



Tacibos and Highveld power stations which were most immediately affected by the Coalbrook disaster.

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Electricity Supply Commission

Escom Centre

204, Smit Street

Johannesburg

4th August, 1960.

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-seventh Annual Report and the Accounts covering its work during the financial year ended at the 31st December, 1959.

The Report includes brief comment on the more important developments which have taken place in the period to the 30th April, 1960.

GENERAL REVIEW

Escom's output and sales for the year 1959 show a return to a higher rate of annual load growth. Total sales of electricity, compressed air and steam increased by 8.25 per cent, compared with increases of 6.6 per cent in 1958, and 6.2 per cent in 1957.

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:—

				1959	1958	Annual Increase	
						1959	1958
Bulk Supplies:							
Municipal	...	...	...	3,060,902,685	2,841,585,359	7·7%	11·7%
Direct Supplies:							
Traction	...	...	...	887,435,946	789,010,929	12·5%	4·8%
Mining	...	...	...	7,801,823,456	7,276,868,042	7·2%	4·9%
Industrial	...	...	...	2,745,960,371	2,488,906,877	10·3%	6·3%
Domestic	...	...	...	222,915,934	201,180,393	10·8%	8·4%
Street Lighting	...	...	...	5,418,899	4,636,926	16·9%	11·3%
				14,724,457,291	13,602,188,526	8·25%	6·6%

Total Revenue for the year amounted to £36,503,831: and production costs (including interest, redemption and reserve fund charges) were £35,983,535. The annual increases in these figures were 13·2 per cent, and 12·7 per cent, respectively.

In view of the great expansion of Escom's undertakings which has been achieved since 1952, increases in costs and tariffs have been unavoidable: but it is gratifying to note that the rate of increase of costs appears to be diminishing, as may be seen in the following figures:—

			Units Sold per Annum (millions)	Average Cost per Unit Sold (pence)	Annual Increase in Cost per Unit Sold
1953	...	...	8,732	·4273	10·0%
1954	...	...	9,677	·4571	7·0%
1955	...	...	10,964	·4910	7·4%
1956	...	...	12,019	·5280	7·5%
1957	...	...	12,763	·5418	2·6%
1958	...	...	13,602	·5638	4·1%
1959	...	...	14,724	·5865	4·0%

Escom endeavours, by every possible means, to keep costs at the lowest level compatible with giving a reliable and efficient supply, and no aspect of planning or design which may contribute to reduction of costs, is neglected. An interesting example of what Escom is able to do in this direction is seen in an analysis of coal costs over the past ten years.

In 1950 Escom burnt nearly 7,000,000 tons of coal, to produce 7,276 million units, which represents an average consumption of 1·91 lbs. of coal per unit sent out from the power stations. Over this period the cost of coal (including railage) increased from approximately 7/7d. per ton (average for all stations) to 16/5d. per ton, an increase of 116 per cent. By the use of larger units and more efficient boiler plant in the new power stations, the amount of coal consumed per unit sent out has been reduced from 1·91 lbs. to 1·61 lbs.* (average for all stations), so that the rise in coal costs per unit sent out has been kept down to 82·4 per cent over the 10-year period, compared with the rise in the price of coal of 116 per cent.

*The figures for Escom's new power stations are appreciably below the average of 1·61 lbs., *vide* the power station operating statistics which are given in Statement No. 5 on page 92.

Bulk Supplies to Municipalities. The total sales for the year of 3,061 million units include the partial supply furnished to the Cape Town City Council. If this supply is omitted, the increase in the total units sold as bulk supplies to Municipalities was 8·26%, which indicates that the rate of growth of the electricity undertakings of Municipalities which purchase their supplies from Escom was about the same rate as that experienced on Escom's Undertakings.

In 1959 new supplies were given to the Municipalities of Citrusdal, Bredasdorp, Napier and Riviersonderend in the Western Cape; to the Municipalities of Alexandria, Port Alfred and Komgha in the Border Undertaking; and in the Transvaal, to the Municipality of Groblersdal and the Health Committees of Trichardt and Thabazimbi.

Traction Supplies. The supply for electric traction in the Western Cape shows a small decline: but the work of preparing the section of main line between Touws River and Beaufort West for electric traction is proceeding, and it is expected that the first section up to Laingsburg will be ready for electric working by the end of 1960, and the further section to Beaufort West about mid-1961.

On the Natal Undertakings nine new traction substations were connected to the supply systems during 1959, namely, South Portal, Hospital Siding, Nottingham Road, New Lowlands, Frere and Elandslaagte on the Natal Central Undertaking, and Northdene, Kloof and Alverstone on the Natal Southern Undertaking. Cedara temporary substation and Willbrook motor generator substation were closed down.

On the Reef the sections of main line Midway-Vereeniging and Wattles-Vereeniging-Kroonstad were converted to electric traction during 1959, new substations being established at Stretford, Vereeniging, Angus, Henley-on-Klip, Coalbrook, Ywer, Leeuwstroom, Serfontein, Amerika and Gunhill (at Kroonstad). A supply has also been furnished at Voëlfontein traction substation, for the Springs-Natal-spruit by-pass: but full working is not yet achieved on this section.

In the Pretoria area supply was given at Eerste Fabriek traction substation in August, 1959.

Work is proceeding to convert to electric traction the sections of railway between Springs and Witbank, and from Oogies to Vandyksdrif, which carry the bulk of the coal traffic from the Witbank coal fields. It is expected that supplies of electricity will be called for in September, 1960.

Mining Supplies. The supply of power for mining purposes is still the largest category of power supply in South Africa. In 1959 Escom's total sales to Mining Consumers increased to 7,801 million units: and some idea of the magnitude of this supply may be gained from the comparison that it was equal to one-tenth of the electricity sold by the British Electricity Council in the year 1958/9 throughout the whole of England and Wales, or about one-sixth of the electricity consumed in that year by all Industrial Consumers in England and Wales.

Mining Supplies furnished from the four Undertakings of Escom which cater for this class of consumer were as follows:—

Undertaking				1959	1958	Annual
				kWh	kWh	Increase
Cape Northern	...	...	...	62,913,068	37,261,327	68·8%
Natal Central	...	...	...	35,777,581	34,385,858	4·0%
Eastern Transvaal	...	...	...	200,503,352	174,892,403	14·6%
Rand and O.F.S.:						
Electricity	...	...	...	7,377,168,260	6,886,623,292	7·1%
Compressed Air	...	...	...	125,461,195	140,657,879	—10·8%
				<u>7,801,823,456</u>	<u>7,273,820,759</u>	<u>7·2%</u>

The following table sets out the units sold for mining purposes, sub-divided into the main categories of Gold Mining including uranium production, Diamond and other mines, and Coal Mines, during the past three years. The rate of growth of the load taken in the new goldfields can be seen in the last column of the table.

				1957	1958	1959	Increase: 1959 compared with 1958
				(kWh—millions)			
Witwatersrand*	...	...	...	3,153	3,123	3,119	—
Klerksdorp	...	...	...	778	868	987	13·7%
Far West Rand	...	...	...	1,030	1,135	1,243	9·5%
Orange Free State	...	...	...	1,510	1,678	1,887	12·4%
Bethal	...	...	...	18	52	72	38·2%
Gold Mining	...	...	...	<u>6,489</u>	<u>6,856</u>	<u>7,308</u>	6·6%
Diamond and Other Mines	...	...	...	247	208	269	24·5%
Coal Mines	...	...	...	195	213	225	5·7%
				<u>6,931</u>	<u>7,277</u>	<u>7,802</u>	<u>7·2%</u>

*This group covers the mines in the old areas from Springs to Randfontein. While some of the mines have limited "lives" under present conditions, several are embarking upon ultra deep level mining.

Industrial Supplies. Sales to Industrial consumers were greater by 10·3 per cent than the sales for 1958. The larger part of this increase reflects expansion of business and new developments in the steel and metal industries: but there were also important increases in supplies to chemical works and cement factories.

The increase in the sales of the Cape Northern Undertaking reflects the full supplies to Anglo Alpha Cement Company, Limited, and Union Lime Company, Limited, at Ulco. Since the decision to take supply from Escom involved closing down their own power station, only a part of these supplies represents increased production.

In Natal, Feralloys, Limited, took more than 40 million units for their new ferro-manganese works at Cato Ridge, the supply being available during the second half of the year: and the supply taken by the titanium mine at Umgababa was more than double the quantity in the previous year.

In the Transvaal increased supplies were taken by consumers engaged in the production or fabrication of base metals, the larger increases being in the supplies to S.A. Iron, Steel and Industrial Corporation, Limited, ("Isacor") at Vanderbijl Park; African Metals Corporation, Limited; Dunswart Iron and Steel Works, Limited; Scaw Metals, Limited; and Vanderbijl Engineering Corporation Limited.

A supply was given in March, 1959, to S.A. Pulp and Paper Industries, Limited, at a new substation for their Enstra Mill at Springs, and further supplies will be made available during the present year. These new supplies are required mainly in connection with that Company's newsprint project. The principal raw material for the production of newsprint, namely pine pulpwood, will be drawn from plantations in the Sabie/Graskop area in the Eastern Transvaal. The Company hopes to commence production in the first half of 1961, and its output will supply a large portion of the inland market for newsprint, all of which has hitherto had to be imported.

New supplies were given to African Explosives and Chemical Industries, Limited, and Fison's (Proprietary) Limited, for factories which are expected to make important contributions to the production of the Union's requirements of fertilizer.

The new Nitrogen Plant of African Explosives and Chemical Industries, Limited, will cost in the region of £10 millions, and is to produce urea, a nitrogenous fertilizer which has a higher nitrogen content (46%) than ammonium nitrate (35%). Urea is also being used for the production of cattle feeds. The initial supply which was taken in January, 1960, is for the first stage only: the whole plant is expected to be in operation by the end of the year.

Fison's new factory has been established at Sasolburg, and it will produce superphosphates and general fertilizers. Production started in April, 1959.

OUTPUT AND SALES

The total units generated in all Escom's Undertakings in 1959 was 16,926 million units: and 93 million units were purchased from outside sources.

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

				1959	1958	Increase
Units generated	...	...	...	16,926,480,087	15,582,562,551	8·62%
Units purchased	...	...	...	93,614,989	164,110,757	—
Units sold	...	...	...	14,724,457,291	13,602,188,526	8·25%

Sales of units by individual Undertakings were as follows:—

				1959	1958	Increase
Cape Western	...	...	...	861,795,585	826,039,753	4·3%
Cape Northern	...	...	...	171,387,629	115,244,948	48·7%
Border	...	...	...	165,048,030	152,939,127	7·9%
Natal Southern	...	...	...	1,228,640,386	1,104,130,375	11·3%
Natal Central	...	...	...	629,418,295	616,138,707	2·2%
Eastern Transvaal	...	...	...	633,326,551	584,058,155	8·4%
Rand and Orange Free State	...	...	...	11,034,840,815	10,200,590,178	8·2%
Sabie	...	...	...	—	3,047,283	—
				14,724,457,291	13,602,188,526	8·25%

DISASTER AT THE COALBROOK NORTH COLLIERY

The tragic disaster that occurred on January 21st, 1960, at the Coalbrook North Colliery of The Clydesdale (Transvaal) Collieries, Limited, and the events which followed upon it, have been reported to Parliament and in the Press.

As the Colliery and the adjoining Coalbrook South Colliery provide the coal supplies for Escom's Taaibos and Highveld Power Stations, the tragedy impinged very closely upon the Escom organization: and Escom desires to take this opportunity of expressing its deep sympathy with those who suffered bereavement and personal loss.

In the normal course Coalbrook North colliery is the sole source of coal supply for Taaibos Power Station, the South Colliery providing the requirements of Highveld Power Station, and as the burning rate at Taaibos Station in the three weeks before the accident exceeded 40,000 tons per week, the loss of the whole output from the North Colliery was a disturbance of considerable magnitude.

Immediate steps were taken to transfer as much load as possible from Taaibos to other power stations, as well as to obtain coal for Taaibos Station from Coalbrook South Colliery, and from the nearby Cornelia Colliery at Vereeniging. At a later stage coal was brought in from the Witbank area; but, as the boilers at Taaibos are designed for burning the type of coal produced from the Vereeniging coalfield, it was necessary for Cornelia coal to be railed to Taaibos, and for the Witbank supplies to be used at Klip and Vereeniging Power Stations.

By these measures the daily units sent out from Taaibos Power Station was reduced from 8·6 millions to 5·5 millions: but without any reduction of supplies to consumers.

The coal contracts with The Clydesdale (Transvaal) Collieries, Limited, provide for supply from the South Colliery to Taaibos Power Station, in an emergency; and within a fortnight of the accident at the North Colliery, Coalbrook South Colliery was able to increase its output to about 40,000 tons per week. This increased production, together with the coal brought in by rail, enabled near-normal loading to be maintained on Taaibos and Highveld Power Stations from the period 18th February, 1960, to 4th March, 1960: although, there was, of course, appreciable encroachment into coal stocks at all power stations.

On 29th February, 1960, mining was recommenced in No. 3 seam at the Coalbrook North Colliery: and there was expectation of a supply of some 7,000 tons per week from this source.

On the 4th March, 1960, Escom was advised that the East Shaft of the Vierfontein Colliery had been closed in the interests of safety, and consequently that the output of the Vierfontein Colliery would be reduced in the ensuing two weeks to 23,000 tons and 25,500 tons, and thereafter to about 27,000 tons per week. To meet this position an immediate change of loading on Vierfontein Power Station was made.

On the morning of 7th March, 1960, the haulage at the Vierfontein Colliery broke down, and caused a stoppage of 32½ hours; and then, in the evening of the same day, Escom was advised that the *ad hoc* Committee on Mine Safety had ordered the closing of the Coalbrook North Colliery.

These events were followed by the closing of the Coalbrook South Colliery on Saturday, 12th March, 1960: and a reduction in electricity supply could not be avoided.

Emergency measures were taken to bring in coal to the southern stations, *i.e.*, Taaibos, Highveld and Vierfontein, by rail and by road, while the maximum possible load was injected from the northern stations into the southern networks. Notwithstanding every effort to avoid load shedding, it was necessary to reduce the supplies to consumers supplied from the southern stations to 80 per cent of normal, from midnight on the 13th March, 1960. Supplies were increased to 85 per cent of normal from 7 a.m. on the 17th March; and normal supplies were restored from 7 a.m. on the 19th March, 1960.

The Coalbrook Collieries re-started production on the 18th March; and by April the position had largely been restored, insofar as the maintenance of full supplies of electricity was concerned.

The simultaneous closing of two and a half collieries supplying power stations which have a total installed capacity of over 1,000,000 kW is surely without precedent; and the fact that reductions of supply to the consumers fed from those stations was no more than 20 per cent for three days, and 15 per cent for two days, must surely be a ground for assurance rather than alarm.

Escom is not unaware, of course, of the losses suffered by consumers as a result of interruptions of electricity supply. The emergency measures taken to secure coal supplies by rail and road were costly, and coal costs on the Undertakings which are supplied from the Transvaal and Orange Free State pooled power stations have been increased and are likely to remain higher than normal throughout the current year; but additional rail facilities are being provided at all pit-head power stations for receiving coal in emergency, and it is hoped that there will not be any further instance of reduction of supply due to loss of coal supplies.

In conclusion, Escom desires to express appreciation for the co-operation and assistance rendered by the South African Railways, the Transvaal and Orange Free State Chamber of Mines, the Transvaal Coal Owner's Association, and by all consumers who responded to the request for curtailment of loading during the emergency.

EXTENSIONS TO ESCOM'S UNDERTAKINGS

The licensed areas of supply of Escom's Undertakings, as at the 31st December, 1959, are shown on the map which appears opposite this page.

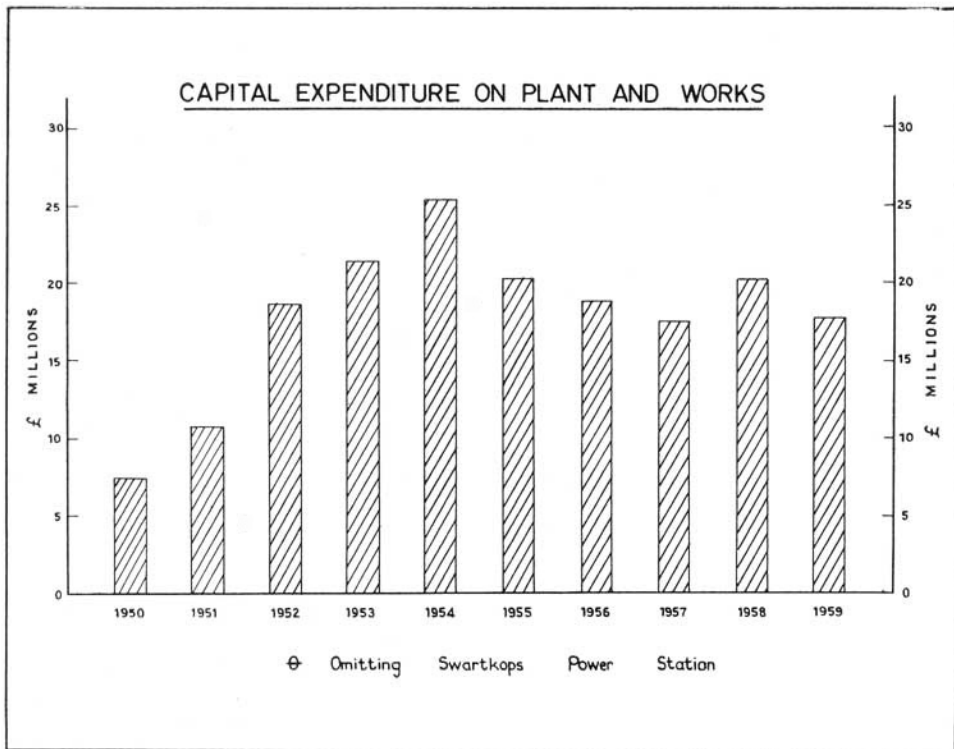
The map incorporates two extensions which were applied for during the year, and granted by the Electricity Control Board on 27th January, 1960: (i) an application to extend the area of supply of the Eastern Transvaal Undertaking to enable a supply to be given to the asbestos mine of Egnep (Proprietary) Limited at Penge, and to other consumers in the vicinity; and (ii) an application to extend the area of supply of the Cape Western Undertaking by the inclusion of a few farms in the Swellendam district, to enable Escom to undertake a rural scheme in the area.

In order to cover its programme of future development, application was made on 10th December, 1959, for the approval of the Governor-General, in terms of Section 10 of the Electricity Act, 1958, of borrowing powers for further capital works the cost of which is estimated at £67,700,000. These projects cover extensions to power stations, major transmission systems and distribution systems which are required to meet Escom's commitments in all its Undertakings over the next four to five years. The application included an estimated expenditure of £5,078,000 for extensions in rural areas.

Executive Council authority was granted on 11th January, 1960.

CAPITAL EXPENDITURE

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



PLANT CAPACITY

The plant taken into service in Escom's power stations during the period May, 1959, to the end of April, 1960, and the capacity of new plant under construction or on order at the 30th April, 1960, are given in the following table:—

	Plant taken into service. May 1959—April 1960		Plant under construction. or on order at April, 1960.	
	Boilers lb./hr.	Generators kW	Boilers lb./hr.	Generators kW
Cape Western Undertaking:				
Hex River Power Station ...	—	—	550,000	60,000
Border Undertaking:				
West Bank No. 2 Power Station	170,000	—	—	—
Natal Undertakings:				
Colenso Power Station ...	200,000	30,000	—	—
Ingagane Power Station ...	—	—	900,000	100,000
Umgeni Power Station ...	—	—	1,300,000	120,000
Eastern Transvaal Undertaking:				
Komati Power Station ...	—	—	1,800,000	200,000
Rand and O.F.S. Undertaking:				
Highveld Power Station ...	1,650,000	180,000	550,000	60,000
	2,020,000	210,000	5,100,000	540,000

The principal items of plant which were installed in Escom's power stations at 31st December, 1959, and the total station capacities are given in Annexure "B", Statement No. 1 to this Report.

Power Station operating statistics are given in Statement No. 5 on page 92.

NEW DEVELOPMENTS IN ESCOM'S UNDERTAKINGS

The operating statistics and the reports on the year's working on each Undertaking are given on pages 25 to 49.

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

Cape Western Undertaking. The arrangement made with the Cape Town City Council under which the Council will take a diminishing quantity of electricity until the end of 1961 means that existing plant in Escom's power stations will become available to meet the growth of load of Escom's other consumers. Power station development has thus been restricted to an extension of Hex River Power Station by one 30,000 kW set and corresponding boiler plant. This plant is expected to come into service early in 1961; and another set and boiler have been ordered for commissioning in 1963.

Cape Northern Undertaking. The year 1959 was the first full year of working on the basis of importing electricity from the pooled power stations of the Rand and O.F.S. Undertaking. This interconnection and the change in the cost structure induced by it have resulted in the sales of the Undertaking being doubled in two years, total sales in 1957 having been 86 million units as compared with 171.4 million units in 1959. The addition of this new load has brought about an improvement in the system load factor. For that reason and on account of the lower unit cost, the overall cost per unit sold has been reduced from 1.247d. per unit in 1957 to 1.065d. per unit in 1959.

It will be noted from the operating statistics that the cost of coal at Kimberley has risen over these years from an average of 34s. 0d. per ton in 1957 to 38s. 4d. per ton in 1959. The increase in the cost of coal burnt in the pooled power stations over the same period was less than 8d. per ton.

A 132 kV transmission line from Ulco to the works of the Northern Lime Company, Limited, near Silverstreams, was brought into service at 66 kV in March, 1959, to supply the limeworks and an asbestos mine owned by the Cape Blue Asbestos Company, Limited, at Warrendale, some five miles to the west.

A major 132 kV transmission line, which has been routed from Kimberley to Ulco, was commenced during the year and will be completed in mid-1960. This line will reinforce the network up to Silverstreams and will enable power to be supplied beyond Silverstreams to Manganore and Sishen at 132 kV. From Sishen a 66 kV line will supply the asbestos mines to the west of Kuruman, the new manganese field near Hotazel, and the requirements of the Municipalities of Postmasburg and Kuruman. This extension should be completed in 1962 at about the same time as as the rail extension from Sishen to Hotazel.

