	873.4	2,707.8	307.7	273.8		6.3		4,320.8
1942			145.7	849.1	2,669.1	312.4	293.4		5.9		4,275.6
1943			158.7	889.2	2,703.6	336.0	321.6		6.7		4,415.8
1944			165.9	830.7	2,643.0	333.2	348.8		6.6		4,706.1
1945			184.6	896.9	2,614.3	347.0	369.7		7.4		5,002.4
1946			198.6	887.7	2,547.2	346.0	402.6		7.3	377.9	5,114.5
1947	56.2		222.4	833.2	1,207.4	367.9	448.7		7.0	582.5	5,576.9
1948	69.2		249.5	358.3		371.8	513.0		7.3	668.6	6,222.2
1949	68.7	53.9	271.9	378.5		406.5	561.8		6.3	435.1	6,910.6
1950	79.9	58.5	303.5	386.8		433.4	617.0		6.1		7,456.5
1951	88.0	61.3	341.2	425.0		454.0	655.6		6.4		8,080.5
1952	97.7	67.1	375.5	409.9		492.3	713.2		6.1		8,732.2
1953	107.8	70.7	436.2	270.5		532.5	777.7		5.6		9,676.6
1954	118.2	73.2	527.1	394.6		595.4	870.0		5.6		10,964.0
1955	130.8	78.7	585.1	505.9		595.4	957.7		6.0		12,019.5
1956	139.1	86.1	698.6	536.5		621.7	1,018.7		5.9		12,763.1
1957	143.1	115.2	826.0	584.1		616.1	1,104.1		3.1		13,602.1
1958	152.9										

Notes.—(1) Klip and Vaal are now included in Rand and O.F.S. undertaking.
 (2) Sabie Undertaking incorporated in Eastern Transvaal Undertaking since 1st July, 1958 in terms of the Amended Licence.

UNITS SOLD AND NUMBER OF CONSUMERS, 1958 (Electricity, Air and Steam)

Energy Used:—
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				138,580,480	4·883	7												2,590
Cape Northern				54,936,600	1·936	5	37,261,327	0·522	9	5,265,652	0·212	205	9,092,995	4·418	2,378	152,939,127	1·137	684
Cape Western	200,969,260	25·471	2	319,132,569	11·246	26				20,875,024	0·842	76	2,171,997	1·055	594	115,244,948	0·857	27,772
Eastern Transvaal	30,156,074	3·822	1	38,809,084	1·368	8	174,892,403	2·451	38	187,747,052	7·571	2,174	118,190,872	57·425	25,570	826,039,753	6·142	1,378
Natal Central	276,004,052	34,981	1	241,479,222	8,509	17	34,385,858	0·482	15	337,363,350	13·605	175	2,837,244	1·379	1,156	584,058,155	4·343	5,364
Natal Southern	79,951,009	10·133	1	958,797,273	33·787	3				47,384,668	1·911	553	16,884,907	8·204	4,778	616,138,707	4·581	6,067
Rand & O.F.S.	201,930,534	25·593	1	1,086,064,045	38·271	71	6,886,623,292	96·502	112	37,182,237	1·499	295	28,199,856	13·701	5,768	1,104,130,375	8·210	4,343
Sabie*							3,047,283	0·043	*	1,843,959,056	74·360	738	28,439,448	13·818	3,421	10,047,016,375	74·707	*
Total Electricity	789,010,929	100·000	6	2,837,799,273	100·000	137	7,136,210,163	100·000	174	2,479,777,039	100·000	4,216	205,817,319	100·000	43,665	13,448,614,723	100·000	48,198
Per cent. of Total	5·867			21·101			53·063			18·439			1·530			100·000		

AIR AND STEAM

Rand and O.F.S.: Air				3,786,086	100·000	1	136,054,619	96·727	10	9,129,838	100·000	26				148,970,543	97·003	37
Steam							4,603,260	3·273	1							4,603,260	2·997	1
Total Air and Steam				3,786,086	100·000	1	140,657,879	100·000	11	9,129,838	100·000	26				153,573,803	100·000	38
Per cent. of Total				2·465			91·590			5·945						100·000		

ELECTRICITY, AIR AND STEAM

Grand Total all Sales	789,010,929		6	2,841,585,359		138	7,276,868,042		185	2,488,906,877		4,242	205,817,319		43,665	13,602,188,526		48,236
Per cent. of Grand Total . .	5·800			20·891			53·498			18·298			1·513			100·000		

