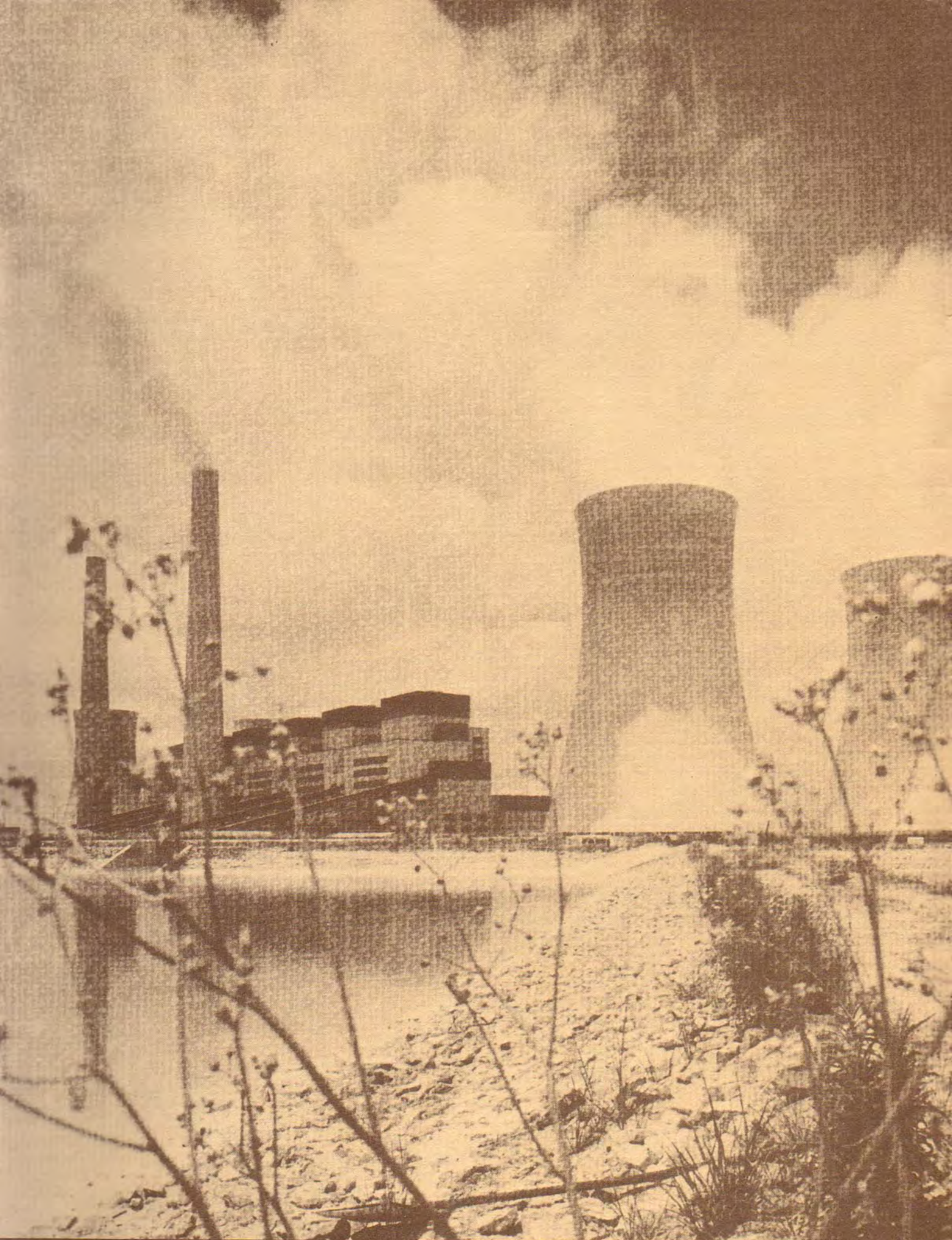


Kriel, one of Escom's new power stations on the Eastern Transvaal highveld. With an installed capacity of 14 434 MW, Escom is one of the world's larger electric utilities.

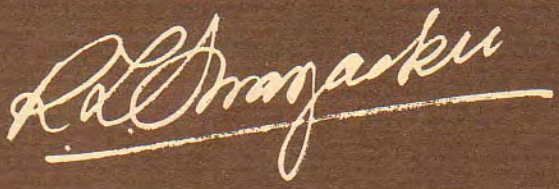
Electricity Supply Commission
Megawatt Park, Maxwell Drive, Sandton

The Minister of
Economic Affairs
House of Parliament
Cape Town

5 April 1979

Sir,

As required by Section 19 of the Electricity Act, 1958, the Commission has the honour to present its fifty-sixth Annual Report and Financial Statements covering its work for the financial year ended 31 December 1978.



Members of the Commission

Dr. R. L. Straszacker, *Chairman*

Dr. A. J. du Toit

D. J. Malan

E. Pavitt

Jan H. Smith

Dr. H. J. J. Reynders

Prof. G. Marais

Members of the Management Committee

General Manager
Jan H. Smith
Pr. Eng., M.A. (Oxon), B.Sc. (Oxon), B.Sc. (Eng) (Cape Town)

Assistant General Manager
I. D. van der Walt
Pr. Eng., B.Sc. (Elec. Eng.), B.Sc. (Mech. Eng.) (Witwatersrand)

Senior Manager (Operations)
I. C. McRae
Pr. Eng., B.Sc. (Eng.) (Witwatersrand)

Senior Manager (New Works)
N. T. van der Walt (until 14/4/1978)
Pr. Eng., M.Sc. (Eng.) (Witwatersrand)

J. L. Rothman (from 15/4/1978)
Pr. Eng., B.Sc., B.Sc. (Eng.) (Stellenbosch)

Commercial Manager
A. J. Levy
Pr. Eng., B.Sc. (Eng.) (Witwatersrand)

Administrative Manager and Chief Legal Adviser
P. J. T. Oosthuizen
B.A., LL.B. (U.O.F.S.)

Production Assets Manager
J. L. Rothman (until 14/4/1978)

G. A. Park (from 15/4/1978)
Pr. Eng., B.Sc. (Eng.) (Witwatersrand)

Financial Manager
L. te Groen
B.Comm. (Witwatersrand), C.A. (S.A.)

Personnel Manager
J. L. van der Walt
Pr. Eng., B.Sc. (Eng.) (Witwatersrand), B. Admin. (UNISA)

Regional Managers

Following the integration of the Central Generating Undertaking's regional activities with those of the distribution undertakings in September 1978, managers of undertakings have been appointed as regional managers.

Rand and Orange Free State Region

F. J. W. Barnard
Pr. Eng., B.Sc. (Eng.) (Stellenbosch), M.B.L. (UNISA)

Western Cape Region

R. P. A. Myburgh
Pr. Eng., B.Sc. (Eng.) (Cape Town)

Eastern Transvaal Region

T. P. O'Connor
Pr. Eng., B.Sc. (Eng.) (Natal)

Eastern Cape Region (including Border, Cape Eastern and Orange River Undertakings)

E. F. Otten
Pr. Eng., B.Sc. (Eng.) (Witwatersrand)

Northern Cape Region

J. P. Rodger
Pr. Eng., B.Sc. (Eng.) (Cape Town)

Central Generating Undertaking (since September 1978 intergrated with the Regions)

M. W. Walter
Pr. Eng., B.Sc. (Eng.) (Natal)

Natal Region

H. E. Wohlberg
Pr. Eng., B.Sc. (Eng.) (Stellenbosch)

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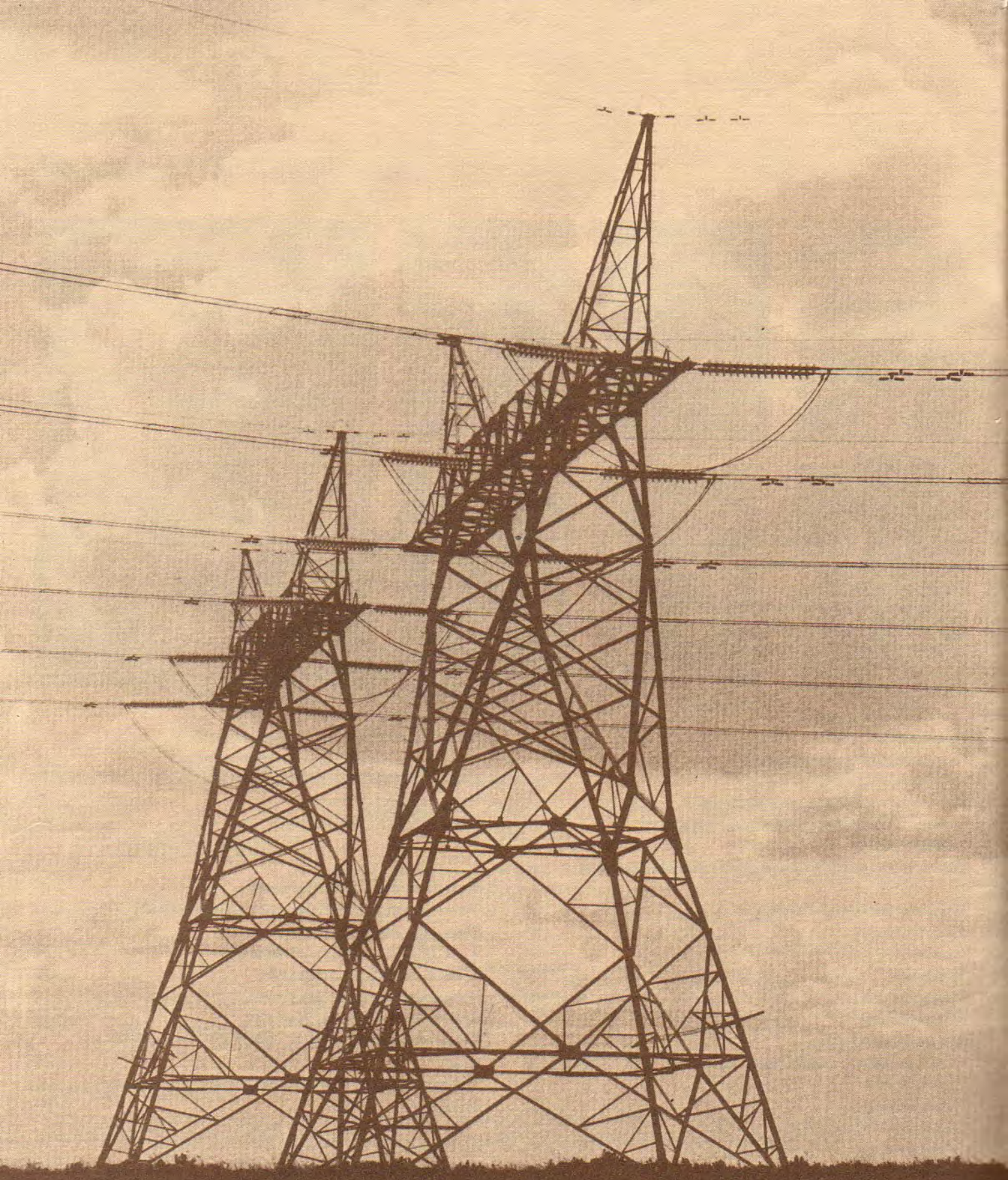


Escom's integrated national grid system serves load centres throughout the country. Economic growth in South Africa need never be hindered by insufficient electricity supplies.

Electricity supply in South Africa

Escom – the Electricity Supply Commission – generates about 90 per cent of the electricity used in South Africa. This is just under 60 per cent of the electricity generated on the entire African continent.

It is a utility organisation, established in 1923 in terms of the Electricity Act No. 42 of 1922. Its aim is to provide an abundant supply of electricity at cost to the entire nation so that economic growth will not be impeded now or in the future by too costly or by insufficient supplies of power.

South Africa was one of the first countries to use electricity on a commercial basis. The supply began in 1890 under the auspices of the individual municipalities, while some of the early mining houses also built their own power stations. These various separate power installations, however, could not cope with the growing demand for electricity and the need for a central and co-ordinated electricity supply organisation was increasingly being felt. This eventually led to the establishment of Escom.

The 10 per cent of the electricity used in South Africa but not supplied by Escom, is generated by a number of municipalities (which operate their own power stations but often also buy electricity in bulk from Escom to meet their requirements), some mines and industries. Escom supplies electricity to consumers throughout the South African subcontinent by means of a national transmission grid system. It provides electricity in bulk to municipalities, which have their own reticulation systems; in some areas and towns it serves domestic consumers directly. It also supplies power directly to most mines and other large organisations in the industrial sector.

Growth and economic factors

With an installed capacity of 14 434 MW, Escom is one of the larger electric utilities in the world. It serves a geographic area larger than the United Kingdom, Western Germany France, Austria and the Benelux countries combined.

Escom has contributed much to the exceptional economic growth experienced throughout South Africa

over the past 50 years, and the advantages of a national supply system are today of even greater importance than before.

Firstly, the system is a major factor in keeping the price of electricity as realistic as possible and currently Escom's price is low by world standards. The size of Escom's operations enables it to construct very large plant with concomitant economies of scale. The national grid system in turn, permits the siting of power stations where coal is cheapest and transmits electric power to distribution centres throughout the subcontinent.

While the cost of electricity to all consumers has increased over the past decade, the rate of increase has on an average been slower in areas (particularly coastal ones) remote from the Transvaal coal-fields, where the main power stations are situated. This has been to the economic advantage of such areas and has materially contributed to the levelling out of electricity tariffs throughout the country.

Secondly, while this integrated national grid system serves the major load centres throughout the country, it also facilitates supply to the vast and remote areas between these centres. This means that electricity is being brought to small load centres at a cost below that of power generated locally from smaller plant. Furthermore it means that, once such a load centre is linked to the national grid, any future demands for electricity can be met from Escom sources and, even in the more remote parts of the country, growth is never impeded by insufficient supplies of electricity.

Thirdly, the fact that sufficient supplies of electricity are readily available will contribute to the development of all people and all nations in Southern Africa and the next decade will see significant growth in this respect. Escom is supplying electricity to neighbouring countries in Southern Africa and is fostering growth and economic co-operation which can only be to the advantage of everybody on the subcontinent.

As mentioned earlier Escom is also supplying additional generating capacity previously provided by the municipalities themselves. This has had the effect of relieving these municipalities of the attendant financing problems and of the need to find, in a difficult labour market,

additional skilled personnel to operate and maintain their own plant.

At the moment it takes approximately eight years to design, build and commission the first generating set in a power station and a further six years to complete the project. It is therefore necessary for Escom regularly to update its planning in order to meet the electricity needs of the country eight or more years into the future. This forward planning has become more difficult in recent years due to the unsettled economic circumstances, rampant cost escalation, the unreliability of sources of capital and environmental considerations.

Financing of Escom

The financing of Escom is similar to that of most business organisations, except that there is no share capital. Capital expenditure and debt servicing are financed from internal and external sources. The manner in which this is done is prescribed by the Electricity Act.

External finance is obtained by raising loans on both the local and overseas capital markets, and by the utilisation of trade finance arranged in conjunction with suppliers of capital equipment. While most of the external finance is used to fund capital expenditure, a proportion is used to refinance loans which are of too short duration to be amortised over their lives without undue strain being placed on electricity tariffs.

Internal finance, which is obtained by the retention of tariff income, is the only other source of funds available to Escom. In contrast to most companies, Escom does not depreciate its fixed assets but instead employs a system of fund accounting to amortise the loans used to finance them. The fund used to perform this function in respect of local loans is the Redemption Fund. Separate provision is made for the repayment of foreign loans. Together with the Redemption Fund (which is akin to a depreciation reserve), Escom has the Capital Development Fund (used to finance part of its capital expenditure) and the Reserve Fund. The moneys in these three funds are invested either in Escom stock or in other prescribed investments, and the interest earned thereon constitutes an additional element of financing.

Thus the capital commitments of

Escom (capital expenditure, loan repayments and increases in working capital) are met from either external or internal sources of finance. The former is obtained by borrowing, the latter by retention of tariff income.

The largest source of internal finance for Escom is the Capital Development Fund. This fund, together with the Reserve Fund, may receive contributions up to the equivalent of six per cent of Escom's unredeemed loans in any one year. The actual amount which is contributed is determined according to the amount of external finance which is available for Escom's financing needs. In 1977 and 1978, contributions were very close to the maximum allowed because of increases in capital expenditure, a reduced availability of external finance and the advisability of decreasing Escom's dependence on external finance.

The Reserve Fund is used by Escom to finance the replacement and general betterment of obsolete plant and machinery. It is also used to a limited extent for self-insurance purposes, thereby reducing premiums payable on insurance policies. In recent years, income from investments of the Reserve Fund has covered expenditure charged to it.

The Redemption Fund operates on a sinking fund basis. Contributions to the Fund together with income from investments of the Fund ensure that sufficient finance is available for the redemption of local loans.

Escom is an important borrower in the local capital market and, to a lesser extent, in the foreign capital market. It currently makes two public issues a year, normally in April and October. It also makes use of foreign finance in the form of import financing facilities, direct placements and syndicated bank loans. When the Eurobond market was open to South African borrowers, Escom floated many issues.

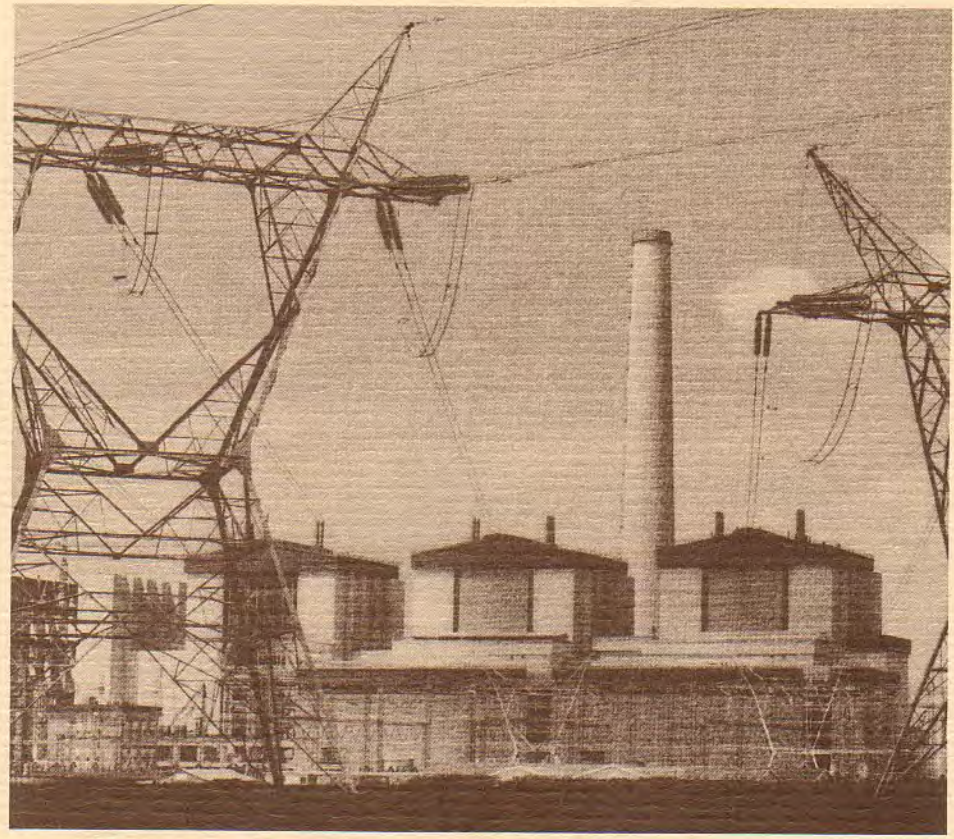
Over several years Escom has developed and promoted an active secondary market in its local registered stock. Because its internal funds are invested primarily in its own stock, Escom is able to buy and sell such stock on behalf of these funds. In the past two years this operation has been an additional source of finance for Escom, the internal funds having been net sellers of Escom stock. As a result, Escom has been able to reinvest the proceeds from these sales in new Escom issues.

Escom's organisational structure

Escom is headed by a board of seven commissioners, appointed by the State President, and broadly representing the interests of commerce, industry, consumers, the Government and the electricity supply industry itself. The Chairman and General Manager are assisted by a management committee of nine members, who are all full-time Escom employees.

Escom's head office is in Sandton from where matters of a national nature are dealt with. These include corporate control over the organisation's 22 power stations and its national grid system, the planning, design and construction of new works, finance, electricity sales, production assets and personnel. As far as the distribution of electricity to consumers is concerned, the country is divided into undertakings or licensed areas of supply. Each is headed by a regional manager who, since 1978, has also been responsible for the power stations operating in his region. There are regional head offices in Cape Town, East London, Durban, Witbank, Johannesburg and Kimberley.

Sufficient supplies of electricity will contribute to the development of all people and nations in Southern Africa. Escom's expansion programme provides for growth in this respect.



Matla, a 3 600 MW power station at present under construction in the Witbank area. It takes more than 14 years to complete a project of this nature.

Statistical highlights

Operating statistics for the year

Escom's share of electricity sent out in the Republic of South Africa	90,3 per cent
Total electricity sent out by Escom	77 826 million kW.h
From Escom power stations	70 902 million kW.h
From foreign sources (Cabora Bassa and Paul Sauer power station)	6 924 million kW.h
Total electricity sold by Escom	72 797 million kW.h
Total coal burnt in Escom power stations	39 589 500 tons
Total water consumed in Escom power stations	207 610 megalitres

Escom plant in service at 31 December 1978

Total nominal generating capacity:
183 boilers with a total steam-raising output of 14 916 kg/s
143 turbo-generators, including gas-turbine and hydro-sets, with a total power output of 14 434 MW

Major overhead transmission lines:
Direct current:

533 kV (monopolar)	1 030 km

Alternating current:

400 kV	7 261 km
275 kV	5 919 km
220 kV	1 343 km
132 kV	11 498 km
88 kV and below	80 256 km

Underground cables:

132 kV	20 km
33-88 kV	375 km
22 kV and under	6 648 km
Capacity of transformers	118 253 MVA

Financial

Total revenue for the year	R1 301,8 million
Total charges against revenue for the year	R1 234,5 million
Total capital investment in commercial operation at 31 December 1978	R3 564,6 million
Average cost per kW.h sold	1,696 cents
Average price per kW.h sold	1,788 cents

Total staff employed at 31 December 1978 41 040

Chairman's review

Demand for electricity continues to grow

The past year was a testing period for South Africa politically and economically. It was significant that the South African economy was able to enter the early stages of an upturn in the business cycle in spite of the enormous pressures on the country.

Yet, despite the relatively slow growth rate of the economy, Escom's sales in 1978 were 8,4 per cent higher than the 1977 figure. This increase was below the average growth rate of 9,3 per cent over the five-year period 1973-1978, but considerably higher than the growth of 5,9 per cent recorded in 1977.

The annual growth rate in the demand for electricity is determined by a number of factors. Firstly, the growth in the supply of electricity must at least equal the long-term growth rate of the economy. Secondly, the electricity share of the final net energy consumption is increasing. At the moment this share is approximately 20 per cent, but it is expected to increase to between 30 and 40 per cent by the end of this century. Thirdly, Escom's share of the electricity generated in South Africa is expected to rise from about 90 per cent as at present to more than 95 per cent by the end of the century. This rise is accounted for by the additional electricity requirements of those municipalities which have their own power stations but will not install additional generating plant or replace

generating plant which becomes unserviceable.

These factors collectively indicate that the growth rate in the demand for electricity should be between 6 and 9 per cent per annum, which is about 3 to 4 per cent higher than the long-term growth rate of the economy. It is expected that this growth pattern, which has already established itself over a number of years, will continue at least until the end of this century.

It is important to note that this growth rate can only be changed if the above-mentioned influencing factors change; constraining Escom's expansion programme itself will not lead to a diminished demand for electricity.

While electricity sales are dealt with in more detail elsewhere in this report, I want to point out that the industrial and mining sectors will continue for some time to be the major consumers of Escom power, but geographical diversification of industry into previously underdeveloped areas will become a major factor in future electricity supply.