The 66 kV network was extended from Norlim to Reivilo to supply the Noord-westelike Kaasfabriek Beperk for its own requirements and for reticulation in the village which comprises some 96 dwellings. Prospecting for minerals is being undertaken in this area; so that additional demands for power may arise in the future.

A new 66 kV substation was commissioned at Borrelskop, near Delports Hope, to supply New Vaal Farms, Limited, for a large scale irrigation project, and the Permanent Gypsum and Allied Minerals, Limited, at Wintersrush. An 11 kV distribution system from this substation will provide electricity to riparian farms on the lower Harts River and part of the Vaal River near the confluence, and to Delports Hope village.

Border Undertaking. The erection of No. 3 boiler in the West Bank No. 2 Power Station proceeded smoothly, and it was steamed for the first time in March, 1960.

The permanent 66/11 kV substation at Grahamstown, replacing the temporary substation, was commissioned in January, 1959; and the supply to Alexandria Municipality over an 11 kV line from Grahamstown was commenced at the same time. The 11 kV line from Grahamstown to Port Alfred was completed in July, 1959, when a bulk supply was given to the Municipality.

A 22 kV line has been built from Ducats Outspan substation to Komgha for a bulk supply to Komgha Municipality. The line is being operated at 11 kV for the present: it was commissioned and supply commenced in mid-December, 1959.

Offers of bulk supply have been accepted by the Municipalities of Cathcart and Butterworth, and negotiations are in progress with the South African Railways for a bulk supply to Alicedale.

Natal Undertakings. The extension of Colenso Power Station by one 30,000 kW set and two boilers was completed during the year. No major items of new plant were commissioned at Umgeni Power Station: but good progress has been made with the "B" Extensions, which comprise two 60,000 kW sets and five boilers.

During the year contracts were placed for the first turbo-generator and its associated boiler for Ingagane Power Station, and work on site has started. This plant will be a unit of 100,000 kW capacity, and it is scheduled to be in commission for the winter of 1963.

In May, 1959, the Umgeni/Coedmore 132 kV lines and the Coedmore 132/88 kV substation were commissioned. This substation, which has an installed capacity of two 45 MVA 132/88 kV transformers forms part of the interconnection between Umgeni and Congella Power Stations; and the interconnection was completed at the end of the year with the commissioning of the second 88 kV line between Coedmore and Congella Power Station.

The commissioning of Coedmore substation, with its interconnecting transmission lines, marked the end of using Springfield 132/33 kV substation as a means of interconnection between Umgeni and Congella Power Stations; and the Springfield substation thus serves only as a distribution substation for the supply to the Durban Corporation.

In view of the growth of the load, it has been agreed with the Durban Corporation that the bulk supply will be taken at 132 kV; and the 132/33 kV equipment in the Springfield substation has been sold to the Corporation with effect from 1st January, 1960. An additional point of supply at 132 kV is to be provided for the Durban Corporation at Coedmore.

Coedmore substation is also the new point of supply for Escom's South Coast system; and it provides an additional point of supply for traction between Durban and Pietermaritzburg.

Two 132 kV lines and the 132/33 kV substation for the supply to Feralloys, Limited, at Cato Ridge were completed, the substation being equipped with two 20 MVA transformers. The permanent supply to this new ferro-manganese works was commenced in July, 1959, and to date a maximum demand of 20,160 kVA has been recorded.

The commissioning of new traction substations is reported on page 6. The rebuilding and re-routing of the railway lines in Natal has involved considerable reconstruction of the distribution system. Two major lines, one from Ladysmith to Van Reenen and the other from Glencoe to Newcastle, were constructed and placed in service during the year; and new tee-lines to the traction substations had to be built.

Work has started on the third Colenso/Ladysmith 88 kV line, which will be completed during 1960.

Mapping and survey work in connection with the construction of the Ingagane/Geogedale 275 kV lines was in progress throughout the year.

Eastern Transvaal Undertaking. Bulk supplies were made available to the Municipalities of Trichardt, at the end of March, 1959, and Groblersdal, in April, 1959.

Reticulation systems were established in the villages of Marble Hall (where 71 consumers were connected), Morgenzon (53 consumers) and Eendrag (12 consumers).

Work is proceeding on five new traction substations—Arbor, Ogies, Blackhill, Kromklip and Vandyksdrif—which are required for the electrification of the Springs/Witbank main line and the Ogies/Vandyksdrif branch line, these lines carrying the bulk of the coal traffic from the Witbank coal fields to the Witwatersrand and to points beyond the Rand. Work on these substations and the 88 kV lines from Grootpan distribution station is well advanced and should be completed in good time to provide supplies in September, 1960.

Two temporary substations were completed for the commencement of supplies to Bracken Mines, Limited, and Leslie Gold Mines, Limited, the two new gold mines which are being opened up in the Bethal area; and supplies were made available in January, 1960.

The extension of the Undertaking's distribution system eastwards, by 132 kV line from Komati Power Station to Witkloof and Machadodorp, and the 21 kV lines Machadodorp/Belfast and Machadodorp/Waterval Bo were completed at the end of the year; and supplies were made available from temporary installations at the end of February, 1960.

Rand and Orange Free State Undertaking. It was explained in the Report for 1958 that Vierfontein, Wilge and Taaibos Power Stations had been developed to the full capacities permitted by the resources available at those sites: thus power station construction in this Undertaking was concentrated at Highveld Power Station. During 1959 four new turbo-alternators, each of a capacity of 60,000 kW, were completed at Highveld and taken into commercial operation. The fifth set at this station was commissioned at the end of April, 1960, and the sixth set is expected to be in service towards the end of the year.

Further demands upon the pooled power stations of the Rand and Orange Free State Undertaking and the Eastern Transvaal Undertaking will be met by extension of Komati Power Station.

An important development is the decision to establish a 275 kV transmission system, as a backbone in this area. Highveld Power Station is already connected to the distribution system in the Orange Free State by two 275 kV transmission lines which terminate at Everest Distribution Station (near Welkom). Komati Power Station will be connected to the Reef distribution systems initially by two, and ultimately by three, 275 kV transmission lines from Komati to Nevis Distribution Station (in the Springs district); and thence by duplicate 275 kV transmission lines from Nevis to Esselen Distribution Station (between Germiston and Pretoria) and from Nevis to Snowdon Distribution Station (which will be situated east of Klip Power Station). Power will thus be fed into the existing 132 kV and 88 kV networks at Nevis, Esselen and Snowdon.

Interconnection between Komati and Highveld Power Stations will be provided by extending the 275 kV system from Snowdon to Highveld Power Station.

This backbone will strengthen greatly the interconnection between the northern group of stations and the southern group; and it will enable power to be directed to the expanding networks in the Orange Free State and the Western Goldfields.

DEVELOPMENT OF ELECTRICITY SUPPLY IN RURAL AREAS

Escom continues to devote special attention to the development of electricity supply in rural areas: and, as reported on page 10, additional borrowing powers were granted for an amount of £5,078,000 which will be required during the next four or five years for extension of Escom's networks in rural areas.

Although Escom is willing—indeed, is most anxious—to give supplies wherever they are asked for, the farmer understandably must look upon the matter as an economic transaction. Escom's price is cost price: but in a large number of cases, farm schemes have fallen through, at any rate for the time being, because the price was considered too high.

Figures quoted in the 1958 Report showed that for each farm supplied with electricity, capital expenditure of the order of £1,000 is involved for the power lines, transformers and other equipment required in a typical farm scheme. Escom's expenses are made up of the charges for interest and redemption on this capital, the cost of operating and maintenance on the network, as well as the cost of generating and supplying the electricity actually used: but in the initial stage the preponderant cost of a farm scheme is in the distribution network required to carry electricity to the farms. These costs are increasing as networks are extended into the less populated districts, a condition which is shown very clearly in the following figures which relate to rural supplies given from the Cape Western Undertaking:—

	1954	1955	1956	1957	1958	1959
Number of consumers connected	475	278	434	404	367	473
H.V. lines (miles)	40.6	34.5	99.1	63.8	152.9	166.7
L.V. lines (miles)	15.7	12.5	12.6	18.4	21.3	11.4
H.V. lines only:						
Miles per consumer	0.08	0.12	0.22	0.16	0.42	0.35

It is significant that whereas in the four years 1954 to 1957 an average of only 0.15 miles of high voltage line was required for each consumer, that figure has now increased to about 0.40 miles per consumer. Broadly speaking, this means that the cost of the schemes completed during the past two years is rather more than double the cost incurred in the earlier years.

It frequently happens, of course, that the large farm requires a large supply of electricity: but if this is not the case the terms may appear too high. Thus the evolution of rural networks is governed by the cost of providing the supply and the extent to which electricity can be used on the farm.

The following resume of the work done on the individual Undertakings gives a broad picture of progress in the development of rural supplies:—

Cape Western Undertaking. During the year extensions to the rural networks made up a total of 167 miles of high voltage lines and 11 miles of low voltage circuits. 473 new supplies were given, including 126 farms and 17 large users.

The extensions to the Municipalities of Napier, Bredasdorp and Rivieronderend made it possible to supply 14 farms which were adjacent to the 11 kV lines erected to serve those Municipalities.

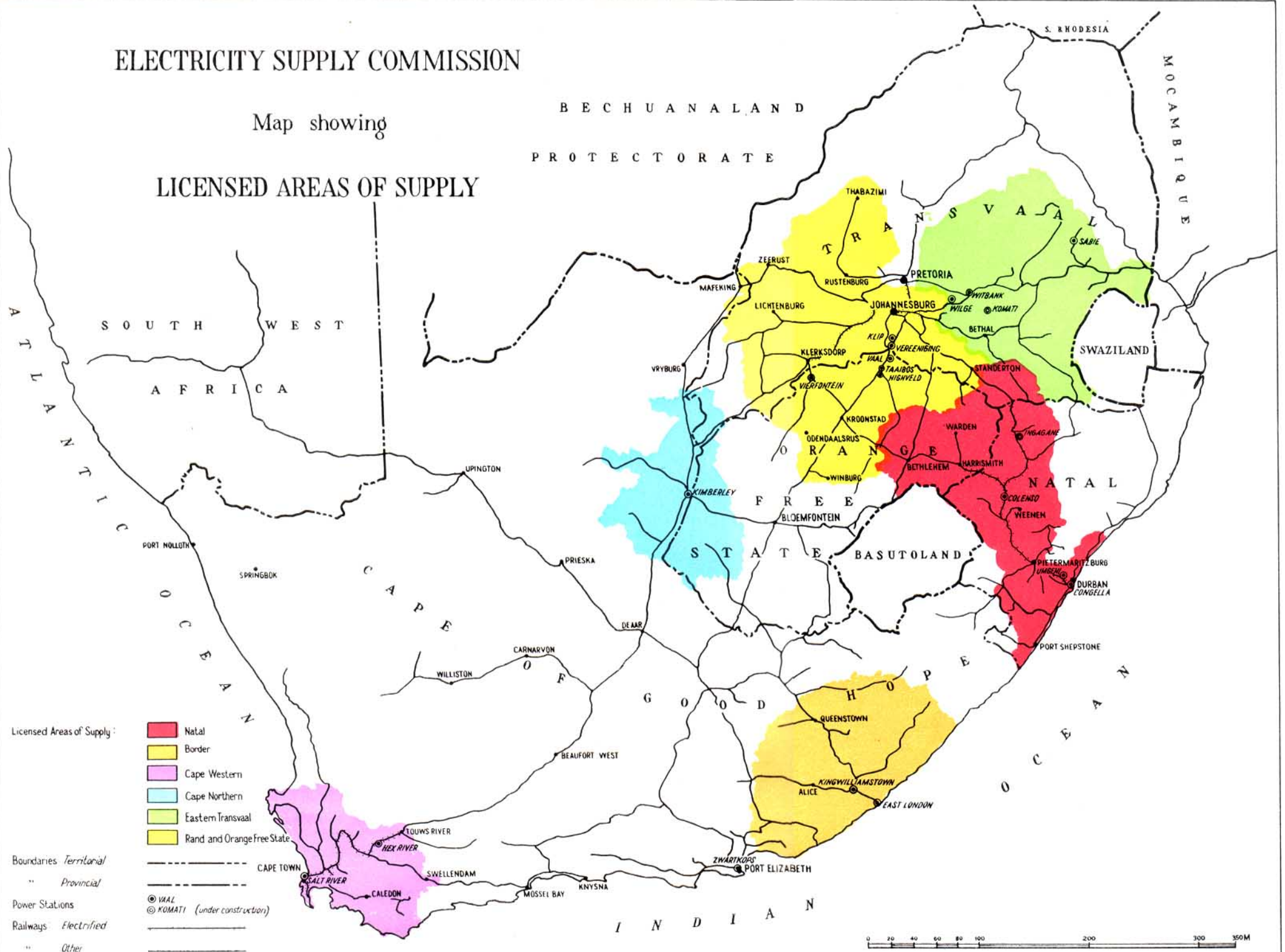
Following upon the extension to Citrusdal in 1958, 15 farms in the Piketberg district and a cheese factory at Eendekuil were given supplies; and eight houses in the village of Eendekuil will be connected this year.

Between Moorreesburg and Malmesbury 15 farms were connected up in a scheme which will eventually supply 22 farms, 8 railway houses and the railway station of Rust. Work was in progress in the vicinity of Moorreesburg where 7 farmers accepted an offer of supply: and in the area between Piketberg and Moorreesburg a scheme is being established for 36 farms and 13 domestic consumers in the village of Koringburg.

ELECTRICITY SUPPLY COMMISSION

Map showing

LICENSED AREAS OF SUPPLY



Small groups of farmers in many parts of the Western Cape were connected to existing networks. In the district of Villiersdorp, for example, seven farms were connected up; near Elgin, ten farms; and so on.

At Kalabaskraal supplies were given to 21 railway houses and to the station.

Cape Northern Undertaking. The distribution network in the Vaalharts Settlement was extended, and a further 64 holdings were supplied with electricity. Plans were approved for the next group of 50 holdings which will be connected up in 1960. A number of domestic and small power consumers were connected to the reticulation systems in the townships of Hartswater and Jan Kemp, which are located in the Settlement.

Negotiations were concluded for supplying the village of Taungs. The 11 kV line which serves the Vaalharts Settlement will be extended to Taungs, and a reticulation system for about 40 consumers will be erected in 1960.

Three farms were connected up in the district of Barkly West, and one near Christiana. Applications were received from farmers near Holpan, and from farmers between Warrenton and Christiana.

Border Undertaking. Reticulation systems were erected in the villages of Middle-drift and Kei Road; and 21 consumers were given supplies.

At Kwelegha, Sunrise-on-Sea and adjoining areas north of East London, 25 additional consumers were connected.

The network covering the area south of East London was extended to supply a canning factory and 26 other consumers. Consumers at Kidd's Beach were also supplied from these circuits, which are to be extended further to Bridle Drift and Needs Camp.

An 11 kV line was erected southwards from Fort Beaufort along the Kat River to 8 farms which are expected to use appreciable quantities of electricity for pumping purposes.

Five farms were connected to the 11 kV lines which serve Alexandria and Port Alfred, one on the line to Bedford, and one at Fort Cox.

In the area of the Nahoon Valley, Arnoldton and Umdanzani, about 30 prospective consumers have accepted terms, and work is proceeding on the scheme which is designed to supply about 50 consumers. The majority of the consumers in this area will be farmers.

Terms have been offered to 33 farmers situated between East London and Komgha.

Residents in the village of Keiskama Hoek have accepted Escom's offer of supply, and a reticulation scheme for about 40 consumers will be established in 1960.

Natal Undertakings. On the South Coast 14 farms and a large number of domestic consumers in the townships along the coast were connected during 1959. Five farms situated north of Durban were given supplies.

In the area between Durban and Pietermaritzburg, existing networks were extended to serve a further 47 farms and 9 other consumers.

In the area of supply of the Natal Central Undertaking 60 farms and 12 other rural consumers were connected during 1959, including 15 farms in the Mooi River area. A further 76 consumers have accepted Escom's offers of supply, and will be connected during 1960.

Terms have been offered to groups of farms at Greytown, on the North Coast near Tongaat, and at Spionkop.

An enquiry was received from farmers and other potential consumers in the Doornkop area, north of Stanger. Escom has no circuits in that area: and the application will therefore stand over until the North Coast network is further developed.

Rand and Orange Free State Undertaking. In the area around Jackson's Drift, between Johannesburg and Vereeniging, an additional 23 consumers were connected; and at the end of the year 86 small farms and smallholdings were being supplied with electricity.

The scheme for the Witkoppen/Beverley area, north of Johannesburg, was completed during the year, an additional 34 consumers having been connected.

Good progress was maintained in the Muldersdrift/Boschkop scheme, north of Roodepoort, and at December, 1959, 172 properties were supplied with electricity. 144 consumers were connected during the year.

Reticulation systems were erected in the townships of Klipriver, Rothdene and Henley-on-Klip which are situated between Germiston and Vereeniging. 217 consumers were connected, and the remaining consumers will receive supplies during 1960.

Early in the year a start was made on the construction of power lines to serve about 20 farms in the Parys area. Work has also been started on the networks to serve small farms and smallholdings north of Benoni, and in the area around Halfway House between Johannesburg and Pretoria.

A scheme has been planned for about 180 consumers in the area between Vereeniging and the Barrage on the Vaal River, covering farms and smallholdings on the Transvaal side of the river; and another scheme for about 200 farms in the Delmas area. If a sufficient number of the potential consumers accept the offers which have been made, reticulation schemes will be established in these areas.

The rural scheme covering the Mooi River valley north and south of Potchefstroom fell through, as the potential consumers considered that the terms were too high.

During 1959 an additional 414 consumers were connected to the reticulation systems in the peri-urban areas around Johannesburg.

DEVELOPMENT OF TRANSMISSION SYSTEMS

The licensed areas of Escom's Undertakings are shown in colour on the map which appears opposite page 10. The development of the major transmission systems is indicated by the following lists of transmission lines built during 1959 and the lines under construction or projected at the year end:—

		Voltage (kV)	Total circuit (Miles)
	Completed in 1959:		
C.W.U.	Bot River-Klipdale	66	45
C.N.U.	Norlim-Reivilo	66	28
	Ulco-Borrelskop	66	10
N.U.	Umgeni-Coedmore (Double Circuit)	132	24
	S.A.R. Supplies	88	15
	Ladysmith-Van Reenen	88	33
	Glencoe-Newcastle	88	32
	Glencoe-Dundee	88	10
	Tee line to Feralloys, Cato Ridge	132	6
E.T.U.	Klipfontein (Witbank)-Middelburg	132	18
	Grootpan-Wildebees	132	31½
	Komati-Witkloof	132	38½
	Witkloof-Machadodorp	132	22½
	Grootpan-Kromklip-Vandyksdrif	88	43
	Vandyksdrif-Geluk (Komati)	88	6½

ELECTRICITY SUPPLY COMMISSION

Galley SIX

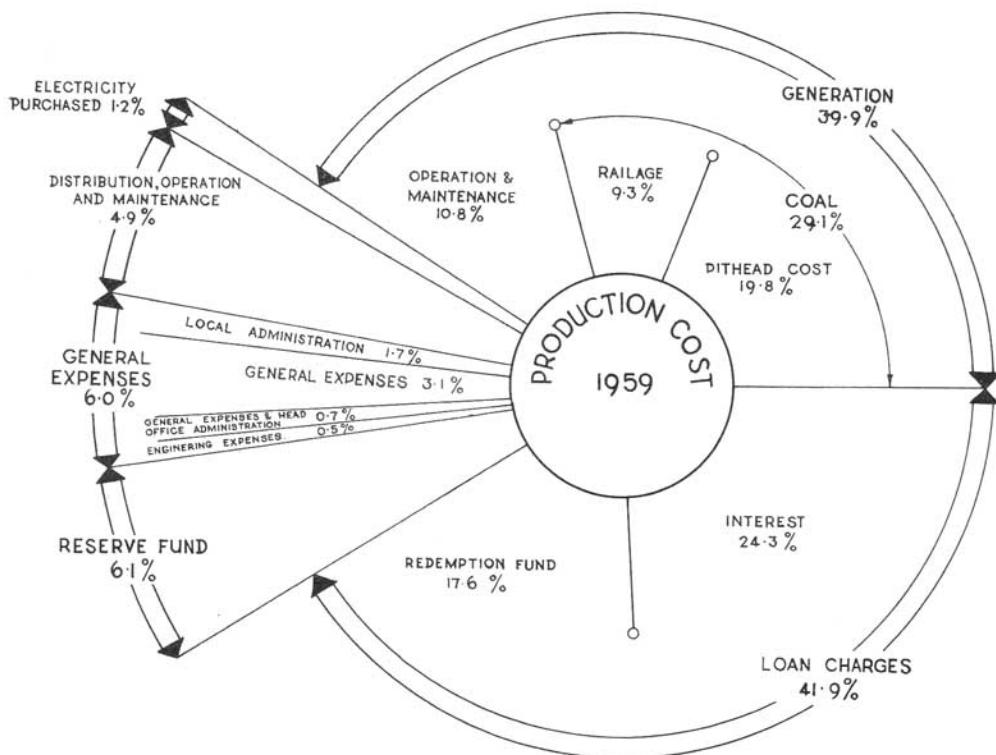
R. & O.F.S. U.	Nevis-Esselen	275	53
	Taaibos-Doornfontein No. 2	132	55
	Esselen-North Rand (Double Circuit) ...	88	21
	Vaal-Sasolburg	88	19
	Virginia-Hennenman	88	12
	Various system extensions and alterations to supply S.A.R., Mines, etc.	88	27
	Struben-S.A.R. Eloff and S.A.R. Dryden ...	42	23½
	Everest Network Rearrangement	42	23
	Various System Extensions	42	7
	Under Construction 1.1.60.		
C.W.U.	Hex River P.S.-Beaufort West (Double Circuit)	132	440
	Ysterplaat-Muldersvlei	132	20
	Muldersvlei-Windmill	132	18
	Muldersvlei-Firgrove (Double Circuit) ...	132	32
C.N.U.	Kimberley-Ulco	132	54
	Kimberley D.S.-Herlear	66	3
	Kimberley D.S.-NTP (De Beers)	66	4
N.U.	S.A.R. Supplies	88	10
	Colenso-Ladysmith	88	16
	Georgedale-Northdene (Double Circuit) ...	88	24
E.T.U.	Machadodorp-Lydenburg-Penge	132	102
	Grootpan-Blackhill	88	19
	Grootpan-Ogies	88	5
	Grootpan-Arbor	88	28
	Wildebees-Bracken-Lesco	88	14
R. & O.F.S. U.	Komati-Nevis	275	128
	Highveld-Scafell	275	42
	Senekal-Marquard-Clocolan-Ficksburg ...	88	90
	Projected 1.1.60.		
C.W.U.		kV	Miles
	Windmill-Paarl	66	6
	Windmill-Hex River P.S.	132	36
C.N.U.	Silverstreams-Manganore-Sishen	132	56
	Sishen-Kuruman-Ririers-Hotazel	66	50
B.U.	Gately-North Coast T. Point	66	6
N.U.	Further S.A.R. Supplies	88	20
	Umgeni-Duff's Road (Double Circuit) ...	132	20
	Tee to Umgeni Traction S/S	132	6
	Ingagane-Georgedale	275	320
	Turn in Lines to Georgedale	132	10
R. & O.F.S.	Nevis-Snowdon	275	70
	Snowdon-Highveld	275	74
	Winburg-Tweespruit-Driedorp	88	81
	Wormaransstad-Bloemhof	88	43
	Rearrangement at Snowdon	88	40
	Alberton-Roodekop (Double Circuit) ...	88	10
	Deviation Snowdon-Valley to E.R.P.M. ...	88	12

COSTS AND TARIFFS

During the financial year 1959 the following changes were made in Escom's tariffs:—

With effect from the month of January, 1959, the discount rate on the tariffs of the Rand and Orange Free State Undertaking was reduced from 7 per cent to 3 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.