Energy Used by Provinces:—

ELECTRICITY, AIR AND STEAM

Cape	200,969,260	25·471	2	519,090,716	18·268	37	36,930,527	0·507	8	213,827,549	8·591	2,449	129,266,322	62·806	28,478	1,100,084,374	8·088	30,974
Natal	343,725,011	43·564	1	1,172,685,839	41·269	14	34,385,858	0·473	15	82,497,780	3·315	680	38,899,849	18·900	8,132	1,672,194,337	12·294	8,842
O.F.S.	12,230,050	1·550	1	180,074,744	6·337	29	1,721,284,624	23·654	17	80,765,875	3·245	132	2,235,211	1·086	803	1,996,590,504	14·678	982
Transvaal	232,086,608	29·415	2	969,734,060	34·126	58	5,484,267,033	75·366	145	2,111,815,673	84·849	981	35,415,937	17·208	6,252	8,833,319,311	64·940	7,438

Note:—*Sabie Undertaking incorporated in Eastern Transvaal Undertaking since 1st July, 1958 in terms of the Amended Licence

Electricity 98·871 } of Total
Air and Steam 1·129 } Sales

POWER STATION OPERATING STATISTICS: YEAR 1958.

1.1 STEAM ELECTRIC

Power Station	Units Generated	Units Sent Out	MAXIMUM DEMANDS		Station Load Factor % Sent Out	Coal Burned Tons (2,000 lb.)	LB OF COAL		Calorific Value of Coal B.Th.U. as Recd. (Weighted Average)	B.Th.U. PER UNIT		OVERALL THERMAL EFFICIENCY %	
			$\frac{1}{2}$ Hour (or Hour) Sent Out kW	Peak kW			Per Unit Generated	Per Unit Sent Out		Generated	Sent Out	Generated	Sent Out
Brakpan	35,694,354	30,940,707	Hour 26,459	—	13·3	46,579	2·610	3·011	9,930	25,920	29,900	13·2	11·4
Central, Kimberley	112,511,500	98,486,424	24,627	27,200	45·7	108,080	1·921	2·195	12,410	23,840	27,240	14·3	12·5
Colenso No. 1 & No. 2	616,334,780	579,269,860	121,530	134,000	54·4	451,722	1·466	1·560	11,750	17,230	18,330	19·8	18·6
Congella No. 1 & No. 2	727,309,500	669,798,060	134,982	147,000	56·6	494,185	1·359	1·476	11,540	15,680	17,030	21·8	20·0
Hex River	217,281,100	204,997,310	59,400	61,800	39·4	130,072	1·197	1·269	11,620	13,910	14,750	24·5	23·1
King William's Town (Standby only)	80,120	69,692	2,400	2,500	—	103	2·571	2·955	—	—	—	—	—
Klip	2,716,882,537	2,534,332,050	Hour 388,860	—	74·4	2,251,281	1·657	1·777	9,680	16,040	17,200	21·3	19·8
Rosherville	71,831,792	66,866,374	Hour 39,477	—	19·3	122,633	3·414	3·668	9,880	33,730	36,240	10·1	9·4
Salt River No. 1	43,324,924	38,189,410	52,824	60,000	8·3	29,447	1·654	1·877	11,830	19,570	22,210	17·4	15·4
Salt River No. 2*	673,311,600	642,827,610	120,330	129,500	61·0	351,207	1·029	1·077	11,830	12,170	12,740	28·0	26·8
Taaibos	3,040,191,658	2,807,609,121	Hour 387,506	—	82·7	1,995,399	1·313	1·421	8,920	11,710	12,680	29·1	26·9
Umgeni	574,512,200	538,823,900	116,400	126,000	52·8	349,576	1·217	1·298	11,300	13,750	14,670	24·8	23·3
Vaal	2,054,762,826	1,932,693,303	Hour 283,109	—	77·9	1,662,633	1·618	1·721	9,000	14,560	15,490	23·4	22·0
Vereeniging	766,673,558	710,773,141	Hour 134,296	—	60·4	902,882	2·355	2·541	9,010	21,220	22,890	16·1	14·9
Vierfontein	1,899,284,347	1,771,316,833	Hour 304,164	—	66·5	1,409,954	1·485	1·592	9,140	13,570	14,550	25·1	23·5
West Bank No. 1 & No. 2	166,482,820	157,360,900	33,462	35,700	53·7	115,685	1·390	1·470	11,560	16,070	16,990	21·2	20·1
Wilge	1,103,545,925	1,020,417,371	Hour 170,531	—	68·3	718,503	1·302	1·408	9,820	12,790	13,830	26·7	24·7
Witbank	656,089,534	605,087,239	Hour 111,139	—	62·2	601,870	1·835	1·989	11,310	20,750	22,500	16·4	15·2
GRAND TOTALS: ...	15,476,105,075	14,409,859,305				11,741,811							

*Salt River No. 2 also supplies steam to No. 1.