Supplies of electricity to the independent Black states of Transkei and Bophuthatswana are increasing. It is expected that the industrial areas of

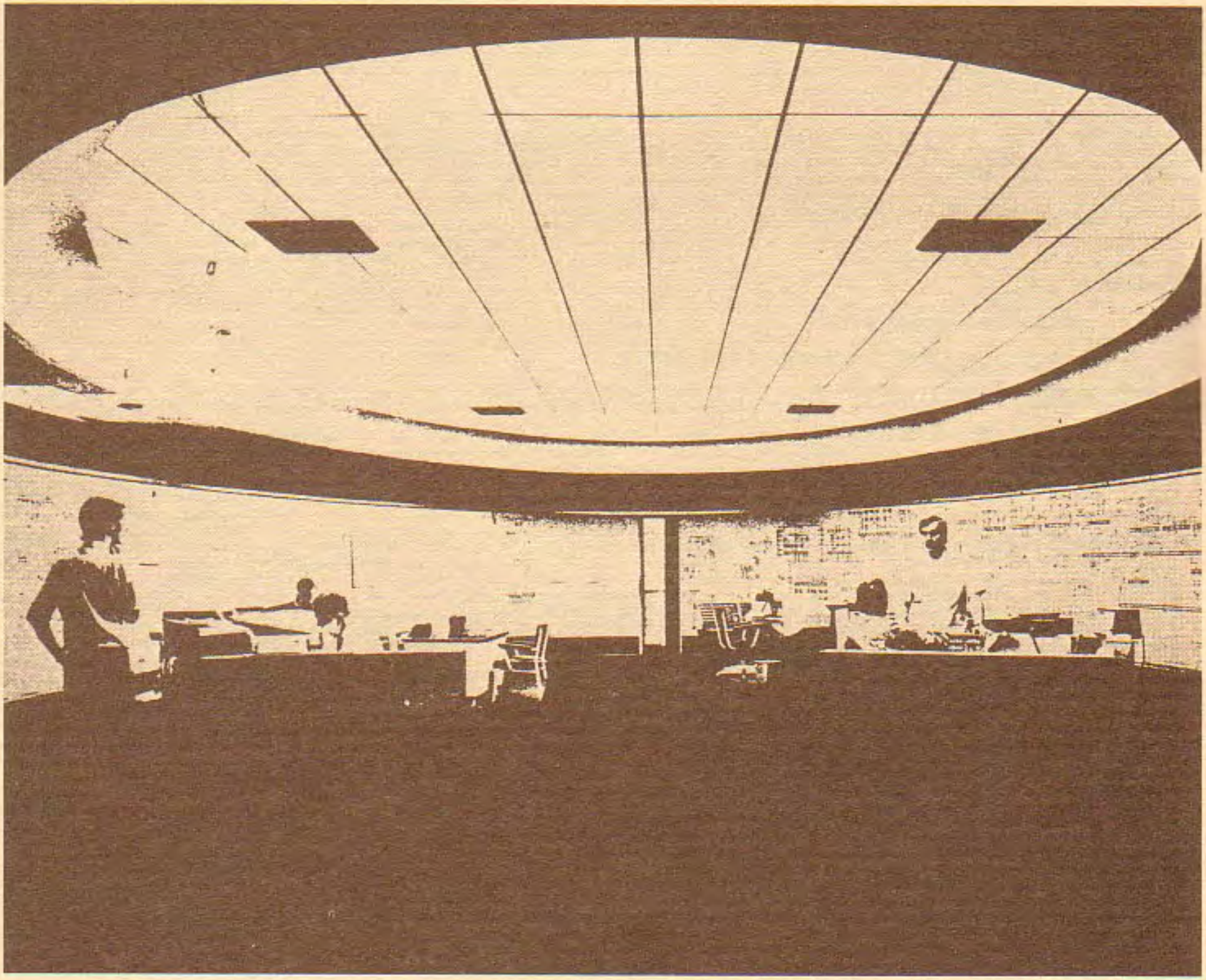
the Homelands will also increase their power demand significantly.

The supply of oil to South Africa has become a major factor influencing the demand for electricity. The steadily increasing price of oil will cause a further swing to coal and electric power. It will be expected of Escom to meet this additional demand for electricity.

While Escom's present plans for expansion are such that the anticipated increased demand in the next few years should be met without much difficulty, I want to emphasise that there are a number of factors which have a profound effect on our ability to continue to meet the demands made on Escom.

Availability of capital

In the first place, the high growth rate of Escom relative to the growth rate of the economy of the Republic poses a serious problem from the capital investment point of view. It is evident that Escom's share of the gross domestic fixed investment is growing and is likely to continue to do so for some considerable time. The financing of Escom's future expansion programme will,therefore, continue to

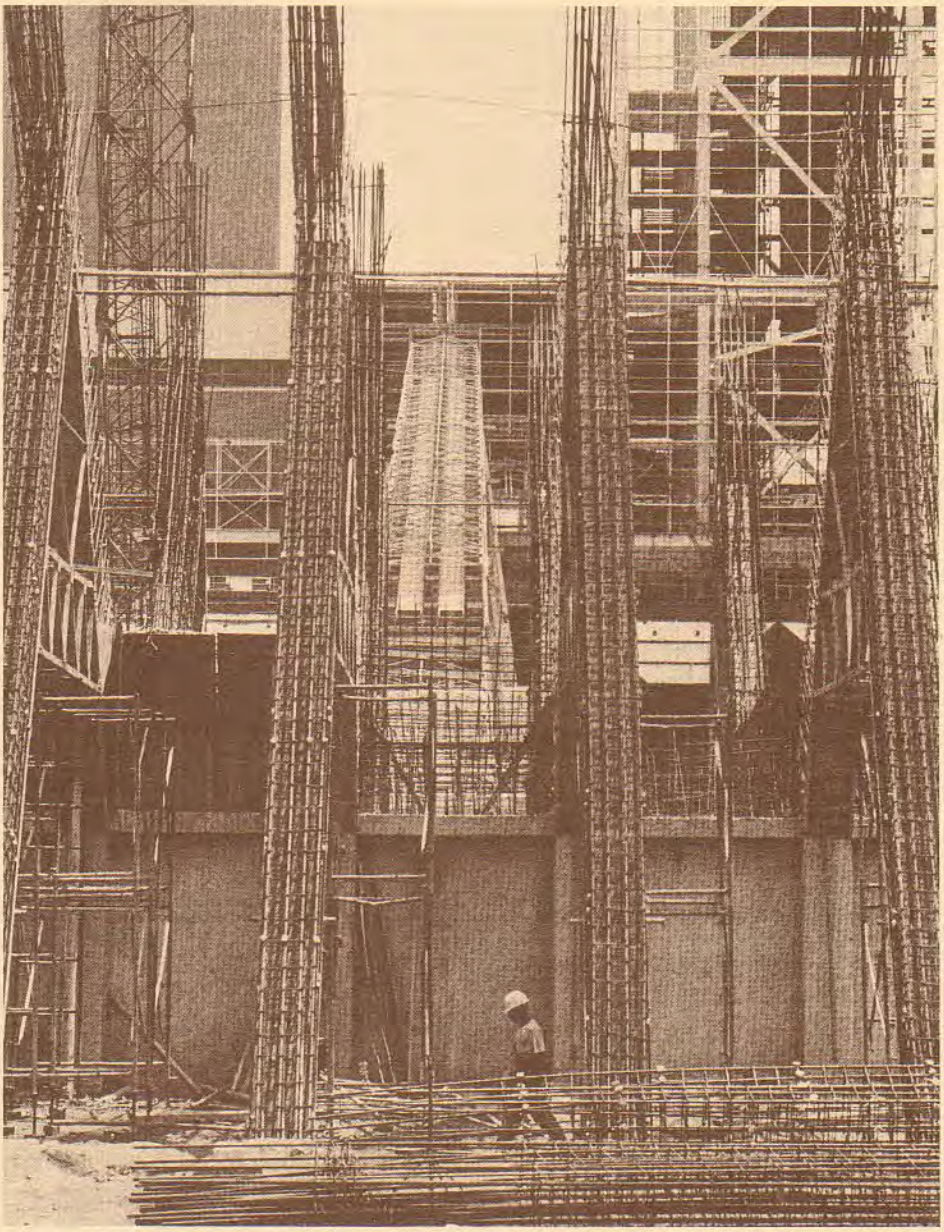


National control centre at Simmerpan. Escom's national grid system facilitates the geographical diversification of industry.

remain a serious problem. It is essential that a satisfactory solution to this problem be found. Curtailment of the expansion programme is clearly not the solution: should an adequate supply of electricity not be available when required at some future date, the implications for the economy of the country could be very serious indeed. Furthermore, such a situation could then not be rectified speedily because of the very long lead time required to bring new generating plant into service.

Despite views expressed to the contrary it seems inevitable that a significant degree of internal financing by Escom will continue to be necessary in the future. It is most unlikely that Escom will be able to obtain a very high proportion of its capital needs from external sources, both locally and overseas, to enable it to reduce appreciably its level of internal financing. In fact, the best guarantee that it will continue to be able to attract external investments is for Escom to continue to provide an appreciable amount of financing from tariff income – of this fact there is ample evidence.

Fortunately the difficulties experienced with capital requirements over the past few years and which contributed in no small way to the steep tariff increases during this period,



Construction work at Duvha (3 600 MW). Projects such as these represent vast capital outlays which pose a serious financing problem; curtailment of growth in the demand for electricity is, however, not the solution.

have for the time being eased through the increased availability of internal financing.

The rate of contribution to the Capital Development Fund in 1978 was close to the maximum permitted by the Electricity Act and will be maintained at this level for 1979. The tariff increases announced for 1979, therefore, were not again aggravated by the need for internal financing above the levels already provided for in the 1978 tariffs. The 1979 tariff and adjustments were necessary only to offset unavoidable increases in loan servicing costs, fuel costs and other operating and maintenance costs. The increase in average revenue per kW.h sold is once again comparable with and probably lower than the increase in the wholesale price index or other general measures of inflation.

As a result of the more favourable financial climate in which Escom now operates, future tariff adjustments should not exceed the inflation rate.

Availability of specialised staff

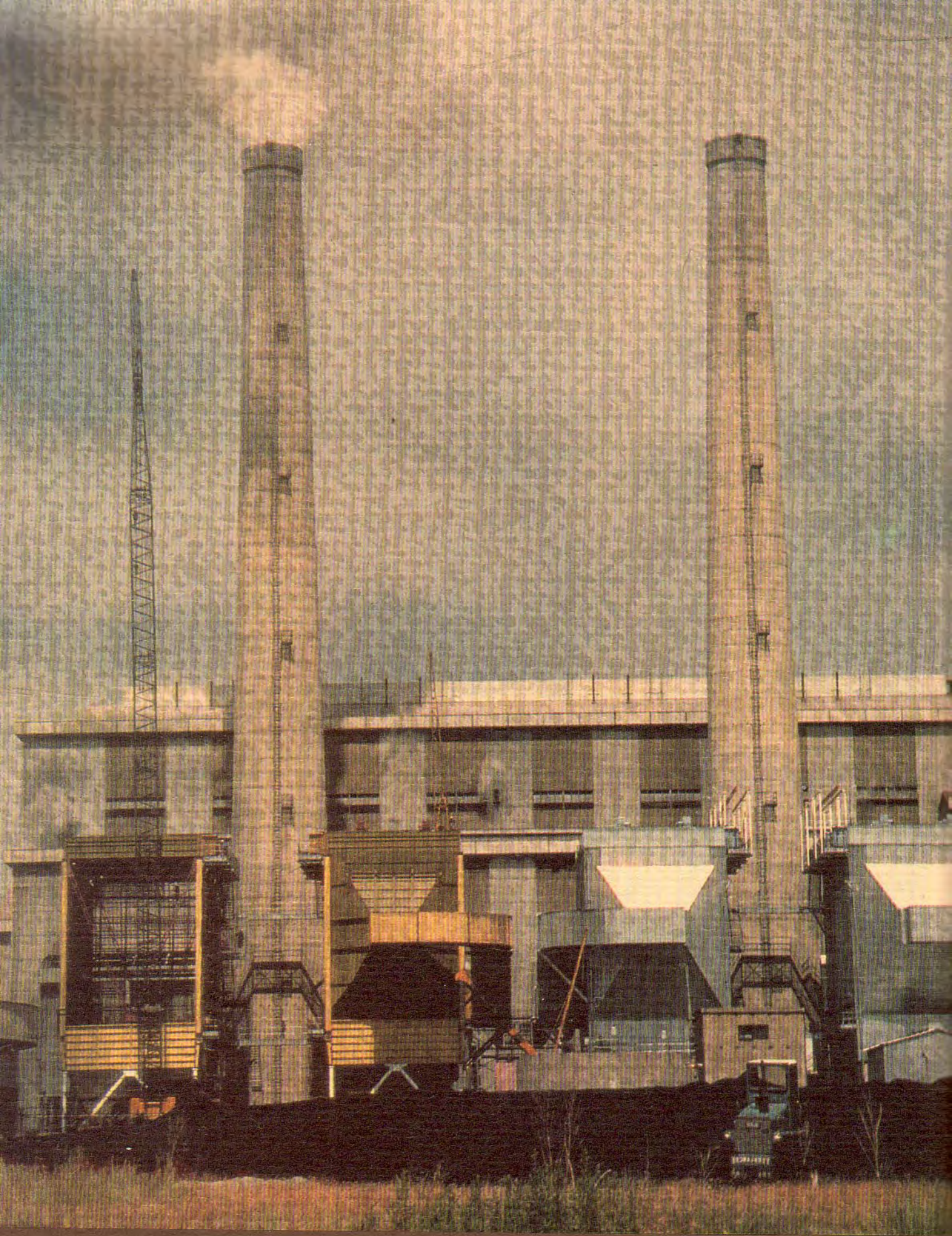
In the second place, our ability to cope with the growth in the demand for electricity is closely linked to the availability of specialised staff.

Escom is experiencing a shortage in this respect. The situation is critical in certain areas. Not only is this hampering the implementation of Escom's expansion programme, but it poses a threat to the smooth running of the organisation.

The complexity and sophistication of modern electricity supply necessitate the services of exceptionally highly qualified and experienced persons who, understandably, have a high market value anywhere in commerce and industry. The matter is constantly receiving management's serious attention.

Problems with siting, routing

Thirdly, the siting of new power stations and the routing of new transmission lines have rightfully become major issues in our environment-conscious society. As an organisation whose activities unavoidably have an impact on the environment, Escom is most sensitive to such issues, and I shall comment more fully on this towards the end of my review.



Air pollution control in action at Highveld power station. Stack on the right has been fitted with an electrostatic precipitator.

It is, however, imperative that decision-making affecting siting and routing, and involving various interested parties outside Escom, does not become a cumbersome process which unduly delays the commissioning of new plant and equipment. Already the lead time for the first turbo-generator of a new power station is between eight and ten years. It requires careful forward planning to have such a power station, representing a vast capital outlay, in operation at exactly the time its power is needed. If this lead time is unexpectedly increased, as can happen if we fail to expedite the siting and routing process, we may well find ourselves with insufficient supplies of electricity.

Revenue, costs and capital expenditure

The marked recovery in the demand for electricity in 1978 after the fall-off experienced in 1977, was largely responsible for Escom ending the year with a surplus of R67,4 million. This meant that for the first time in seven years Escom's accumulated deficit could be eliminated, leaving an overall surplus of R61,8 million. This, together with the maintenance of the present healthy internal financing contribution, improves our ability to borrow money from overseas sources.

This surplus will be carried forward into 1979 and will contribute towards off-setting any tariff increase that may become necessary in 1980.

Escom's total revenue for 1978 was R1 301,8 million, 26 per cent above the figure for 1977. Charges to the Electricity supply account amounted to R1 234,5 million (up 24 per cent). The average price per kW.h sold increased by 16,5 per cent from 1,535 cents in 1977 to 1,788 cents in 1978.

Capital expenditure in 1978 amounted to R1 229,9 million (R982,8 million in 1977). This was an increase of 25 per cent over the figure for 1977. As in previous years the factors which contributed to this increase were the sustained growth in the demand for electricity, continued escalation in the price of capital goods and the lengthy lead time for new plant.

Board of Trade and Industries investigation

During 1978 the Board of Trade and Industries completed its investigations

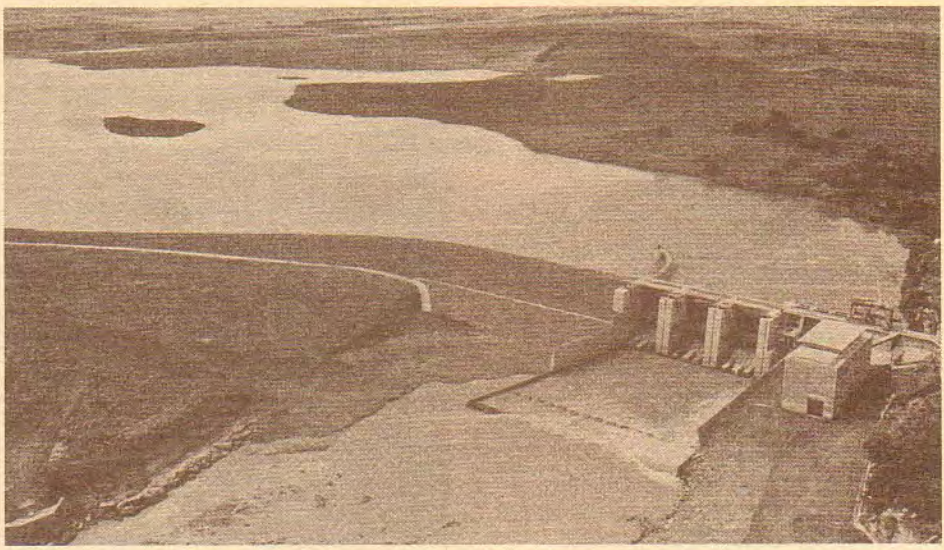
into the tariff policy and tariff structure for the supply of electricity to South Africa. The investigations, started in 1977, were undertaken at the request of the Minister of Economic Affairs.

Concern for the environment

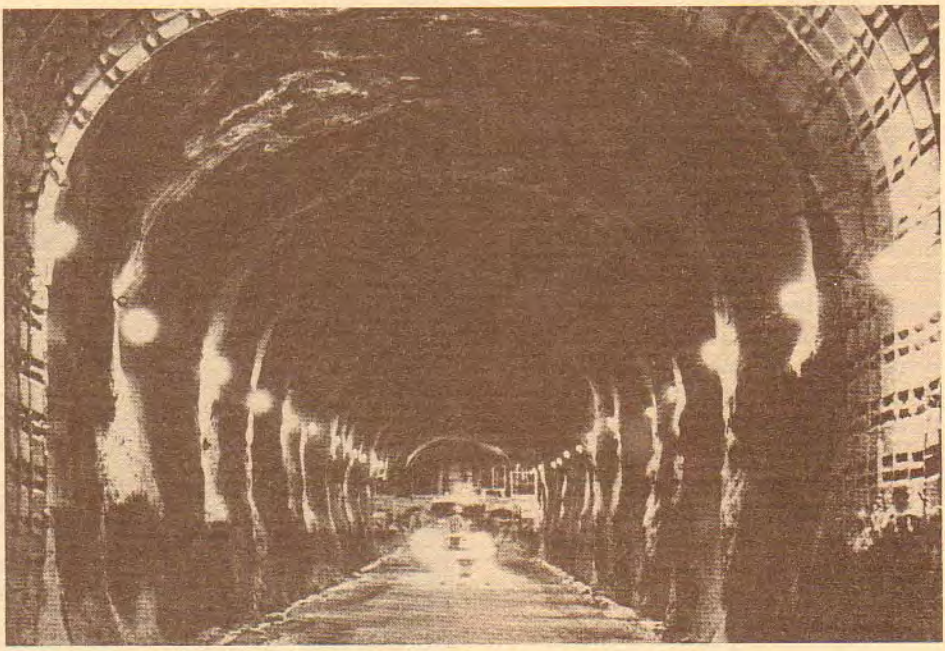
As I pointed out earlier in this review, Escom's activities unavoidably have an impact on the environment, but our efforts to minimise this impact are not widely known.

Escom co-operates closely with the Department of Environmental Planning and Energy, the Department of Health, the Department of Agriculture, the Department of Water Affairs, the Council for Scientific and Industrial Research and with the Environmental Planners Inter-disciplinary Committee. In addition Escom keeps in touch with a number of national and localised groups interested in the environment.

Concerned by emissions from coal-fired power stations and other



Driel weir, part of the Drakensberg scheme. Environmental aspects were from the outset treated as an integral part of the project.



The access tunnel leading to Escom's first pumped-storage power station, now under construction in the Drakensberg. The power station is completely underground and the visible structures outside – such as transmission lines and the tunnel entrance – will blend in with the surroundings.

industries on the Eastern Transvaal highveld, Escom is taking extensive measures to combat air pollution in this area.

Operating and maintenance procedures are being developed to improve the efficiency and reliability of electro-static precipitators used to control fly-ash emissions. Existing stations, equipped with less efficient cyclone type dust collectors, will also be fitted with precipitators. The installation of precipitators at Komati power station, for example, will cost approximately R20 million.

Air pollution from Koeberg nuclear power station is insignificant compared to that from conventional coal-burning power stations. The Department of Health and the Atomic Energy Board, however, have laid down stringent discharge limits for radioactive contaminants, and monitoring equipment will be installed to ensure that these limits are met.

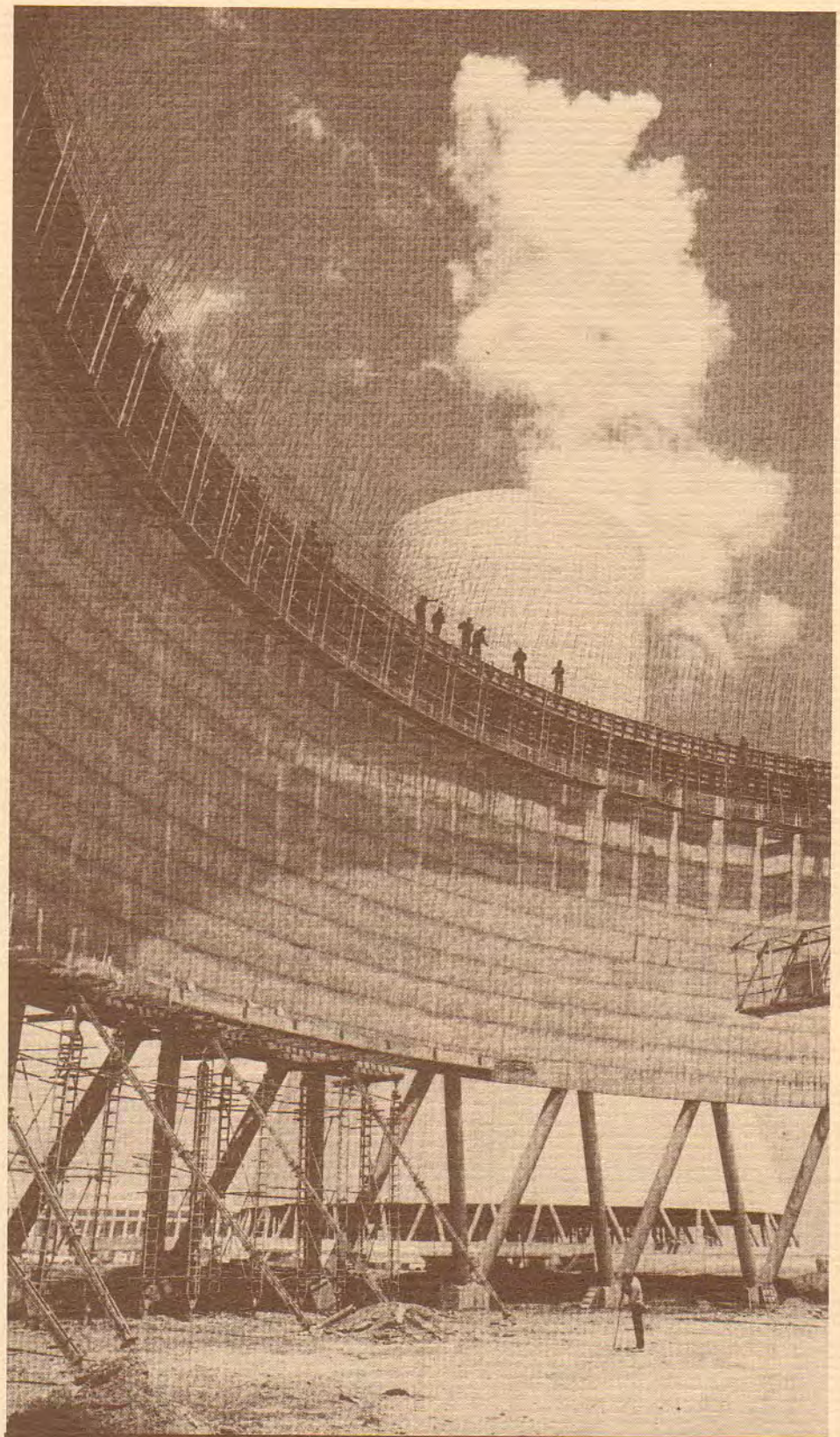
It is unlikely that radiation levels above those of the natural background will be detectable outside the Koeberg site.