The revision of tariffs, required to take account of the change in the cost structure of the Cape Northern Undertaking, was introduced with effect from April, 1959.



STATISTICAL SUMMARY

Revenue, production costs, output and sales, and other figures relating to the operation of the Commission's Undertakings during the year 1959, with the comparative figures for 1958, are as follows:—

	1959	1958	Increase
Total Revenue	£36,503,831	£32,237,376	13·234%
Total Production Costs (including interest, redemption and reserve fund charges)	35,983,535	31,942,182	12·652%
Difference between Revenue and Production Costs	520,296	295,194	—
Average Price per Unit Sold ...	0·5941d.	0·5680d.	4·589%
Average Revenue per Unit Sold (including sundry revenue) ...	0·5950d.	0·5690d.	4·566%
Average Cost per Unit Sold ...	0·5865d.	0·5638d.	4·028%
Units Generated	16,926,480,087	15,582,562,551	8·625%
Units Sent Out	15,777,115,134	14,515,812,628	8·689%
Units Purchased	93,614,989	164,110,757	—
Units Sold	14,724,457,291	13,602,188,526	8·251%
Total Cost of Coal Consumed (including railage)	10,484,934	9,519,701	10·139%
Railage on Coal Consumed ...	£3,349,116	£3,182,275	5·243%
Coal Consumed (in tons of 2,000 lbs.)	12,730,278	11,887,426	7·090%

FINANCIAL

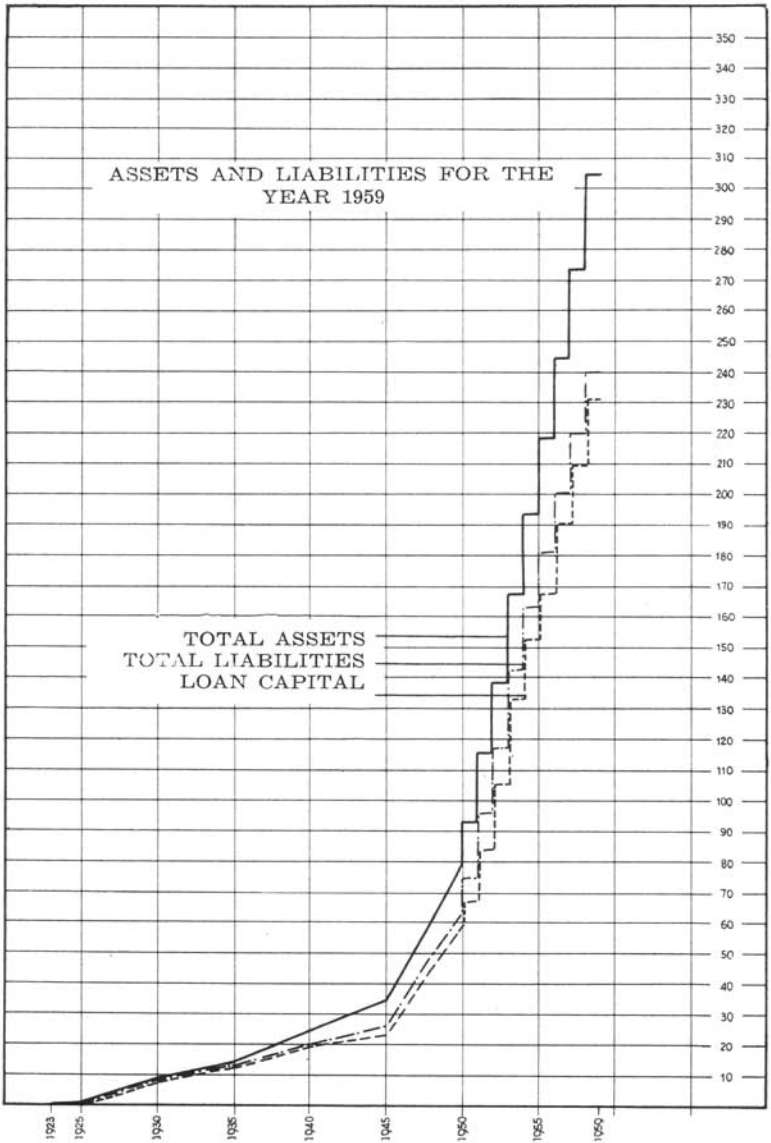
Loan Capital. During 1959 two local loans totalling £18,000,000 were raised as follows:—

Date Issued	Amount	Interest	Issue Price	Redeemable
28th April 	£10,000,000	5 $\frac{3}{8}$ %	£99%	30/6/79–84
20th October 	8,000,000	5 $\frac{3}{8}$ %	£99.10.0%	31/1/79–85
	£18,000,000			

These loans were fully subscribed, but at the year end the amount received on account of the loan issued on the 20th October was £7,357,320. The balance of £642,680 payable not later than the 31st March, 1960, in terms of the prospectus, has since been received. At the year end the loans raised locally as Local Registered Stock totalled £210,000,000 of which £2,500,000 had been repaid.

On the 3rd February, 1959, a loan for Swiss francs 50,000,000 (£4,137,360) was issued for public subscription in Switzerland on behalf of the Commission by three Swiss Banks. The loan bears interest at 5% per annum, and is redeemable over 10 years by equal annual instalments, from the 15th February, 1965.

These amounts increased the Commission's loan capital at the date of the Balance Sheet to £231,057,013.



Redemption Fund. The amount in the Redemption Fund at the 31st December, 1959, totalled £51,608,049 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, 1959, was £9,819,670.

Capital Expenditure. Expenditure on Capital Account during the year amounted to £17,714,736 which increased the total capital expenditure at the 31st December, 1959, to £226,565,185.

Expenditure on Capital Account will amount to approximately £343,500,000 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, 1959, was £61,336,237 the nominal value being £61,711,489. The market value of these investments at that date was £57,556,638.

Assets and Liabilities. The Commission's total assets at the 31st December, 1959, amounted to £304,313,070 and its total liabilities to £240,168,571, the difference being £64,144,499 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, 1959, 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 £1,091,094.

Personnel. The staff employed by the Commission at the 31st December, 1959, numbered 13,947 employees made up as follows:—

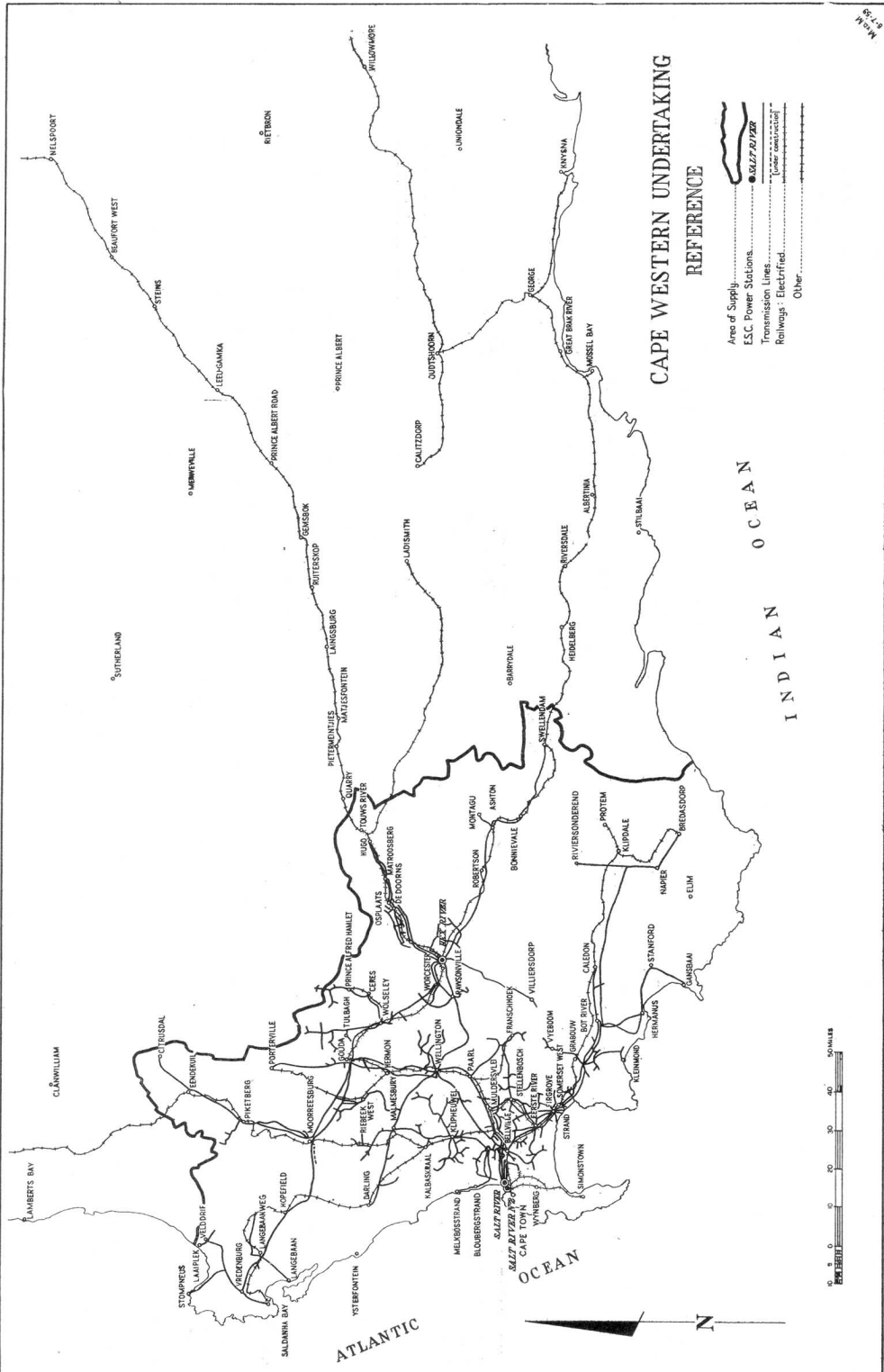
	1959	1958	Increase +		Decrease —	
Europeans	5,311	5,206	+ 105	+ 2.0%		
Non-Europeans	8,636	9,106	— 470	— 5.2%		
	13,947	14,312	— 365	— 2.6%		

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

REFERENCE

- Area of Supply: ————
- ESC. Power Stations: ● SALTZPIETZ
- Transmission Lines: ······
- Railways: Electrified: ————
- Other: - - - - -

INDIAN OCEAN

ATLANTIC OCEAN



CAPE WESTERN UNDERTAKING

Output and Sales. Throughout the year Cape Town City Council took a bulk supply on the basis of a notified demand of 55.5 MW and an agreed quota of 146 million units for the year. The supply at 146.5 million units was slightly less than the supply taken in 1958.

As in previous years the major share of the system loading was again allocated to Salt River No. 2 Power Station, in order to take advantage of the high thermal conditions at that station. Hex River Power Station made an appreciable contribution to the load and the regulating requirements on the system, assisted by Salt River No. 1 Power Station.

Excluding the units sold to Cape Town, the growth of load on the Undertaking was 5.7 per cent. There was a small decrease in the electricity purchased for traction purposes: but supplies in the industrial category increased by 10.9 per cent.

The maximum demand on the Cape Western Undertaking system excluding Cape Town, increased by 2.2 per cent to 154.6 MW, which implied an improvement in the annual load factor on the Commission's system from 55.5 per cent in 1958 to 57.0 per cent in 1959.

Coal. Coal supplies to Salt River and Hex River Power Stations were satisfactory: both calorific value and grading being up to the previous year's standards. Some difficulty arose at Salt River through spontaneous combustion: but by judicious reclamation of coal from the storage dump the effects were minimized.

In spite of the withdrawal of the road transport levy, coal costs were higher in 1959 than in the previous year and involved adjustment of the unit rates in accordance with the coal clause in the tariffs.

Hex River Power Station "A" Extensions. Orders have been placed for a 30 MW turbo alternator and a 275,000 lb./hr. boiler for commissioning in time to meet the winter loads in 1961. A contract for construction of a 60 MW cooling tower has also been placed.

Foundations for the building and the plant extensions were almost complete at the year end.

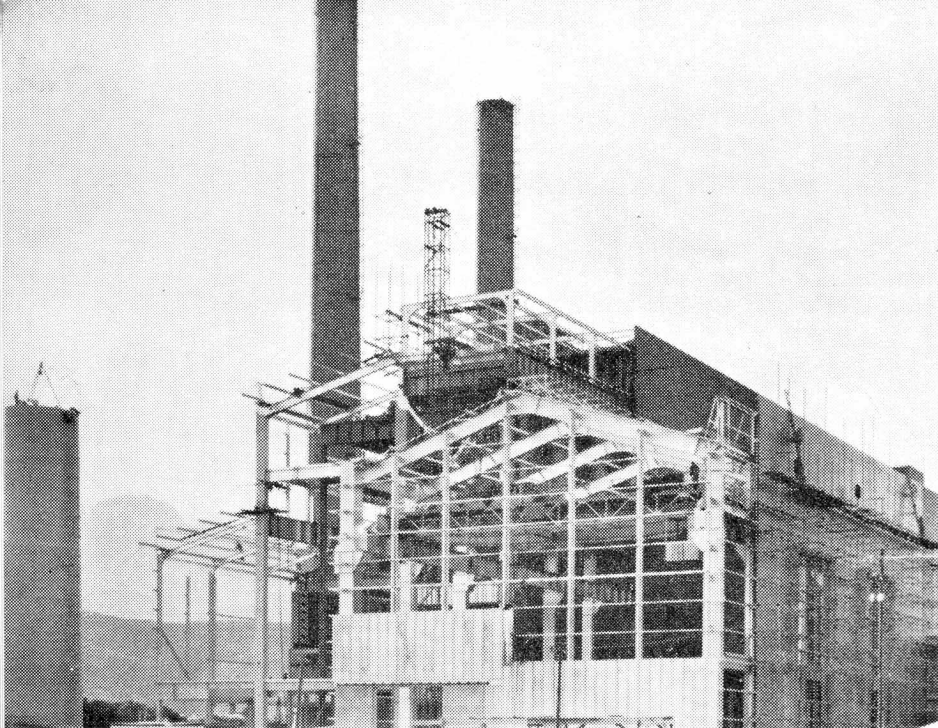
Major Transmission System. Survey and wayleave negotiations for the routes of the 132 kV lines from Salt River Power Station to Firgrove, Muldersvlei and Wellington were virtually complete at the year end, and the routes were ready for profiling. These feeders will be required in 1961.

During the year a start was made in the layout and design of a new 132/66 kV substation at Windmill, and for a new 66 kV double circuit between Windmill and Paarl substations.

The substations at Ongegund, Moorreesburg and de Hoek were completed and fully commissioned during June and July, 1959.

Construction of the 66 kV wood pole line from Bot River to Klipdale to provide bulk supplies to the Municipalities of Napier, Bredasdorp and Riviersonderend was completed, and supplies were made available to these Municipalities in May, 1959.

The layout for the new 132 kV step-up yard at Hex River Power Station was completed, and construction work has started. The design of the twelve traction substations for the electrification of the track to Beaufort West was completed, and construction work started early in 1960.



The Hex River power station is being extended by one 30,000 kW generator and corresponding boiler plant.

Distribution Systems. The demand for electricity in the urban areas of Goodwood, Parow and Bellville increased during the year by 9·9 per cent, to a total of 34·5 MW: for which increase an additional 3,325 kVA of transformer capacity was added to the system.

In addition to the Municipalities of Napier, Bredasdorp and Riviersonderend already mentioned, seventeen new consumers supplied under the standard tariff for large users were connected to the system in 1959. The maximum demands of these consumers recorded up to the end of the year totalled about 4,300 kVA.

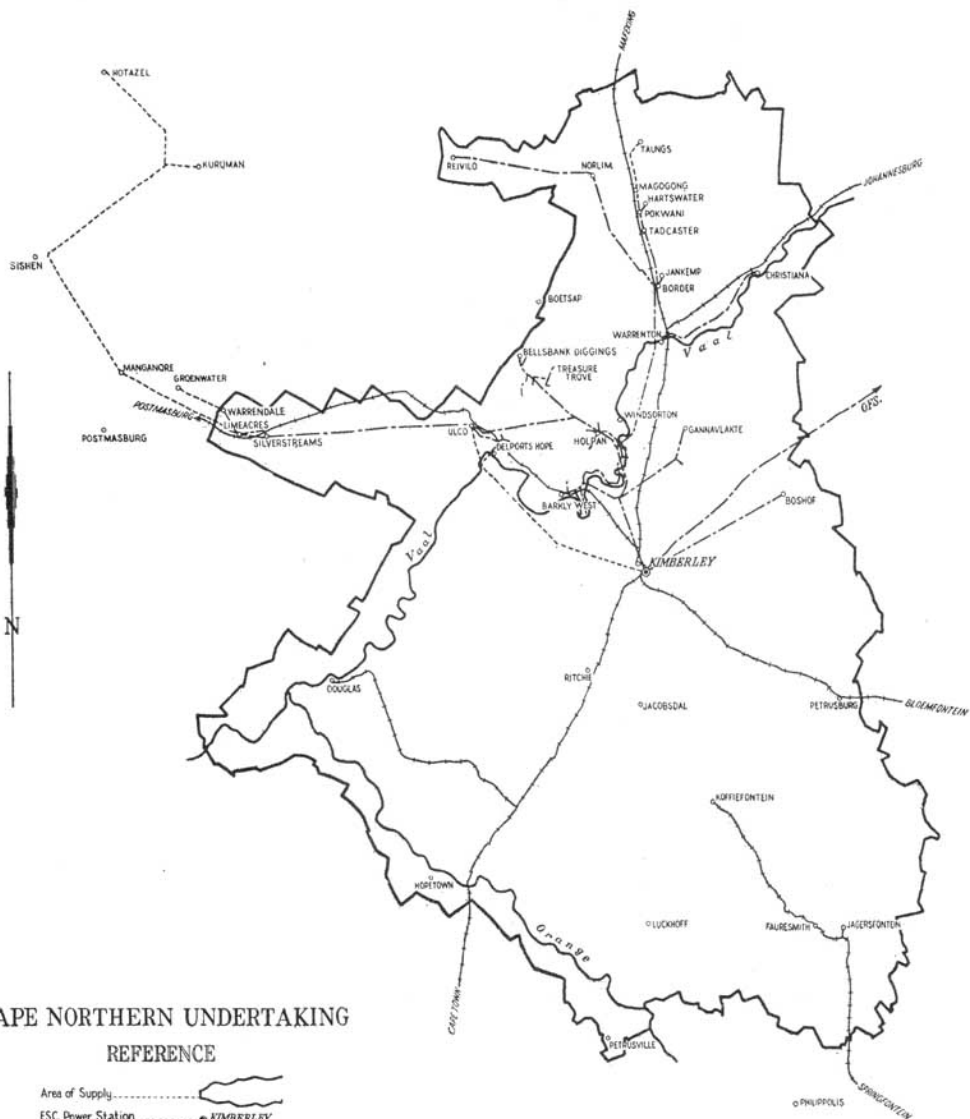
The development of rural supplies is reported in some detail on page 16.

At the year end there were 27,586 consumers supplied from the Undertaking's rural and urban reticulation systems, this number being an increase of 1,264 consumers.

Financial. Apart from the adjustment of unit rates in the tariffs, in accordance with the coal clause, there was no increase in tariffs. There was, however, a deficit on the year's working of £10,731, which increased the accumulated deficit to £179,855.

CAPE NORTHERN UNDERTAKING

Sales. The units sold in 1959 reached a total of 171·4 million units, which represents an increase of 48·7 per cent over the total sales for the previous year. A large part of this increase was due to Anglo Alpha Cement Company, Limited, at Ulco, taking a full supply for the whole year, and to the supply taken by Northern Lime Company, Limited, for ten months. De Beers Consolidated Mines, Limited, increased their consumption by 25 per cent, and the Kimberley City Council by 9·8 per cent. All the smaller municipalities showed satisfactory increases, averaging about 14 per cent. The number of consumers on the Vaalharts Settlements increased from 105 to 196, and sales to these consumers rose from 182,000 units to 433,000 units.