HYDRO ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW		Station Load Factor % Sent Out	Rain	
			Half Hr. Sent Out	Two Mins. Generated		Inches	mm.
Ixopo o/c 25/5/58	116,672	116,672	—	—	—	—	—
Sabie	4,859,100	4,674,700	1,220	1,240	43·7	56·2	1429
Totals	4,975,772	4,791,372					

POWER STATION OPERATING STATISTICS: YEAR 1958.

DIESEL ELECTRIC:

Power Station	Units Generated	Units Sent Out	Maximum Demands kW			Fuel Consumed		Lub. Oil gal.
			Half Hour	2 Mins.	Total lb.	Per kWh Sent Out		
							450		—	96,183	0.755
Reitz	129,989	127,390	450	—	96,183	0.755	230	
Vrede	259,143	253,960	436	—	198,771	0.783	460	
Ixopo o/c 25/5/58	26,336	26,336	—	—	33,516	1.273	53	
King William's Town	10,505	10,505	960	1,100	5,893	0.561	0	
Port Shepstone	90,461	89,458	3,374	3,440	54,184	0.606	45	
Volksrust	7,260	7,042	400	400	7,507	1.066	44	
Totals	523,694	514,691			396,054		832	

(2) COMPRESSED AIR GENERATION:

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	96,314,500	60.6	138,332	2.881	—	—	—	—	—
Robinson	Electric	41,769,600	26.4	—	—	—	53,383,866	78.24	52,210	34.6
Canada Dam	Electric	20,547,800	13.0	—	—	—	24,730,132	83.09	(March)	
Air Pipe-line Totals		158,631,900	100.0	138,332			78,113,998			

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

(3) STEAM GENERATION:

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	4,643,510	4,603,260	7,283	3,164	3,098	17.0

GENERATION SUMMARY:

TOTAL COAL BURNED	= Steam Driven Generating Stations + Compressed Air Steam Driven Stations	
	= 11,741,811	145,615
TOTAL UNITS GENERATED	= 11,887,426 Tons of 2,000 lb. (Increase of 621,189 over 1957 or 5.514%).	
	= Electricity (Steam + Hydro + Diesel) + Air Units Generated at Steam Driven Stations + Steam Units Generated (Brakpan)	
	Steam 15,476,105,975	15,481,604,541
	Hydro 4,975,772	—
	Diesel 323,694	—
UNITS SENT OUT	= 14,515,812,628 (93.154% of Generated).	96,314,500 + 4,643,510

POWER PURCHASED, YEAR 1958.

Under-taking	Purchased From	Maximum Demands	U N I T S
Border	East London, Municipality	756 kVA	98,614
Eastern Transvaal	Pretoria, City of—at Pinedene	—	24,946,907
Natal Southern	Durban, City of—at Canelands	1,500 kVA	5,637,825
Rand and O.F.S.	Pretoria, City of—at North Rand	42,688 kW (May)	133,427,411
TOTAL UNITS PURCHASED			164,110,757 (1·207 per cent of Units Sold)

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1958.

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border... ..	14	—	—
Cape Northern	199	—	—
Cape Western	41	155	—
Natal Southern	524	—	—
Natal Central	29	333	—
Rand (including Witbank Power Station)	286	13,118	273

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

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 1958

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1958).

CAPE WESTERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£267	1	0
Servitudes acquired—capitalised payments amounting to... ..	£3,389	18	10

CAPE NORTHERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£6,635	1	1
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NATAL CENTRAL UNDERTAKING

Immovable property acquired for considerations amounting to...	£16,274	5	6
Servitudes acquired—capitalised payments amounting to	£1,661	8	0

NATAL SOUTHERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£850	0	0
Servitudes acquired—capitalised payments amounting to... ..	£7,189	8	6

EASTERN TRANSVAAL UNDERTAKING

Immovable property acquired for considerations amounting to...	£900	0	0
Servitudes acquired—capitalised payments amounting to... ..	£3,882	10	0
Servitudes acquired—annual payments amounting to... ..	£24	15	0