Concern has also been expressed about the possible effects which the rise in the temperature of the sea-water, used for the cooling of the turbo-generator condensers at Koeberg, will have on marine fauna. Studies by the Zoology Department at the University of Cape Town, commissioned by Escom, indicate that the rise in temperature will be restricted to a specific area in which marine life similar to that in False Bay will evolve.

The Drakensberg pumped-storage scheme is an outstanding example of how the impact of unavoidable industrial development in an area of exceptional scenic beauty is virtually eliminated.

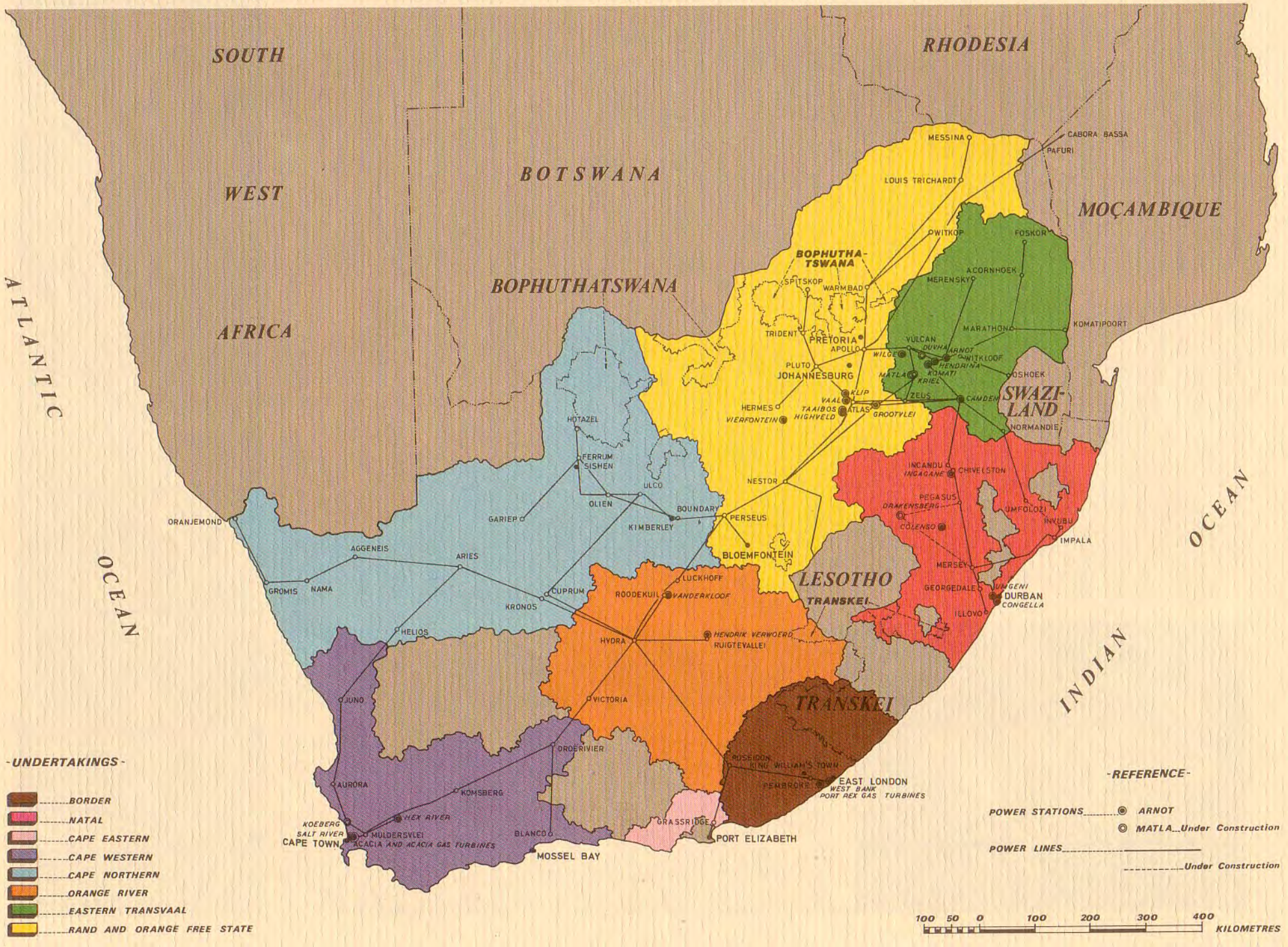
This was achieved by treating environmental aspects from the outset as part of the overall project, and by involving all interested parties by way of an environment committee, set up by the Department of Water Affairs. Its members include representatives from the Department of Environmental Planning and Energy, the Council for the Habitat, the Natal Parks Board, local authorities and Escom.

Escom's environmental record is good, but we are determined to improve upon it. This is why we are spending so much time and effort on continuous research into the matter.



Cooling tower construction at Duvha. Escom is taking extensive measures to combat air pollution on the Eastern Transvaal Highveld.

Escom map showing undertakings and national grid



Report of the General Manager

Electricity sales

In spite of the low economic growth rate in South Africa last year, Escom's electricity sales of 72 797 million kW.h were 8,4 per cent higher than sales in 1977. It is interesting to compare this growth in sales with the longer term experience of an average 9,3 per cent growth rate in sales in the five years from 1973 to 1978 and 9,2 per cent over the 15-year period from 1963 to 1978.

The consistently high annual growth in electricity sales over decades which included periods of setback as well as recovery in the South African economy, is in part explained by the continuous substitution of electricity for other forms of energy as well as by the progressive increase in Escom's share of the total national electricity supply. But the demand created by the ongoing development of the energy-intensive mining and base metal sectors of primary industry has also been an important factor.

The significance of the industrial and mining sectors in Escom's total

electricity sales can be seen from Table 1 on page 15. In 1978, electricity sales to the industrial sector made up 33,2 per cent of Escom's total sales. Sales to this sector rose by 12,0 per cent in 1978. Industrial growth in the economy was broadly based but major new developments contributed to this increase.

Mining consumers accounted for 30,5 per cent of Escom's electricity sales in 1978. Sales to this sector increased by 10,3 per cent. As can be seen from Table 2 on page 15, the gold-mining sector (including uranium) remains the largest consumer of electricity in the mining industry.

Bulk sales (Table 1) are mainly to municipal electricity undertakings. The 1978 growth rate in this category was 4,7 per cent.

Growth in Escom's electricity sales to electrified railway systems (Table 1) were, for the second successive year, substantially below the longer-term trend of about 4 per cent per year. Sales in this category are expected to improve in 1979 with better economic conditions and with the commissioning of electric traction on the Sishen-Saldanha route. The latest oil price and supply crisis points to a further major expansion in railway electrification in the near future.

Sales listed in Table 1 include supplies to the neighbouring territories Bophuthatswana, Lesotho, Mozambique, Rhodesia, South West Africa, Swaziland and Transkei. This constitutes approximately 2 per cent of Escom's total sales.

Tariffs

In 1978 the average revenue per kW.h sold was 16,5 per cent higher than the figure for 1977. This compares with increases of 48 per cent in 1977 and 30 per cent in 1976.

These sharp rises in 1976 and 1977 were in marked contrast to the rates of

Undertaking	Discount or surcharge as at December 1978	Discount or surcharge for the year 1979	Effective increase
Border	5% discount	No discount or surcharge	5,3%
Cape Eastern	40% surcharge	45% surcharge	3,6%
Cape Northern	112,5% surcharge	112,5% surcharge (no change)	Nil
Cape Western	No discount or surcharge	5% surcharge	5,0%
Eastern Transvaal	77,5% surcharge	87,5% surcharge	5,6%
Natal	5% discount	5% discount (no change)	Nil
Orange River	30% surcharge	37,5% surcharge	5,8%
Rand and O.F.S.	97,5% surcharge	108% surcharge	5,3%

increase for the earlier period up to the middle 1970s. In that period, Escom's tariff increases were generally lower than typical indices of cost inflation such as the wholesale price index.

In the 25-year period from 1950 to 1975 the average annual increase in revenue per kW.h sold was 4,35 per cent and in the 10-year period from 1965 to 1975 the average rise was 4,60 per cent. (The figures can be seen in Statement 7 on page 58.)

The reasons for this sudden and marked climb in tariffs during the past three years are twofold:

- escalation of capital and operating costs;
- the increasing use of tariffs for financing expansion to meet continued load growth.

Elsewhere in this report is a note on Escom's financing, and particular mention is made of the Capital Development Fund. Until 1976, the actual contributions from tariffs to the fund were limited to a small fraction of the total allowed by the Electricity Act. This was in an effort to contain tariff increases during a period of steep inflation despite an increasing shortage of capital, but during 1975 it was accepted by ourselves and by our governmental authorities that it had become essential to increase the contributions to the Capital Development Fund substantially. Time has shown the wisdom of this unpopular step, because it is now possible to face the future with great confidence as far as the supply of electric power is concerned.

By the mid-1970s Escom depended on overseas capital markets for a very large part of its financing. When access to overseas markets was partially curtailed, Escom was forced to move towards fuller implementation of the Capital Development Fund. Elsewhere in this report, it is indicated that the total internal financing, of which

the Capital Development Fund forms the larger part, amounted to 31 per cent of the total amount required for capital expenditure and the repayment of loans during 1978.

In 1976 and 1977, Escom's average prices per kW.h reflected the sharp rises in the cost of coal and other supplies as well as higher interest rates. The cost rises are still continuing, but hopefully at lower annual rates. It was most unfortunate that during this already onerous period, steep tariff adjustments had to be made to increase the contributions to the Capital Development Fund from earlier modest amounts to the substantial amounts authorised in terms of the Electricity Act.

The 1979 adjustments to the surcharges/discounts applicable to the respective standard tariffs of the different Escom undertakings are indicated on the previous page.

The effective increase in the standard tariff amounts to an average of 4,1 per cent in the Republic.

The overall average revenue per kW.h sold is affected not only by the tariff surcharges and tariff discounts, but also by changes in the proportions of sales at the different undertaking tariffs and by the inbuilt tariff mechanism for adjustments to the energy change rates in accordance with variations in the cost of coal.

Table 1
Sales of electricity to categories of consumers

Category of supply	1973	1974	1975	1976	1977	1978	Percentage increase 1978/77	Average yearly increase over 5 years per cent
			Million kW.h					
Bulk supplies	12 751	15 522	18 055	20 096	20 862	21 850	4,7	11,4
Direct supplies:								
Domestic and street lighting	1 106	909	1 014	1 132	*1 030	960	– 6,8	—
Industrial	14 026	16 105	18 049	19 907	21 586	24 182	12,0	11,5
Mining	15 800	16 941	17 444	18 746	20 139	22 219	10,3	7,1
Traction	2 895	3 108	3 307	3 475	3 508	3 586	2,2	4,4
Total	46 578	52 585	57 869	63 356	67 125	72 797	8,4	9,3
			Per cent of total					
Bulk supplies	27,4	29,5	31,2	31,7	31,1	30,0		
Direct supplies:								
Domestic and street lighting	2,4	1,7	1,8	1,8	*1,6	1,4		
Industrial	30,1	30,7	31,2	31,4	32,1	33,2		
Mining	33,9	32,2	30,1	29,6	30,0	30,5		
Traction	6,2	5,9	5,7	5,5	5,2	4,9		
Total	100,0	100,0	100,0	100,0	100,0	100,0		

*Change in definition of domestic use

Table 2
Sales of electricity to sectors of the mining industry, million kW.h

Mining category	1973	1974	1975	1976	1977	1978	Percentage increase 1978/77	Average yearly increase over 5 years per cent
Gold	12 263	12 803	13 108	13 918	14 708	16 241	10,4	5,8
Platinum	1 581	1 978	2 001	2 184	2 287	2 388	4,4	8,6
Coal	620	648	705	812	941	1 078	14,6	11,7
Copper	565	653	679	728	874	1 023	17,0	12,6
Diamonds	334	338	346	343	342	497	45,3	8,3
Asbestos	168	193	238	266	275	223	–18,9	5,8
Iron	86	104	121	180	271	272	0,3	25,9
Chrome	33	52	42	61	84	106	26,2	26,3
Antimony	42	51	53	61	76	73	–3,9	11,7
Manganese	27	30	37	49	62	72	16,1	21,7
Other	81	91	114	144	219	246	12,3	24,9
Total	15 800	16 941	17 444	18 746	20 139	22 219	10,3	7,1

Financial

Loans and capital markets

Conditions on both the local and overseas capital markets during 1978 were more favourable than in the previous year. Foreign financing in particular was more freely available, providing 31 per cent (1977, 20 per cent) of Escom's requirement for the year. A further 31 per cent was obtained from the internal sources allowed in terms of the Electricity Act and the balance of 38 per cent was obtained from South African sources. The approximately equal contributions by these three sources are illustrated in the accompanying circle diagram.

The nominal value of the finance obtained from financial markets during 1978 is shown in the table on the next page.

As can be seen from the table, Escom more than doubled its usage of foreign finance during 1978. This indicated a revival of confidence in South Africa (and particularly in Escom) after the reticence displayed in 1977. Foreign sources of finance provided R586,4 million (1977, R286,3 million) and in so doing surpassed the R500 million which was invested in Escom in 1976. Nearly 42 per cent of the foreign finance was raised by way of direct placements, a proportion of which were renewals of maturing agreements. Export finance arranged in conjunction with overseas suppliers of capital equipment constituted the other major source of funds. The terms of this particular type of financing have been attractive.

Because of the higher availability of foreign finance, Escom was able to place a lesser demand on local sources of finance during 1978. As can be seen from the table, the utilisation of local finance decreased mainly as a result of the non-employment of short term borrowing. Escom took advantage of the improved liquidity in both the primary and the secondary markets to raise long-term debt via its internally registered stocks, and to repay R160,1 million of short-term paper. This action has strengthened Escom's funding position.

Because of the liquidity in the Republic during 1978 and the sustained decline in long-term interest rates, the investing public showed considerable interest in fixed-interest bearing securities. Net sales on the secondary market of Escom internally registered stocks amounted to R443,2 million (nominal) providing proceeds of R410 million. A further nominal amount of R167,1 million was raised by way of primary issues in April and October.

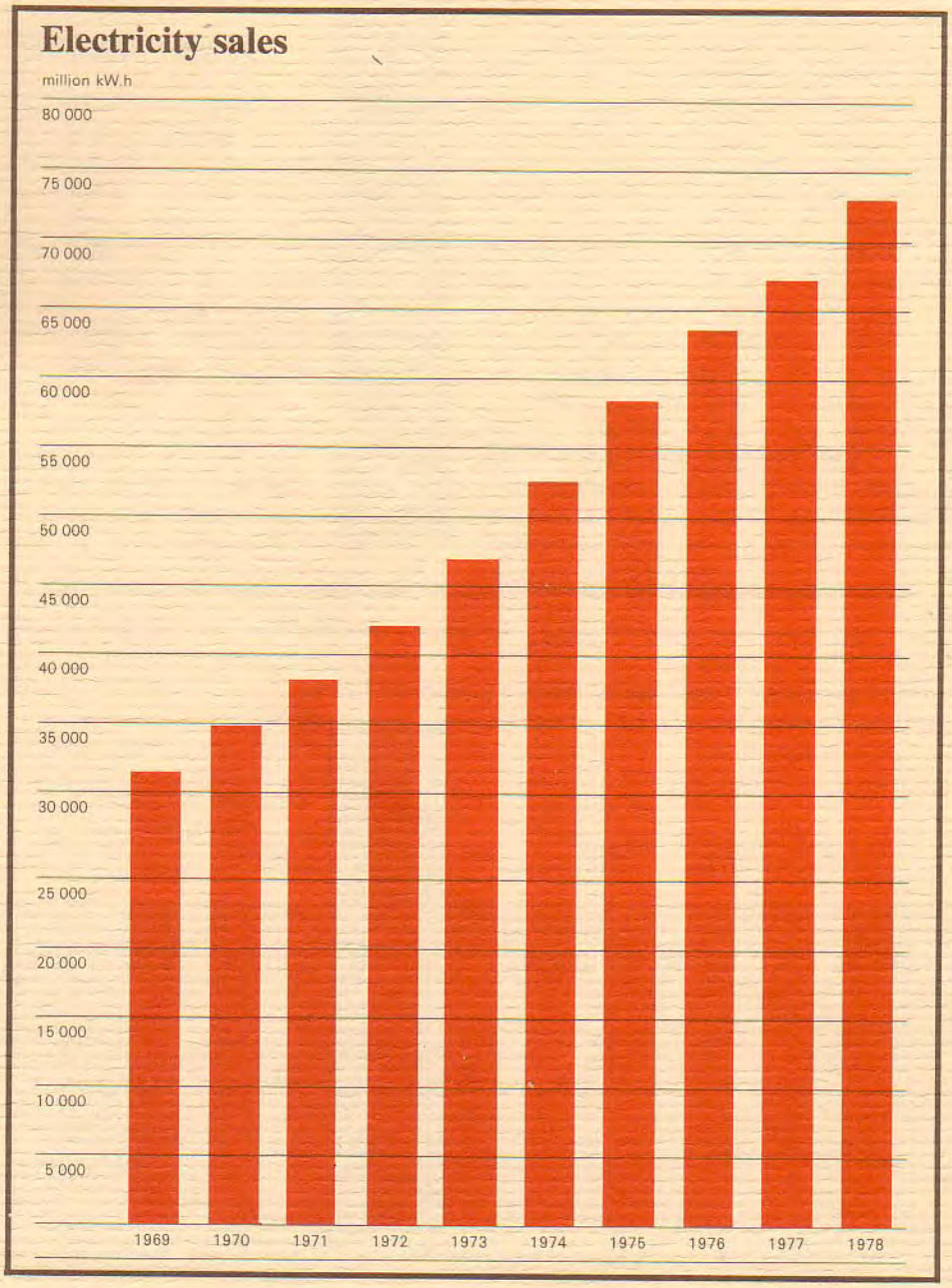
It is not expected that 1979 will see increased foreign investment in Escom, but it is hoped that the present degree of interest will be maintained. Consequently somewhat greater reliance will have to be placed upon South African investors. It is confidently predicted that the public will continue investing in Escom internally registered stock which is rapidly becoming accepted as a highly marketable security.

Internal financing

Escom generates finance internally via the Capital Development Fund, the Redemption Fund (for the repayment of local borrowings) and the Reserve Fund (for replacement of obsolete machinery or plant and general betterment thereof or in lieu of insurance). In addition, amounts are set aside for the repayment of foreign loans.

During 1978, contributions of R300 million were made to the Capital Development Fund whilst interest amounting to R70,2 million was credited to it. The fund now has a balance of R809 million (1977, R438,8 million and 1976, R181,6 million).

The Redemption Fund balance increased from R382,6 million at the end of 1977 to R448,6 million by 31 December 1978. No loan repayments



had to be met from the resources of the fund during the year.

Reserve Fund expenditure of R11 million was covered more than twice by the R22,5 million earned by the investments of the fund. In addition R0,9 million was paid into the fund as a contribution.

The final source of internal finance was R44,8 million set aside for the repayment of foreign loans as and when they mature.

Taken together, the above sources of internal finance provided 31 per cent of Escom's total requirement for capital expenditure and repayment of loans.

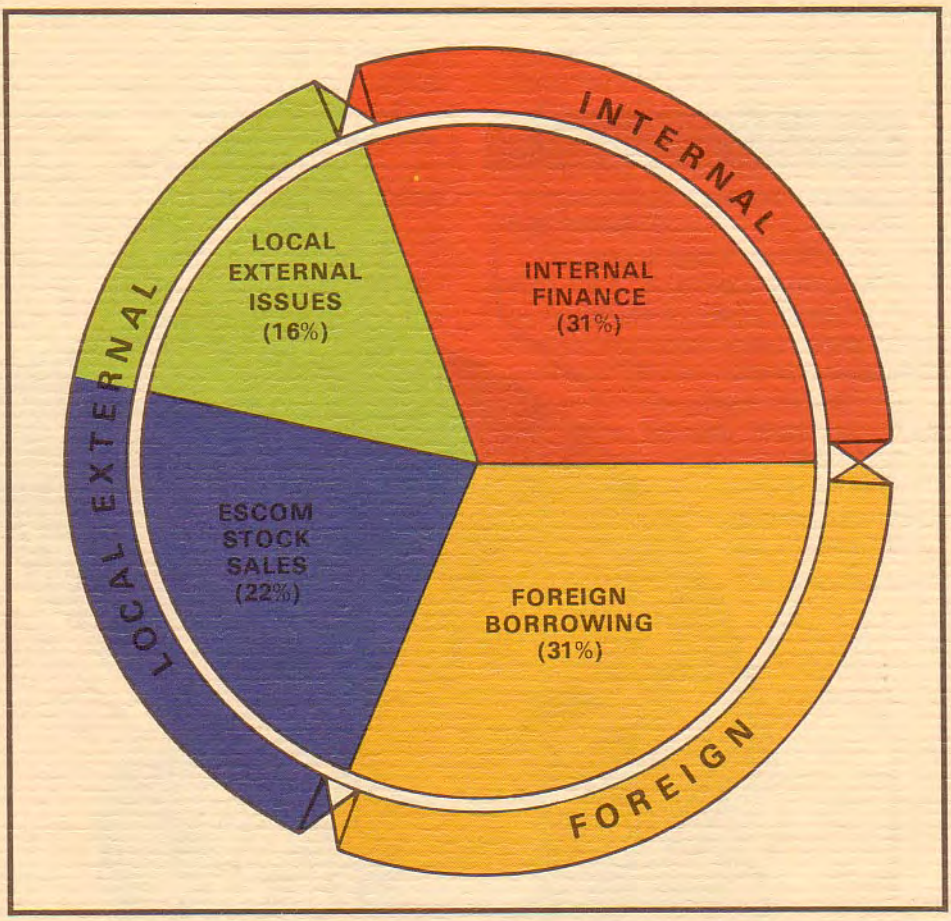
Capital expenditure

The amount of R1 229 891 000 expended on capital projects during 1978 represented an increase of 25,1 per cent over the 1977 figure of R982 792 000. This had the effect of increasing cumulative capital expenditure (at cost) to R5 411 271 000 (1977, R4 192 918 000) after a deduction of R11 538 000 in respect of assets which were removed from service during the year. Of the total cumulative capital expenditure, some 34 per cent was in respect of works still in various stages of construction as at 31 December 1978. This figure is higher than the 32 per cent in 1977 and 28 per cent in 1976. Part of the reason for the increase lies in the fact that works under construction represent costs which, by virtue of sustained two digit inflation since the early 1970s, are much higher than the cost of older assets which are in commission.

Reorganisation

During the last quarter of 1978 the activities of Escom's distribution undertakings and the generating function of the Central Generating Undertaking were regrouped into six regions. This means that from an organisational point of view the undertakings were replaced by regions, but from an accounting point of view the identities of the undertakings are preserved as separate statutory entities.

The regions, each headed by a regional manager who was formerly manager of the relevant undertaking, are known as Rand and Orange Free State, Eastern Transvaal, Natal, Northern Cape, Western Cape and Eastern Cape. The activities of the Eastern Cape Region include those of the Border, Cape Eastern and Orange River undertakings.



Rand million

Nature of external finance	1978 Total	1978 Local	1978 Foreign	1977 Total	1977 Local	1977 Foreign
Internal registered stocks	610,3	610,3		542,7	542,7	
Acceptance credits	50,0	45,7	4,3	27,0	27,0	
Direct placements	254,8	10,0	244,8	112,4		112,4
Import financing facilities	258,1		258,1	139,9		139,9
Foreign payment financing	16,8		16,8	17,4		17,4
Other short term finance	62,4		62,4	155,6	139,0	16,6
	1 252,4	666,0	586,4	995,0	708,7	286,3

Responsibility for the activities performed by the Central Generating Undertaking headquarters was transferred partly to the regions concerned and partly to the relevant departments of the head office in Sandton.