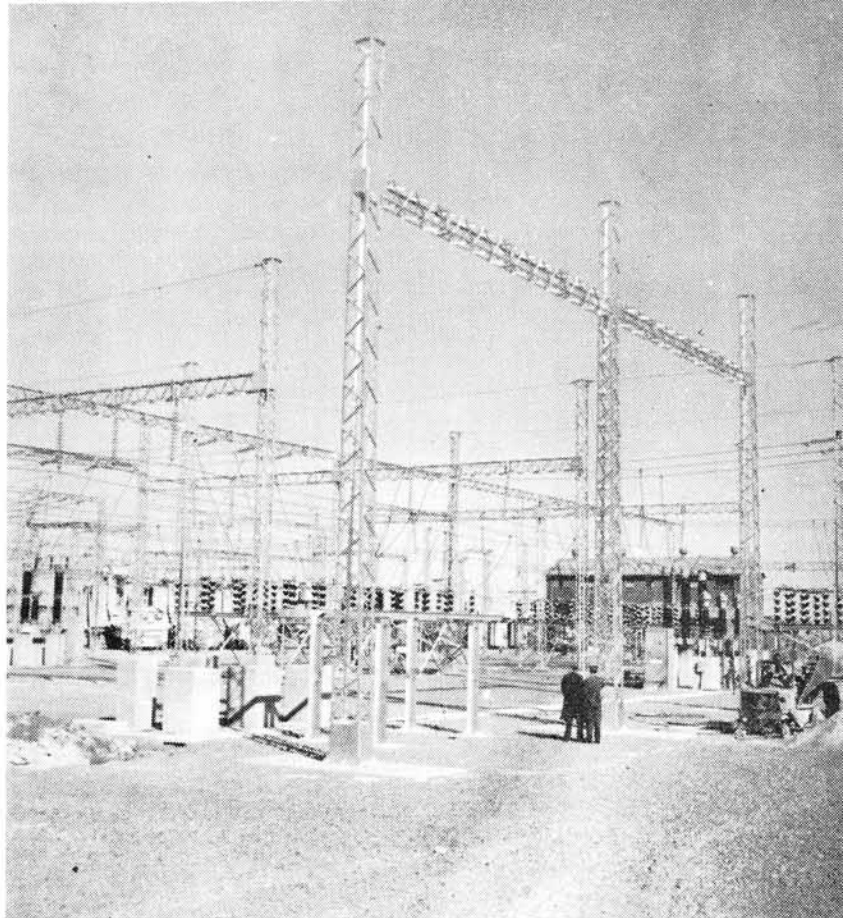


CAPE NORTHERN UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1959	1958
Bulk	5	60,461,504	Per cent. 10·057	£ 265,559	d. 1·0541	d. 1·0180
Mining	13	62,913,068	68·843	328,191	1·2520	1·2658
Industrial	82	45,297,946	116·996	193,718	1·0264	1·4640
Domestic & Lighting... ..	694	2,715,111	25·005	34,378	3·0388	2·8862
	794	171,387,629*	48·716	821,846	1·1509	1·2141
		1959	1958	Accumulated to 31.12.59		
Total Revenue		£823,011	£583,602			
Working Costs		£760,616	£565,993			
Surplus		£62,395	£17,609	£53,029		
Capital Expenditure		£356,451	£686,812	£3,547,681		
CENTRAL POWER STATION—						
Units Sent Out		56,328,952	98,486,424			
Maximum half-hour Demand kW S.O. }		23,230	24,627			
Station Peak kW		25,600	27,200			
Load Factor		27·7	45·7			
Thermal Efficiency % S.O. ...		11·9	12·5			
COAL:						
Coal consumed—tons		69,384	108,080			
Average per unit sent out—lb... ..		2·464	2·195			
Calorific Value B.Th.U./lb.		11,600	12,410			
Cost		£132,979	£193,925			
Cost per ton		38s.4d.	35s.11d.			

*This total includes units purchased from Rand and O.F.S. Undertaking.

Growth of load in the Cape Northern Undertaking has necessitated extension of the Grootkop distribution station.



Interconnection with the Pooled Power Stations. The general operating condition during the year under review was that the Central Power Station acted as a regulating station to keep the demand on the Rand and O.F.S. Undertaking steady during some 16 hours per week day at about 20 MW; and during the year 122·1 million units were drawn from the pooled power stations. This import was equivalent to about 68 per cent of the Undertaking's requirements.

Central Power Station, Kimberley. As a consequence of commissioning the Grootkop-Kimberley interconnector, only 65·2 million units were generated in the Central Power Station, Kimberley, compared with 112·5 million during the previous year. The normal week day demand at the Power Station was of the order of 15 MW; but a maximum demand of 25·5 MW was met on a Sunday when the interconnector was out of service for maintenance.

Development of the Transmission and Distribution Systems. New developments of the Undertaking's transmission and distribution systems are reported on page 12.

Financial. The interconnection with the pooled power stations of the Rand and O.F.S. Undertaking brought about an appreciable change in the cost structure. Capital costs were increased and running costs reduced; and a general revision of tariffs was effected from 1st April, 1959.

The Revenue Account shows a surplus of £62,396 on the year's working. The accumulated deficit has thus been wiped out, and a surplus of £53,029 is reflected at the 31st December, 1959.

BORDER UNDERTAKING

CONSUMERS		SALES			Revenue from Sales		Average Price per Unit Sold	
Class	Number	Units	Increase	£	d.	1959	1958	
Bulk	10	149,661,220	7.996	736,396	d.	1.1809	1.1502	
Industrial	217	5,558,683	5.565	57,289	d.	2.4735	2.3322	
Domestic and Lighting	2,463	9,828,127	8.085	99,646	d.	2.4333	2.3926	
	2,690	165,048,030	7.917	893,331	d.	1.2990	1.2648	
		1959		1958	Accumulated to 31.12.59			
Total Revenue		£894,506		£807,169				
Working Costs		£866,640		£799,543				
Surplus		£27,866		£7,626				
Deficit		£401,926		£138,933				
Capital Expenditure					£96,960 £4,967,495			
King William's Town (standby)								
		1959		1958				
Units Sent Out		590		69,692	1959	1958	1958	
Maximum half-hour Demand kW S.O.		983		2,400	Oil	Oil	Oil	
Station Peak kW		1,100		—	4,540	10,505	960	
Load Factor		—		—	In parallel with steam plant			
Thermal Efficiency S.O.		—		—				
East London West Bank No. 1 and No. 2								
		1959		1958				
Units Sent Out		169,615,490		157,360,900	1959	1958	1958	
Maximum half-hour Demand kW S.O.		34,420		33,462	Steam	Steam	Oil	
Station Peak kW		37,000		35,700	590	69,692	10,505	
Load Factor		56.3		53.7	983	2,400	960	
Thermal Efficiency S.O.		21.0		20.1	1,100	—	—	
		118,955		115,685	—	—	—	
Coal Consumed—tons		1,403		1,470	27	103	—	
Average per Unit Sent Out		11,600		11,560	—	2,955	—	
Calorific Value B.Th.U./lb		£277,293		£254,246	£61	£248	—	
Total Cost		46s. 7d.		43s. 11d.	45s. 5d.	48s. 1d.	—	
Cost per Ton		—		—	—	—	—	
Fuel Oil consumed—lb.		—		—	—	—	—	
Fuel Oil per unit S.O.—lb.		—		—	2,698	5,893	0.561	
		—		—	0.595	—	—	

BORDER UNDERTAKING

Output and Sales. West Bank No. 2 Power Station generated 90·4% of the units supplied to the Undertaking, the older plant in West Bank No. 1 Station being used for peak load and stand-by purposes.

Two partial interruptions of supply occurred: the more serious interruption, caused by failure of a superheater element in West Bank No. 2 Station, involved shedding about 10 MW of load for 55 minutes.

The units sold in 1959 totalled 165,048,030, an increase of 7·9% over the figure for the previous year. Part of the increase represents the sale of electricity to Grahamstown Municipality over a full year.

The growth of sales on the Undertaking, excluding the supply to Grahamstown, was 5·0%.

The consumption of the East London Municipality increased by 3·63% to 137,592,300 units and the maximum demand for this consumer, from 28,650 kVA in 1958 to 29,100 kVA in 1959.

100 new consumers were connected during the year, bringing the total number to 2,690.

The system maximum half hour demand increased from 33,462 kW in 1958 to 34,420 kW in 1959.

West Bank Power Station. No major plant was commissioned during the year; but the erection of the third 170,000 lb. per hour boiler in No. 2 Station was well advanced at the close of the year, and the boiler was steamed for the first time in March, 1960.

The installation of plant for the chlorination of the circulating water at the intake from the river has practically eliminated marine growth in the system.

Coal supplies throughout the year were regular and satisfactory in quality.

The efficiency of the combined stations increased from 20·1 per cent in 1958 to 21·0 per cent in 1959.

King William's Town Power Station. The Station was retained as stand-by, all boilers being empty and dried out. The 1,000 kW diesel set was run regularly on trial and used on a few occasions to assist when abnormal conditions arose at West Bank Power Station. The steam plant was operated on one occasion to provide stand-by at short notice during an outage of boiler plant at West Bank Power Station.

Development of the Undertaking. Some of the more important developments of the transmission and reticulation system are reported on page 13.

In rural areas the South Coast system was extended to give supply to several additional rural consumers and to a pineapple canning factory 6 miles inland from Kidds Beach. The supply to this system was transferred from the Municipal point of supply at S.A.N.T.A. to Escom's Gately substation.

A short length of line, together with a small reticulation system, to give supplies to consumers in the village of Middledrift was completed in July.

Supply to consumers in Kei Road village was commenced in December.

Supplies were given to farmers in the Kat Valley, south of Fort Beaufort, in September.

Negotiations for the supply to consumers in the Municipal area of Keiskama Hoek were successfully concluded, and the erection of the transmission line was nearing completion at the close of the year.

Work was also commenced on a scheme for supply to consumers in the Nahoon Valley and Umdanzani areas.

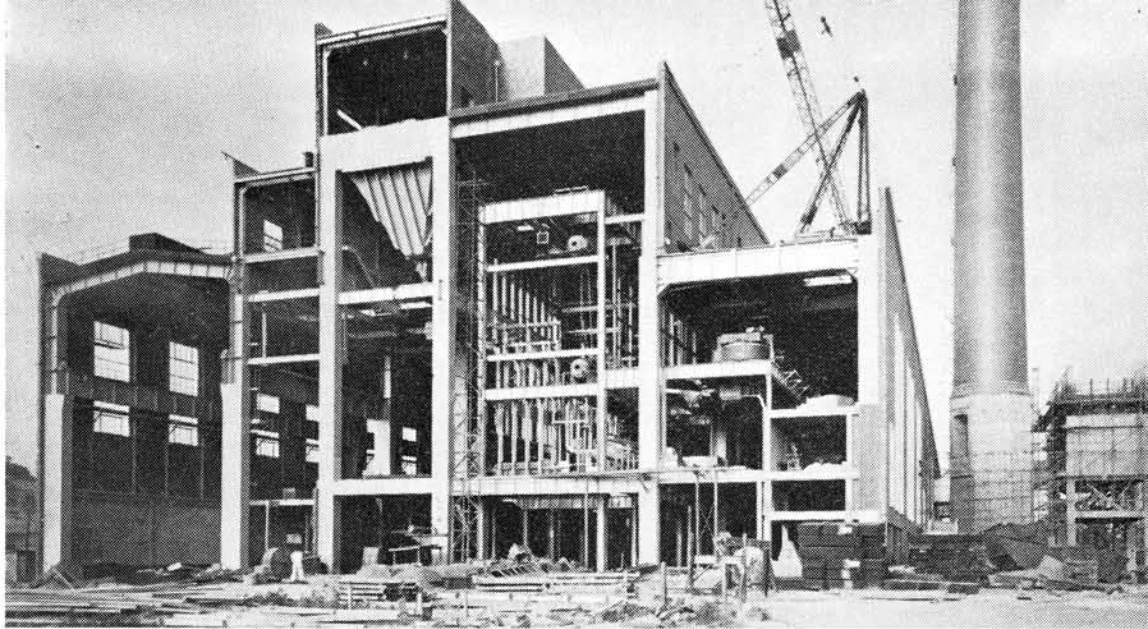
The following schemes were under consideration at the year end: a scheme for supply to consumers in the Municipal area of Seymour, a scheme for supply to farmers in the Bridle Drift area, adjacent to East London; and a number of applications for supply to farmers adjacent to the routes of existing lines.

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

The total revenue amounted to £894,506; and the Revenue Account showed a surplus of £27,865 for the year, in spite of the increase of 2s. 8d. per ton in the cost of coal burnt at Westbank Power Stations.

The accumulated deficit was thus reduced to £96,961.





Good progress has been made with the extensions at Umgeni power station which comprise two 60,000 kW sets and five boilers.

NATAL SOUTHERN UNDERTAKING

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 aggregating 14 hours. Interconnection of these stations was improved with the commissioning of Coedmore Substation, as reported on page 13.

The output from the pooled power stations increased in 1959 to 1,931·2 million units, an overall increase of 8·0 per cent, the units supplied from the power stations to each Undertaking being as follows:—

	1959	1958	Increase
Natal Southern Undertaking	1,242,157,550	1,124,098,077	10·5%
Natal Central Undertaking	689,060,490	663,793,077	3·8%
	<u>1,931,218,040</u>	<u>1,787,891,820</u>	<u>8·0%</u>

Sales of Electricity. Total sales of the Natal Southern Undertaking amounted to 1,228·6 million units for the year, which is an increase of 11·3 per cent over the corresponding figure for 1958. Developments in the supplies taken for traction purposes are referred to on page 6, while the large increase in sales in the Industrial category is due to the commencement of the permanent supply to Feralloys, Limited, which is reported on page 8.

The supply to Durban Corporation exceeded 1,012 million units, the annual increase being 6·2 per cent.

Congella and Umgeni Power Stations. Plant availability was satisfactory throughout the year at these stations. Both stations show increased outputs, and slight improvement in efficiency. The improvement at Congella was due mainly to generating a larger proportion of the units in No. 2 Station: the old plant in No. 1 Station being shut down whenever possible.

The progress of construction at Umgeni is referred to on page 13.

At Port Shepstone the floods in May, 1959, resulted in all machines, control gear and auxiliary equipments being put out of commission. Generators Nos. 1 and 2 had water and mud in the lubricating oil system and bearings, and extensive repairs were necessary. Generator No. 1 was returned to service in September, followed shortly after by Generator No. 3. Generator No. 2 was still out of commission at the year end. All the auxiliary equipment and control switchgear were recommissioned in August.

Distribution System. Construction and new developments of the distribution system are referred to elsewhere in connection with the new supplies to which they relate, and the more important new transmission lines are included in the tables which appear on pages 18 and 19.

The serious floods which occurred in May, 1959, caused considerable disruption of supplies to consumers in the mid-Illovo and South Coast areas. The Coedmore/Margate 88 kV line was out of service for approximately 21 hours as a result of a fault on the consumer's equipment at the Saiccor factory which was completely flooded. The line itself was not damaged in any way; but restoration of supply was considerably hampered by lack of communication and road access. A number of 11 kV lines were damaged, particularly in Port Shepstone where the lines which cross the Umzimkulu River and feed the areas north of Port Shepstone as far as Hibberdene were washed away. The river crossing spans could not be restored for several days, due to the time taken for the river to subside.

In the mid-Illovo area numerous line faults occurred, and it was necessary to straighten and restay a number of poles on the Thornybush mid-Illovo 11 kV rural line.

Rural Development. A certain amount of rural development is taking place in the North Coast area; and at the end of the year work commenced on the supply to the Driefontein area which will be completed during the early part of 1960. Further extensions are possible.

Financial. There was no change in tariffs during the year: but the improvement in the financial return from the South Coast and the North Coast areas made it possible to reduce the surcharges in these areas from 50 per cent and 30 per cent respectively, to 40 per cent and 25 per cent, with effect from January, 1960.

The Revenue Account shows a deficit on the year's working of £57,215. The accumulated surplus was thus reduced to £23,843 at the 31st December, 1959.

NATAL CENTRAL UNDERTAKING

Operation of the Pooled Power Stations. In terms of the Natal Licences 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 units taken by each Undertaking from the pooled stations are given on page 39.

Sales of Electricity. The total units sold increased to 629·4 million units, an increase of 2·2 per cent. Development of the Undertaking has advanced at a normal rate, the reduction in supplies in the Industrial category being due to completion of the construction work on the Natal railways, particularly the tunnels at Cedara and Teteluku.

Colenso Power Station. The commissioning of the additional plant comprised in the "D" Extensions is reported on page 13.

The output of the station increased by 12 per cent to 649 million units, and there was a small improvement in the over-all efficiency of the station. The maximum demand rose to 139,020 kW.

Ingagane Power Station. Particulars of the new Ingagane Power Station were given in the last report; and reference to the progress of construction is made on page 00.

Distribution System. A considerable amount of work has been done in deviating and rearranging transmission lines of all voltages, on account of the rebuilding and re-routing of railway lines and national roads in Natal. References have been made to this work in connection with the traction supplies furnished by the Undertaking; and progress of work in connection with the more important transmission lines is indicated in the tables which appear on pages 18 and 19.

NATAL CENTRAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales £	Average Price Per Unit Sold	
Class	Number	Units	Increase/Decrease %		1959 d.	1958 d.
Traction	1	271,520,480	- 1.624	989,999	0.8751	0.8343
Bulk	17	257,790,544	+ 6.755	912,808	0.8498	0.8405
Mining	15	35,777,581	+ 4.047	144,566	0.9698	0.9243
Industrial	565	45,640,800	- 3.680	202,613	1.0654	1.0008
Domestic and Lighting ...	4,997	18,688,890	+ 10.684	166,231	2.1347	2.0714
	5,595	629,418,295	+ 2.155	2,416,217	0.9213	0.8884

	1959	1958	Accumulated to 31.12.59
Total Revenue	£2,432,181	£2,288,071	
Working Costs	£2,501,114	£2,338,053	
Deficit	£77,933	£49,982	£42,690
Capital Expenditure	£1,289,825	£782,745	£12,055,524

COLENSO POWER STATION— Nos. 1 and 2	1959	1958	
Units Sent Out	649,054,490	579,269,860	
Maximum half-hour Demand kW	139,020		
S.O.	1.605	121,530	
Station Peak kW	153,000	134,000	
Load Factor %	53.3	54.4	
Thermal Efficiency % Sent Out ...	18.8	18.6	

COAL:	1959	1958	
Coal consumed — tons ...	520,878	451,722	
Average per unit sent out/zb.	1.605	1.560	
Calorific Value B.Th.U/lb. ...	11,290	11,750	
Total Cost	£826,638	£670,346	
Cost per ton	31s. 9d.	29s. 8d.	

Progress in the design and the servitude work for the 275 kV transmission line from Ingagane Power Station to Georgedale is reported on page 14.

Rural Development. Fair progress was made during the year with rural development.

The supply to Impendhle Village, which is an extension to the Dargle 11 kV rural line, was given early in the year. Major extensions were made in the New Leigh area to the Hidcote rural scheme. A large 11 kV rural line extension is in progress in the Estcourt/Ennersdale area, in the direction of Moorleigh and Draycott. A number of smaller extensions to the rural networks were carried out, particularly in the Natal Midlands and south of Pietermaritzburg; but in Northern Natal and the parts of the Transvaal and Orange Free State within the area of supply of the Natal Central Undertaking, rural development has been appreciably less than in past years. Steps were being taken in the new year to re-investigate supplies to prospective consumers who previously found the terms offered to be too high.

Financial. There was no change in tariffs on the Undertaking. Total Revenue increased to £2,423,181: but there was a deficit on the year's working of £77,933 which wiped out the previous surplus, leaving a net deficit of £42,690 at the 31st December, 1959.