Border Undertaking

Leases acquired—annual rentals amounting to... ..	£654	0	0
Servitudes acquired—capitalised payments amounting to... ..	£849	19	5

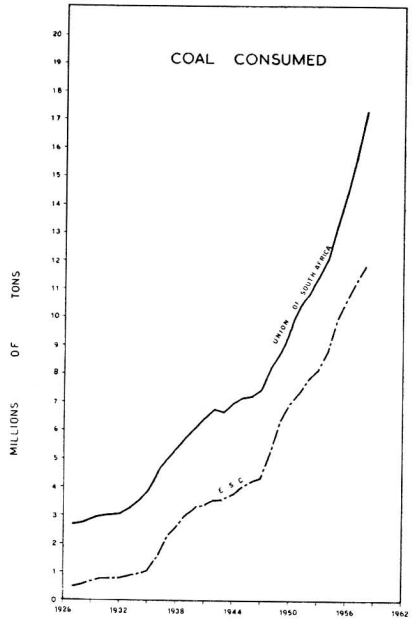
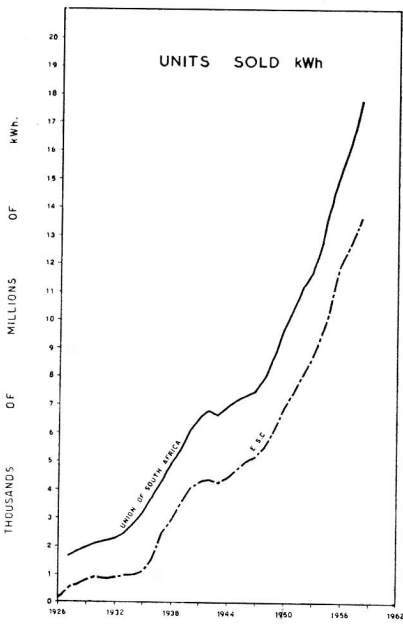
Rand and Orange Free State Undertaking

Immovable property acquired for considerations amounting to...	£20,855	0	0
Servitudes acquired—capitalised payments amounting to... ..	£31,529	7	6
Servitudes acquired—option moneys paid amounting to... ..	£7,333	5	0

COAL USED AT COMMISSION'S POWER STATIONS

Average Cost per ton (2,000 lb.)

Power Station	1948		1949		1950		1951		1952		1953		1954		1955		1956		1957		1958	
	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	16	6	17	3
Colenso... ..	11	6	12	9	13	2	14	3	18	6	19	11	21	6	25	2	27	1	28	8	29	8
Congella	16	4	18	0	19	5	20	0	23	6	25	4	27	2	31	4	32	6	34	3	35	10
Hex River	—	—	—	—	—	—	—	—	32	10	35	4	37	0	38	11	40	7	41	9	45	5
Kimberley Central	—	—	—	—	23	1	24	4	26	4	27	9	29	1	30	10	32	10	34	0	35	11
Klip	4	1	4	7	5	0	7	7	9	8	11	7	13	1	14	5	16	1	17	4	17	11
King William's Town... ..	27	10	29	6	31	8	33	1	37	2	39	9	42	5	45	8	46	10	48	5	48	1
Rosherville	8	3	8	5	9	5	10	7	12	9	15	0	15	6	16	6	17	2	18	9	19	2
Salt River	28	5	29	6	32	5	33	10	35	3	37	5	41	0	40	9	42	3	43	10	45	8
Taaibos	—	—	—	—	—	—	—	—	—	—	—	—	8	11	8	9	7	4	7	7	8	5
Umgeni	—	—	—	—	—	—	—	—	—	—	—	—	30	9	32	10	33	1	34	11	37	2
Vaal	4	11	4	9	5	4	5	11	6	8	6	10	6	10	7	2	7	1	7	3	7	3
Vereeniging	4	11	4	10	5	5	5	9	6	9	7	3	7	8	8	2	8	6	9	2	9	10
Vierfontein	—	—	—	—	—	—	—	—	—	—	9	5	8	2	8	4	9	8	11	0	12	3
West Bank	26	11	28	6	30	5	31	6	34	0	35	4	37	10	41	9	40	10	41	9	43	11
Wilge	—	—	—	—	—	—	—	—	—	—	—	—	8	1	7	9	7	10	8	11	9	1
Witbank	4	0	3	9	4	2	4	6	5	10	6	11	7	0	7	7	10	3	10	4	10	6



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