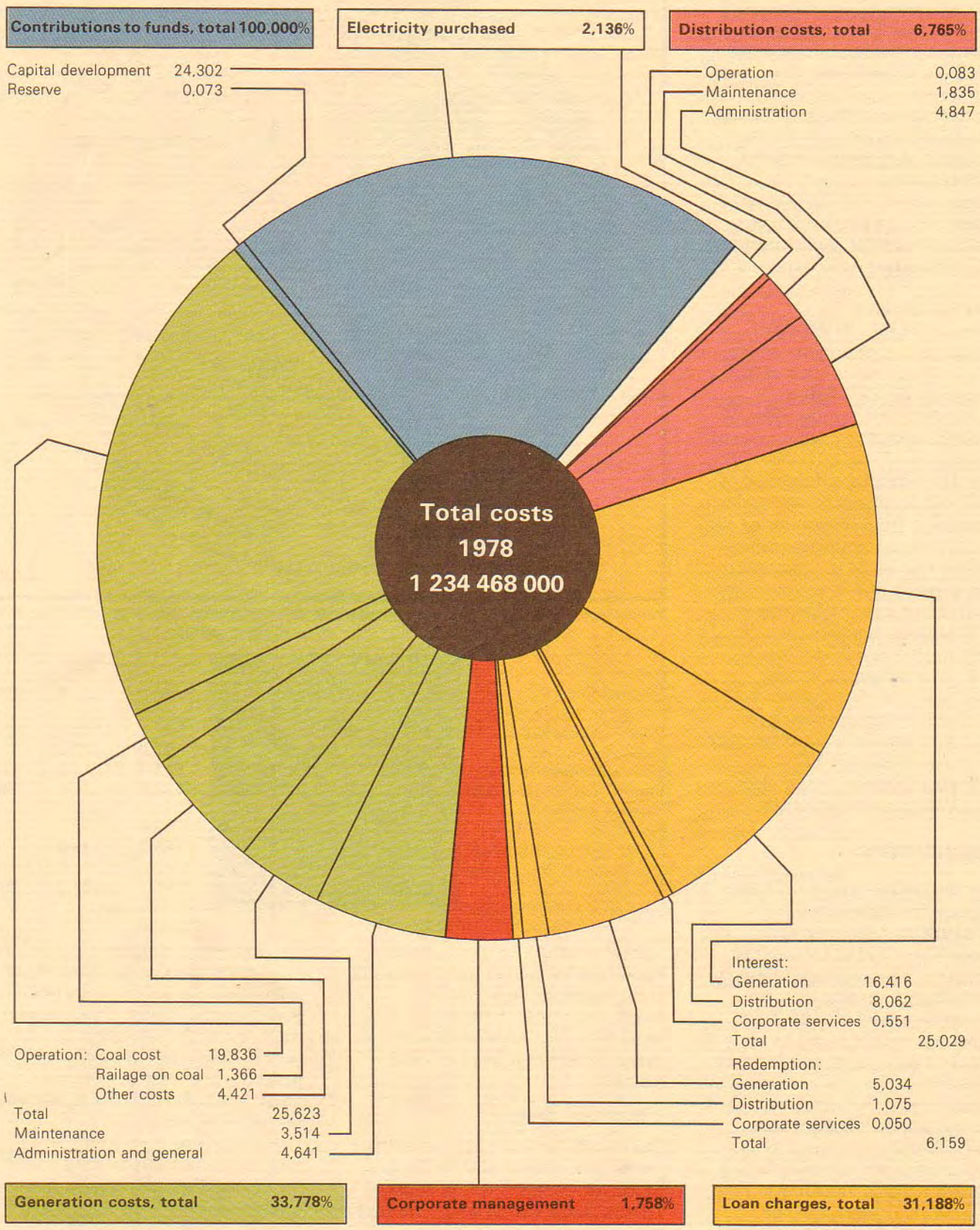
Plant loading

During 1978, 6 918,3 million kW.h of energy were imported from Cabora Bassa. The commissioning of the Cabora Bassa second stage (increasing the supply from 700 MW to 1 070 MW) which was expected early in the year, was delayed until 16 April 1978 as a result of problems with the third generating set.

There were a number of loss-of-load incidents in the Cabora Bassa-Apollo link during the year, but the technical quality of the Cabora Bassa supply was improved. An availability of 91,4 per cent was attained during the periods when supplies were not interrupted by the commissioning of the second stage.

The third and fourth 500 MW turbo-generator sets at Kriel power station were put into service. The two coastal stations, West Bank 1 and Congella, were decommissioned in May and December respectively. The sent-out rating of these two stations collectively was 111 MW.

Escom's reserve plant margin


Contributions to funds, total 100,000%
Capital development 24,302
Reserve 0,073
Electricity purchased 2,136%
Distribution costs, total 6,765%
Operation 0,083
Maintenance 1,835
Administration 4,847
Total costs
1978
1 234 468 000
Interest:
Generation 16,416
Distribution 8,062
Corporate services 0,551
Total 25,029
Redemption:
Generation 5,034
Distribution 1,075
Corporate services 0,050
Total 6,159
Operation: Coal cost 19,836
Railage on coal 1,366
Other costs 4,421
Total 25,623
Maintenance 3,514
Administration and general 4,641
Generation costs, total 33,778%
Corporate management 1,758%
Loan charges, total 31,188%

increased at the time of the integrated system peak load for the year to 23,9 per cent, inclusive of the 1 070 MW feed from Cabora Bassa (22,3 per cent in 1977).

The continued improvement in the plant position, enabled Escom further to reduce the load on the low merit stations. The coal consumed figure for the Western Cape was cut by 38,8 per cent (Statement No. 5 on page 54). In this area the load factor on Salt River power station was reduced from 37,6 per cent to 22 per cent and on Hex River power station from 26,1 per cent to 21,1 per cent. Coal consumed in the Eastern Cape and Natal fell by 26,3 per cent and 7,4 per cent respectively.

Cape stations met 13,0 per cent of Cape Western Undertaking's energy needs compared with 21,7 per cent in 1977. Stations burning railborne coal in Natal supplied 10,0 per cent of the energy to Natal Undertaking, a reduction of 2,0 per cent on the figure for 1977. Border Undertaking's dependance on locally generated electricity was reduced from 30,2 per cent in 1977 to 22,8 per cent in 1978.

Electricity generation

Energy supplied for distribution in 1978 was 77 826,3 million kW.h, an increase of 9,17 per cent on the 1977 figure. Kilowatt hours sent out from Escom's power stations rose by 5,7 per

cent in 1978, the balance being imports from Cabora Bassa (see Statement No. 7 on page 58).

The one-hour maximum demand in 1978 on the Escom interconnected system was 11 490 MW, an increase of 7,0 per cent on the maximum demand figure for 1977.

The system load factor for 1978, calculated on the total energy sent out to all consumers and the one-hour simultaneous peak demand was 77,3 per cent. This indicates the sustained demand on the power stations throughout the year. Statement No. 5 tabulates the output of the various Escom power stations for the year 1978. The coal-fired power stations supplied 97,32 per cent of the total

Table 3
Total electricity sales in Escom's undertakings, million kW.h

Undertaking	1973	1974	1975	1976	1977	1978	Percentage increase 1978/77	Average yearly increase over 5 years per cent
Border	504	551	598	675	727	779	7,2	9,1
Cape Eastern	9	11	13	14	22	30	36,3	27,2
Cape Northern	1 060	1 211	1 340	1 507	1 668	1 937	16,1	12,8
Cape Western	3 149	3 852	4 656	4 930	5 028	5 216	3,7	10,6
Eastern Transvaal	6 098	6 527	7 267	8 028	9 062	10 034	10,7	10,5
Natal	7 581	8 500	9 166	9 931	10 747	11 736	9,2	9,1
Orange River	239	786	915	1 035	1 037	1 047	1,0	34,4
Rand and O.F.S.	27 938	31 147	33 914	37 236	38 834	42 018	8,2	8,5
Total	46 578	52 585	57 869	63 356	67 125	72 797	8,4	9,3

Table 4
Electricity sent out to Escom's undertakings, million kW.h

Undertaking	1973	1974	1975	1976	1977	1978	Percentage increase 1978/77	Average yearly increase over 5 years per cent
Border	520,2	594,3	648,2	734,0	790,1	844,6	6,9	10,2
Cape Eastern	11,3	13,1	18,5	20,7	25,2	33,0	30,6	23,8
Cape Northern	1 182,6	1 345,9	1 494,9	1 674,6	1 832,4	2 170,7	18,5	12,9
Cape Western	3 495,8	4 241,3	5 098,6	5 402,8	5 555,9	5 817,7	4,7	10,7
Eastern Transvaal	6 205,4	6 679,0	7 309,6	8 122,1	9 400,4	10 358,1	10,2	10,8
Natal	8 041,1	9 087,1	9 671,5	10 471,1	11 319,8	12 457,8	10,1	9,2
Orange River	257,8	822,3	968,3	1 086,1	1 096,2	1 097,6	−3,3	32,7
Rand and O.F.S.	30 036,2	33 459,3	36 304,4	39 902,3	41 244,7	44 994,2	9,2	8,4
Central Generating Undertaking: own consumption	20,0	16,8	19,3	*—	**26,8	52,6	96,3	21,3
Total supplied	49 770,4	56 259,1	61 533,3	67 413,7	71 291,5	77 826,3	9,2	9,4

*Extraneous supplies, such as river pumps, townships, workshops, etc., previously regarded as Central Generating Undertaking's own consumption, are now included in the distribution undertakings' supplies and treated as sales to Central Generating Undertaking.

**Energy consumed at Hendrik Verwoerd, Vanderkloof, Acacia and Port Rex power stations when operated in the synchronous condenser mode.

kilowatt hours sent out, 2,66 per cent was derived from Escom's hydro-stations and the balance was contributed by the two gas-turbine stations. The overall station load factor for the coal-fired power stations was 63,3 per cent.

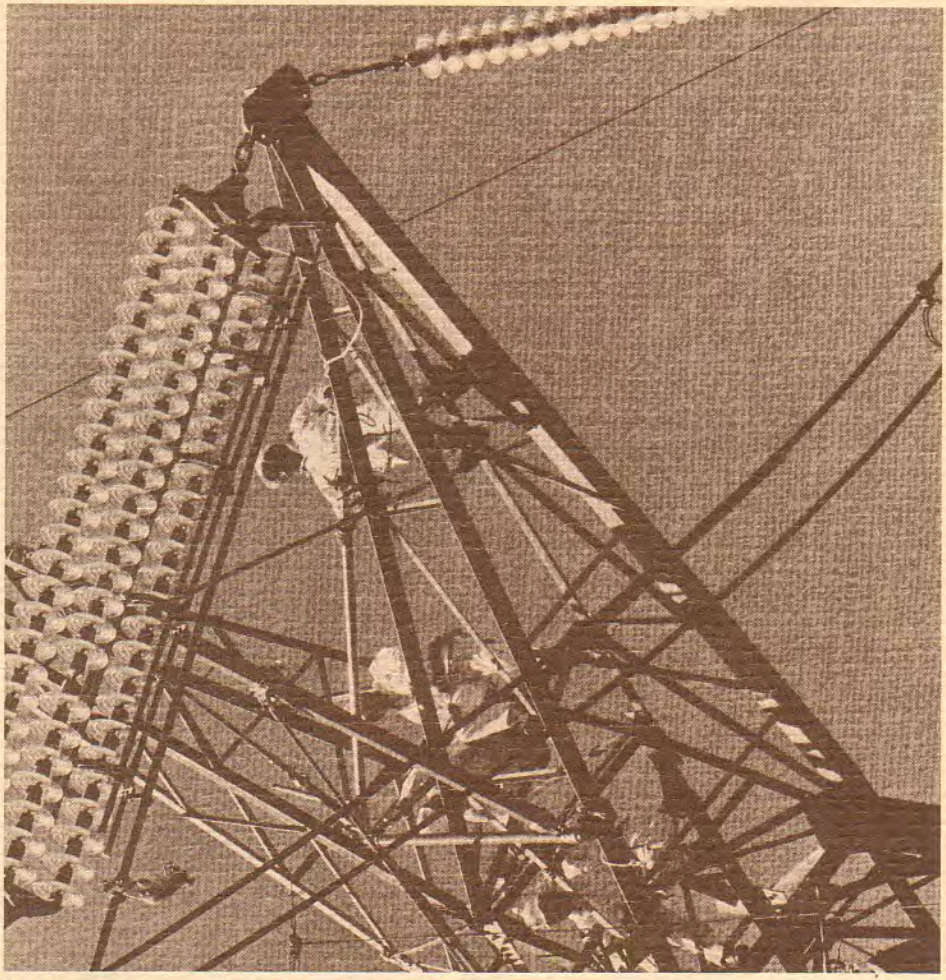
The load factor at the Hendrik Verwoerd and Vanderkloof hydro-stations was reduced to 39,9 per cent because less water was available from the Orange River than in 1977.

Plant performance and maintenance

The availability of plant in Escom's power stations decreased marginally in 1978 but the forced outage rate remained constant in spite of poor coal qualities and breakdowns on some of the larger turbo-generator sets. The higher ash content and resultant higher abrasiveness indices of the coal resulted in reduced boiler plant availability due to tube erosion.

The reliability of the plant and in particular that of the larger sets, however, showed a marked improvement with respect to the number of incidents which caused plant shutdowns.

The reserve plant margin was adequate and this contributed to an improvement in the overall thermal efficiency of the coal-fired power stations. It is regrettable, however,



Live-line maintenance. During the year under review optimum use could be made of the national grid system whereby electricity is transmitted from base-load stations in the Transvaal and the Orange Free State to load centres throughout the country, eliminating fuel transport costs.

Table 5
Maximum one-hour demand on the respective systems of Escom's undertakings, megawatt

Undertaking	1973	1974	1975	1976	1977	1978	Percentage increase 1978/77	Average yearly increase over 5 years per cent
Border	100,8	114,0	127,0	145,0	152,2	168,0	10,4	10,8
Cape Eastern	2,3	5,1	5,2	5,7	6,8	7,0	2,9	24,9
Cape Northern	201,9	231,0	249,5	273,2	299,4	363,0	21,2	12,4
Cape Western	554,1	707,1	807,0	882,0	890,0	943,0	6,0	11,2
Eastern Transvaal	867,8	924,6	1 019,8	1 197,1	1 316,3	1 464,7	11,3	11,0
Natal	1 263,0	1 438,0	1 498,0	1 618,0	1 761,0	1 962,0	11,4	9,2
Orange River	88,2	117,5	135,2	179,9	160,2	157,0	– 2,0	12,2
Rand and O.F.S.	4 467,8	5 147,0	5 455,5	6 074,8	6 363,2	6 720,0	5,6	8,5
Aggregate of non-simultaneous maximum demands	7 545,9	8 684,3	9 297,2	10 375,7	10 949,1	11 784,7	7,6	9,3
Maximum simultaneous one-hour demand on total Escom system MW	1973 19h00 13/7/73 7 350	1974 09h00 4/9/74 8 552	1975 09h00 24/7/75 9 185	1976 09h00 23/6/76 10 085	1977 09h00 12/8/77 10 735	1978 09h00 23/6/78 11 490	7,0	9,3

that full advantage could not be taken of the continuing good reserve margins to reduce the backlog of maintenance work which had accumulated during previous years when the reserve margins were considerably less. This is a result of the chronic shortage of suitably skilled maintenance staff and this condition will not improve in future unless Escom is able to attract a larger share of this particularly exclusive segment of the labour market.

There were no major system-wide interruptions in supply to consumers in 1978 and all interruptions were localised and contained.

Most of the interruptions, as in past years, were caused by bush and sugar-cane fires under transmission lines. In some areas there has been industrial and bird pollution which has led to the contamination of insulators and consequent line outages. Investigation into the problem of bird pollution continues. Escom is also working with ornithologists towards preserving bird life, in particular the Cape vulture, which is an endangered species.

Coal supplies

Escom burnt 39,6 million tons of coal during the year, an increase of 5,51 per cent over consumption in 1977. With the availability of adequate base-load generating capacity the utilisation of the expensive coastal stations was considerably reduced. Optimising the use of Escom's base-load power stations had the added advantage of reducing the specific coal consumption per kW.h sent out (see Statement No. 5).

The average cost of coal consumed in the Escom power stations increased by 8,0 per cent during 1978, as compared with an average yearly increase, over the past five years, of 20,3 per cent. This reduced increase in the cost of the coal can be partly attributed to the greater use of the pithead stations in the Transvaal and Orange Free State, where coal costs increased by 10,5 per cent during 1978. The average cost of the coal burnt at Escom's pithead stations was 22,2 per cent below the controlled price for the same grade of coal. At three of the older pithead stations, the cost of coal was actually reduced during 1978 and at a fourth pithead station the price increased by less than 1 per cent. These outstanding results were achieved by the programme of

mechanisation and improvement instituted at these collieries during the past years. The comparatively large capital investments in the open-cast mines, of which three are now in production at Escom power stations, are yielding high rewards. The cost of coal from these mines is already among the lowest and has a low rate of escalation. The average cost escalation for the two older collieries was 6,7 per cent during 1978. The Kriel open-cast mine came into production during 1978 and the second big dragline at this colliery was also commissioned.

The coal supply position at all Escom's power stations, except Grootvlei, remained good throughout the year and stocks were maintained at satisfactory levels.

The purchase and transport of surplus coal from Bosjesspruit colliery to Grootvlei power station began during June 1978 and continued throughout the year. The already insufficient output of Springfield colliery, which feeds Grootvlei power station, was further disrupted by a serious underground fire at the beginning of June 1978.

As a result of the low availabilities of Arnot and Komati power stations, respectively 66,0 per cent and 68,5 per cent for 1978, and the consequent low coal consumptions, there were large surpluses of coal at these stations. It was, however, possible to utilise the surplus coal at these two stations to great advantage at the non-pithead stations.

It should be noted that the stockpiles which Escom has established at its power stations have introduced considerable flexibility into the coal supply position in the Escom system. Firstly, surpluses or deficits can be handled with minimum cost and disruption to the system and, secondly, the utilisation of the national coal reserves can be optimised on a system-wide basis and not as scattered power station-colliery units.

Capacity of Escom's Power Stations, MW

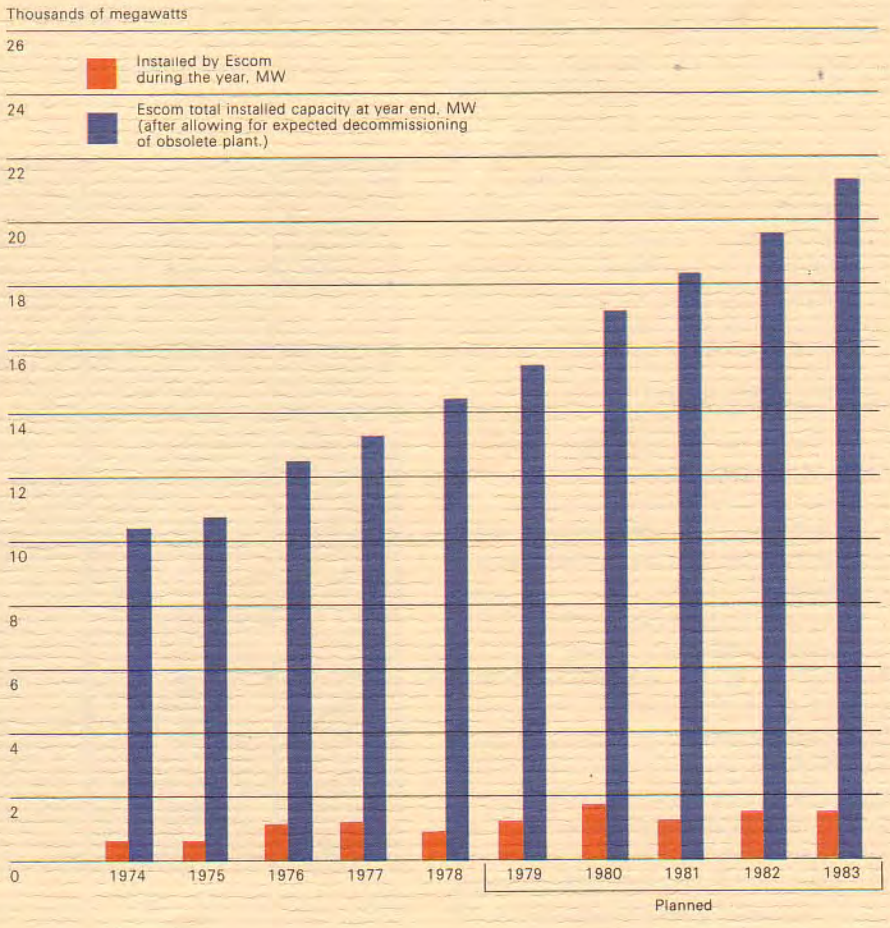


Table 6
Power station plant taken into service during 1978 and on order at 31 December 1978

Name of power station	Plant taken into service in 1978		Plant under construction or on order at 31 December 1978		Approximate date of completion	
	Boilers kg/s	Generators MW	Boilers kg/s	Generators MW	First set	Last set
Coal-fired steam plant:						
Duvha	—	—	**3 048**	**3 600**	**1979**	**1984**
Kriel	**880**	**1 000**	**880**	**1 000**	**1976**	**1979**
Matla	—	—	**3 048**	**3 600**	**1979**	**1983**
Pumped-storage hydro-plant:						
Drakensberg	—	—	—	**1 000**	**1981**	**1982**
Nuclear plant:						
Koeberg	—	—	—	**1 844**	**1982**	**1983**

Water supplies

Crude river-water consumed in Escom's coal-fired power stations increased in 1978 by 3,7 per cent over the 1977 figure, but specific water consumption fell from 2,99 litres to 2,72 litres per kW.h sent out. All the newer Transvaal and Orange Free State power stations used less water per kW.h in 1978. This general improvement in water economy is the result of Escom's efforts to recycle power station waste water. As the smaller stations, with their higher specific consumption, become less significant in overall power supply, their influence on overall specific consumption will decline.

Water supplies were assured throughout the year since the volumes stored in the various dams were consistently higher than in 1977.

New plant & projects

Plant with a generating capacity of 1 000 MW was taken into service during the year. This compares with 1 120 MW in 1977 and brings the total installed capacity to 14 434 MW (see Statement No. 1).

Generating plant commissioned during 1978 and plant under construction at the end of the year are listed in the table above.

Drakensberg pumped-storage scheme

Earlier problems with the underground excavations have been solved and the delay to the project minimised. Additional resources were brought into operation and, with a re-scheduling of the work, the commissioning date for the first 250 MW pump-

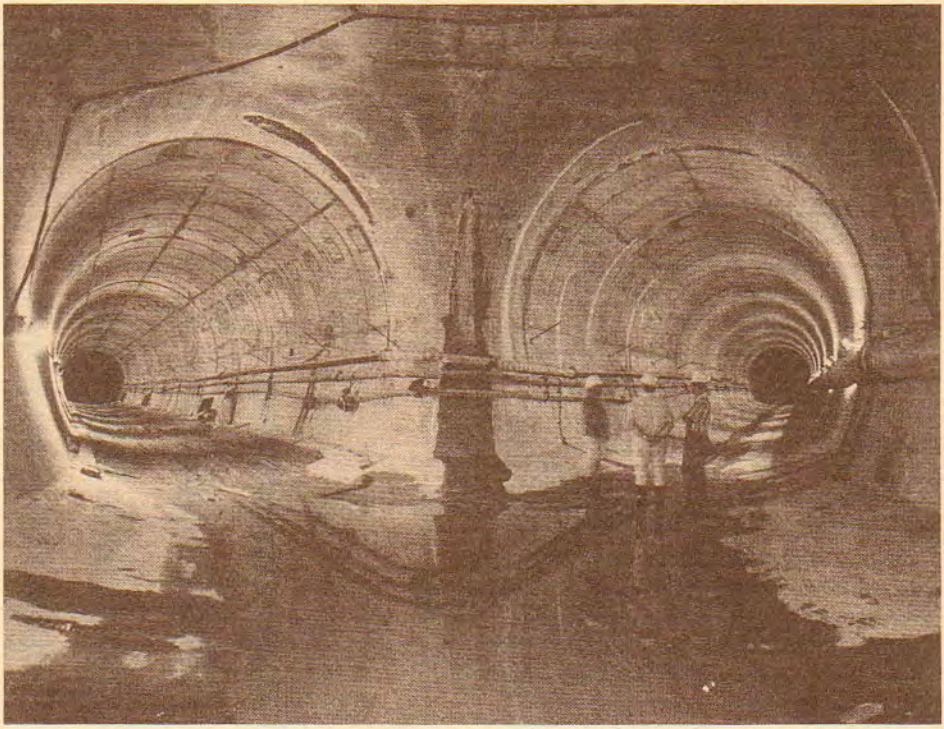
turbine set is now planned for May 1981. The second, third and fourth sets are scheduled to follow at four-monthly intervals.

During the year considerable progress was made on the underground excavations. The 1,6 km long tailrace tunnel was completed in November 1978, and by the end of the year excavation of the three main caverns had been completed, while work was continuing on the long waterways, tunnels and shafts.

The first plant to be installed in the underground complex will be the two 250 ton overhead travelling cranes in the machine hall which are due in January 1979. These cranes will be used for erection of the pump-turbines, commencing in March 1979.

Duvha power station

Construction work continued and proceeded well despite difficulties with the civil works programme arising from the special requirements of the 100 ton crane employed for steelwork erection. This delayed completion of the water treatment plant buildings, but fortunately time was largely recovered during the plant erection.