EASTERN TRANSVAAL UNDERTAKING

CONSUMERS		SALES		Revenue from Sales	Average Price per Unit Sold	
Class	Number	Units	Increase		1958	1957
Traction	1	35,105,770	Per cent	£	d.	d.
Bulk	9	40,958,682	16·414	78,280	0·5352	0·4620
Mining	39	200,503,352	5·539	106,639	0·6249	0·6152
Industrial	296	353,572,619	14·644	542,259	0·6491	0·6510
Domestic and Lighting ...	1,328	3,186,128	4·805	577,977	0·3923	0·3516
			12·297	41,319	3·1124	2·7688
	1,673	633,326,551	8·436	1,346,474	0·5102	0·4762

	1959	1958	Accumulated to 31.12.59
Total Revenue	£1,350,320	£1,162,531	
Working Costs	£1,356,046	£1,146,167	
Deficit	£5,726		
Surplus		£16,364	£37,640
Capital Expenditure	£3,772,460	£1,433,996	£11,102,637

	Witbank Power Station		Sabie Power Station	
	1959	1958	1959	1958
Units sent out	606,206,884	605,087,239	2,503,900	3,047,283
Maximum Demand kW S.O. ...	118,211	111,139	650	1,220
	(Hour)	(Hour)	(Half-Hour)	(Half-Hour)
Load Factor %	58·5	62·2	44·0	43·7
Thermal Efficiency % S.O. ...	15·3	15·2		
COAL:				
Coal consumed—tons	599,840	601,870		
Average per unit sent out—lb.	1·979	1·989		
Calorific Value B.Th.U./lb. ...	11,290	11,310		
Total Cost	£332,918	£315,123		
Cost per ton	11s. 1d.	10s. 6d.		
RAINFALL:				
Inches			45·7	56·2
Millimetres			1,162	1,429

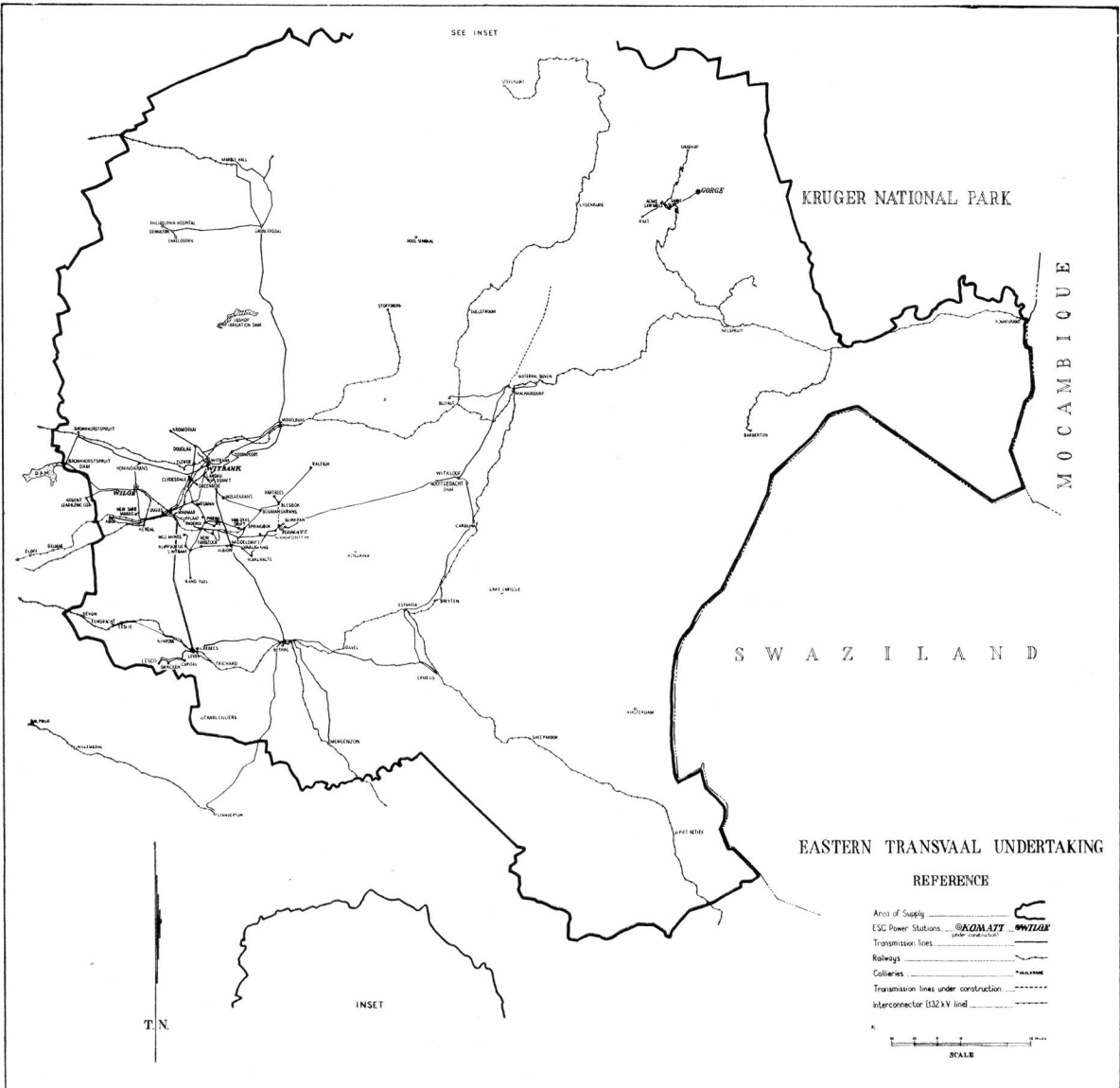
EASTERN TRANSVAAL UNDERTAKING

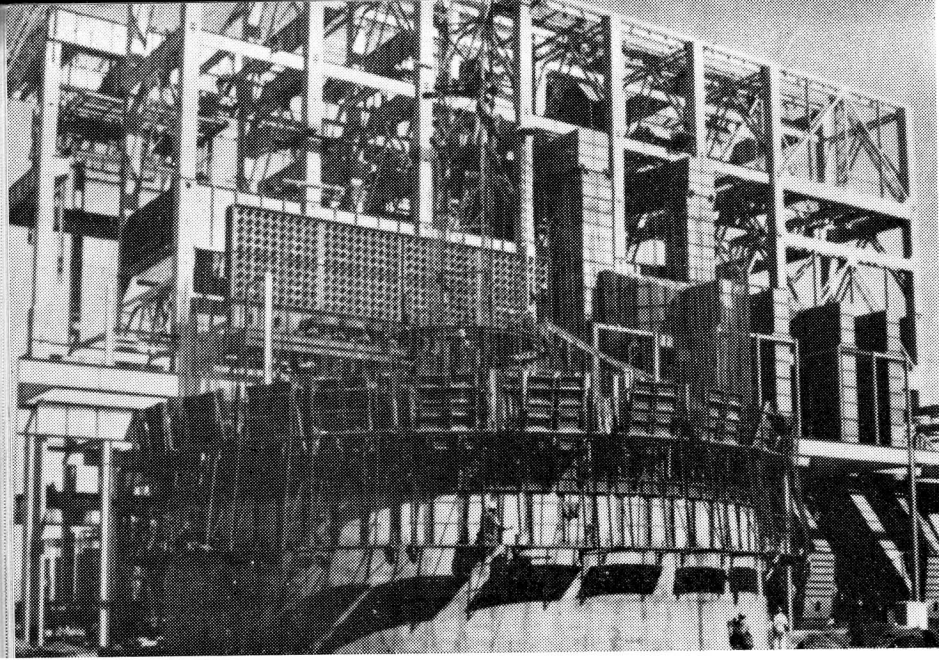
Area of Supply. An extension of the area of supply to enable a supply to be given to the asbestos mine of Egnep (Proprietary) Limited at Penge and to other consumers in that vicinity was granted by the Electricity Control Board on the 27th January, 1960.

Output and Sales. Units sold by the Undertaking increased by 8·4 per cent over the sales in the previous year.

The initial supplies to two new gold mines in the Bethal gold field were given in January, 1960.

Witbank Power Station. The output from Witbank Power Station remained much the same as in the previous year. This station now functions as a regulating station.





The boiler house at Komati power station with the chimney in the foreground.

Komati Power Station. Construction work continued throughout the year at the new Komati Power Station. The date for commissioning the first set in the new station is September, 1961.

In order to meet the increase in load expected on the pooled power stations, further plant is required at Komati. Enquiries were made for an additional three sets, each of 100,000 kW capacity, together with corresponding boiler plant: and tenders were received at the end of April, 1960.

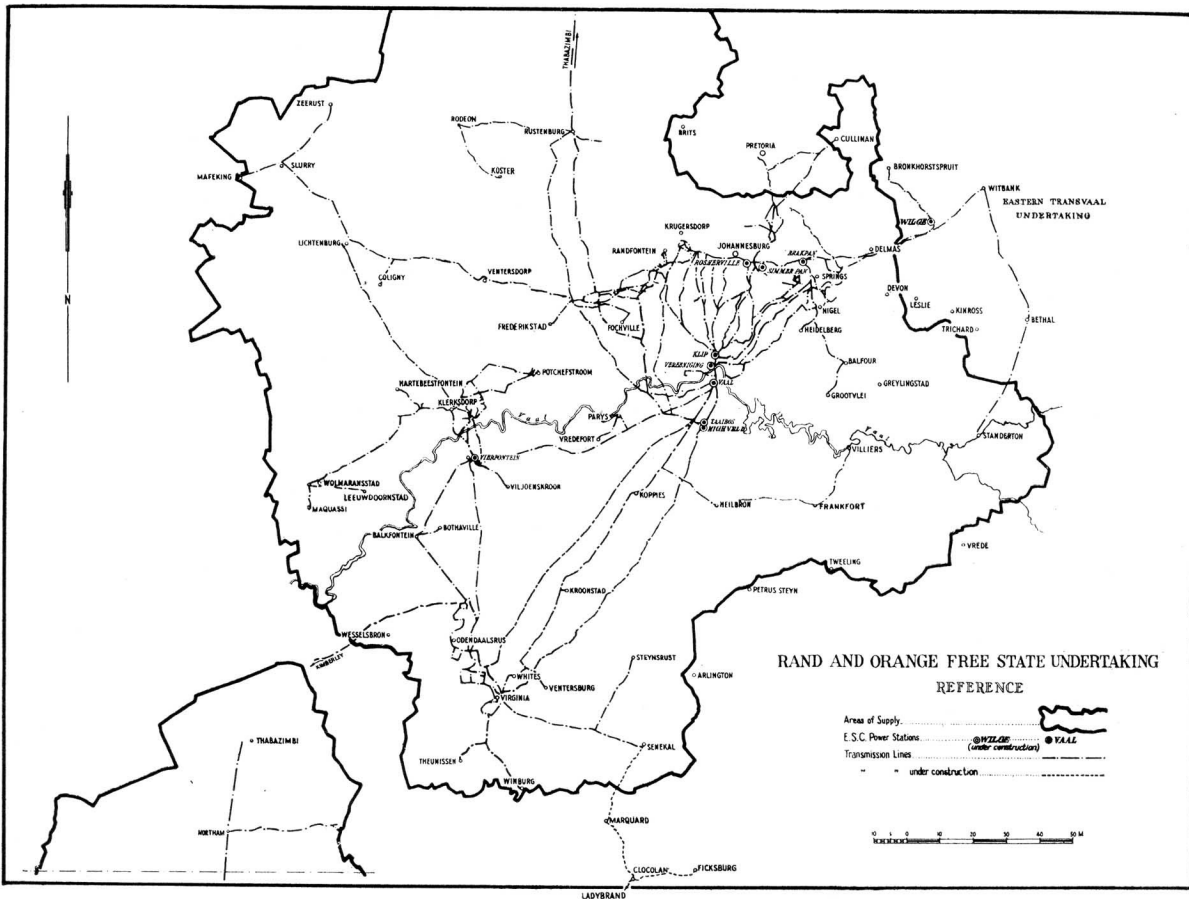
Sabie Power Station. As previously reported, the Sabie Undertaking was incorporated in the Eastern Transvaal Undertaking as from 1st July, 1958, when the Transvaal Gold Mining Estates, Ltd., ceased to take supply. The present load on the power station is for the supply to the Sabie Village and other consumers in the vicinity.

Distribution System. Developments of the distribution system to provide supplies to the South African Railways for traction purposes and to new Municipal and Mining consumers are reported on page 14.

Rural Development. Considerable progress has been made in the development of rural networks in this Undertaking. The total units sold to consumers connected to the Undertaking's reticulation systems increased from 3.3 million units in 1958 to 4.8 million units in 1959. The number of consumers increased from 1,274 to 1,548.

Financial. There was no change in tariffs during the financial year 1959: but on 20th October, 1959, an application was made to the Electricity Control Board for approval of a revised Schedule of Standard Prices, the revision being necessary in the light of changes in the cost structure. The Schedule also included a new tariff for rural consumers, incorporating a demand charge based on measurement of the supplies by means of ampere-demand meters. The revision of tariffs was approved by the Board, for application with effect from January, 1960.

The Revenue Account shows a small deficit of £5,726 on the year's working: and the accumulated surplus was thus reduced to £37,460 at the 31st December, 1959.



RAND AND ORANGE FREE STATE UNDERTAKING

CONSUMERS		SALES				Revenue from Sales	Average Price per Unit Sold	
		Number	Units	Increase	1959		1958	
Class				Per cent	£	d.	d.	
Electricity:								
Traction .. .. .	.. .. .	2	290,935,859	44·077	718,285	0·5925	0·5432
Bulk .. .. .	.. .. .	72	1,198,599,286	10·362	2,694,232	0·5395	0·5168
Mining .. .. .	.. .. .	110	7,377,168,260	7·123	14,196,155	0·4618	0·4431
Industrial .. .. .	.. .. .	804	1,992,669,062	8·065	3,880,817	0·4674	0·4438
Domestic and Lighting .. .. .	.. .. .	4,250	37,331,049	31·265	172,988	1·1121	1·2280
Electricity Supplied to Eastern Transvaal Undertaking .. .. .	.. .. .	—	—	—	30,472	—	—
		5,238	10,896,703,516	8·457				
				Increase or Decrease Per Cent				
Air and Steam:								
Bulk .. .. .	.. .. .	1	3,244,194	-14·313			
Mining .. .. .	.. .. .	11	125,461,195	-10·804			
Industrial .. .. .	.. .. .	24	9,431,910	+3·309			
		36	138,137,299	-10·052	949,842	1·6503	1·2823	
		5,274	11,034,840,815	+8·178	22,642,791	0·4925	0·4682	
							Accumulated to 31/12/59	
Total Revenue .. .. .	.. .. .	.. .. .	.. .. .	£	£
Working Costs .. .. .	.. .. .	.. .. .	.. .. .	22,665,147	19,919,852		
Surplus .. .. .	.. .. .	.. .. .	.. .. .	22,083,507	19,548,066		48,220
Capital Expenditure .. .. .	.. .. .	.. .. .	.. .. .	581,640	371,786		145,215,924
				8,519,257	14,112,026			

	Vaal Power Station		Wilge Power Station	
	1959	1958	1959	1958
Electricity Units Sent Out	1,912,202,262	1,932,693,303	1,292,316,128	1,020,417,371
Maximum Load	286,479	283,109	224,651	170,531
One-hour kW S.O. }				
Load Factor %	76.2	77.9	65.7	68.3
Thermal Efficiency % S.O.	21.6	22.0	25.5	24.7
Coal:				
Coal consumed—tons	1,717,111	1,662,633	889,434	718,503
Average per unit sent out lb.	1.796	1.721	1.376	1.408
Calorific Value B.Th.U./lb	8,800	9,000	9,710	9,820
Total Cost	£639,217	£600,336	£431,476	£326,537
Cost per ton	7s. 5d.	7s. 3d.	9s. 8d.	9s. 1d.

	Vereeniging Power Station		Vierfontein Power Station	
	1959	1958	1959	1958
Electricity Units Sent Out	700,591,239	710,773,141	1,891,575,735	1,771,316,833
Maximum Load	136,388	134,296	327,928	304,164
One-hour kW S.O. }				
Load Factor %	58.6	60.4	65.8	66.5
Thermal Efficiency % S.O.	15.2	14.9	23.3	23.5
Coal:				
Coal consumed—tons	857,566	902,882	1,530,420	1,409,954
Average per unit sent out—lb	2.448	2.541	1.618	1.592
Calorific Value B.Th.U./lb	9,150	9,010	9,040	9,140
Total Cost	£389,747	£444,498	£934,370	£862,510
Cost per ton	9s. 1d.	9s. 10d.	12s. 3d.	12s. 3d.

	Brakpan Power Station		Highveld Power Station	Klip Power Station.	
	1959	1958	1959	1959	1958
Electricity Units Sent Out	30,829,594	30,940,707	845,899,996	2,402,899,784	2,534,332,050
Maximum Load	26,211	26,459	167,275	356,370	388,860
One-hour kW S.O.	13.4	13.3	61.4	77.0	74.4
Load Factor %	12.2	11.4	29.2	19.5	19.5
Thermal Efficiency % S.O.					
Coal:					
Coal consumed—tons	43,812	46,579	561,254	2,201,485	2,251,281
Average per unit sent out—lb.	2.842	3.011	1.327	1.832	1.777
Calorific Value B.Th.U./lb.	9,860	9,930	8,810	9,550	9,680
Total Cost	£47,142*	£46,469*	£372,162	£1,999,072	£2,019,793
Cost per ton	19s. 3d.	17s. 3d.	13s. 3d.	18s. 2d.	17s. 11d.

	Rosherville Power Station		Taaibos Power Station	
	1959	1958	1959	1958
Electricity Units Sent Out	17,808,945	66,866,374	2,908,952,974	2,807,609,121
Maximum load	34,208	39,477	418,012	387,506
One-hour kW S.O.		19.3	79.4	82.7
Load Factor %		9.4	26.9	26.9
Thermal Efficiency % S.O.				
Coal:				
Coal consumed—tons	34,093	122,633	2,059,612	1,995,399
Average per unit sent out lb.	3.829	3.414	1.416	1.313
Calorific Value B.Th.U./lb.	9,910	9,880	8,970	8,920
Total Cost	£155,320*	£250,129*	£956,537	£835,885
Cost per ton	20s. 5d.	19s. 2d.	9s. 3d.	8s. 5d.

*Includes cost of coal for compressed air.

RAND AND ORANGE FREE STATE UNDERTAKING—(Continued)

	Brakpan Power Station		Rosherville Power Station	
	1959	1958	1959	1958
Compressed air units sent out	—	—	84,564,800	96,044,000
Steam Units Sent Out	3,480,610	4,603,260	—	—
Coal:				
Coal consumed—tons	5,170	7,283	118,118	138,332
Average per unit sent out—lb.	3·033	3·164	2·794	2·881
Calorific Value B.Th.U./lb.	9,860	9,930	9,910	9,880

	Canada Dam Compressor Station		Robinson Compressor Station	
	1959	1958	1959	1958
Compressed Air Units sent out	21,015,200	20,547,800	36,346,200	41,769,600
Electric Input—kWh exc. Trans. Losses	26,030,011	24,730,132	46,516,115	53,383,866
Air Units sent out/kWh per cent	80·73	83·09	78·14	78·24

RAND AND ORANGE FREE STATE UNDERTAKING

Sales of Electricity and Compressed Air. The total sales by the Undertaking (electricity, compressed air and steam) amounted to 10,896 million units in 1959, which was an increase of 8·5 per cent over the corresponding figure for 1958.

The increase in the supply taken by the South African Railways for traction purposes reflects the full year's working of the electrification between Welverdiend and Klerksdorp, and the commencement of electric traction on the sections of main line Midway-Vereeniging and Germiston-Vereeniging-Kroonstad.

The growth of Mining Supplies by 490 million units represents an increase of 7·1 per cent, and compares with annual increases of 4·4 per cent in 1958 and 5·05 per cent in 1957. The table set out on page 7 indicates that the total supply of electricity taken by mines on the Witwatersrand (*i.e.*, the old area) has remained about the same, so that the increase represents development in the new gold mining areas.

The increase in supplies to industrial consumers in the steel and base metal industries, and new supplies to chemical works are reported on page 8.

The large percentage increase in the category "Domestic and Lighting" reflects the expansion of the Rural Department's reticulation systems in peri-urban and in rural areas. During the year 414 new consumers were connected to reticulation networks in townships around Johannesburg; and an additional 454 new consumers were given supplies from rural reticulation schemes.

Operation of the Pooled Power Stations. The power stations of the Rand and Orange Free State Undertaking, together with Witbank Power Station of the Eastern Transvaal Undertaking, have, in terms of the Licences, been designated a system of pooled power stations and are operated on that basis.

During the year Highveld Power Station was added to the group. The station was started up in January, 1959, with two sets each of 60,000 kW capacity; and two further sets were brought into service during the year. A fifth set was commissioned at the end of April, 1960.

The total output, *i.e.* units sent out from the pooled power stations amounted to 12,673·8 million units in 1959, the maximum demand on the system having been 1,889,917 kw recorded in July, 1959.

The supplies taken by the individual Undertakings which draw their requirements from the pooled stations were as follows:—

	Maximum demand in the year.	Total Units (millions kWh)
Rand and Orange Free State Undertaking	1,782,901 kW	11,938·1
Eastern Transvaal Undertaking	93,668 kW	611·7
Cape Northern Undertaking	22,191 kW	124·0

Attention has been drawn in past years to the exceptionally high load factor of the supplies taken by the Gold Mining Industry: and, it may be added, there is not a great variation in this load between summer and winter. The power requirements of mines in the new areas for pumping and for ventilation being higher in proportion to other load than in the old area, the feature of a high load factor has persisted: so that the monthly load factor on the pooled power stations has remained at the very high figure of about 81 per cent. When allowance is made for the fact that about ten per cent of the plant on the system is more than 30 years old, it is evident that the system load factor is close to the optimum condition.

The cost of generation per unit sent out from the pooled power stations during the year was ·3301d.

A report on the difficulties which arose from loss or curtailment of coal supplies at Taaibos, Highveld and Vierfontein Power Stations, and the restriction of electricity supplies over the period 13th to 19th March, 1960, is given on pages 9 and 10.

Transmission and Distribution Systems. The two 275 kV transmission lines from Highveld Power Station to Everest Distribution Station were changed from 132 kV to 275 kV working after commissioning Highveld Power Station and Everest Distri-

bution Station early in 1959, and have given satisfactory performance at the higher voltage.

As reported on page 14 a new system of 275 kV lines has been planned between Komati Power Station and Highveld Power Station. Portion of the new 275 kV system consisting of the two lines between Nevis and Esselen Distribution Stations was completed and taken into service at 132 kV during the year.

A second 132 kV line between Taaibos Power Station and Doornfontein Distribution Station was completed; and at the end of the year construction was well advanced in the 132 kV line between Carrdell and Watershed Distribution Stations.

The extension of the 88 kV line from Hennenman to Virginia Terminal Distribution Station, where an 88 kV step-down was established, gave an alternative source of supply for the traction system between Vereeniging and Kroonstad, and provided a supply at the higher voltage for the transmission system being built up in the south-east Orange Free State.

Construction was started on the 88 kV line from Senekal to Marquard, Clocolan, Ficksburg and Ladybrand. Unfortunately there have been delays in the delivery of materials for this line: but it is expected that supplies will be made available to these towns in the second half of 1960.

To correspond with the above developments of the transmission systems, the following new distribution stations and extensions to existing distribution stations were completed during the year:—

New Distribution Stations:	Installed transformer capacity
Everest... ..	451,500 kVa
Esselen... ..	240,300
V.T.H.	22,500
Trident	120,150
Extensions to Distribution Stations:	
Virginia	60,000
North Rand	Additional feeders
West Wits	90,000
Doornfontein	90,000
	1,074,450

In addition to the transmission lines specifically mentioned, a further 293 miles of overhead power lines of 6·6 kV and above were added to the distribution system. Additional transformers having a capacity of 160,825 kVa were installed at Highveld Power Station: while the capacity of transformers installed in consumers substations on the main distribution system was increased by 113,555 kVa.

Financial. Tariffs for the financial year 1959 were adjusted by a further reduction of the discount rate from 7 per cent discount to 3 per cent discount.

Total revenue for the year amounted to £22,665,147: and a surplus of £581,640 was realized on the year's working. Thus the accumulated deficit was wiped out, and at the 31st December, 1959, there was a small surplus of £48,220.