Tailrace bifurcation, Drakensberg pumped-storage power station. The first set of this 1 000 MW station will be commissioned in 1981.

As a result of problems with the welding of steam pipework, the programme stipulating completion of the first unit by September 1979 will be extremely tight.

Koeberg nuclear power station

Throughout the year work on the two sets at Koeberg has been maintained at a high level. Both sets are on schedule. The first items of imported plant arrived during the year and delivery is expected to speed up in 1979 when the first heavy lift items should arrive. At this stage, all the major contracts related to the construction of the power station have been placed.

The public relations programme at the Koeberg site has been well received. A visitor centre was constructed and will be inaugurated early in 1979. This will be used to provide information on energy to the general public.

A close check on design and construction work has been kept by the Licensing Branch of the Atomic Energy Board, the statutory authority for nuclear safety, which has also established permanent representation on the site.

Kriel power station

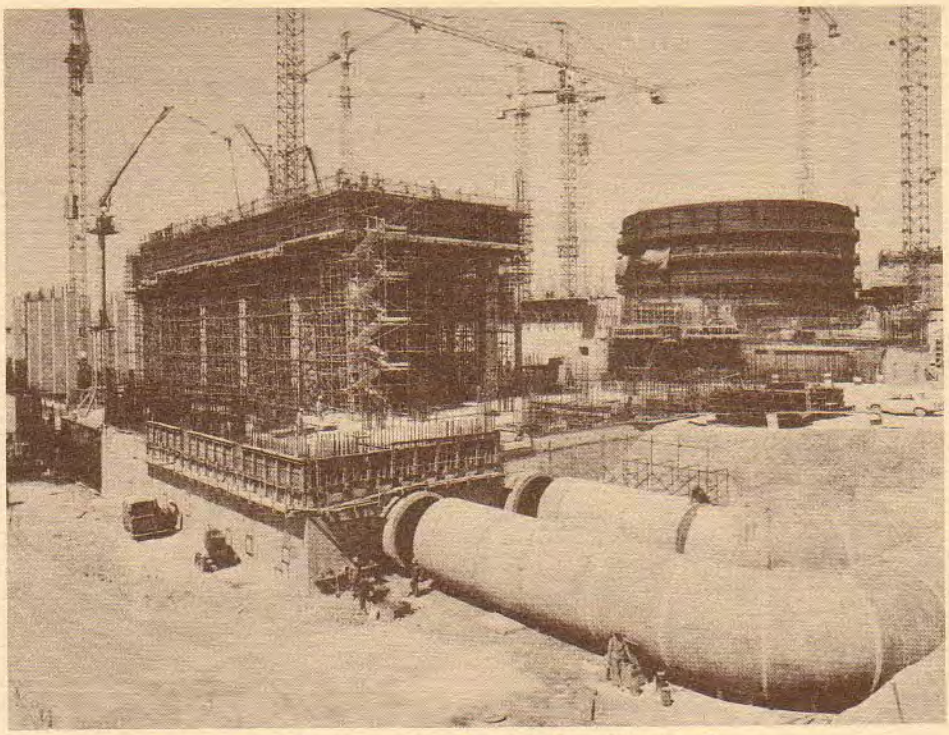
Civil and structural work was almost completed during the year. The third 500 MW set was taken into service in February 1978 and the fourth set in September 1978. The fifth and sixth sets are scheduled to be completed in March and December 1979 respectively. Further modifications, carried out on one boiler to overcome slagging problems, were satisfactory and the set successfully underwent acceptance tests. These modifications will be required on two further boilers in the first half of the power station. For some months the fourth boiler has been supplied with coal from the open-cast mine for which the second half of the power station is designed. This coal has poorer properties but, while slagging has occurred, this has been attributed to incorrect adjustments and further problems are not expected.

Matla power station

The first of the six 600 MW sets is due to be taken into commercial operation during 1979 and the second set by early 1980. Already the civil and structural work for the first three sets is almost complete and work on the fourth set is well advanced. One cooling tower, the cooling-water pumphouse, coal staith and the ash dam complex were completed.

New power station

Escom's projections indicate that in addition to the plant now under construction or on order, another power station will be required of which the first sets should be on



Koeberg nuclear power station. Work is on schedule, and the first of the two sets will be commissioned towards the end of 1982. The first items of imported plant arrived during the year.

stream by 1986. In this respect a coal enquiry was issued during the second half of 1978.

Transmission

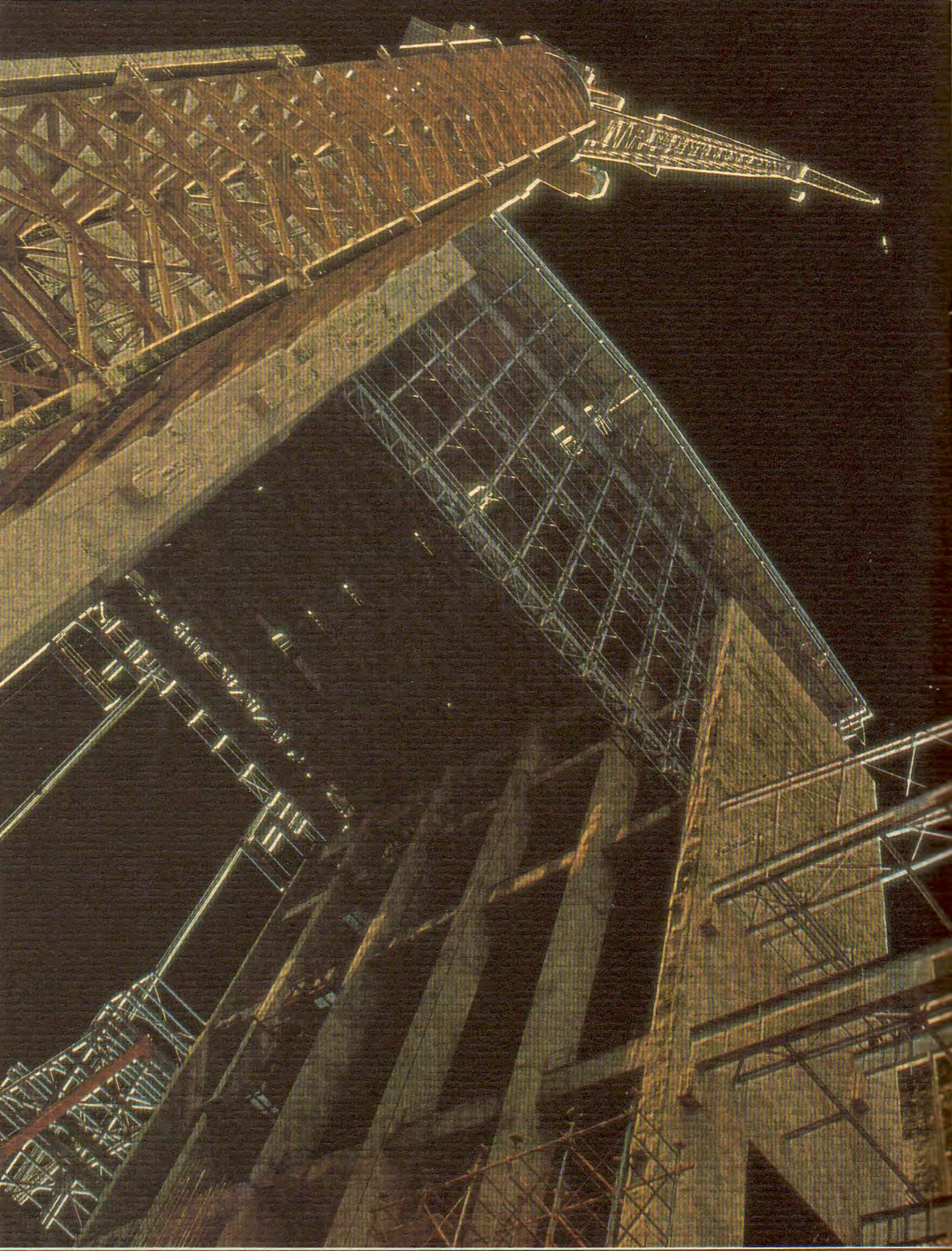
To meet the growing demand for electricity, work continued during the year on extensions to the national grid, supplies to new consumers and strengthening of existing systems. The total length of power lines of various voltages increased from 100 100 km to 107 500 km (see Statement No. 4). The total capacity of transformers in operation increased from 103 800 MVA to 118 300 MVA (see Statement No. 2).

Rand and OFS Region

In this region, two important substations were commissioned. With the completion of Verwoerdburg substation, near Rietvlei Dam, a supply was made available to Verwoerdburg Municipality. Craighall substation – which will supply Johannesburg, Sandton and Randburg – was commissioned as an 88 kV switching station, pending the completion of a 275 kV line from the newly completed Minerva substation near Knoppieslaagte.

The strengthening of supplies to the Nuffield industrial complex near Springs was completed with the commissioning of extensions at Nevis substation. Supplies to the Rustenburg area were improved when an additional 275 kV line from Pluto substation, west of Randfontein, was connected to the local network, whilst supplies to the Welkom/Virginia area were strengthened by extensions to Everest substation. In the Vereeniging area supplies were improved by the extensions at Atlas substation. Near Welverdiend a new substation, Carmel, is being built to strengthen the network in the Doornfontein area for supplies to the Elandsrand and Doornfontein mines. Power transmission between the Rand and the Cape was further improved during the year with the completion of modifications to Perseus substation near Dealesville.

The second stage of the Cabora Bassa-Apollo scheme was placed in commercial operation on 16 April 1978, with three of the planned four generators. Without the third generator in operation for the remainder of the year, because of bearing problems, the high-voltage direct-current system could not be



Matla power station. Concrete boilerhouse construction.

fully used and the overall availability which had reached 98 per cent in 1977 was reduced to 80 per cent. Nevertheless, the energy delivered from the Apollo terminal increased to 9 per cent of the total energy generated by Escom, and the contractual maximum demand of 1 070 MW for the second stage, provided 9,3 per cent of the Escom maximum demand during 1978.

Eastern Cape Region

This region serves the Border, Cape Eastern and Orange River Undertakings.

Extensions to Pembroke substation of 220/132 kV near King Williamstown were completed during 1978 and these have enabled the full output from the Port Rex gas turbine power station at East London to be utilised by the national network. The regional control centre at Pembroke, which will serve the above undertakings, was completed during the year under review.

Natal Region

In this region development was mainly related to the Richards Bay Project and all ten of the 25 alternating-current traction substations in the region were completed during 1978 and are now on load. As part of the 400 kV reinforcement scheme to Richards Bay and the electrification of the South African Railways traction line to the port, a 400 kV transmission line, 140 km long, from the Eastern Transvaal Region to Babanango as well as the nearby Umfolozi substation, 400/88 kV, were completed and put into operation. A second 275 kV line between Ingagane and Bloedrivier was also completed. Construction work is well advanced on the remaining part of the scheme i.e. a 120 km long, 400 kV transmission line from Babanango to Richards Bay as well as the nearby Invubu substation of 400/275 kV. Completion is expected by the end of 1979.

Northern Cape Region

Early in 1978, extension of the 220 kV transmission system to the West Coast from the 400/220 kV stepdown substation at Aggeneis was completed, with supplies being given to large consumers at Okiep, Kleinsee and Oranjemund. Supplies to the new mining complex at Aggeneis were also given during this period.

By midyear, 50 kV alternating-current traction supplies were made available to the Sishen-Saldanha railway line from substations near

Sishen and Groblershoop on the 275 kV Kimberley-Sishen network, and from substations near Kenhardt and Loeriesfontein on the recently completed 400 kV link with the Western Cape Region.

Eastern Transvaal Region

Good progress was made in building the 400/132 kV Sol substation and the associated 400 kV and the 132 kV transmission lines in the Trichardt area, intended to supply the Sasol II complex. By the end of the year preparations were complete for a temporary 132 kV supply to Sasol II to be made available from the existing regional network.

Shortly before the end of the year a 400 kV supply from Camden power station was made available to the Natal Region via the 400/88 kV Normandie substation, near Moolman. Supplies in the Steelpoort and Phalaborwa areas were also strengthened.

Near Nelspruit, Marathon substation, which provides a 275 kV supply to Maputo, was equipped with a 250 MVA regulating transformer to control the supply which, because of the light and variable nature of the load, has until now suffered from undue over-voltages.

Western Cape Region

The second 400 kV transmission line from Muldersvlei to Acacia substation,

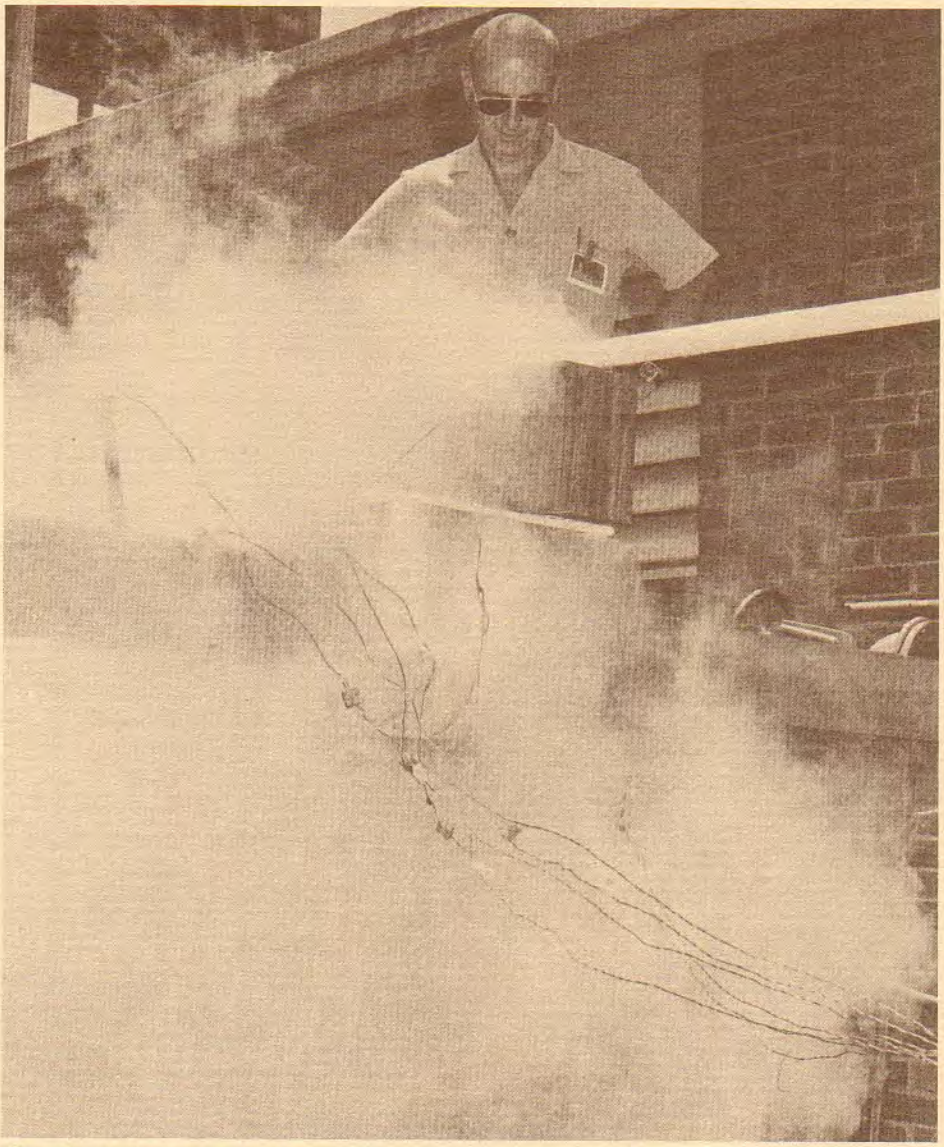
Three opencast mines are now in production at Escom power stations. Optimising the use of Escom's base-load power stations also meant a reduction in the specific coal consumption per kW.h sent out.

in the Montague Gardens area of Cape Town, was completed early in the year, while towards the year's end the completion of a 400 kV transmission line between Vredendal and Saldanha provided the final link in the third line between the Rand and Cape Town. This line, extending via Kenhardt, also supplies the traction substations on the southern section of the Sishen-Saldanha railway line.

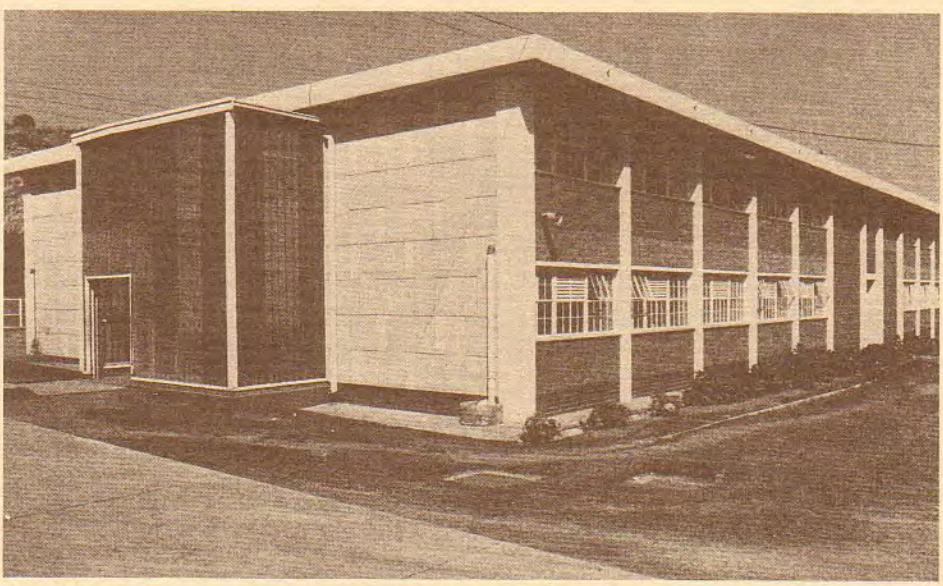
Facilities

The provision of housing to serve the two major power stations Kriel and Matla, under construction in the Eastern Transvaal, reached a milestone when a town of 1 700 houses and flats was established. The removal of nearly 700 temporary houses and flats to other projects can now commence. With the completion of the shops, service stations, recreation centre, cinema and other amenities, a viable town will exist.

Nearly 800 houses have been built in the suburbs of Witbank to house construction and operating personnel for the new Duvha power station. Construction has commenced of a township to serve the Koeberg nuclear power station and 70 of the planned 276 houses have been completed. A temporary construction township for the Drakensberg pumped-storage scheme has been built near Bergville.



Waterpipe-sealing experiment. Escom has various research groups in the generation, transmission and distribution fields. Through joint projects it also co-operates with leading research groups outside the organisation.



Hostel for Black employees at Escom's Rosherville complex. Apart from housing, a wide range of amenities are provided when Escom establishes a new village to serve a power station community.

This will be removed on completion of the scheme.

Research

The various research groups in this division continued with their activities in the generation, transmission and distribution fields.

At Rosherville the construction of a major testing facility to check the strength of transmission towers has commenced. All new designs of transmission towers are tested by full scale static loading tests on prototype towers. In the past, all the required testing had to be conducted at test stations overseas and because of the heavy commitments of these stations Escom was compelled to use test facilities as far afield as Italy, Britain, Brazil, Spain and Australia. This cumbersome process and the increasing costs of overseas testing necessitated the establishment of the Escom testing facility.

In the air pollution field, preliminary measurements of sulphur dioxide concentration were made in the Eastern Transvaal highveld with mobile equipment as a precursor to a comprehensive investigation which has been initiated in co-operation with the Council for Scientific and Industrial Research.

The study of coal properties was advanced by the production of a prototype standardised abrasiveness testing machine. Hydro-dynamic model studies were undertaken to optimise the ducting for the Drakensberg pumped-storage scheme and also to improve the performance of the cooling-water outlet for Koeberg. Investigation of vibration problems associated with the coal mills at Kriel and the generators at Vanderkloof were undertaken.

Investigations of the corrosion problems caused by the Apollo earth electrode continued and it is hoped that these will be satisfactorily concluded during 1979. A test exposure programme to evaluate which protective coatings are best for different environments was started. Preliminary investigations were also made to determine the in-service requirements for the Koeberg reactors.

By joint research projects and representation on the appropriate committees, co-operation was maintained with the Council for Scientific and Industrial Research, the South African Bureau of Standards,

the Department of Water Affairs and the universities.

Personnel

Table 7 reflects the growth in the number of employees – a relatively low figure of 4,9 per cent for the year, which is partially attributable to the rationalisation at Escom during the third quarter of the year.

To promote further rationalisation and to enhance productivity, the Paterson system of job evaluation was introduced at Escom and there has already been significant progress in formalising the related organisational structure.

To relieve the shortage of certain skilled personnel, a recruiting campaign was conducted in the United Kingdom.

Education and training

During the year, 89 bursaries were granted and the number of Escom university bursars increased to 155 as against 135 in 1977. The number of new graduates undergoing three-year post-graduate training at Escom rose from 36 to 52, while 8 800 employees (7 800 in 1977) enrolled for the 1 050 courses offered by Escom.

The Escom Artisan Recognition and Training Scheme, developed in co-operation with the trade unions to permit the training of adult employees as artisans within Escom, has progressed satisfactorily. Escom apprentices who entered the Government trade test in 1978 maintained the good record of the past few years with a pass rate of 97 per cent.

An extensive organisation and work study training programme was started during the year. Since the training given in Escom is recognised by the South African Organisation and Work Study Institute, Escom personnel who undergo this training may be registered as members of the Institute. The trend in relating training to specific career paths continued and in 1978, 210 employees registered for training schemes related to specific career paths.

In view of the forthcoming commissioning of the Koeberg nuclear power station, certain key-position employees are receiving training overseas. On the whole, the employees adapted well to their foreign environment and were accepted by the local community. Training of these employees is progressing satisfactorily.

Table 7

Average monthly employee complements

	1977	Percentage increase during 1977	1978	Percentage increase during 1978
Salaried	8 215	8,2	8 893	8,3
Monthly paid	5 857	5,7	6 003	2,5
Hourly paid	24 602	5,3	25 655	4,3
Total	38 674	5,9	40 551	4,9

Amenities, sport and recreation

In accordance with modern practice, Escom offers recreational amenities for its personnel. At present there are 24 clubs and it is expected that two new ones, at Henley and Koeberg, will be established in 1979.

Personnel relations

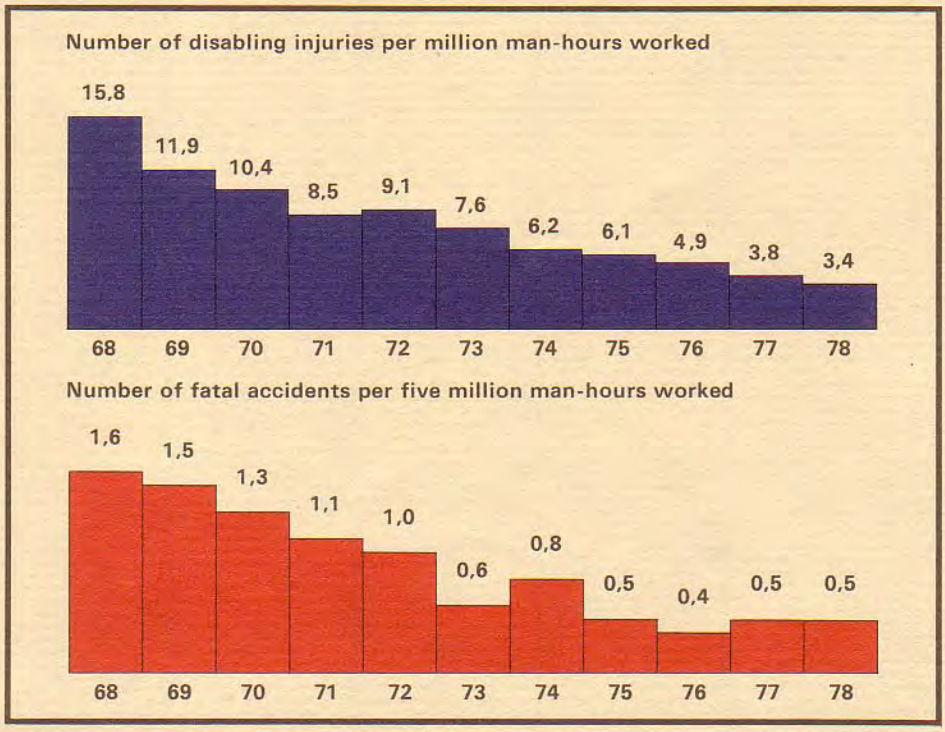
Difficult economic conditions forced Escom once again to make salary and wage increases during the year which did not compensate for the rise in the cost of living. As expected, both the Escom Salaried Staff Association and the trade unions reacted strongly. Both employee groups declared a dispute with Escom after protracted negotiations had failed to solve the difficulty.

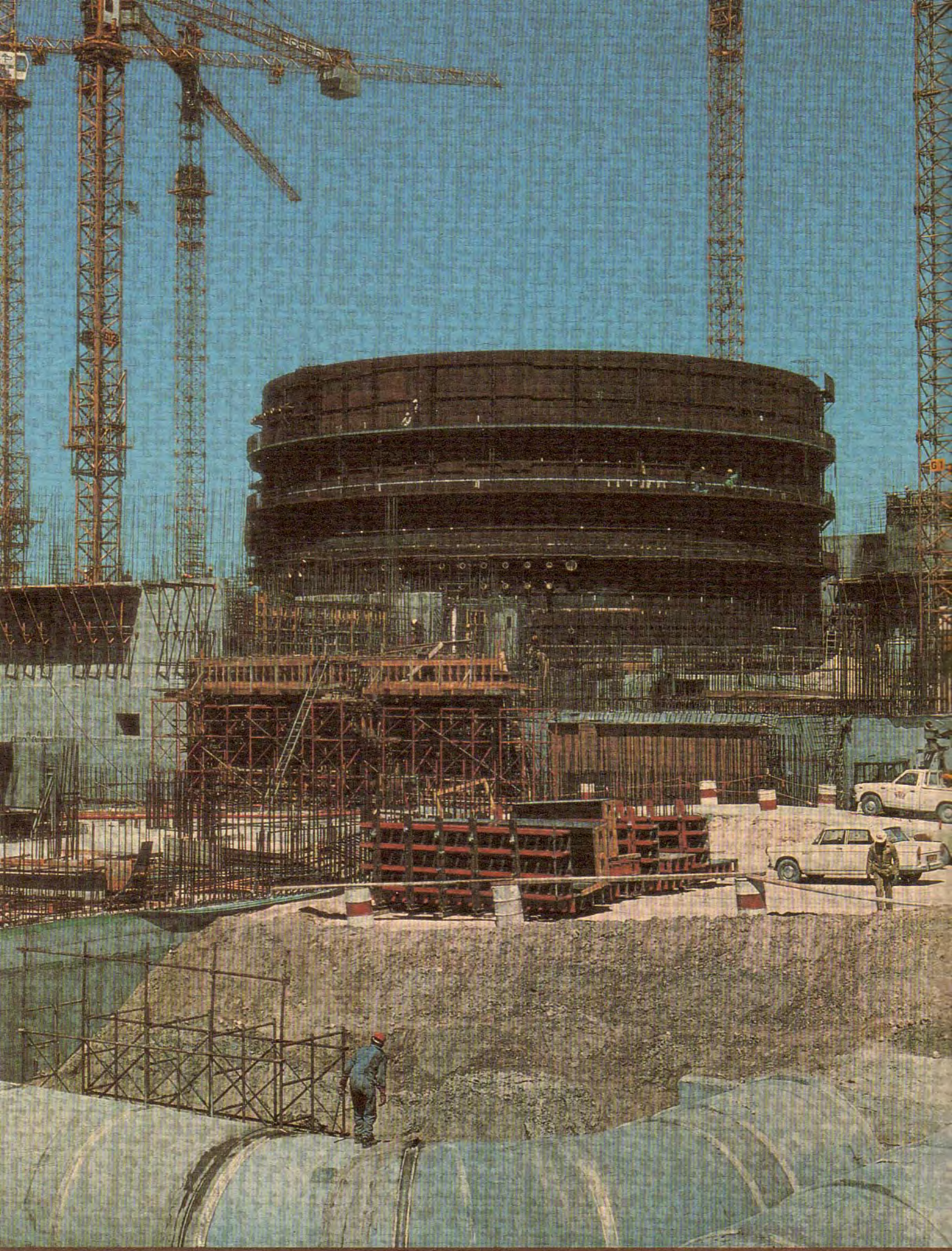
The industrial tribunal ruled against Escom in both instances and made awards which, though favouring the employees, failed to meet fully with their demands.

Accident prevention

During 1978 the programme for the elimination of work injuries was extended and a Safety Assurance Section was established. The aim of this section is to create organised programmes for accident prevention, occupational health, fire-fighting, damage control and emergency planning.

From the diagrams below it is evident that the number of disabling injuries and deaths as a result of work injuries is constantly decreasing.





Koeberg nuclear power station.

Auditors' report and financial statements

Report of the auditors

The Chairman and Members
Electricity Supply Commission
Sandton

We have examined the financial statements of the Commission for the year ended 31 December 1978 and report as follows:

(a) The financial statements of the Commission are in order and present the information required by the Electricity Act, 1958 (the Act).

(b) Due provision, in terms of the Act, has been made for the redemption and repayment of monies borrowed by or advanced to the Commission.

(c) Sums fixed by the Commission have been set aside to the Reserve Fund and Capital Development Fund under section 13 of the Act.

(d) All our requirements as auditors have been complied with.

(e) Net expenditure under the heading Corporate Services has been allocated by the Commission to Capital and Reserve Fund expenditure and Electricity Supply Account of Undertakings. We have no reason to disagree with the apportionment so made.

In our opinion the financial statements fairly present the financial position of the Commission at 31 December 1978 and the results of its operations for the year ended on that date.

Alex. Aiken & Carter
Deloitte Haskins & Sells
Chartered Accountants (S.A.), Auditors

Sandton
29 March 1979

Balance sheet

at 31 December 1978

	Notes	R000 1978		R000 1977	
Capital expenditure, at cost	2		5 411 271		4 192 918
Land and rights		65 465		50 101	
Buildings and facilities		320 085		226 892	
Production plant		3 179 050		2 574 110	
Total in commission		3 564 600		2 851 103	
Works under construction		1 846 671		1 341 815	
Equipment and stores			236 429		226 223
Movable plant and equipment, at cost		81 337		65 806	
less Accumulated depreciation		40 181		31 587	
		41 156		34 219	
Stores and materials	3	195 273		192 004	
External investments	4		60 192		40 274
Deferred expenditure	5		140 409		84 997
			5 848 301		4 544 412
Financed by					
External borrowings			3 769 964		3 007 506
Loans outstanding (Schedule 1)	6	3 815 023		2 778 799	
less Escom stock held internally	7	1 408 841		961 089	
		2 406 182		1 817 710	
Import financing facilities	6	468 796		251 000	
Other short-term loans and advances (Schedule 2)	6	894 986		938 796	
Net current liabilities			128 531		111 754
Current liabilities and provisions			407 637		286 359
Accounts payable		267 980		184 885	
Sundry provisions		26 405		19 141	
Interest accrued		82 664		68 735	
Bank overdrafts		30 588		13 598	
Current assets			279 106		174 605
Accounts receivable		137 910		111 875	
Payments in advance		3 384		2 296	
Funds at call		119 034		53 871	
Bank balances and cash		18 778		6 563	
Total net debt			3 898 495		3 119 260
Statutory funds, reserves and provisions			1 949 806		1 425 152
Capital Development Fund	8	801 903		435 154	
Reserve Fund	8	202 640		199 373	
Redemption Fund	8	413 770		359 336	
Unrealised surplus on Escom stock held internally	7	37 183		31 730	
Provision for repayment of foreign loans		58 641		42 919	
Capital reserve	9	373 855		362 187	
Accumulated surplus/(deficit)	10	61 814		(5 547)	
			5 848 301		4 544 412

Electricity supply account

for the year ended 31 December 1978

R000

1977 Total		Notes	1978 Total	Corporate Services	Central Generating	Distribution Undertakings Total	Cape Western	Cape Northern	Cape Eastern	Border	Orange River	Natal	Eastern Transvaal	Rand and O.F.S.
1 030 552	Electricity sold	11	1 301 829	—	—	1 301 829	124 362	55 196	1 451	22 819	18 694	220 529	173 191	685 587
484 376	Operating expenditure	12	548 562	21 701	443 347	83 514	16 100	4 979	374	3 969	2 186	15 297	10 847	29 762
287 821	Loan charges	13	385 006	7 420	264 797	112 789	15 060	12 144	350	3 921	4 067	14 113	19 149	43 985
224 900	Contributions to funds	14	300 900	—	—	300 900	21 496	7 982	122	3 409	4 516	48 867	41 350	173 158
—	Distribution of costs	15	—	(29 121)	(708 144)	737 265	68 035	24 254	440	11 548	9 235	124 006	93 443	406 304
997 097			1 234 468	—	—	1 234 468	120 691	49 359	1 286	22 847	20 004	202 283	164 789	653 209
33 455	Surplus/(deficit) for the year		67 361	—	—	67 361	3 671	5 837	165	(28)	(1 310)	18 246	8 402	32 378
(39 002)	Accumulated surplus/(deficit) at beginning of year		(5 547)	—	—	(5 547)	5 450	(2 129)	(245)	285	(7 358)	36 475	(5 460)	(32 565)
(5 547)	Accumulated surplus/(deficit) at end of year		61 814	—	—	61 814	9 121	3 708	(80)	257	(8 668)	54 721	2 942	(187)

R000

1977 Corporate Services	Central Generating	Distribution Undertakings Total	Cape Western	Cape Northern	Cape Eastern	Border	Orange River	Natal	Eastern Transvaal	Rand and O.F.S.
—	—	1 030 552	111 984	34 922	1 094	21 199	14 163	200 143	126 881	520 166
28 210	385 806	70 360	13 294	4 356	420	3 440	2 218	12 440	9 201	24 991
2 642	191 970	93 209	11 917	7 305	246	2 932	3 570	12 870	14 649	39 720
—	—	224 900	16 690	5 670	60	2 660	3 580	36 680	31 160	128 400
(30 852)	(577 776)	608 628	59 098	17 685	264	9 846	8 485	101 917	76 271	335 062
—	—	997 097	100 999	35 016	990	18 878	17 853	163 907	131 281	528 173
—	—	33 455	10 985	(94)	104	2 321	(3 690)	36 236	(4 400)	(8 007)
—	—	(39 002)	(5 535)	(2 035)	(349)	(2 036)	(3 668)	239	(1 060)	(24 558)
—	—	(5 547)	5 450	(2 129)	(245)	285	(7 358)	36 475	(5 460)	(32 565)

Notes to the financial statements

at 31 December 1978

1. Accounting policies

The principal accounting policies adopted by the Commission are as follows:

Capital expenditure and equipment

Interest is added to the cost of capital works under construction until such assets are taken into commercial operation.

Capital expenditure is not depreciated but is maintained at cost while the relevant assets are in commercial operation. Charges are made to operating expenditure to provide for the repayment of loans. (See amortisation of borrowings.)

Movable plant and equipment is depreciated at rates considered appropriate to reduce cost to estimated residual value over the useful lives of the assets.

Stores and materials

Stores and materials are valued at the lower of cost, determined on the last-in first-out basis, and replacement value.

Foreign currencies

Foreign currency liabilities covered by forward exchange contracts are translated to Rand at the protected rates of exchange. Liabilities not covered by forward exchange contracts and foreign assets are translated to Rand at the rates of exchange ruling at the balance sheet date. The currencies most favourable to the bondholders are used to translate loans raised in European Units of Account.

Deferred expenditure

Discount on loans issued is charged to costs over the remaining periods of the related loans.

Net losses arising from the translation of foreign long term loan balances at the rates of exchange ruling at the balance sheet date are written off over the remaining periods of the loans.

Expenditure to secure future fuel supplies is being accumulated and is to be written off from the time deliveries commence.

Amortisation of borrowings

A redemption fund is established in terms of the Electricity Act, 1958 and provision for the redemption of loans is made over periods not exceeding 25 years.

The State President, in terms of Section 10(2) of the Act, has directed that the provisions relating to the establishment of the redemption fund should not apply to foreign loans; provision for repayment of such loans is made over periods not exceeding 25 years.

The redemption fund provisions are not applied to short-term loans and advances, as these are made under the provisions of paragraph 1(3) of the Schedule to the Act in anticipation of the raising of loans.

Operating revenue and expenses

Meters are read on a cyclical basis and sales of electricity are accounted for concurrently. The revenue related to supplies between the date of the last reading and the end of the accounting period is not included in sales, whereas the related expenses are charged as incurred.

R000

	1978	1977
2. Capital expenditure		
Balance at beginning of year	4 192 918	3 211 261
Assets decommissioned, sold or scrapped	11 538	1 135
	4 181 380	3 210 126
Expenditure during the year	1 229 891	982 792
Balance at end of year	5 411 271	4 192 918
Commitments in respect of capital expenditure contracted for amount to approximately	1 713 000	2 042 000
This expenditure will be financed from external borrowings and from cash generated by means of the Capital Development Fund		
3. Stores and materials		
Consists of		
Construction material	101 751	107 180
Maintenance and consumable stores	59 468	58 290
Fuel	34 054	26 534
	195 273	192 004
4. External investments		
Held for		
Reserve Fund (Schedule 4)	9 098	9 187
Redemption Fund (Schedule 5)	1 466	1 451
	10 564	10 638
Temporary deposit in respect of fuel supplies	14 865	—
Housing loans to employees secured by first mortgage	34 763	29 636
	60 192	40 274
5. Deferred expenditure		
Discount on loans issued	59 624	44 314
Exchange adjustment of foreign liabilities	20 474	18 812
Expenditure to secure future fuel supplies	60 311	21 871
	140 409	84 997
6. External borrowings		
The current portion of external borrowings (excluding revolving credits) amounts to	323 867	313 824
Of this amount the portion provided for through the Redemption Fund and the provision for repayment of foreign loans is	50 706	28 492

Borrowings in the following currencies are not covered by forward exchange contracts

	1978	1977
European Units of Account	12 620 000	16 857 000
Maltese Pounds	5 000 000	5 000 000

		1978		1977	
7. Escom stock held for	Schedule	Book Value	Nominal Value	Book Value	Nominal Value
Capital Development Fund	3	782 265	789 974	426 320	434 510
Reserve Fund	4	189 456	200 904	185 907	193 860
Redemption Fund	5	394 118	411 451	310 338	324 847
Repayment of foreign loans	6	5 819	6 512	6 794	7 872
		1 371 658	1 408 841	929 359	961 089
Unrealised surplus being excess of nominal over book value			37 183		31 730

8. Statutory funds

Dealings in Escom Stock, held as investments for the Funds, at prices based on interest pattern rates above coupon rates result in certain stocks being sold at less than book value. The difference on such transactions is set-off against the higher future earnings on the re-invested proceeds over the period to maturity of the original investment.

To the extent that the difference has been deferred, the amounts available for investment are reduced as follows:

	R000	
	1978	1977
Capital Development Fund (Schedule 7)	808 998	438 830
Difference between book value and proceeds of stock sold	7 095	3 676
	801 903	435 154
Reserve Fund (Schedule 8)	220 116	209 074
Difference between book value and proceeds of stock sold	17 476	9 701
	202 640	199 373
Redemption Fund (Schedule 9)	448 649	382 566
Difference between book value and proceeds of stock sold	34 879	23 230
	413 770	359 336

9. Capital reserve

Loans repaid	437 034	413 828
Machinery and plant financed from Reserve Fund	10 360	10 360
	447 394	424 188
less Cost of land and rights, buildings and facilities and production equipment scrapped	73 539	62 001
	373 855	362 187

10. Accumulated surplus

In terms of the Electricity Act, 1958, the undertakings of the Commission are, as far as practicable, carried on at neither a profit nor at a loss and its charges are adjusted accordingly from time to time.

11 to 15. Electricity supply account – see page 36.

16. Commitments

The Commission is committed for:

1. The payment of approximately R1 295 000 (1977: R1 795 000) in respect of loans granted to employees under the Commission's Home Ownership Scheme.
2. The payment to the Electricity Supply Commission Pension and Provident Fund, in addition to the normal contributions, of R191 000 per annum until 1985.
3. The purchase of R2 000 000 – 6,75 per cent 1991 of Electricity Supply Commission Local Registered Stock at the option of the stockholder at R97 per cent.

17. Contingent liabilities

The Commission has indemnified the Electricity Supply Commission Pension and Provident Fund against any loss resulting from the negligence, dishonesty or fraud of the Fund's officers or of the Trustees.

Electricity supply account

R000

1977 Total	Notes		Increase %	1978 Total	Corporate Services	Central Generating	Distribution Total	Cape Western	Cape Northern	Cape Eastern	Border	Undertakings Orange River	Natal	Eastern Transvaal	Rand and O.F.S.
1 030 552	11	**Electricity sold**	26,32				1 301 829	124 362	55 196	1 451	22 819	18 694	220 529	173 191	685 587
337 627		Industrial	29,09				435 002	45 509	4 811	880	2 910	874	76 075	104 780	199 163
329 177		Bulk	17,99				388 398	47 895	9 373	434	18 713	17 818	107 431	15 323	171 411
260 709		Mining	36,73				356 479	—	31 606	—	—	—	5 740	39 849	279 284
70 294		Traction	21,76				85 590	12 414	8 211	—	—	—	26 485	12 338	26 142
32 745		Domestic and lighting	8,84				36 360	18 544	1 195	137	1 196	2	4 798	901	9 587
484 376	12	**Operating expenditure**		548 562	21 701	443 347	83 514	16 100	4 979	374	3 969	2 186	15 297	10 847	29 762
280 034		Operations		317 828	499	316 308	1 021	125	99	—	43	47	186	207	314
55 347		Maintenance		66 264	227	43 381	22 656	4 489	1 195	168	1 051	517	3 572	4 213	7 451
15 501		Electricity purchased		26 364	—	26 364	—	—	—	—	—	—	—	—	—
133 494		Administration and general expenses		138 106	20 975	57 294	59 837	11 486	3 685	206	2 875	1 622	11 539	6 427	21 997
287 821	13	**Loan charges**		385 006	7 420	264 797	112 789	15 060	12 144	350	3 921	4 067	14 113	19 149	43 985
224 418		Interest and finance charges		308 970	6 798	202 648	99 524	13 436	11 089	318	3 589	3 564	12 003	17 026	38 499
24 842		Redemption of local loans		31 221	622	17 519	13 080	1 624	1 055	32	332	503	1 925	2 123	5 486
38 561		Repayment of foreign loans		44 815	—	44 630	185	—	—	—	—	—	185	—	—
224 900	14	**Contributions to funds**		300 900	—	—	300 900	21 496	7 982	122	3 409	4 516	48 867	41 350	173 158
900		Reserve Fund		900	—	—	900	—	—	—	200	200	500	—	—
224 000		Capital Development fund		300 000	—	—	300 000	21 496	7 982	122	3 209	4 316	48 367	41 350	173 158
—	15	**Distribution of costs**		—	(29 121)	(708 144)	737 265	68 035	24 254	440	11 548	9 235	124 006	93 443	406 304
—		Corporate burden		—	(29 121)	19 063	10 058	1 299	1 019	26	279	250	1 369	1 532	4 284
—		Interconnectors		—	—	2 400	(2 400)	—	—	—	—	(957)	—	(177)	(1 266)
—		Use of circuits		—	—	—	—	—	319	25	155	(180)	—	(2)	(317)
—		Transmission costs		—	—	(17 690)	17 690	9 888	2 477	54	1 314	1 220	2 029	—	708
—		Electricity supplied		—	—	—	—	—	—	—	—	—	—	838	(838)
—		Excess local generating costs		—	—	(7 093)	7 093	2 313	—	—	929	—	3 851	—	—
—		Pooled generation		—	—	(704 824)	704 824	54 535	20 439	335	8 871	8 902	116 757	91 252	403 733

R000

1977 Corporate Services	Central Generating	Distribution Undertakings Total	Cape Western	Cape Northern	Cape Eastern	Border	Orange River	Natal	Eastern Transvaal	Rand and O.F.S.
		1 030 552	111 984	34 922	1 094	21 199	14 163	200 143	126 881	520 166
		337 627	40 045	3 377	744	2 662	978	64 095	75 663	150 063
		329 177	44 123	7 022	223	17 391	13 181	101 948	13 084	132 205
		260 709	—	17 448	—	—	—	5 280	29 199	208 782
		70 294	11 307	6 140	—	—	—	23 809	8 204	20 834
		32 745	16 509	935	127	1 146	4	5 011	731	8 282
28 210	385 806	70 360	13 294	4 356	420	3 440	2 218	12 440	9 201	24 991
318	278 754	962	115	69	—	38	27	172	172	369
63	36 387	18 897	3 819	583	144	987	682	2 867	3 439	6 376
—	15 392	109	—	—	102	—	7	—	—	—
27 829	55 273	50 392	9 360	3 704	174	2 415	1 502	9 401	5 590	18 246
2 642	191 970	93 209	11 917	7 305	246	2 932	3 570	12 870	14 649	39 720
2 446	140 021	81 951	10 506	6 602	222	2 670	3 153	11 000	12 947	34 851
196	13 538	11 108	1 411	703	24	262	417	1 720	1 702	4 869
—	38 411	150	—	—	—	—	—	150	—	—
—	—	224 900	16 690	5 670	60	2 660	3 580	36 680	31 160	128 400
—	—	900	—	—	—	200	200	500	—	—
—	—	224 000	16 690	5 670	60	2 460	3 380	36 180	31 160	128 400
(30 852)	(577 776)	608 628	59 098	17 685	264	9 846	8 485	101 917	76 271	335 062
(30 852)	19 574	11 278	1 458	802	27	301	308	1 594	1 709	5 079
—	2 297	(2 297)	—	60	—	—	(896)	—	(181)	(1 280)
—	—	—	—	330	16	151	(167)	—	(2)	(328)
—	(15 197)	15 197	9 141	943	32	1 109	1 215	2 013	—	744
—	—	—	—	—	—	—	—	—	1 360	(1 360)
—	(7 158)	7 158	2 504	—	—	1 048	—	3 606	—	—
—	(577 292)	577 292	45 995	15 550	189	7 237	8 025	94 704	73 385	332 207

Outstanding loans

at 31 December 1978

Schedule 1

Loan	R000	Per cent		Out-standing R000	1977 R000
Internal registered stock					
33	16 000	4,625	1975/80	16 000	16 000
34	16 000	4,875	1975/80	16 000	16 000
35	16 500	5,125	1976/81	16 500	16 500
36	20 000	5,125	1977/82	20 000	20 000
37	22 000	5,125	1976/82	22 000	22 000
38	24 000	5,125	1977/83	24 000	24 000
39	24 000	5,375	1978/83	24 000	24 000
40	22 000	5,625	1979/84	22 000	22 000
42	20 000	5,375	1979/84	20 000	20 000
43	16 000	5,375	1979/85	16 000	16 000
44	16 000	5,375	1980/85	16 000	16 000
45	17 000	5,5	1980/86	17 000	17 000
46	16 000	5,875	1981/86	16 000	16 000
47	18 000	6,25	1981/86	18 000	18 000
49	18 000	6,125	1982/87	18 000	18 000
50	22 000	5,25	1982/87	22 000	22 000
51	29 000	5	1983/88	29 000	29 000
52	40 000	5	1980/83	40 000	40 000
53	20 000	5	1982/84	20 000	20 000
54	20 000	5,5	1982/84	20 000	20 000
55	32 000	5,875	1983/85	32 000	32 000
56	38 000	6,5	1983/85	38 000	38 000
58	30 000	6,5	1989/91	30 000	30 000
60	35 000	6,75	1991	35 000	35 000
61	35 000	6,875	1992	35 000	35 000
64	12 000	6,5	1992	12 000	12 000
65	37 000	6,875	1992	37 000	37 000
70	10 000	6,5	1993	10 000	10 000
71	70 000	6,875	1993	70 000	70 000
75	22 000	6,5	1993	22 000	22 000
76	48 000	6,875	1993	48 000	48 000
78	20 000	6,5	1994	20 000	20 000
79	30 000	6,875	1994	30 000	30 000
81	10 000	6,5	1994	10 000	10 000
82	25 000	6,875	1994	25 000	25 000
83	18 000	7,5	1995	18 000	18 000
84	3 000	7	1995	3 000	3 000
85	35 000	8,75	1995	35 000	35 000
86	10 000	8,5	1995	10 000	10 000
87	45 000	9,25	1996	45 000	45 000
88	10 000	8,75	1996	10 000	10 000
89	20 000	9,25	1996	20 000	20 000
90	30 000	9,25	1996	30 000	30 000
91	10 000	8,75	1996	10 000	10 000
92	20 000	9,25	1997	20 000	20 000
93	22 000	9,125	1997	22 000	22 000
94	5 000	8,75	1997	5 000	5 000
95	25 000	8,5	1997	25 000	25 000
96	28 000	8,25	1997	28 000	28 000
97	7 000	8	1997	7 000	7 000
98	45 000	8,25	1997	45 000	45 000
Carried forward				1 199 500	1 199 500