Tariffs for the year 1960 have remained at the same level as in 1959.

MUNICIPAL ELECTRICITY SUPPLY SCHEMES — 1959

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
Vanderbijl Park	Belfast Bloemhof Machadodorp Pietersburg Warmbad White River	

ORANGE FREE STATE:

New Schemes	Extensions	Tenders
Bultfontein (2) Edenville	Bethlehem Brandfort Ladybrand	

NATAL:

New Schemes	Extensions	Tenders
Melmoth		

CAPE:

New Schemes	Extensions	Tenders
Louriesfontein Nieuwoudtville (2)	Britstown Kokstad Somerset East Vredendal	Vosburg

SOUTH WEST AFRICA:

New Schemes	Extensions	Tenders
	Walvis Bay	Windhoek

Up to the 31st December, 1959, a total of 1726 reports on Municipal Supply Schemes had been submitted by the Commission. Of these 274 were in respect of new schemes, 824 were in respect of extension schemes and 628 were reports on tenders.

During the year the Commission advised the Administrators that, in future, it would not report on tenders.

ANNEXURES

The Commission submits for the year 1959 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.

Account No. 1—Redemption Fund Account.

Account No. 2—Reserve Fund Account.

Revenue Accounts in respect of:

Account No. 3.—Cape Western Undertaking.

Account No. 4—Cape Northern Undertaking.

Account No. 5—Border Undertaking.

Account No. 6—Natal Southern Undertaking.

Account No. 7—Natal Central Undertaking.

Statement of Pooled Costs and Allocation for Natal Southern and Natal Central Undertakings.

Account No. 8—Eastern Transvaal Undertaking.

Account No. 9—Rand and Orange Free State Undertaking.

Statement of Pooled Costs and Allocation for Rand and Orange Free State and Eastern Transvaal Undertakings.

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, 1959.

Statement No. 2—Summary of principal plant and equipment in course of installation or on order as at 31st December, 1959.

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

Statement No. 4—Units sold and number of consumers, 1959.

Statement No. 5—Power Station Statistics, 1959.

Statement No. 6—Power purchased, 1959.

Statement No. 7—Water consumed by power stations, 1959.

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 1959.

Statement No. 9—Coal used at the Commission's steamraising 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. Spittingh.

Chairman.

THE REPORT OF THE AUDITORS

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

Johannesburg,
23rd May, 1960.

GENTLEMEN,

We have completed the audit of the books and accounts of the Commission for the year ended 31st December 1959.

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 1959 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 1959, 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 dates from which provision for redemption of Loans Nos. 35, 36 and 37 commenced at 1st May 1959, 1st October 1959, and 1st February 1960 respectively.

We understand that application will be made, within the prescribed period, to the Minister to fix the dates from which provision for redemption of subsequent loans must be made. Provision has been made, however, for the redemption of moneys expended out of such loans on works which had come into commercial operation before 31st December 1959.

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.

Loan No. 41, raised in Switzerland, has to be repaid by ten annual instalments from 1965 to 1974 but provision is being made for repayment by setting aside amounts over the period of the loan, i.e. 15 years.

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 1958 and 1959:—

	<i>Surplus + Deficit -</i>		<i>Amounts set aside to Reserve Fund</i>	
	1958	1959	1958	1959
Cape Western -	£2,324 -	£10,731	£135,000	£204,000
Cape Northern +	17,609 +	62,395	17,500	52,500
Border +	7,626 +	27,866	41,600	45,600
Natal Southern -	65,730 -	57,215	150,000	200,000
Natal Central -	49,982 -	77,933	110,000	150,000
Eastern Transvaal +	16,364 -	5,726	65,000	65,000
Rand & O.F.S. +	371,786 +	581,640	1,196,000	1,494,900
Sabie -	155			
	<u>+ £295,194</u>	<u>+ £520,296</u>	<u>£1,715,100</u>	<u>£2,212,000</u>
Brought forward from previous year		- 677,069		
Accumulated Deficit at end of year as detailed in Balance Sheet		<u>£156,773</u>		

The net result of the year's operations has been a reduction in the accumulated deficit of £677,069 brought forward from 1958 to £156,773 at 31st December, 1959.

The accumulated deficit at Cape Western Undertaking has been increased by £10,731 and now stands at £179,855. It is anticipated that a further deficit will be incurred in the current year. This position is receiving the careful consideration of the Commission.

At the Natal Central Undertaking the accumulated surplus on Revenue Account has been converted to a deficit of £42,690, and a further deficit is anticipated by the Commission for the current year.

The surplus of £581,640 for the year in the case of the Rand and O.F.S. Undertaking has eliminated the accumulated deficit of £533,420 brought forward from the previous year.

GENERAL

As the result of our audit of the books and accounts of the Commission for the year 1959 and, subject to the foregoing remarks, in terms of Section 18 (8) of the Electricity Act, 1958, we certify as follows:—

- We have found the Accounts of the Commission to be in order.
- 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.
- Due provision has been made for the redemption and repayment of moneys borrowed by or advanced to the Commission.
- 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.
- Sums fixed by the Commission have been set aside to the Reserve Fund under Section 13 as prescribed.
- All our requirements as Auditors have been complied with and carried out.

Yours faithfully,

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

ACCOUNTS

STATISTICAL AND OTHER STATEMENTS

UNION STATISTICS

Electricity Supply Commission

Established under the Electricity Act, 1922.

BALANCE SHEET at 31st DECEMBER, 1959.

Loan Capital		£231,057,013
(As per Schedule No. 3)		
Creditors and Credit Balances		9,111,558
Current Liabilities and Provisions	£6,842,776	
Interest Accrued on Loan Capital	2,259,015	
Deferred Liabilities for Assets and Rights Acquired	9,767	
<hr/>		
Redemption Fund (As per Account No. 1)		51,608,049
Sinking Fund		2,531
Reserve Fund (As per Account No. 2)		9,819,670
Loan Capital and Deferred Liabilities Repaid less Assets Sold		2,871,022
Loan Capital repaid (as per Schedule No. 3)	8,839,360	
Deferred Liabilities repaid	358,760	
<hr/>		
	9,198,120	
<i>Less</i> —Cost of Assets sold proceeds of which have been paid into the Redemption Fund in terms of the Act	6,327,098	

NOTE—
In addition to the liabilities shown above the Commission is committed to the extent of approximately £41,700,000 for expenditure on Capital Account and £534,000 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.

£304,469,843

Expenditure on Capital Account (Excluding Cost of Assets Sold) (As per Schedule No. 1)		£226,565,185
Land and Rights	£2,246,808	
Buildings and Civil Works	48,805,364	
Machinery and Plant	175,513,013	
<hr/>		
Moveable Plant and Equipment (Less depreciation)		1,342,499
Workshop Equipment, Instruments, Tools and Loose Plant	713,428	
Transportation Equipment	430,213	
Furniture and Office Equipment	198,858	
<hr/>		
Stores and Materials		7,735,755
Debtors and Debit Balances		4,314,693
Current Debtors	3,087,057	
Entire Share Capital of the Rand Mines Power Supply Company Limited	600	
Expenditure on Investigations in terms of Section 4 (1) (b) of the Electricity Act 1958 and Payments in Advance	135,942	
Housing Loans to Employees Secured by First Mortgages	1,091,094	
<hr/>		
Cash		3,018,701
On Current Account and on hand	618,701	
On Deposit at Call	2,400,000	
<hr/>		
Investment of Redemption Fund (As per Schedule No. 2)		51,518,600
(Market Value £48,037,703)		
Investment of Sinking Fund		2,731
Amount invested in Stocks of Electricity Supply Commission, the Government of the Union of South Africa and Municipalities, including Interest Accrued. (Market Value £2,356)		
Investment of Reserve Fund		9,814,906
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 £9,516,579)		
Balance on Revenue Accounts (As per Accounts Nos. 3 to 9)		156,773
Cape Western Undertaking	179,855	
Cape Northern Undertaking	Cr. 53,029	
Border Undertaking	96,960	
Natal Southern Undertaking	Cr. 23,843	
Natal Central Undertaking	42,690	
Eastern Transvaal Undertaking	Cr. 37,640	
Rand and Orange Free State Undertaking	Cr. 48,220	
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		<u>£304,469,843</u>

Johannesburg,
31st March, 1960,

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

Referred to in our Report of 23rd May, 1960.

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

Electricity Supply Commission.

Schedule of Expenditure on Capital Account at 31st December, 1959.

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1958.	Year ended 31st December, 1959.	Total at 31st December, 1959.
RAND AND ORANGE FREE STATE UNDERTAKING:			
Rand.			
Land and Rights	£484,840	£30,969	£515,809
Buildings and Civil Works	3,910,881	564,273	4,475,154
Machinery and Plant	18,183,315	864,489	19,047,804
	£22,579,036	£1,459,731	£24,038,767
Klip Power Station.			
Land and Rights	£138,860	—	£138,860
Buildings and Civil Works	1,686,558	£85,668	1,772,226
Machinery and Plant	5,322,030	Cr. 56,542	5,265,488
	£7,147,448	£29,126	£7,176,574
Vaal Power Station.			
Land and Rights	£5,432	—	£5,432
Buildings and Civil Works	2,405,873	Cr. £5,967	2,399,906
Machinery and Plant	8,640,909	16,201	8,657,110
	£11,052,214	£10,234	£11,062,448
Vierfontein Power Station.			
Land and Rights	£31,004	£38	£31,042
Buildings and Civil Works	4,868,175	10,865	4,879,040
Machinery and Plant	16,446,427	41,590	16,488,017
	£21,345,606	£52,493	£21,398,099
Taaibos Power Station.			
Land and Rights	£15,718	£93	£15,811
Buildings and Civil Works	5,967,270	32,229	5,999,499
Machinery and Plant	17,237,340	108,265	17,345,605
	£23,220,328	£140,587	£23,360,915
Wilge Power Station.			
Land and Rights	£4,055	—	£4,055
Buildings and Civil Works	3,176,829	£59,124	3,235,953
Machinery and Plant	9,418,546	307,734	9,726,280
	£12,599,430	£366,858	£12,966,288
Highveld Power Station.			
Land and Rights	£29,705	£44	£29,749
Buildings and Civil Works	4,393,964	653,425	5,047,389
Machinery and Plant	7,268,040	3,743,407	11,011,447
	£11,691,709	£4,396,876	£16,088,585
Rand Extension.			
Land and Rights	£102,904	£15,237	£118,141
Buildings and Civil Works	695,378	15,898	711,276
Machinery and Plant	13,476,963	1,039,144	14,516,107
	£14,275,245	£1,070,279	£15,345,524
Greater Rand Extension and Orange Free State.			
Land and Rights	£178,820	£84,589	£263,409
Buildings and Civil Works	889,055	53,776	942,831
Machinery and Plant	11,717,776	854,708	12,572,484
	£12,785,651	£993,073	£13,778,724
Total Rand and Orange Free State Undertaking:			
Land and Rights	£991,338	£130,970	£1,122,308
Buildings and Civil Works	27,993,983	1,469,291	29,463,274
Machinery and Plant	107,711,346	6,918,996	114,630,342
	£136,696,667	£8,519,257	£145,215,924

Expenditure in connection with Electricity Undertakings.	Total at 31st December, 1958.	Year Ended 31st December, 1959.	Total at 31st December, 1959.
CAPE WESTERN UNDERTAKING:			
Land and Rights	£220,449	£74,492	£294,941
Buildings and Civil Works	5,079,063	1,000,545	6,079,608
Machinery and Plant	19,340,955	Cr. 135,434	19,205,521
	£24,640,467	£939,603	£25,580,070
CAPE NORTHERN UNDERTAKING:			
Land and Rights	£10,523	£5,874	£16,397
Buildings and Civil Works	339,645	17,959	357,604
Machinery and Plant	2,841,062	332,618	3,173,680
	£3,191,230	£356,451	£3,547,681
BORDER UNDERTAKING:			
Land and Rights	£11,124	£3,177	£14,301
Buildings and Civil Works	922,340	16,781	939,121
Machinery and Plant	3,632,105	381,968	4,014,073
	£4,565,569	£401,926	£4,967,495
NATAL SOUTHERN UNDERTAKING:			
Land and Rights	£159,191	£28,393	£187,584
Buildings and Civil Works	4,230,347	619,692	4,850,039
Machinery and Plant	15,134,352	1,642,329	16,776,681
	£19,523,890	£2,290,414	£21,814,304
NATAL CENTRAL UNDERTAKING:			
Land and Rights	£138,576	£14,212	£152,788
Buildings and Civil Works	2,044,854	207,323	2,252,177
Machinery and Plant	8,582,269	1,068,290	9,650,559
	£10,765,699	£1,289,825	£12,055,524
EASTERN TRANSVAAL UNDERTAKING:			
Land and Rights	£259,464	Cr. £59,838	£199,626
Buildings and Civil Works	1,198,369	1,642,485	2,840,854
Machinery and Plant	5,872,344	2,189,813	8,062,157
	£7,330,177	£3,772,460	£11,102,637
HEAD OFFICE:			
Land	£258,863	—	£258,863
Buildings and Equipment	1,877,887	£144,800	2,022,687
	£2,136,750	£144,800	£2,281,550
SUMMARY:			
Land and Rights	£2,049,528	£197,280	£2,246,808
Buildings and Civil Works	43,686,488	5,118,876	48,805,364
Machinery and Plant	163,114,433	12,398,580	175,513,013
	£208,850,449	£17,714,736	£226,565,185

Electricity Supply Commission.

Schedule of Investments of the

Redemption Fund at 31st December, 1959.

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—																										
4½ per cent.	1953/63	..	..	..	..	..	..	..	..	£123,000	£122,818	3	£500,000	4½ per cent.	1953/63	..	..	..	..	..	..	£490,550	£489,339
3½ per cent.	1954/64	..	..	..	..	..	..	..	..	1,015,445	1,007,036	5	£6,750,000	3½ per cent.	1954/64	..	..	..	..	..	..	6,785,095	6,752,197
3½ per cent.	1959/64	..	..	..	..	..	..	..	..	201,035	199,545	6	£2,500,000	3½ per cent.	1959/64	..	..	..	..	..	..	2,342,635	2,334,866
3½ per cent.	1956/66	..	..	..	..	..	..	..	..	359,192	332,388	7	£2,000,000	3½ per cent.	1956/66	..	..	..	..	..	..	1,845,192	1,822,517
3½ per cent.	1957/67	..	..	..	..	..	..	..	..	371,677	350,167	8	£2,000,000	3½ per cent.	1957/67	..	..	..	..	..	..	1,674,077	1,654,837
3½ per cent.	1959/64	..	..	..	..	..	..	..	..	656,910	624,065	9	£2,000,000	3½ per cent.	1959/64	..	..	..	..	..	..	1,613,810	1,592,265
3½ per cent.	1960/65	..	..	..	..	..	..	..	..	455,000	439,096	10	£1,500,000	3½ per cent.	1960/65	..	..	..	..	..	..	1,135,600	1,125,285
3½ per cent.	1961/66	..	..	..	..	..	..	..	..	525,593	498,997	11	£2,000,000	3½ per cent.	1961/66	..	..	..	..	..	..	1,412,693	1,386,284
3½ per cent.	1965/70	..	..	..	..	..	..	..	..	557,650	538,975	12	£2,500,000	3½ per cent.	1965/70	..	..	..	..	..	..	1,441,750	1,411,279
3 per cent.	1967/73	..	..	..	..	..	..	..	..	653,194	622,206	13	£3,000,000	3 per cent.	1967/73	..	..	..	..	..	..	1,407,694	1,371,566
3 per cent.	1968/74	..	..	..	..	..	..	..	..	1,161,541	1,131,403	14	£3,000,000	3 per cent.	1968/74	..	..	..	..	..	..	1,152,241	1,116,462
3½ per cent.	1968/73	..	..	..	..	..	..	..	..	6,655,120	6,611,242	15	£15,000,000	3½ per cent.	1968/73	..	..	..	..	..	..	7,786,120	7,697,172
3½ per cent.	1969/74	..	..	..	..	..	..	..	..	336,900	318,148	16	£3,000,000	3½ per cent.	1969/74	..	..	..	..	..	..	1,080,600	1,062,836
3½ per cent.	1969/74	..	..	..	..	..	..	..	..	66,900	62,314	17	£3,000,000	3½ per cent.	1969/74	..	..	..	..	..	..	987,200	979,936
3½ per cent.	1965/67	..	..	..	..	..	..	..	..	51,750	50,044	18	£5,250,000	3½ per cent.	1965/67	..	..	..	..	..	..	1,515,750	1,505,638
3½ per cent.	1964/67	..	..	..	..	..	..	..	..	622,930	608,408	19	£3,000,000	3½ per cent.	1964/67	..	..	..	..	..	..	833,930	825,241
3½ per cent.	1964/68	..	..	..	..	..	..	..	..	102,900	100,534	21	£5,000,000	3½ per cent.	1964/68	..	..	..	..	..	..	1,188,900	1,187,992
4½ per cent.	1964/67	..	..	..	..	..	..	..	..	524,580	509,145	22	£4,500,000	4½ per cent.	1964/67	..	..	..	..	..	..	952,930	951,023
5 per cent.	1964/67	..	..	..	..	..	..	..	..	599,100	583,879	23	£5,000,000	5 per cent.	1964/67	..	..	..	..	..	..	949,750	948,457
5 per cent.	1966/68	..	..	..	..	..	..	..	..	390,050	384,784	25	£3,500,000	5 per cent.	1966/68	..	..	..	..	..	..	639,300	638,378
5 per cent.	1967/69	..	..	..	..	..	..	..	..	439,512	433,898	26	£4,000,000	5 per cent.	1967/69	..	..	..	..	..	..	696,662	697,227
5 per cent.	1968/70	..	..	..	..	..	..	..	..	239,661	233,841	27	£4,250,000	5 per cent.	1968/70	..	..	..	..	..	..	692,661	690,898
5 per cent.	1967/70	..	..	..	..	..	..	..	..	2,512,500	2,465,119	29	£8,000,000	5 per cent.	1967/70	..	..	..	..	..	..	1,336,500	1,321,045
5 per cent.	1971/74	..	..	..	..	..	..	..	..	804,700	794,235	31	£8,000,000	5 per cent.	1971/74	..	..	..	..	..	..	1,566,750	1,570,530
5 per cent.	1971/75	..	..	..	..	..	..	..	..	1,549,689	1,533,275	32	£10,000,000	5 per cent.	1971/75	..	..	..	..	..	..	1,698,689	1,697,430
4½ per cent.	1975/80	..	..	..	..	..	..	..	..	4,787,500	4,769,341	33	£8,000,000	4½ per cent.	1975/80	..	..	..	..	..	..	3,912,500	3,926,138
4½ per cent.	1975/80	..	..	..	..	..	..	..	..	4,052,150	4,026,324	34	£8,000,000	4½ per cent.	1975/80	..	..	..	..	..	..	762,900	768,065
5½ per cent.	1976/81	..	..	..	..	..	..	..	..	2,025,250	1,999,718	35	£8,250,000	5½ per cent.	1976/81	..	..	..	..	..	..	650,250	649,805
5½ per cent.	1977/82	..	..	..	..	..	..	..	..	362,150	357,743	36	£10,000,000	5½ per cent.	1977/82	..	..	..	..	..	..	807,150	810,270
5½ per cent.	1976/82	..	..	..	..	..	..	..	..	1,855,500	1,831,226	37	£11,000,000	5½ per cent.	1976/82	..	..	..	..	..	..	631,500	625,601
5½ per cent.	1977/83	..	..	..	..	..	..	..	..	4,708,350	4,674,250	38	£12,000,000	5½ per cent.	1977/83	..	..	..	..	..	..	1,301,350	1,306,350
5½ per cent.	1978/83	..	..	..	..	..	..	..	..	1,604,850	1,584,778	39	£12,000,000	5½ per cent.	1978/83	..	..	..	..	..	..	484,850	485,931
5½ per cent.	1979/84	..	..	..	..	..	..	..	..	2,381,300	2,365,684	40	£11,000,000	5½ per cent.	1979/84	..	..	..	..	..	..	81,300	80,778
5½ per cent.	1979/84	..	..	..	..	..	..	..	..	3,400,200	3,323,698	42	£10,000,000	5½ per cent.	1979/84	..	..	..	..	..	..	35,200	34,962
5½ per cent.	1979/85	..	..	..	..	..	..	..	..	2,900,000	2,849,250												
The Government of the Union of South Africa—																										
3½ per cent.	1955/65	..	..	..	..	..	..	..	..	2,300	2,300												
3 per cent.	1956/61	..	..	..	..	..	..	..	..	40,000	39,289												
3 per cent.	1957/66	..	..	..	..	..	..	..	..	535,000	522,722												
3 per cent.	1958/68	..	..	..	..	..	..	..	..	15,000	14,849												
3 per cent.	1959/69	..	..	..	..	..	..	..	..	100,000	94,750												
3 per cent.	1960/70	..	..	..	..	..	..	..	..	343,700	331,746												
5½ per cent.	1979	..	..	..	..	..	..	..	..	150,000	149,813												
Municipal—Johannesburg:																										
3½ per cent.	1956/66	..	..	..	..	..	..	..	..	1,600	1,600												
3½ per cent.	1960/65	..	..	..	..	..	..	..	..	20,000	19,056												
3½ per cent.	1962/67	..	..	..	..	..	..	..	..	129,000	119,245												
3½ per cent.	1965	..	..	..	..	..	..	..	..	1,200	1,200												
3½ per cent.	1965/70	..	..	..	..	..	..	..	..	294,000	284,895												
3 per cent.	1967/77	..	..	..	..	..	..	..	..	30,000	30,000												
5½ per cent.	1974/79	..	..	..	..	..	..	..	..	97,000	96,272												
Cape Town:																										
3½ per cent.	1960/65	..	..	..	..	..	..	..	..	2,000	2,000												
3½ per cent.	1962/67	..	..	..	..	..	..	..	..	225,000	222,568												
3 per cent.	1976	..	..	..	..	..	..	..	..	100,000	95,588												
5½ per cent.	1980/85	..	..	..	..	..	..	..	..	150,000	148,125												
Durban:																										
3½ per cent.	1962/72	..	..	..	..	..	..	..	..	115,500	90,090												
3½ per cent.	1965/75	..	..	..	..	..	..	..	..	45,000	41,484												
3½ per cent.	1966/76	..	..	..	..	..	..	..	..	50,000	50,000												
3 per cent.	1967/77	..	..	..	..	..	..	..	..	334,000	320,320												
5½ per cent.	1974/79	..	..	..	..	..	..	..	..	60,000	59,250												
Interest Accrued										51,894,079	51,074,736															
Market Value										£51,894,079	£51,518,600															
Total										£48,037,703	£51,518,600															

Electricity Supply Commission

LOAN CAPITAL AT 31st DECEMBER, 1959.

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	11,000,000	
42:	£10,000,000 5½ per cent. 1979/84	10,000,000	
43:	£8,000,000 5½ per cent. 1979/85		
	(Payable in full not later than the 31st March, 1960, in terms of the Prospectus)		
	Fully Paid	£7,174,800	
	Partly Paid	182,520	
		<u>7 357,320</u>	
	£210,000,000 Total Local Registered Stocks:	£206,857,320	£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	7,735,744	2,996,678
28:	£6,660,978 \$30,000,000 4½ per cent.		
	Repayable by half-yearly instalments 1955/63	£10,726,956	
	Less repaid out of local loans	4,065,978	
		<u>£6,660,978</u>	1,080,100
EXPORT-IMPORT BANK OF WASHINGTON.			
24:	£7,008,293 \$19,600,000 4 per cent.		
	Repayable by half-yearly instalments 1956/70	5,525,711	1,482,582
COMMONWEALTH DEVELOPMENT FINANCE COMPANY LIMITED			
30:	£2,000,000 5 per cent. Repayable by half-yearly instalments 1954/68	1,220,000	780,000
SWISS LOAN			
41:	£4,137,360 Swiss Francs 50,000,000 5 per cent. Repayable by annual instalments 1965/74...	4,137,360	
		<u>£231,057,013</u>	<u>£8,839,360</u>
	<u>£240,539,053</u>		

Electricity Supply Commission

ACCOUNT No. 1.

Redemption Fund Account for the Year ended 31st December, 1959.

Balance as per Balance Sheet	£51,608,049
Cape Western Undertaking	£5,924,276
Cape Northern Undertaking	381,247
Border Undertaking	548,661
Natal Southern Undertaking	4,198,919
Natal Central Undertaking	4,808,904
Eastern Transvaal Undertaking	1,571,941
Rand and Orange Free State Undertaking	27,876,874
Head Office	766,542
Assets Sold	5,530,685
	<u>£51,608,049</u>

Loan No.	Local Registered Stocks.	
3	£500,000 4 per cent. 1953/63	£500,000
5	£6,750,000 3 per cent. 1954/64	6,681,520
6	£2,500,000 3 per cent. 1959/64	2,326,437
7	£2,000,000 3 per cent. 1956/66	1,816,698
8	£2,000,000 3 per cent. 1957/67	1,650,590
9	£2,000,000 3 per cent. 1959/64	1,586,983
10	£1,500,000 3 per cent. 1960/65	1,126,227
11	£2,000,000 3 per cent. 1961/66	1,386,380
12	£2,500,000 3 per cent. 1965/70	1,408,879
13	£3,000,000 3 per cent. 1967/73	1,372,011
14	£3,000,000 3 per cent. 1968/74	1,117,183
15	£15,000,000 3 per cent. 1968/73	7,679,327
16	£3,000,000 3 per cent. 1969/74	1,054,521
17	£3,000,000 3 per cent. 1969/74	978,210
18	£5,250,000 3 per cent. 1965/67	1,478,684
19	£3,000,000 3 per cent. 1964/67	824,700
21	£5,000,000 3 per cent. 1964/68	1,185,532
22	£4,500,000 4 per cent. 1964/67	946,549
23	£5,000,000 5 per cent. 1964/67	918,295
25	£3,500,000 5 per cent. 1966/68	638,687
26	£4,000,000 5 per cent. 1967/69	691,426
27	£4,250,000 5 per cent. 1968/70	675,001
29	£8,000,000 5 per cent. 1967/70	1,277,732
31	£8,000,000 5 per cent. 1971/74	1,540,049
32	£10,000,000 5 per cent. 1971/75	1,637,988
33	£8,000,000 4 per cent. 1975/80	3,889,848
34	£8,000,000 4 per cent. 1975/80	768,531
35	£8,250,000 5 per cent. 1976/81	657,355
36	£10,000,000 5 per cent. 1977/82	662,610
37	£11,000,000 5 per cent. 1976/82	796,381
38	£12,000,000 5 per cent. 1977/83	1,372,574
39	£12,000,000 5 per cent. 1978/83	431,233
40	£11,000,000 5 per cent. 1979/84	151,301
42	£10,000,000 5 per cent. 1979/84	97,030
43	£8,000,000 5 per cent. 1979/85	281,577
		<u>£51,608,049</u>

£51,608,049

Balance at 31st December, 1958, brought forward	£44,769,519
	Loan No.
Cape Western Undertaking	£5,061,336 3
	5 6,378,186
Cape Northern Undertaking	280,838 6
	7 1,724,912
Border Undertaking	414,441 8
	9 1,547,242
Natal Southern Undertaking	3,551,581 10
	11 1,477,744
Natal Central Undertaking	4,354,188 12
	13 1,037,760
Eastern Transvaal Undertaking	1,385,140 14
	15 1,269,436
	16 1,287,893
	17 1,223,432
	18 985,752
	19 6,912,231
	20 934,114
Rand and Orange Free State Under- taking	23,568,030 17
	18 853,687
	19 1,286,670
Head Office	716,347 19
	20 705,343
	21 995,596
Assets Sold	5,437,618 22
	23 770,676
	24 744,698
	25 511,480
	26 548,185
	27 532,374
	28 1,027,224
	29 1,201,199
	30 1,259,425
	31 3,757,285
	32 578,189
	33 416,379
	34 506,963
	35 326,757
	36 1,072,424
	37 203,083
	38
	39
	Future not yet raised
	17,960
	<u>£44,769,519</u>

Amounts contributed during the year as per Revenue Accounts	4,876,004
Cape Western Undertaking	£600,290
Cape Northern Undertaking	84,957
Border Undertaking	110,131
Natal Southern Undertaking	465,998
Natal Central Undertaking	235,463
Eastern Transvaal Undertaking	123,070
Rand and Orange Free State Undertaking	3,256,095

Other Contributions	Dr. 6,262
Proceeds of Sales of Fixed Property	40,513
Interest Earned on Investments	1,928,275

£51,608,049

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 23th May, 1960.

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

J. VAN NIEKERK, Chief Accountant.

Johannesburg,
31st March, 1960

Electricity Supply Commission

ACCOUNT No. 2.

Reserve Fund Account for the Year ended 31st December, 1959.

Expenditure during the year on Replacements and Betterment	£690,036	Balance at 31st December, 1958, brought forward	£7,881,987
Cape Western Undertaking	£93,297	Cape Western Undertaking	£961,006
Cape Northern Undertaking	3,363	Cape Northern Undertaking	76,365
Border Undertaking	7,000	Border Undertaking	72,491
Natal Southern Undertaking	144,120	Natal Southern Undertaking	492,983
Natal Central Undertaking	180,329	Natal Central Undertaking	1,002,771
Eastern Transvaal Undertaking	25,741	Eastern Transvaal Undertaking	407,144
Rand and Orange Free State Undertaking	236,186	Rand and Orange Free State Undertaking	4,869,227
	<hr/>		
Balance as per Balance Sheet	9,819,670	Amounts set aside during the year as per Revenue Accounts	2,212,000
Cape Western Undertaking	1,120,739	Cape Western Undertaking	204,000
Cape Northern Undertaking	130,222	Cape Northern Undertaking	52,500
Border Undertaking	115,369	Border Undertaking	45,600
Natal Southern Undertaking	574,542	Natal Southern Undertaking	200,000
Natal Central Undertaking	1,019,733	Natal Central Undertaking	150,000
Eastern Transvaal Undertaking	467,402	Eastern Transvaal Undertaking	65,000
Rand and Orange Free State Undertaking	6,391,663	Rand and Orange Free State Undertaking	1,494,900
	<hr/>		
		Interest Earned on Investments	415,719
	<hr/>		
	£10,509,706		£10,509,706
	<hr/>		

Electricity Supply Commission

ACCOUNT No. 3.

CAPE WESTERN UNDERTAKING

Revenue Account for the Year ended 31st December, 1959.

Generation.			Sales of Electricity.	
Operation—				
Fuel	£1,278,916		Traction Supplies	£912,140
Water and Stores	27,022		Bulk Supplies	1,490,640
Salaries and Wages	153,816		Industrial Supplies	1,147,955
Other Expenses	8,537		Domestic and Lighting Supplies	872,213
Maintenance—				<u>£4,422,948</u>
Stores	30,028		Other Revenue	15,924
Salaries and Wages	171,925			<u>4,438,872</u>
Other Expenses	22,408		Balance carried down	10,731
	<u>£1,692,652</u>			
Distribution.				
Operation and Maintenance—				
Stores	35,368			
Salaries and Wages	250,577			
Other Expenses	38,865			
	<u>324,810</u>			
General Expenses.				
Local Administration and Technical Management	111,316			
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.) ..	211,794			
Head Office Administration Expenses	34,926			
Head Office Engineering Expenses	27,750			
	<u>385,786</u>			
Capital Charges.				
Interest	1,148,237			
Redemption Fund	600,290			
Instalments and Provision for Repayment of Overseas Loans	93,553			
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	275			
Amount set aside to Reserve Fund	204,000			
	<u>2,046,355</u>			
	<u>£4,449,603</u>			
Balance at 31st December, 1958, brought forward	£169,124		Balance as per Balance Sheet	£179,855
Balance brought down	10,731			
	<u>£179,855</u>			<u>£179,855</u>

Johannesburg,
31st March, 1960.

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 23rd May, 1960.

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

Electricity Supply Commission

ACCOUNT No. 4.

CAPE NORTHERN UNDERTAKING

Revenue Account for the Year ended 31st December, 1959.

Generation.			
Operation—			
Fuel	£132,979		
Water and Stores	18,531		
Salaries and Wages	27,685		
Other Expenses	6,441		
Maintenance—			
Stores	2,711		
Salaries and Wages	17,201		
Other Expenses	1,230		
	£206,778		
Electricity Purchased.			
Proportion of Pooled Costs of Rand and Orange Free State and Eastern Transvaal Undertakings	188,527		
Electricity supplied by Rand and Orange Free State Undertaking	27,075		
	215,602		
Distribution.			
Operation and Maintenance—			
Stores	4,065		
Salaries and Wages	11,614		
Other Expenses	6,505		
	22,184		
General Expenses.			
Local Administration and Technical Management	17,326		
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	14,377		
Head Office Administration Expenses	2,408		
Head Office Engineering Expenses	1,914		
	36,025		
Capital Charges.			
Interest	141,232		
Redemption Fund	84,957		
Instalments and Provision for Repayment of Overseas Loans	1,338		
Amount set aside to Reserve Fund	52,500		
	280,027		
		760,616	
Balance carried down		62,395	
		£823,011	
Balance at 31st December, 1958, brought forward	£9,366		
Balance as per Balance Sheet	53,029		
	£62,395		
			£823,011
			£62,395
			£62,395

Referred to in our Report of 23rd May, 1960.

J. VAN NIEKERK, Chief Accountant.

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

Johannesburg,
31st March, 1960.

Electricity Supply Commission

ACCOUNT No. 5.

BORDER UNDERTAKING

Revenue Account for the Year ended 31st December, 1959.

Generation.		
Operation—		
Fuel	£277,397	
Water and Stores	4,304	
Salaries and Wages	48,545	
Other Expenses	2,519	
Maintenance—		
Stores	9,641	
Salaries and Wages	31,943	
Other Expenses	4,505	
	£378,854	
		1,130
Electricity Purchased.		
Electricity Purchased		1,130
Distribution.		
Operation and Maintenance—		
Stores	3,954	
Salaries and Wages	24,249	
Other Expenses	5,046	
	33,249	
General Expenses.		
Local Administration and Technical Management	25,520	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	30,042	
Head Office Administration Expenses	7,226	
Head Office Engineering Expenses	5,741	
	68,529	
Capital Charges.		
Interest	221,842	
Redemption Fund	110,131	
Instalments and Provision for Repayment of Overseas Loans	7,011	
Instalments and Provision for Payment of Deferred Liabilities for Assets Acquired	294	
Amount set aside to Reserve Fund	45,600	
	384,878	
		866,640
Balance carried down		27,866
		£894,506
Balance at 31st December, 1958, brought forward	£124,826	
	£124,826	

Sales of Electricity.		
Bulk Supplies	£736,396	
Industrial Supplies	57,289	
Domestic and Lighting Supplies	99,646	
	£893,331	
Other Revenue		1,175
		£894,506
Balance brought down		£27,866
Balance as per Balance Sheet		96,960
		£124,826

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 23rd May, 1960.

Johannesburg,
31st March, 1960.

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

Electricity Supply Commission

ACCOUNT No. 6

NATAL SOUTHERN UNDERTAKING

Revenue Account for the Year ended 31st December, 1959

Generation.			
Proportion of Pooled Costs (as per attached statement)	£3,455,629		
Other Operation and Maintenance Costs—			
Operation—			
Fuel	432		
Water and Stores	25		
Salaries and Wages	496		
Other Expenses	4		
Maintenance—			
Stores	273		
Salaries and Wages	432		
Other Expenses	29		
	£3,457,320		
Electricity Purchased.			
Electricity Purchased		25,202	
Distribution.			
Operation and Maintenance—			
Stores	19,370		
Salaries and Wages	73,567		
Other Expenses	27,666		
	120,603		
<i>Less—Charged to Pooled Costs (Interconnector)</i>	<i>2,867</i>	117,736	
General Expenses.			
Local Administration and Technical Management	67,125		
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	88,777		
Head Office Administration Expenses	34,926		
Head Office Engineering Expenses	27,750		
	218,578		
<i>Less—Charged to Pooled Costs</i>	<i>141,246</i>	77,332	
Capital Charges.			
Interest	808,232		
Redemption Fund	465,998		
Sinking Fund	350		
Instalments and Provision for Repayment of Overseas Loans	94,869		
Amount set aside to Reserve Fund	200,000		
	1,569,449		
<i>Less—Charged to Pooled Costs</i>	<i>1,281,030</i>	288,419	
	£3,966,009		
Balance brought down	£57,215		
Balance as per Balance Sheet	23,843		
	£81,058		
		£3,966,009	
			£3,966,009
			£81,058
			£81,058

J. VAN NIEKERK, Chief Accountant,

Referred to in our Report of 23rd May, 1960.

Johannesburg,
31st March, 1960.

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

Electricity Supply Commission

NATAL SOUTHERN AND NATAL CENTRAL UNDERTAKINGS

Statement of Pooled Costs and Allocation for the year ended 31st December, 1959

Generation.			Allocation.		
Operation—			Natal Southern Undertaking	£3,455,629	
Fuel	£2,537,724		Natal Central Undertaking	<u>1,863,125</u>	£5,318,754
Water and Stores	87,611				
Salaries and Wages	240,190		Sundry Revenue		12,016
Other Expenses	52,195				
Maintenance—					
Stores	88,896				
Salaries and Wages	234,218				
Other Expenses	<u>26,033</u>	£3,266,867			
Interconnector.					
Operation and Maintenance—					
Stores	259				
Salaries and Wages	3,902				
Other Expenses	<u>1,140</u>	5,301			
General Expenses.					
Local Administration and Technical Management	61,413				
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	97,367				
Head Office Administration and Engineering Expenses	<u>92,933</u>	251,713			
Capital Charges.					
Interest	906,037				
Redemption Fund	510,434				
Instalments and Provision for Repayment of Overseas Loans	128,018				
Reserve Fund	<u>262,400</u>	1,806,889			
		<u>£5,330,770</u>			<u>£5,330,770</u>

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 23rd May, 1960.

Johannesburg,
31st March, 1960.

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

Electricity Supply Commission

ACCOUNT No. 8

EASTERN TRANSCAAL UNDERTAKING

Revenue Account for the Year ended 31st December, 1959

Generation.			Sales of Electricity.	
Proportion of Pooled Costs (as per attached statement)	£883,227		Traction Supplies	£78,280
Other Operation and Maintenance Costs—			Bulk Supplies	106,639
Operation—			Mining Supplies	542,259
Water and Stores	86		Industrial Supplies	577,977
Salaries and Wages	5,602		Domestic and Lighting Supplies	41,319
Other Expenses	233			<u>1,346,474</u>
Maintenance—		£889,709	Other Revenue	7,437
Stores	106		Less—Credited to Pooled Costs	3,591
Salaries and Wages	428			<u>3,846</u>
Other Expenses	27		Balance carried down	5,726
				<u>1,350,320</u>
Electricity Purchased.				<u>1,356,046</u>
Electricity Purchased	48,746			
Electricity Supplied by Rand and Orange Free State Undertaking	30,472	79,218		
Distribution.				
Operation and Maintenance—				
Stores	11,048			
Salaries and Wages	39,730			
Other Expenses	17,549			
		68,327		
General Expenses.				
Local Administration and Technical Management	33,648			
General Expenses (including Maintenance of Quarters, Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	58,406			
Head Office Administration Expenses	34,926			
Head Office Engineering Expenses	27,750			
	154,730			
Less—Charged to Pooled Costs	66,930	87,800		
Capital Charges.				
Interest	234,400			
Redemption Fund	123,070			
Instalments and Provision for Repayment of Overseas Loans	17,954			
Amount set aside to Reserve Fund	65,000			
	440,424			
Less—Charged to Pooled Costs	209,432	230,992		
		<u>£1,356,046</u>		
Balance brought down		£5,726	Balance at 31st December, 1958, brought forward	£43,366
Balance as per Balance Sheet		37,640		<u>£43,366</u>
		<u>£43,366</u>		

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 23rd May, 1960.

Johannesburg,
31st March, 1960.

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

Electricity Supply Commission

RAND AND ORANGE FREE STATE AND

EASTERN TRANSVAAL UNDERTAKINGS

Statement of Pooled Costs and Allocation

for the Year ended 31st December, 1959.

	Generation.	
Operation—		
Fuel	£6,188,352	
Water and Stores	124,641	
Salaries and Wages	1,001,546	
Other Expenses	38,164	
Maintenance—		
Stores	418,026	
Salaries and Wages	819,379	
Other Expenses	38,168	
	£8,628,276	
Electricity Purchased.		
Electricity Purchased		96,800
Interconnector.		
Operation and Maintenance—		
Stores	6,693	
Salaries and Wages	25,081	
Other Expenses	744	
	32,518	
General Expenses.		
Local Administration and Technical Management	219,300	
General Expenses (including Stores Expenses, Rates, Insurance, Pension Fund Contributions, etc.)	432,196	
Head Office Administration and Engineering Expenses	144,877	
	796,373	
Capital Charges.		
Interest	4,040,036	
Redemption Fund	2,185,626	
Instalments and Provision for Repayment of Overseas Loans	1,172,344	
Reserve Fund	1,014,064	
	8,412,070	
	£17,966,037	

	Allocation.	
Rand and Orange Free State Undertaking	£16,799,160	
Eastern Transvaal Undertaking	883,227	
Cape Northern Undertaking	188,527	
	£17,870,914	
Sundry Revenue		95,123
		£17,966,037

J. VAN NIEKERK, Chief Accountant.

Referred to in our Report of 23rd May, 1960.

Johannesburg,
31st March, 1960.

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

ANNEXURE B

Electricity Supply Commission

POWER STATIONS: PRINCIPAL EQUIPMENT INSTALLED AS AT 31st DECEMBER, 1959.