Loan	R000	Per cent		Out-standing R000	1977 R000
Brought forward				1 199 500	1 199 500
99	30 000	8,25	1998	30 000	30 000
100	20 000	8,375	1998	20 000	20 000
101	5 000	8	1998	5 000	5 000
103	24 000	8	1998	24 000	24 000
104	6 000	7,625	1998	6 000	6 000
105	30 000	7,25	1979	30 000	30 000
106	45 000	8	1998	45 000	45 000
107	27 000	9	1999	27 000	27 000
108	3 000	8,5	1999	3 000	3 000
110	30 000	9,5	1999	30 000	30 000
111	11 000	10,75	2000	11 000	11 000
112	29 000	10,75	2000	29 000	29 000
113	40 000	10,75	2000	40 000	40 000
114	25 000	10,75	2000	25 000	25 000
115	5 000	10,25	2000	5 000	5 000
116	30 000	10,75	2000	30 000	30 000
117	5 000	10,875	1985	5 000	5 000
118	55 000	11	2000	55 000	55 000
119	10 000	10,75	1980/95	10 000	10 000
120	4 000	11	1986	4 000	4 000
121	40 000	11,4	2001	40 000	40 000
122	6 000	11,1	1981/96	6 000	6 000
123	40 000	12,75	1996	40 000	40 000
124	10 000	12,65	1986	10 000	10 000
125	20 000	12,45	1981	20 000	20 000
126	40 000	12,5	2001	40 000	40 000
127	150 000	12,6	1999	150 000	150 000
128	20 000	12,45	1987	20 000	20 000
129	80 000	12,15	1982	80 000	80 000
130	50 000	11,5	1989	50 000 (a)	50 000
131	250 000	11,15	2002	250 000 (b)	250 000
132	250 000	11,75	2002	250 000 (c)	250 000
133	60 000	10,9	1988	60 000	—
134	170 000	10,75	2003	170 000	—
135	270 000	11,3	2003	270 000	—
136	7 800	7,25	1985/87	7 800	—
137	60 000	9,7	1986	(a) 60 000	—
138	150 000	9,7	2003	(b) 150 000	—
139	340 000	10,25	2003	(c) 340 000	—
				3 647 300	2 589 500
Less payable by stockholders				7 667	9 283
130 Not later than 14 February 1978 .					(a) 1 003
131 Not later than 14 February 1978 .					(b) 2 692
132 Not later than 14 February 1978 .					(c) 5 588
137 Not later than 15 January 1979 .				(a) 374	
138 Not later than 15 January 1979 .				(b) 2 044	
139 Not later than 15 January 1979 .				(c) 5 249	
Carried forward				3 639 633	2 580 217

Loan	Foreign currency		R000	Per cent		Out-standing R000	1977 R000
Brought forward						3 639 633	2 580 217
Foreign bond issues							
001	DM	50 000 000	(8 291)	6,5	1965/80	1 784	2 676
003	UA	15 000 000	(10 906)	7	1968/78	—	3 522
004	DM	100 000 000	(18 034)	6,5	1968/83	9 017	11 064
005	DM	100 000 000	(19 583)	8,5	1970/85	13 708	15 666
006	UA	12 000 000	(8 263)	9,25	1970/80	5 242	6 339
007	DM	100 000 000	(19 556)	8	1971/86	15 645	17 600
009	UA	20 000 000	(14 210)	8,25	1971/86	23 350	21 165
013	US$	20 000 000	(14 304)	8,5	1971/86	8 940	10 013
017	DM	100 000 000	(25 132)	6,25	1972/87	22 619	25 132
020	SF	50 000 000	(8 293)	6,5	1973/88	8 293	8 293
023	DM	100 000 000	(24 975)	7	1973/88	24 975	24 975
027	US$	15 000 000	(10 080)	9,25	1974/89	8 736	9 072
Direct placings							
008	DM	10 000 000	(2 054)	8	1971/86	1 643	1 849
010	DM	20 000 000	(3 644)	8,5	1971/86	2 915	3 279
011	DM	20 000 000	(4 016)	8,5	1971/86	3 213	3 615
012	DM	40 000 000	(9 437)	8,5	1971/83	5 898	7 078
033	US$	40 000 000	(27 244)	9,375	1975/90	19 412	27 244
						3 815 023	2 778 799

Short-term loans and advances

at 31 December 1978

Schedule 2

						R000	
Loan	Foreign currency		R000	Per cent		**Outstanding**	**1977**
Foreign bond issues							
034	US$	25 000 000	(17 028)	10	1975/80	**17 028**	**17 028**
035	DM	100 000 000	(27 851)	9,25	1975/80	**27 851**	**27 851**
037	US$	30 000 000	(26 119)	10,25	1975/83	**16 233**	**26 119**
Carried forward						**61 112**	**70 998**

R000

Loan	Foreign currency		R000	Per cent		Outstanding	1977
Brought forward						61 112	70 998
Direct placings							
015	D.FL	50 000 000	(11 740)	6,5	1972/79	2 935	5 870
021	SF	50 000 000	(8 324)	6,75	1973/80	8 324	8 324
022	SF	35 000 000	(7 647)	6,75	1973/78	—	7 647
024	SF	75 000 000	(16 304)	6,5	1973/80	16 304	16 304
026	SF	50 000 000	(10 850)	7,25	1973/78	—	10 850
028	SF	20 000 000	(4 318)	8,5	1974/79	4 318	4 318
029	US$	35 000 000	(23 839)	9,75	1974/82	19 071	20 263
031	DM	70 000 000	(20 138)	10,5	1975/79	20 138	20 138
032	SF	30 000 000	(8 003)	9	1975/82	8 003	8 003
036	SF	50 000 000	(13 298)	9	1975/80	13 298	13 298
038	SF	50 000 000	(16 226)	8,5	1975/78	—	16 226
040	M£	5 000 000	(10 743)	8,5	1976/81	11 945	11 111
042	SF	50 000 000	(17 185)	7,75	1976/80	17 185	17 185
043	DM	75 000 000	(25 351)	9,75	1976/80	25 351	25 351
044/01	US$	20 000 000	(17 384)	9,5625	1976/79	3 465	12 189
044/02	DM	8 000 000	(3 337)	5,875	1978/79	3 337	—
044/03	DM	10 000 000	(4 411)	5,75	1978/79	4 411	—
045	US$	10 000 000	(8 706)	8,5	1976/79	1 350	1 350
049	US$	5 000 000	(4 353)	7,1875	1976/78	—	4 353
051	DM	10 290 875	(3 553)	7	1976/79	937	937
053	SF	20 000 000	(7 088)	6,25	1976/78	—	7 088
054	US$	10 000 000	(8 718)	8,5	1976/81	6 974	8 718
055	US$	10 000 000	(8 706)	6,625	1976/78	—	7 836
058	SF	9 500 000	(3 273)	6,75	1977/78	—	3 273
059	SF	9 500 000	(3 273)	6,75	1977/78	—	3 273
062	SF	20 000 000	(7 181)	6,5	1977/78	—	7 181
063	SF	20 000 000	(7 246)	5,25	1977/78	—	7 246
064	SF	5 000 000	(1 824)	6,75	1977/78	—	1 824
065	US$	15 000 000	(13 059)	7,75	1977/78	—	13 059
066	US$	10 000 000	(8 706)	8,1875	1977/78	—	8 706
067	DM	30 000 000	(11 758)	8,25	1977/80	11 758	11 758
068	DM	25 000 000	(9 376)	7,5	1977/79	9 376	9 376
069	DM	25 000 000	(10 290)	8,25	1978/81	10 290	—
070	DM	20 000 000	(7 773)	8	1977/80	7 773	7 773
071	SF	20 000 000	(8 132)	1,5	1977/79	8 132	8 132
072	DM	10 000 000	(3 937)	6,625	1977/78	—	3 937
073	US$	9 000 000	(7 836)	9,25	1978/79	7 836	—
074A	DM	19 000 000	(7 814)	6	1977/79	7 814	7 814
074B	DM	21 500 000	(8 745)	5,75	1977/79	8 745	8 745
075	DM	20 000 000	(8 251)	8	1978/81	8 251	—
076	DM	20 000 000	(8 208)	8	1978/81	8 208	—
077	SF	80 000 000	(36 347)	7	1978/81	36 347	—
078	SF	35 000 000	(16 253)	6,75	1978/81	16 253	—
080	SF	9 500 000	(4 247)	3,5	1978/79	4 247	—
081	SF	9 500 000	(4 208)	3,5	1978/79	4 208	—
082	DM	53 000 000	(21 753)	5,5	1978/79	21 752	—
083	SF	20 000 000	(9 331)	3,25	1978/79	9 331	—
084	US$	4 000 000	(3 483)	11	1978/80	3 482	—
085	US$	10 000 000	(8 706)	10,5625	1978/79	8 706	—
086	SF	20 000 000	(9 662)	4,5	1978/79	9 662	—
087	US$	31 545 250	(27 500)	7,5	1978/81	27 500	—
088	SF	5 000 000	(2 648)	5	1978/83	2 659	—
089	US$	12 000 000	(10 409)	5,25	1978/79	10 409	—
090	SF	120 000 000	(68 278)	6,25	1978/82	68 650	—
091	DM	40 000 000	(20 192)	5,25	1978/84	20 192	—
092	DM	20 000 000	(10 096)	8	1978/84	10 096	—
093	DM	45 332 544	(20 406)	5,5625	1978/83	20 406	—
Total short-term loans						590 541	400 454
Foreign revolving credits						190 345	319 842
Local short-term advances						114 100	218 500
						894 986	938 796

Investments of the Capital Development Fund

at 31 December 1978

Schedule 3

Description			Loan	Nominal value	Book value
				R000	
Escom internal registered stock					
8,5	per cent	1997	95	7 000	6 760
8,25	per cent	1997	98	7 400	7 318
8,375	per cent	1998	100	202	201
8	per cent	1998	103	75	75
8	per cent	1998	106	187	187
9,5	per cent	1999	110	50	49
10,75	per cent	2000	112	168	164
10,75	per cent	2000	113	61	60
10,75	per cent	2000	114	17	17
11	per cent	2000	118	94	93
12,75	per cent	1996	123	71	71
12,6	per cent	1999	127	30 733	30 733
11,15	per cent	2002	131	150 000	142 863
11,75	per cent	2002	132	169 000	169 000
10,75	per cent	2003	134	5 416	5 174
11,3	per cent	2003	135	205 000	205 000
10,25	per cent	2003	139	214 500	214 500
Total (Note 7)				789 974	782 265
Interest accrued					12 607
					794 872
Market value			877 859		

Investments of the Reserve Fund

at 31 December 1978

Schedule 4

Description		Loan	Nominal value R000	Book value R000
Escom internal registered stock				
4,625	per cent	1975/80	33	1 266	1 185
4,875	per cent	1975/80	34	2 504	2 302
5,125	per cent	1976/81	35	2 984	2 705
5,125	per cent	1977/82	36	4 593	4 009
5,125	per cent	1976/82	37	4 493	3 841
5,125	per cent	1977/83	38	1 780	1 485
5,375	per cent	1978/83	39	2 183	1 866
5,625	per cent	1979/84	40	3 523	2 971
5,375	per cent	1979/84	42	2 905	2 455
5,375	per cent	1979/85	43	1 932	1 537
5,375	per cent	1980/85	44	2 582	2 124
5,5	per cent	1980/86	45	470	372
5,875	per cent	1981/86	46	1 116	875
6,25	per cent	1981/86	47	1 090	794
6,125	per cent	1982/87	49	1 704	1 380
5,25	per cent	1982/87	50	1 875	1 329
5	per cent	1983/88	51	1 158	785
5	per cent	1980/83	52	4 930	4 141
5	per cent	1982/84	53	1 936	1 581
5,5	per cent	1982/84	54	1 765	1 455
5,875	per cent	1983/85	55	3 857	3 425
6,5	per cent	1983/85	56	6 351	5 478
6,5	per cent	1989/91	58	5 190	4 661
6,75	per cent	1991	60	11 119	10 323
6,875	per cent	1992	61	4 388	4 216
6,875	per cent	1992	65	8 905	8 738
6,875	per cent	1993	71	7 212	6 880
7,5	per cent	1995	83	700	700
7	per cent	1995	84	112	100
8,75	per cent	1995	85	1 203	1 203
8,5	per cent	1995	86	102	100
8,75	per cent	1996	91	13	13
8,75	per cent	1997	94	46	47
7,25	per cent	1979	105	693	690
9	per cent	1999	107	3	2
10,875	per cent	1985	117	48	48
10,75	per cent	1980/95	119	1 880	1 879
11	per cent	1986	120	193	193
11,1	per cent	1981/96	122	647	647
12,65	per cent	1986	124	44	44
12,45	per cent	1981	125	307	307
12,45	per cent	1987	128	114	114
12,15	per cent	1982	129	1 909	1 909
11,5	per cent	1989	130	13 067	13 067
11,75	per cent	2002	132	1 121	1 121
10,9	per cent	1988	133	12 223	12 223
11,3	per cent	2003	135	10 457	10 457
9,7	per cent	1986	137	39 844	39 844
9,7	per cent	2003	138	10 867	10 335
10,25	per cent	2003	139	11 500	11 500
Total (Note 7)				200 904	189 456

Description		Loan	Nominal value R000	Book value R000
Republic of South Africa				
5,25	per cent	1979		700	697
Municipal stock				
Bloemfontein				
5,375	per cent	1975/80		100	96
Cape Town				
5,375	per cent	1980/85	203	600	542
5,5	per cent	1981/86	208	850	759
5,5	per cent	1983/88	219	610	531
5,5	per cent	1980	227	100	98
6,5	per cent	1981	240	210	206
Durban				
5,375	per cent	1974/79	68	600	594
5,375	per cent	1976/80	70	800	776
5	per cent	1984	84	500	444
5,5	per cent	1982	87	450	423
6	per cent	1980	88	500	490
6	per cent	1981	91	1 000	968
6,5	per cent	1981	93	1 000	981
Germiston				
5,375	per cent	1985	16	150	133
Johannesburg				
5,375	per cent	1974/79	36	120	119
Pretoria				
5	per cent	1961/81	7	246	235
6,25	per cent	1977/82	49	200	193
5,5	per cent	1980/83	56	200	185
6,5	per cent	1981/84	59	200	192
Rand Water Board				
6,5	per cent	1984	33	250	240
7	per cent	1987	35	200	196
External investments (Note 4)				9 586	9 098
				210 490	198 554
Interest accrued					3 400
					201 954
Market value			201 928		

Investments of the Redemption Fund

at 31 December 1978

Schedule 5

R000

Description		Loan	Nominal value	Book value
Escom internal registered stock				
5,375 per cent	1979/85	43	3 582	3 284
5,375 per cent	1980/85	44	746	672
5,5 per cent	1980/86	45	2 313	2 099
5,875 per cent	1981/86	46	788	703
5 per cent	1983/88	51	176	121
5,875 per cent	1983/85	55	134	122
6,5 per cent	1989/91	58	7 823	7 394
6,75 per cent	1991	60	4 343	4 116
6,875 per cent	1992	61	6 555	6 263
6,5 per cent	1992	64	2 536	2 280
6,875 per cent	1992	65	4 941	4 479
6,5 per cent	1993	70	2 398	2 192
6,875 per cent	1993	71	6 809	6 074
6,5 per cent	1993	75	2 229	1 888
6,875 per cent	1993	76	2 862	1 893
6,5 per cent	1994	78	2 623	2 320
6,875 per cent	1994	79	7 347	6 799
6,5 per cent	1994	81	1 494	1 333
6,875 per cent	1994	82	7 049	6 666
7,5 per cent	1995	83	1 160	922
7 per cent	1995	84	421	320
8,75 per cent	1995	85	9 653	9 415
8,5 per cent	1995	86	1 676	1 569
9,25 per cent	1996	87	1 315	1 228
8,75 per cent	1996	88	253	222
9,25 per cent	1996	89	1 394	1 299
9,25 per cent	1996	90	1 429	1 326
8,75 per cent	1996	91	6 916	6 566
9,25 per cent	1997	92	1 672	1 391
9,125 per cent	1997	93	1 111	986
8,75 per cent	1997	94	421	386
8,5 per cent	1997	95	2 594	2 470
8,25 per cent	1997	96	2 977	2 838
8 per cent	1997	97	397	334
8,25 per cent	1997	98	7 090	7 009
8,25 per cent	1998	99	75	61
8 per cent	1998	101	154	144
8 per cent	1998	103	43	33
7,625 per cent	1998	104	78	75
9 per cent	1999	107	180	151
8,5 per cent	1999	108	169	155
9,5 per cent	1999	110	16	15
10,75 per cent	2000	111	29	29
10,75 per cent	2000	112	1 300	1 300
10,75 per cent	2000	113	89	88
10,75 per cent	2000	114	34	34
Carried forward			109 394	101 064

R000

Description		Loan	Nominal value	Book value
Brought forward			109 394	101 064
10,25 per cent	2000	115	30	28
10,75 per cent	2000	116	491	491
11 per cent	2000	118	1 192	1 192
11,4 per cent	2001	121	234	232
12,5 per cent	2001	126	73	73
12,6 per cent	1999	127	15	15
11,15 per cent	2002	131	12 829	12 248
11,75 per cent	2002	132	36 129	36 129
10,75 per cent	2003	134	65 150	62 265
11,3 per cent	2003	135	8 998	8 998
9,7 per cent	2003	138	113 000	107 467
10,25 per cent	2003	139	63 916	63 916
Total (Note 7)			411 451	394 118
Republic of South Africa				
5,25 per cent	1979		300	299
6 per cent	1985		500	490
Municipal stock				
Bloemfontein				
5,375 per cent	1975/80		80	77
Cape Town				
5,375 per cent	1980/85	203	300	271
Durban				
5,375 per cent	1974/79	68	120	119
Germiston				
5,375 per cent	1985	16	20	18
Johannesburg				
5,375 per cent	1974/79	36	194	192
External investments (Note 4)			1 514	1 466
			412 965	395 584
Interest accrued				6 443
				402 027
Market value		410 673		

Investments in Escom foreign loan bonds

at 31 December 1978

Schedule 6

Description		Loan		Foreign currency	Nominal value	Book value
					R000	
German	6,5 per cent 1965/80	FF001	DM	295 400	53	48
German	6,5 per cent 1968/83	FF004	DM	2 578 000	465	418
German	8,5 per cent 1970/85	FF005	DM	1 717 000	336	311
Units of Account	9,25 per cent 1970/80	FF006	UA	85 000	186	184
German	8 per cent 1971/86	FF007	DM	4 186 000	819	713
Units of Account	8,25 per cent 1971/86	FF009	UA	385 000	841	856
Euro-dollar	8,5 per cent 1971/86	FF013	$	550 000	393	368
German	6,25 per cent 1972/87	FF017	DM	5 644 000	1 418	1 155
German	7 per cent 1973/88	FF023	DM	4 893 000	1 222	1 015
Euro-dollar	9,25 per cent 1974/89	FF027	$	500 000	336	- 314
Euro-dollar	Floating 1975/82	FF029	$	651 000	443	437
Total (Note 7)					6 512	5 819
Interest accrued						231
						6 050
Market value				11 208		

Capital Development Fund Account

for the year ended 31 December 1978

Schedule 7

	R000		R000	
	1978		1977	
Amounts set aside		300 000		224 000
Cape Western Undertaking	21 496		16 690	
Cape Northern Undertaking	7 982		5 670	
Cape Eastern Undertaking	122		60	
Border Undertaking	3 209		2 460	
Orange River Undertaking	4 316		3 380	
Natal Undertaking	48 367		36 180	
Eastern Transvaal Undertaking	41 350		31 160	
Rand and Orange Free State Undertaking	173 158		128 400	
Central Generating Undertaking	—		—	
Investment income		70 168		33 229
Interest earned	70 091		33 169	
Adjustments of investment values	77		60	
Balance at beginning of year		438 830		181 601
Balance at end of year (Note 8)		808 998		438 830

Reserve Fund Account

for the year ended 31 December 1978

Schedule 8

	R000		R000	
	1978		1977	
Amounts set aside		900		900
Cape Western Undertaking	—		—	
Cape Northern Undertaking	—		—	
Cape Eastern Undertaking	—		—	
Border Undertaking	200		200	
Orange River Undertaking	200		200	
Natal Undertaking	500		500	
Eastern Transvaal Undertaking	—		—	
Rand and Orange Free State Undertaking	—		—	
Central Generating Undertaking	—		—	
Investment income		21 619		16 525
Interest earned	20 321		15 844	
Adjustments of investment values	1 298		681	
		22 519		17 425
Expenditure		11 477		4 212
Cape Western Undertaking	4		42	
Cape Northern Undertaking	15		418	
Cape Eastern Undertaking	—		6	
Border Undertaking	—		43	
Orange River Undertaking	—		2	
Natal Undertaking	1 541		119	
Eastern Transvaal Undertaking	194		63	
Rand and Orange Free State Undertaking	804		471	
Central Generating Undertaking	8 919		3 048	
		11 042		13 213
Balance at beginning of year		209 074		195 861
Balance at end of year (Note 8)		220 116		209 074

Redemption Fund Account

for the year ended 31 December 1978

Schedule 9

	R000		R000	
	1978		1977	
Amounts contributed		30 599		24 606
Cape Western Undertaking	1 624		1 398	
Cape Northern Undertaking	1 055		703	
Cape Eastern Undertaking	32		24	
Border Undertaking	332		250	
Orange River Undertaking	503		417	
Natal Undertaking	1 925		1 720	
Eastern Transvaal Undertaking	2 123		1 702	
Rand and Orange Free State Undertaking	5 486		4 854	
Central Generating Undertaking	17 519		13 538	
Other contributions		622		236
Proceeds of sales of fixed property		852		954
Investment income		34 010		31 087
Interest earned	34 738		30 750	
Adjustments of investment values	(728)		337	
Balance at beginning of year		382 566		325 683
Balance at end of year (Note 8)		448 649		382 566

We have examined the accounting records of the Redemption Fund. In our opinion proper records have been kept and the Fund has been maintained in accordance with the requirements of the Electricity Act, 1958.

Alex. Aiken & Carter
Deloitte Haskins & Sells
Chartered Accountants (S.A.)
Auditors

Sandton
13 March 1979

Statistical and other statements

Computer centre at Megawatt Park.

Power stations: principal equipment installed

at 31 December 1978 — Statement No. 1

Power station	Station capacity			Boilers		Main turbo-generators		Steam conditions at turbine inlet	
	Boilers kg/s	Generators MW	Assigned sent-out rating MW	No.	Maximum continuous rating each kg/s	No.	Normal rating each MW	Pressure MPa (abs)	Temperature °C
Coal-fired station, Eastern Cape									
West Bank 2	85,6	45,0		4	21,4	3	15,0	2,9	427
	53,0	40,0		2	26,5	2	20,0	2,9	427
	138,6	85,0	80	6		5			
Coal-fired stations, Natal									
Colenso	113,5	75,0		5	22,7	3	25,0	2,0	385
	50,4	30,0		2	25,2	1	30,0	2,0	385
	163,9	105,0	91	7		4			
Ingagane	567,0	500,0	465	5	113,4	5	100,0	8,4	510
Umgeni	181,6	120,0		8	22,7	4	30,0	4,2	454
	164,0	120,0		5	32,8	2	60,0	4,2	454
	345,6	240,0	222	13		6			
Sub-total	1 076,5	845,0	778	25		15			
Coal-fired stations, Transvaal and O.F.S.									
Arnot	1 998,6	2 100,0	1 980	6	333,1	6	350,0	15,9	510/510
Camden	1 814,4	1 600,0	1 520	8	226,8	8	200,0	10,3	538
Grootvlei	1 071,0	1 200,0		5	214,2	6	200,0	10,3	538
	230,6			1	230,6			10,3	538
	1 301,6	1 200,0	1 140	6		6			
Hendrina	2 142,0	2 000,0	1 900	10	214,2	10	200,0	10,3	538
Highveld	554,4	480,0	440	8	69,3	8	60,0	6,3	482
Klip	567,5	396,0		25	22,7	12	33,0	2,5	390
		*28,0							
	567,5	424,0	372	25		12			
Komati	567,0	500,0		5	113,4	5	100,0	8,4	510
	566,8	500,0		4	141,7	4	125,0	8,4	510
	1 133,8	1 000,0	925	9		9			
Kriel	1 760,0	2 000,0	1 900	4	440,0	4	500,0	16,0	510/510
Taaibos	584,0	480,0	440	8	73,1	8	60,0	4,2	441
Vaal	430,2	297,0		18	23,9	7	33,0	2,5	427
		†21,0							
	430,2	318,0	282	18		9			
Vierfontein	503,5	360,0	336	19	26,5	12	30,0	4,2	441
Wilge	62,8			4	15,7				
	201,6	60,0		4	50,4	2	30,0	4,2	454
	73,1	180,0		1	73,1	3	60,0	4,2	454
	337,5	240,0	221	9		5			
Sub-total	13 127,5	12 202,0	11 456	130		97			

Power station	Station capacity			Boilers		Main turbo-generators		Steam conditions at turbine inlet	
	Boilers kg/s	Gene-rators MW	Assigned sent-out rating MW	No.	Maximum continuous rating each kg/s	No.	Normal rating each MW	Pressure MPa (abs)	Tempera-ture °C
Coal-fired stations, Western Cape									
Hex River	100,8 69,2	60,0 60,0		4 2	25,2 34,6	3 2	20,0 30,0	4,2 4,2	427 482
	170,0	120,0	114	6		5			
Salt River 1	75,6	60,0	57	6	12,6	3	20,0	2,9	385
Salt River 2	328,0	120,0 120,0		10	32,8	4 2	30,0 60,0	4,2 4,2	482 482
	328,0	240,0	228	10		6			
Sub-total	573,6	420,0	399	22		14			
Total, coal-fired stations	14 916,2	13 552,0	12 713	183		131			
Gas turbine stations									
Acacia (Western Cape)		171,0	171			3	57,0		
Port Rex (Eastern Cape)		171,0	171			3	57,0		
Total, gas turbine stations		342,0	342			6			
Hydro-electric stations, conventional storage									
Hendrik Verwoerd		320,0	320			4	80,0		
Vanderkloof		220,0	220			2	110,0		
Total hydro stations		540,0	540			6			
Total, all Escom	14 916,2	14 434,0	13 595	183		143			

Other Power Sources

	Firm capacity available to Escom MW
Cabora Bassa	1 025

*Four 7 MW house sets installed at Klip.
†Three 7 MW house sets installed at Vaal.