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		
	West Bank No. 1	Steam	32.0	6	21.5	1	1.5		
	West Bank No. 2	Steam	30.0	4	55.0	2	4.0		
Cape Northern 15,700				3	170.0	2	15.0		
	Central, Kimberley	Steam	30.0	8	30.0	1	3.0		
				4	75.0	3	5.0		
						2	6.0		
Cape Western 12,650	Salt River No. 1	Steam	90.3	{ 2 6 6 4	60.0	{ 3 3 4 3	10.0	} 1	0.3
	Salt River No. 2	Steam	120.0		100.0		20.0		
	Hex River	Steam	60.0		260.0		30.0		
		Steam			200.0		20.0		
Eastern Transvaal 26,862	Sabie Gorge	Hydro	1.35	—	—	3	0.45		
	Witbank	Steam	128.0	20	70.0	6	20.0	1	8.0
				2	80.0				
Natal Central 20,500	Colenso Nos. 1 and 2	Steam	165.0	8	60.0	5	12.0		
				4	80.0	3	25.0		
				5	180.0	1	30.0		
				2	200.0	2	0.25		
	Volksrust	Oil	0.5	—	—				

Natal Southern	4,000	Congella Nos. 1 and 2	Steam	206·0	6	60·0	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	10	45·0	1	3·0	
		Highveld	Steam	240·0	4	550·0	2 1 4	12·5 20·0 60·0	
		Klip	Steam	424·0	24	180·0	12	33·0	
		Rosherville	Steam	38·4	24 8	38·0 48·0	4	9·6	
		Taaibos	Steam	480·0	8	580·0	8	60·0	
		Vaal	Steam	318·0	18	190·0	9	33·0	
		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	
									4	7·0
								3	7·0

SUMMARY:

Total Number of Boilers	.. .. .	266
Total Boiler House Rating	.. .. .	36,881,000 lb./hr.
Total Number of Main Generators	.. .. .	131 Capacity 3,239·65
Total Number of House Sets	.. .. .	9 Capacity 57·30
Total Plant Capacity (Electricity)	.. .. .	3,296·95

Major Items of Plant Commissioned 1959

Highveld 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		
Robinson Compressor Station ..	3	Turbo	2,000	14,000	..
	1	Turbo	2,150		..
	1	Turbo	2,850		..
	1	Turbo	3,000		..
<i>Steam Driven</i>					
Brakpan Power Station	2	Recip.	800	4,250	Recip. Steam Engines
	1	Turbo	2,650		
Rosherville Power Station ..	1	Turbo	2,500	48,800	Steam Turbine
	1	Turbo	4,400		..
	3	Turbo	6,000		..
	2	Turbo	7,100		..
	1	Turbo	9,700		..
Total Compressed Air Sets . . .	22		89,250 = 66.58 MW		

CAPACITY OF TRANSFORMERS IN SERVICE AT 31st DECEMBER, 1959

Undertaking	Number	MVA
Border	301	84.6
Cape Northern	509	144.0
Cape Western	2,852	874.4
Eastern Transvaal	840	640.1
Natal Central	1,506	602.6
Natal Southern	949	701.0
Rand	3,653	12,289.5
At Compressor Stations, Rand	41	328.6
TOTALS	10,651	15,664.8

TRANSMISSION LINES AND CABLES: CIRCUIT MILES (EXCLUDING SERVICE CONNECTIONS ON RETICULATION SYSTEMS) AT 31st DECEMBER, 1959

(a) TRANSMISSION LINES

Undertaking	275kV	132kV	88kV	66kV	40kV	33kV	22kV	21kV	20kV	11kV	6·6kV	2·0kV			Totals
												2·1kV	2·2kV	3·3kV		525V	380/220V
Border	—	—	—	102·00	—	67·70	—	—	—	334·49	—	3·50	—	—	71·86
Cape Northern . . .	—	181·50	—	166·00	—	—	—	—	—	252·60	—	4·50	—	—	12·30
Cape Western . . .	—	—	—	555·77	—	163·20	—	—	—	1,118·06	282·78	—	—	—	850·32
Eastern Transvaal . .	—	81·60	227·23	—	—	—	—	439·75	—	249·25	21·33	6·74	35·24	—	2,970·13
Natal Central	—	74·69	626·09	—	—	253·71	35·90	—	—	841·01	222·95	0·15	0·95	—	1,143·55
Natal Southern . . .	—	122·12	174·19	—	—	44·51	—	—	—	463·00	40·78	—	—	—	2,232·72
Rand & O.F.S. . . .	197·17	1,220·70	1,878·27	—	1,147·47	—	—	—	120·16	301·14	113·09	—	5·62	—	1,086·37
Totals	197·17	1,680·61	2,905·78	823·77	1,147·47	529·12	35·90	439·75	120·16	3,559·55	680·93	14·89	41·81	—	1,628·86
Totals	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13,805·77

(b) UNDERGROUND CABLES

Border	—	—	—	—	—	—	—	—	—	19·23	—	3·34	—	—	—	22·57
Cape Western	—	—	—	23·32	—	69·23	—	—	—	88·65	3·59	2·13	—	—	59·59	246·51
Eastern Transvaal . .	—	—	—	—	—	—	—	19·24	—	3·32	1·17	0·50	—	—	0·28	24·51
Natal Central	—	—	—	—	—	—	—	—	—	2·92	3·65	1·89	—	—	3·02	11·48
Natal Southern . . .	—	—	—	—	—	4·44	—	—	—	26·44	0·07	—	—	—	13·97	44·92
Rand & O.F.S. . . .	—	—	—	—	2·47	—	—	—	82·69	34·29	123·47	1·26	17·72	1·75	29·64	293·29
Totals	—	—	—	23·32	2·47	73·67	—	19·24	82·69	174·85	131·95	9·12	17·72	1·75	106·50	643·28

TOTAL WORKING:—LINES AND CABLES: 14,449·05

STATEMENT No. 2

POWER STATIONS: PRINCIPAL EQUIPMENT ON ORDER AS AT 31st DECEMBER, 1959.

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
Cape Northern	Central, Kimberley	—	—	—	—	90	19	1·4
Cape Western	Hex River	1	275	1	30·0	318	157	92·4
Eastern Transvaal	Witbank	—	—	—	—	312	305	501·5
Natal Central	Colenso	—	—	—	—	96	6	132·5
Natal Southern	Umgeni	5	260	2	60·0	61	16	178·6
Rand	{ Highveld Komati	2	550	2	60·0	} 371	138	2,155·5
		2	900	2	100·0			

SUMMARY:

Number of Boilers	.. .. .	111	.. .. .	C.M.R. 5,375,000 lb./hr.
Number of Generators	.. .. .	8	.. .. .	Total Rating 570·0 MW
Transmission Lines	.. .. .	.. .. .	.. .. .	1,248 Circuit Miles
Transformers	.. .. .	641	.. .. .	Rating 3,061·9 MVA

STATEMENT No. 3

UNITS SOLD BY UNDERTAKINGS TO ALL CONSUMERS DURING THE PAST THIRTY-FIVE 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		797.0
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		6.2		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		7.2		2,985.4
1939			119.8	853.3	2,566.6	281.1	242.7		6.4		3,573.7
1940			136.2	862.6	2,675.9	302.4	270.3		6.6		4,070.2
1941			151.8	873.4	2,707.8	307.7	273.8		6.3		4,254.0
1942			145.7	849.1	2,669.1	312.4	293.4		5.9		4,320.8
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	377.9	4,470.6
1945			184.6	896.9	2,614.3	347.0	369.7		7.4	582.5	5,002.4
1946			198.6	887.7	2,547.2	346.0	402.6		7.6	668.6	5,114.5
1947	56.2		222.4	633.2	1,207.4	367.9	448.7		7.3	435.1	5,576.9
1948	69.2		249.5	358.3		371.8	513.0	2,185.7	7.0		6,222.2
1949	68.7	53.9	271.9	378.5		406.5	561.8	4,653.9	6.3		6,910.6
1950	79.9	58.5	303.5	386.8		433.4	617.0	5,151.8	6.1		7,456.5
1951	88.0	61.3	341.2	425.0		454.0	655.6	5,563.2	6.1		8,080.5
1952	97.7	67.1	375.5	409.9		492.3	713.2	6,039.6	6.4		8,732.2
1953	107.8	70.7	436.2	270.5		532.5	777.7	6,560.0	6.4		9,676.6
1954	118.2	73.2	527.1	394.6		546.4	870.0	7,465.2	5.6		10,964.0
1955	130.8	78.7	585.1	505.9		595.4	957.7	8,416.3	5.6		12,019.5
1956	139.1	86.1	698.6	536.5		621.7	1,018.7	9,151.6	6.0		12,763.1
1957	143.1	115.2	826.0	584.1		616.1	1,104.1	10,200.6	5.9		13,602.1
1958	152.9	171.4	861.8	633.3		629.4	1,288.6	11,034.8	3.1		14,724.4
1959	165.1										

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, 1959 (Electricity, Air and Steam)

STATEMENT No. 4

Energy Used:—
ELECTRICITY

Undertaking	TRACTION			BULK			MINING	
	Units	Per cent. Traction	No. Cons.	Units	Per cent. Bulk	No. Cons.	Units	Per cent. Mining
Border				149,661,220	4·895	10		
Cape Northern				60,461,504	1·977	5	62,913,068	0·820
Cape Western	195,389,100	22·017	2	331,633,181	10·846	30		
Eastern Transvaal	35,105,770	3·956	1	40,958,682	1·339	9	200,503,352	2·612
Natal Central	271,520,480	30·596	1	257,790,544	8·431	17	35,777,581	0·466
Natal Southern	94,484,737	10·647	1	1,018,554,074	33·312	3		
Rand & O.F.S.	290,935,859	32·784	2	1,198,599,286	39·200	72	7,377,168,260	96·102
Total Electricity	887,435,946	100·000	7	3,057,658,491	100·000	146	7,676,362,261	100·000
Per cent. of Total	6·084			20·963			52·627	

AIR AND STEAM

Rand and O.F.S.:								
Air				3,244,194	100·000	1	121,980,585	97·226
Steam							3,480,610	2·774
Total Air and Steam				3,244,194	100·000	1	125,461,195	100·000
Per cent. of Total				2·348			90·824	

ELECTRICITY, AIR AND STEAM

Grand Total all Sales	887,435,946		7	3,060,902,685		147	7,801,823,456	
Per cent. of Grand Total . .	6·027			20·788			52·985	

Energy Used by Provinces:—

ELECTRICITY, AIR AND STEAM

Cape	195,389,100	22·017	2	548,760,808	17·928	44	62,564,588	0·802
Natal	353,861,575	39·875	1	1,248,418,063	40·786	14	35,777,581	0·458
O.F.S.	15,102,892	1·702	2	198,258,433	6·477	29	1,934,447,592	24·795
Transvaal	323,082,379	36·406	2	1,065,465,381	34·809	60	5,769,033,695	73·945

No. Cons.	INDUSTRIAL			DOMESTIC AND STREET LIGHTING			TOTAL UNITS SOLD		Total Number Consumers
	Units	Per cent. Industrial	No. Cons.	Units	Per cent. Domestic and Lighting	No. Cons.	Units	Per cent. Total Units Sold	
	5,558,683	0·203	217	9,828,127	4·304	2,463	165,048,030	1·132	2,690
13	45,297,946	1·655	82	2,715,111	1·189	694	171,387,629	1·175	794
	208,187,558	7·608	2,330	126,585,746	55·439	26,668	861,795,585	5·908	29,030
39	353,572,619	12·920	296	3,186,128	1·395	1,328	633,326,551	4·342	1,673
15	45,640,800	1·668	565	18,688,890	8·185	4,997	629,418,295	4·315	5,595
	85,601,793	3·128	299	29,999,782	13·139	6,037	1,228,640,386	8·423	6,340
110	1,992,669,062	72·818	804	37,331,049	16·349	4,250	10,896,703,516	74·705	5,238
177	27,736,528,461	100·000	4,593	228,334,833	100·000	46,437	14,586,319,992	100·000	51,360
	18·761			1·565			100·000		

10	9,431,910	100·000	24				134,656,689	97·480	35
1							3,480,610	2·520	1
11	9,431,910	100·000	24				138,137,299	100·000	36
	6·828						100·000		

188	2,745,960,371		4,617	228,334,833		46,437	14,724,457,291		51,396
	18·649			1·551			100·000		

12	258,979,642	9·431	2,623	138,970,199	60·863	29,765	1,204,664,337	8·181	32,446
15	128,880,270	4·693	692	41,590,794	18·215	8,501	1,808,528,283	12·282	9,223
17	89,455,762	3·258	131	2,695,443	1·180	898	2,239,960,122	15·213	1,077
144	2,268,644,697	82·618	1,171	45,078,397	19·742	7,273	9,471,304,549	64·324	8,650
							Electricity 98·871 } of Total		
							Air and Steam 1·129 }		Sales

(I) ELECTRICITY GENERATION:

STATEMENT No. 5

POWER STATION OPERATING STATISTICS: YEAR 1959.

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 %	
			½ Hour (or Hour) Sent Out kW	Peak kW			Per Unit Generated	Per Unit Sent Out		Generated	Sent Out	Generated	Sent Out
Brakpan	35,160,287	30,829,594	26,211	—	13·4	43,812	2·492	2·842	9,860	24,570	28,020	13·9	12·2
Central, Kimberley	65,231,100	56,328,952	23,230	25,600	27·7	69,384	2·127	2·464	11,600	24,670	28,580	13·8	11·9
Colenso No. 1 & No. 2	689,963,660	649,054,490	144,580	153,000	53·3	520,875	1·510	1·605	11,290	17,050	18,120	20·0	18·8
Congella No. 1 & No. 2	760,707,400	702,780,650	151,000	163,000	56·1	497,172	1·307	1·415	11,550	15,100	16,340	22·6	20·9
Hex River	195,052,300	183,384,730	59,800	61,600	35·0	118,369	1·214	1·291	11,590	14,070	14,960	24·3	22·8
Highveld	907,210,488	845,899,996	167,275	—	61·4	561,254	1·237	1·327	8,810	10,900	11,690	31·3	29·2
King William's Town (Standby only)	1,590	590	983*	1,100*	—	27	—	—	—	—	—	—	—
Klip	2,576,797,899	2,402,899,784	Hour 356,370	—	77·0	2,201,485	1·709	1·832	9,550	16,320	17,500	20·9	19·5
Rosherville	19,538,171	17,808,945	Hour 34,208	—	—	34,093	3·490	3·829	9,910	34,590	37,950	9·9	9·0
Salt River No. 1 } No. 1 also receives Salt River No. 2 } Steam from No. 2	38,410,298	34,254,730	44,082	48,000	8·9	22,604	1·789	2·006	11,790	21,090	23,650	16·2	14·4
Taaibos	3,148,443,946	2,908,952,974	Hour 418,012	—	79·4	2,059,612	1·308	1·416	8,970	11,730	12,700	29·1	26·9
Umgeni	615,816,900	579,382,900	Hour 122,600	124,500	56·5	376,039	1·221	1·298	11,100	13,550	14,410	25·2	23·7
Vaal	2,035,591,431	1,912,202,262	Hour 286,479	—	76·2	1,717,111	1·687	1·796	8,800	14,850	15,800	23·0	21·6
Vereeniging	754,606,119	700,591,239	Hour 136,388	—	58·6	857,566	2·273	2·448	9,150	20,800	22,400	16·4	15·3
Vierfontein	2,027,736,631	1,891,575,735	Hour 327,928	—	65·8	1,530,420	1·509	1·618	9,040	13,640	14,630	25·0	23·2
West Bank No. 1 & No. 2	179,043,010	169,615,490	34,420	37,000	56·3	118,955	1·329	1·403	11,600	15,420	16,270	22·1	21·0
Wilge	1,396,298,836	1,292,316,128	Hour 224,651	—	65·7	889,434	1·274	1·376	9,710	12,370	13,360	27·6	25·5
Witbank	654,010,532	606,206,884	Hour 118,211	—	58·5	599,840	1·834	1·979	11,290	20,710	22,340	16·5	15·3
GRAND TOTALS: ...	16,835,466,158	15,686,508,098				12,606,990							

*Includes Diesel Plant.

Total Rand and O.F.S. Undertaking (including Witbank)	13,555,394,340	12,609,283,541				10,494,627							
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1, 2 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.
Sabie	2,676,400	2,503,900	650	700	44·0	45·7	1162

POWER STATION OPERATING STATISTICS: YEAR 1959.

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	
King William's Town	4,540	4,540	983	1,000	2,698	0.595	192
Port Shepstone	50,444	50,000	2,980	3,020	35,211	0.70	499
Volkstrust	3,285	3,186	400	400	4,350	1.365	43
Totals	58,269	57,726			42,259		734

(2) COMPRESSED AIR GENERATION:

Station	Type*	Units Generated	Air Units Sent Out		Coal Burned		Electric Input		Max. Sustained Load Over One Hour kW	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	84,767,700	84,564,000	59.6	118,118	2.794	46,516,115	78.14	50,680	32.0
Robinson	Electric	38,346,200	36,346,200	25.6			28,030,011	80.73		
Canada Dam	Electric	21,015,200	21,015,200	14.8						
Air Pipe-Line Totals		142,129,100	141,926,200	100.0	118,118		72,546,126			

*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	3,511,560	3,480,610	5,170	3.033	4,535 (Feb.)	8.8

GENERATION SUMMARY:

TOTAL COAL BURNED	= Steam Driven Generating Stations + Compressed Air Steam Driven Stations	
	= 2,606,990 + 123,288	
	= 12,730,278 Tons of 2,000 lb. (Increase of 842,852 over 1958 or 7.090%).	
TOTAL UNITS GENERATED	= Electricity (Steam + Hydro + Diesel) + Air Units Generated at Steam Driven Stations + Steam Units Generated (Brakpan).	
	= Steam 16,835,468,158 + Hydro 2,676,400 + Diesel 16,838,200,827 +	
	= 33,349,075,385	84,767,700 + 3,511,560
UNITS SENT OUT	= 16,926,480,087 + 15,777,115,134 (93.210% of Generated)	
		3,511,560

POWER PURCHASED, YEAR 1959.

Under-taking	Purchased From	Maximum Demands	UNITS
Border	East London Municipality	432 kVA	177,814
	Ermelo Municipality	106 kVA	105,900
Eastern Transvaal	Pretoria, City of—at Pinedene	—	22,228,696
Natal Southern	Durban, City of—at Canelands... ..	1,782 kVA	6,623,010
Rand and O.F.S.	Pretoria, City of—at North Rand	34,661 kW (April & June)	64,479,569
TOTAL UNITS PURCHASED			93,614,989 (0·636 per cent of Units Sold)

WATER (OTHER THAN SEA WATER) CONSUMED BY POWER STATIONS FOR THE YEAR 1959.

(Millions of Gallons)

Undertaking	Potable Water	Crude River Water	Water from Other Sources including Boreholes, Dams and Sewage
Border... ..	16	—	—
Cape Northern	146	—	—
Cape Western	209	—	—
Natal Southern	541	—	—
Natal Central	35	365	—
Rand (including Witbank Power Station)	268	14,817	215

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 1959

(See previous Annual Reports for Rights or Interests in or over land acquired prior to 1959).

CAPE WESTERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£37,790	15	0
Servitudes acquired—capitalised payments amounting to... ..	£2,003	1	3

CAPE NORTHERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£2,650	0	0
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NATAL CENTRAL UNDERTAKING

Immovable property acquired for considerations amounting to...	£4,011	3	7
Servitudes acquired—capitalised payments amounting to	£2,971	5	3

NATAL SOUTHERN UNDERTAKING

Immovable property acquired for considerations amounting to...	£205	6	0
Servitudes acquired—capitalised payments amounting to... ..	£7,910	15	10

EASTERN TRANSVAAL UNDERTAKING

Immovable property acquired for considerations amounting to...	£2,200	0	0
Servitudes acquired—capitalised payments amounting to... ..	£14,791	18	2
Servitudes acquired—annual payments amounting to... ..	£44	0	10

Border Undertaking

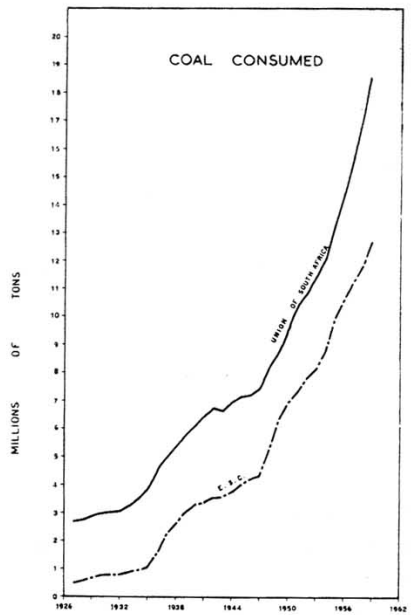
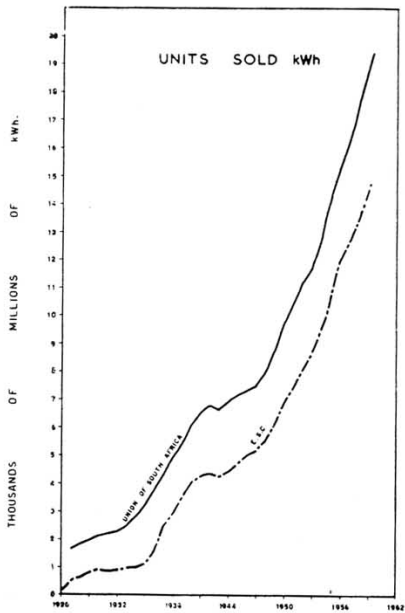
Servitudes acquired—capitalised payments amounting to... ..	£658	17	9
Servitudes acquired—annual payments amounting to... ..	£17	15	9

Rand and Orange Free State Undertaking

Immovable property acquired for considerations amounting to...	£4,268	18	7
Servitudes acquired—capitalised payments amounting to... ..	£38,796	15	3
Servitudes acquired—option moneys paid amounting to... ..	£11,815	2	0
Leases acquired—rental paid for office accommodation at Klerksdorp and Vereeniging amounting to	£820	8	3

COAL USED AT COMMISSION'S POWER STATIONS
Average Cost per ton (2,000 lb.)

Power Station	1949		1950		1951		1952		1953		1954		1955		1956		1957		1958		1959	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Brakpan	7	8	8	9	8	10	9	7	10	1	13	4	14	2	15	0	16	6	17	3	19	3
Colenso... ..	12	9	13	2	14	3	18	6	19	11	21	6	25	2	27	1	28	8	29	8	31	9
Congella	18	0	19	5	20	0	23	6	25	4	27	2	31	4	32	6	34	3	35	10	38	2
Hex River	—	—	—	—	—	—	32	10	35	4	37	0	38	11	40	7	41	9	45	5	47	0
Highveld	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	3
Kimberley Central	—	—	23	1	24	4	26	4	27	9	29	1	30	10	32	10	34	0	35	11	38	4
Klip	4	7	5	0	7	7	9	8	11	7	13	1	14	5	16	1	17	4	17	11	18	2
King William's Town... ..	29	6	31	8	33	1	37	2	39	9	42	5	45	8	46	10	48	5	48	1	45	5
Rosherville	8	5	9	5	10	7	12	9	15	0	15	6	16	6	17	2	18	9	19	2	20	5
Salt River	29	6	32	5	33	10	35	3	37	5	41	0	40	9	42	3	43	10	45	8	48	7
Taatbos	—	—	—	—	—	—	—	—	—	—	8	11	8	9	7	4	7	7	8	5	9	3
Umgeni	—	—	—	—	—	—	—	—	—	—	30	9	32	10	33	1	34	11	37	2	40	6
Vaal	4	9	5	4	5	11	6	8	6	10	6	10	7	2	7	1	7	3	7	3	7	5
Vereeniging	4	10	5	5	5	9	6	9	7	3	7	8	8	2	8	6	9	2	9	10	9	1
Vierfontein	—	—	—	—	—	—	—	—	9	5	8	2	8	4	9	8	11	0	12	3	12	3
West Bank	28	6	30	5	31	6	34	0	35	4	37	10	41	9	40	10	41	9	43	11	46	7
Wilge	—	—	—	—	—	—	—	—	—	—	8	1	7	9	7	10	8	11	9	1	9	8
Witbank	3	9	4	2	4	6	5	10	6	11	7	0	7	7	10	3	10	4	10	6	11	1



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