Capacity of transformers in service

at 31 December 1978

Statement No. 2

	Number		Capacity MVA	
Undertaking	1977	1978	1977	1978
Border	1 403	1 475	706,385	1 686,342
Cape Eastern	646	654	43,089	43,544
Cape Northern	3 320	3 485	2 599,838	3 923,037
Cape Western	11 626	12 205	5 182,575	6 100,515
Eastern Transvaal	7 140	7 795	9 205,996	10 217,010
Natal	9 858	10 247	9 802,196	10 316,824
Orange River	332	361	3 767,129	3 768,692
Rand and O.F.S.	21 186	22 726	39 580,785	45 342,677
Central Generating	1 281	1 354	32 957,697	36 854,037
Totals	56 792	60 302	103 845,690	118 252,678

Price or rent of land or rights or interests in or over land or any other property acquired or hired by the Commission during the year ending 31 December 1978

Statement No. 3

Undertakings	Immovable property acquired for considerations amounting to	Servitudes and other interest in or over land or other property acquired or hired
Central Generating Undertaking	R913 375,00	R917 121,91
Cape Western Undertaking	R284 624,00	R405 538,26
Cape Northern Undertaking	R81 500,00	R140 753,37
Orange River Undertaking	R20 000,00	R36 071,37
Border Undertaking	R119 568,00	R26 107,88
Natal Undertaking	R198 991,00	R256 407,00
Eastern Transvaal Undertaking	R80 687,00	R152 527,00
Rand and O.F.S. Undertaking	R236 547,00	R293 909,47
Head Office (Education Department)	R748 900,00	—
Cape Eastern Undertaking	—	R10 761,30

Transmission lines and cables

Circuit kilometres (excluding service connections on reticulation systems)
at 31 December 1978

Statement No. 4

(a) Transmission lines

Undertaking	533 kV D.C. (Monopolar)	400 kV	275 kV	220 kV	165 kV	132 kV	88 kV	66 kV	50 kV	42 kV	33 kV	22 kV 21 kV	11 kV	6,6 kV	3,3 kV	2,0 kV 2,1 kV 2,2 kV	380 V 220 V	Total
Border				159,85		52,39		772,82			57,48	659,95	1 618,30				197,85	3 518,64
Cape Eastern												319,13	255,20				18,04	592,37
Cape Northern		195,78	580,02	304,72	221,60	2 217,05		850,56	18,40			1 864,67	1 882,54				153,90	8 289,24
Cape Western						1 233,20		1 949,49		94,80	227,56	1 176,97	6 244,75	559,02			2 304,95	13 790,74
Eastern Transvaal			1 266,67			2 266,26	1 370,10	219,10			10,20	5 990,09	6 060,07	129,16		69,62	358,94	17 740,21
Natal			1 268,60			1 323,52	2 506,00				881,53	1 259,69	8 740,99	8,83		1,53	813,36	16 804,05
Orange River				494,97		152,77		819,07				1 285,90	156,83				3,33	2 912,87
Rand and O.F.S.		430,49	2 803,37			4 235,37	7 117,72	186,57		2 591,42	14,27	2 500,38	14 041,55	549,26		1,62	1 342,67	35 814,69
Central Generating	1 030,16	6 634,22		383,02		17,15												8 064,55
							10 993,82	4 797,61	18,40	2 686,22	1 191,04	15 056,78	39 000,23	1 246,27		72,77	5 193,04	
Totals "A"	1 030,16	7 260,49	5 918,66	1 342,56	11 719,31		19 687,09					60 569,09						107 527,36

(b) Underground cables

Border												0,02	54,68				58,85	113,55
Cape Eastern																	2,86	2,86
Cape Northern								0,32				2,13	2,00				34,12	38,57
Cape Western						20,10		51,86			66,12	5,77	1 431,28	15,46	0,71		2 016,45	3 607,75
Eastern Transvaal												40,77	73,46	3,15		4,78	150,71	272,87
Natal							1,89				4,36	9,33	456,85	6,52	0,47	0,02	286,03	765,47
Orange River																	1,32	1,32
Rand and O.F.S.							57,51			192,15	0,33	197,98	561,67	694,74	0,36	0,85	534,40	2 239,99
							59,40	52,18		192,15	70,81	256,00	2 579,94	719,87	1,54	5,65	3 084,74	
Totals "B"					20,10		374,54					6 647,74						7 042,38

(c) Total lines and cables

A + B = C 1978	1 030,16	7 260,49	7 261,22	11 739,41			11 053,22	4 849,79	18,40	2 878,37	1 261,85	15 312,78	41 580,17	1 966,14	1,54	78,42	8 277,78	
							20 061,63					67 216,83						114 569,74
D 1977	*1 030,16	*6 271,74	*6 742,47	*11 323,68			*18 703,65					*64 492,20						*108 563,90
Additions: C – D = E	—	988,75	518,75	415,73			1 357,98					2 724,63						6 005,84

*Amended figures

Power station operating statistics, 1978

Statement No. 5

Power station	Sent-out rating on 31 December 1978 MW	Energy sent out million kW.h	Maximum demands 1 hour sent out MW	Station load factors per cent *A	Station load factors per cent **B	Overall thermal efficiency per cent Sent out	‡Availability per cent	Fuel burnt tons	kg of coal/kW.h sent out	Heat content of coal as received (weighted average) MJ/kg	Station heat rate MJ/kW.h sent out
Coal-fired station, Eastern Cape											
West Bank 1 and 2	†80	188,1	87	25,0	29,8	20,8	83,8	126 179	0,671	25,81	17,31
(West Bank 1 decommissioned May, 1978)											
Coal-fired stations, Natal											
Colenso	91	180,5	81	22,6	30,1	17,0	75,0	151 420	0,839	25,17	21,11
Congella (decommissioned December 1978)	†—	307,1	103	36,1	40,2	17,6	89,9	265 007	0,863	23,04	20,51
Ingagane	465	2 765,7	466	67,9	90,7	28,3	74,9	1 472 753	0,533	23,76	12,73
Umgeni	222	754,9	216	38,8	45,0	22,0	86,3	502 450	0,666	24,59	16,37
Sub-total	778	4 008,2	—	52,3	—	25,0	79,5	2 391 630	0,597	23,94	14,39
Coal-fired stations, Transvaal and O.F.S.											
Arnot	1 980	10 597,6	2 001	61,1	92,6	33,4	66,0	5 146 255	0,486	22,12	10,79
Camden	1 520	9 879,5	1 504	74,2	91,8	30,4	80,8	5 136 771	0,520	22,73	11,83
Grootvlei	1 140	6 645,3	1 181	66,5	86,8	30,4	76,6	3 608 127	0,543	21,72	11,84
Hendrina	1 900	12 302,1	1 813	73,9	94,3	31,0	78,4	6 073 496	0,494	23,47	11,60
Highveld	440	1 965,6	405	51,0	60,8	26,3	83,9	1 618 044	0,823	16,55	13,70
Klip	372	1 303,4	349	40,0	45,8	16,9	87,4	1 474 308	1,131	18,87	21,34
Komati	925	4 949,9	800	61,1	89,2	26,6	68,5	2 989 583	0,604	22,30	13,53
Kriel (under construction)	†1 900	9 518,6	1 938	70,4	98,6	34,6	71,4	4 563 093	0,479	21,50	10,40
Taaibos	440	2 212,8	464	57,4	67,3	24,7	85,3	1 836 663	0,830	17,50	14,57
Vaal	282	1 516,9	289	61,4	70,9	19,0	86,6	1 584 341	1,044	18,18	18,99
Vierfontein	336	1 707,1	351	58,0	60,1	20,7	96,5	1 570 494	0,920	18,87	17,36
Wilge	221	1 448,4	229	74,8	92,7	23,6	80,7	1 024 720	0,707	21,56	15,29
Sub-total	11 456	64 047,2	—	65,9	86,6	29,3	76,1	36 625 895	0,572	21,40	12,27
Coal-fired stations, Western Cape											
Hex River	114	210,9	115	21,1	22,8	22,0	92,7	131 035	0,621	26,28	16,33
Salt River 1 and 2	285	549,8	251	22,0	27,5	25,1	80,0	314 775	0,573	25,08	14,36
Sub-total	399	760,7	—	21,8	26,1	24,1	83,6	445 810	0,586	25,43	14,91
Total for all coal-fired stations	12 713	69 004,2	—	63,3	82,6	28,9	76,6	39 589 514	0,574	21,61	12,44
Gas turbine stations											
Acacia (Western Cape)	171	7,1	174	0,5	0,5		92,6	2 765			
Port Rex (Eastern Cape)	171	4,0	156	0,3	0,3		88,6	1 995			
Total for gas turbine stations	342	11,1	—	0,4	0,4		90,6	4 760			
Hydro-electric stations											
Hendrik Verwoerd	320	924,9	403	33,0	33,4		95,9				
Vanderkloof	220	962,2	257	49,9	65,6		76,1				
Total for hydro-stations	540	1 887,1	—	39,9	45,4		87,8				
Total/weighted average	13 595	70 902,4	—	60,7	78,4		77,4				

*Station load factors A = $\frac{\text{kW.h s.o.} \times 100}{\text{(assigned s.o. rating)} \times \text{hours in year}}$

**Station load factors B = $\frac{\text{Station load factors A} \times 100}{\text{Availability}}$

†Operating statistics are based on average capacity during the year.

‡Availability = $\frac{\text{Capacity hours available} \times 100}{\text{Total capacity hours in year}}$

Summary of operating statistics

at 31 December 1978

Statement No. 6

Calendar year	Coal fired power stations: Coal used: Thousands of tons	Average calorific value MJ/kg	kg per kW.h sent out	Average heat rate MJ/kW.h sent out	Overall thermal efficiency sent out basis per cent	Coal cost: Total R000	Average rand/ton	Cents per kW.h sent out	Total power stations million kW.h sent out: Coal-fired stations	Hydro-electric stations (conventional dam storage)	Diesel and gas turbine stations	Total power station output	Total power station capacity assigned sent-out rating MW as at 31 December	Average power station plant load factor sent-out basis per cent
1950	6 323,4	22,72	0,869	19,74	18,2	5 302,0	0,84	0,072 9	7 276,4	6,6	3,5	7 286,5	1 290	64,7
1951	6 662,9	22,72	0,855	19,43	18,5	6 553,0	0,98	0,084 0	7 797,2	6,3	3,3	7 806,8	1 361	66,1
1952	7 113,4	22,75	0,865	19,68	18,3	8 520,0	1,20	0,103 7	8 219,7	6,4	1,2	8 227,3	1 454	66,9
1953	7 393,9	23,08	0,837	19,32	18,6	9 862,0	1,33	0,111 6	8 838,2	6,6	0,6	8 845,4	1 635	65,5
1954	8 024,9	23,06	0,805	18,56	19,4	11 329,0	1,41	0,113 6	9 971,5	5,7	0,2	9 977,4	1 846	66,4
1955	8 999,7	22,89	0,788	18,04	20,0	13 709,0	1,52	0,120 1	11 419,1	5,8	0,2	11 425,1	2 145	65,9
1956	9 688,5	22,96	0,765	17,56	20,5	13 653,0	1,62	0,123 6	12 663,2	6,4	0,3	12 669,9	2 498	61,2
1957	10 220,6	22,79	0,750	17,09	21,1	17 256,0	1,69	0,126 6	13 633,5	6,3	0,2	13 640,0	2 555	61,1
1958	10 784,1	22,73	0,743	16,89	21,3	19 039,0	1,77	0,131 2	14 510,5	4,8	0,5	14 515,8	2 748	62,0
1959	11 548,7	22,44	0,732	16,43	21,9	20 970,0	1,82	0,132 9	15 774,5	2,5	0,1	15 777,1	2 983	62,6
1960	12 512,6	22,52	0,723	16,28	22,1	25 373,0	2,03	0,146 6	17 305,5	2,0	—	17 307,5	3 091	65,2
1961	13 194,9	22,39	0,722	16,17	22,3	27 713,0	2,10	0,151 6	18 282,2	1,8	—	18 284,0	3 226	66,2
1962	13 955,5	22,22	0,719	15,98	22,5	29 230,0	2,09	0,150 7	19 401,2	2,8	0,1	19 404,1	3 406	65,8
1963	14 721,1	22,15	0,708	15,68	23,0	31 009,0	2,11	0,149 2	20 789,2	4,3	0,1	20 793,6	3 788	65,7
1964	15 654,7	22,15	0,692	15,33	23,5	32 367,0	2,07	0,143 0	22 634,1	4,5	—	22 638,6	4 077	65,2
1965	16 726,7	22,39	0,680	15,23	23,6	34 986,0	2,09	0,142 3	24 582,6	—	0,1	24 582,7	4 181	67,4
1966	16 982,3	22,20	0,666	14,79	24,4	37 901,0	2,23	0,148 6	25 504,1	—	—	25 504,1	4 377	67,1
1967	18 307,7	22,44	0,645	14,47	24,9	42 053,0	2,30	0,148 2	28 370,9	—	—	28 370,9	5 328	66,8
1968	19 133,9	22,63	0,620	14,03	25,6	44 604,0	2,33	0,144 6	30 843,5	—	—	30 843,5	5 800	62,9
1969	19 982,9	22,73	0,595	13,52	26,6	47 453,0	2,37	0,141 2	33 598,2	—	—	33 598,2	6 441	62,1
1970	21 630,6	22,97	0,580	13,32	27,0	48 807,0	2,26	0,130 8	37 320,8	—	—	37 320,8	7 060	62,9
1971	23 416,2	23,30	0,576	13,42	26,8	52 705,0	2,25	0,129 7	40 645,8	93,6	—	40 739,4	8 373	61,3
1972	24 952,8	22,89	0,571	13,07	27,5	56 113,0	2,25	0,128 5	43 662,2	812,9	—	44 475,1	8 849	59,6
1973	27 907,9	22,47	0,563	12,65	28,5	66 837,4	2,39	0,134 8	49 569,8	189,3	—	49 759,1	9 482	62,5
1974	30 891,4	22,42	0,560	12,56	28,7	90 268,8	2,92	0,163 7	55 140,9	1 110,3	—	56 251,2	10 002	66,3
1975	34 231,7	22,21	0,567	12,59	28,6	137 691,7	4,02	0,223 9	60 399,7	1 098,7	—	61 498,4	10 522	68,6
1976	37 257,4	21,87	0,579	12,66	28,4	*199 029,0	*5,34	*0,309 5	64 309,2	1 853,0	25,9	66 188,1	11 688	66,8
1977	37 505,6	21,78	0,576	12,55	28,7	229 937,0	6,12	0,353 2	65 113,8	1 924,6	12,1	67 050,5	12 756	61,9
1978	39 589,5	21,61	0,573	12,44	28,9	261 727,0	6,61	0,379 3	69 004,2	1 887,1	11,1	70 902,4	13 595	60,7

*Amended figures

Integrated Escom system: electricity sent out and sold

at 31 December 1978

Statement No. 7

Calendar year	Escom's share in national electricity supply		Electricity sent out				
	Republic of S.A. total mill kW.h sent out	Escom mill. kW.h sent-out as % of Republic	mill. kW.h sent out from Escom power stations	mill. kW.h purchased from other sources	mill. kW.h sent out Escom system	Peak demand on integrated Escom system MW	Integrated Escom system load factor per cent
1950	†10 437	71,1	7 286,5	131,4	7 417,8	†1 182	71,6
1951	†11 098	72,1	7 806,8	194,6	8 001,3	†1 212	75,4
1952	†11 678	74,1	8 227,3	423,9	8 651,3	†1 265	77,9
1953	†12 823	73,3	8 845,4	550,4	9 395,8	†1 394	76,9
1954	†14 167	73,5	9 977,4	437,3	10 414,7	†1 570	75,7
1955	†16 021	73,4	11 425,1	339,3	11 764,4	†1 806	74,4
1956	†17 293	74,8	12 669,9	257,2	12 927,0	†2 001	73,5
1957	18 720	73,7	13 640,0	162,8	13 802,9	†2 151	73,3
1958	19 765	74,3	14 515,8	164,1	14 679,9	†2 249	74,5
1959	21 051	75,4	15 777,1	93,6	15 870,7	†2 429	74,6
1960	22 717	76,3	17 307,5	15,3	17 322,8	†2 605	75,7
1961	23 760	77,0	18 284,0	8,4	18 292,4	†2 733	76,4
1962	25 599	75,8	19 404,1	12,6	19 416,7	†2 925	75,3
1963	27 335	76,1	20 793,6	18,6	20 812,2	†3 183	74,6
1964	†29 547	76,8	22 638,6	41,0	22 679,6	†3 460	74,6
1965	31 939	77,4	24 582,7	126,6	24 709,3	3 669	76,9
1966	†33 929	77,0	25 504,1	‡629,9	26 134,0	3 906	76,4
1967	36 897	77,1	28 370,9	69,6	28 440,5	4 227	76,8
1968	†39 761	77,6	30 843,5	7,9	30 851,4	4 658	75,4
1969	42 847	78,4	33 598,2	8,0	33 606,2	5 055	75,9
1970	47 456	77,7	37 320,8	7,3	37 328,1	5 622	75,8
1971	51 081	79,8	40 739,4	8,3	40 747,7	6 115	76,1
1972	55 298	80,4	44 475,1	9,7	44 484,7	6 630	76,4
1973	60 080	82,8	49 759,1	11,3	49 770,4	7 350	77,3
1974	†65 498	85,9	56 251,2	7,9	56 259,1	8 552	75,1
1975	69 883	88,1	61 498,4	34,9	61 533,3	9 185	76,5
1976	75 381	89,4	66 188,1	1 225,5	67 413,7	10 085	76,1
1977	79 491	89,7	67 050,5	4 241,0	71 291,5	10 735	75,8
1978	86 149	90,3	70 902,4	6 923,9	77 826,3	11 490	77,3

†Estimates based on limited information.
‡Includes purchases from City of Johannesburg during serious drought.

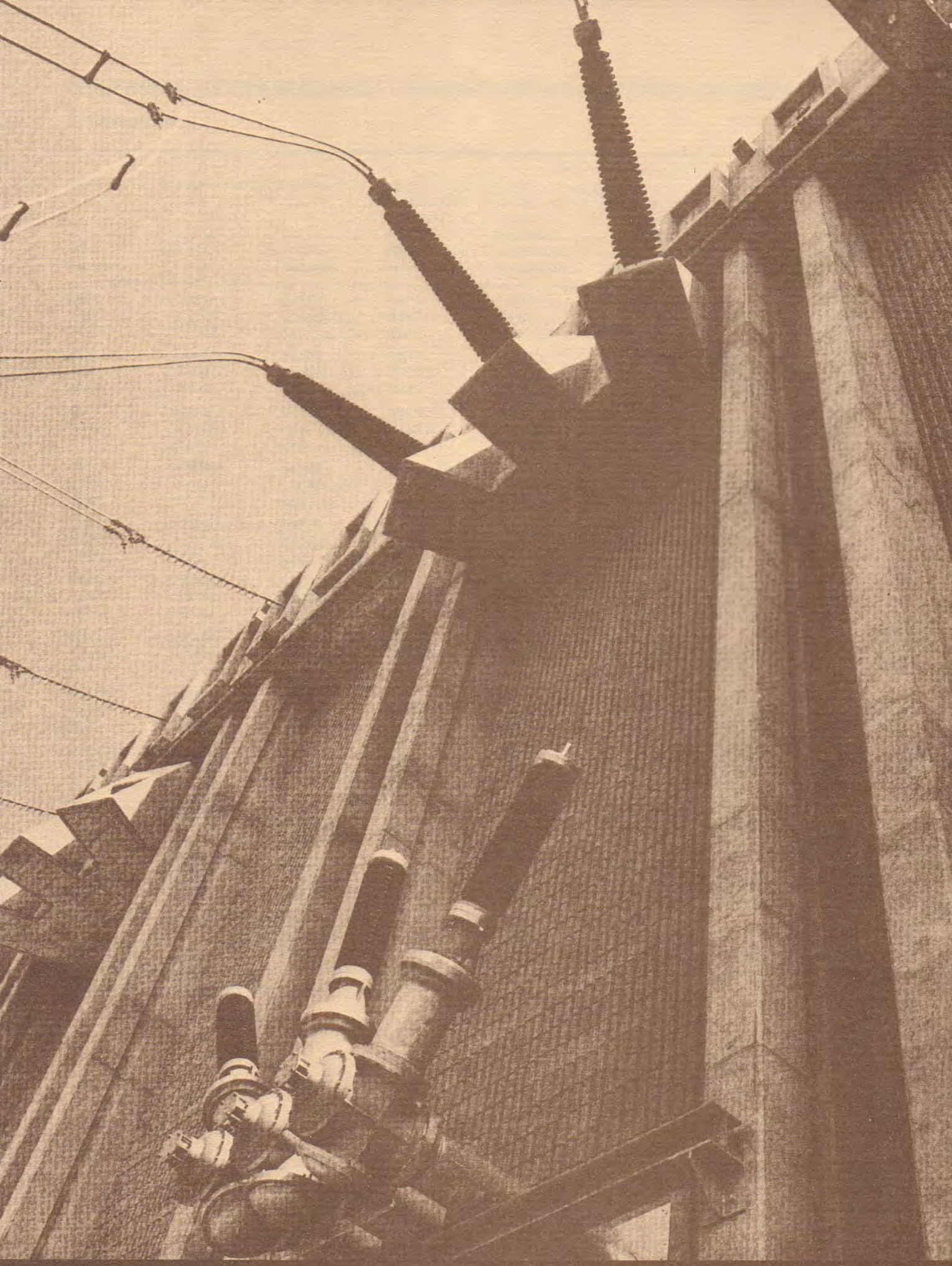
Calendar year	Electricity sales				Employees		Total capital expenditure as at 31 December	
	Ratio mill. kW.h sold / mill. kW.h s.o.	mill. kW.h sold	Growth for the year per cent	Average selling price cents/ kW.h	Total number as at 31 December	Number per mill. kW.h sold	R000	R000/ mill. kW.h sold
1950	0,932	6 910,6		0,247 1	9 352	1,353	115 129	16,66
1951	0,932	7 456,5	7,9	0,292 2	10 336	1,386	137 283	18,41
1952	0,934	8 080,6	8,4	0,311 5	10 889	1,348	176 559	21,85
1953	0,929	8 732,2	8,1	0,354 2	11 518	1,319	218 739	25,05
1954	0,929	9 676,6	10,8	0,380 8	12 317	1,273	270 621	27,97
1955	0,932	10 964,0	13,3	0,413 9	12 490	1,139	304 342	26,76
1956	0,930	12 019,5	9,6	0,428 5	12 977	1,080	342 068	28,46
1957	0,925	12 763,1	6,2	0,447 8	13 421	1,052	377 265	29,56
1958	0,927	13 602,1	6,6	0,473 3	14 312	1,052	417 701	30,71
1959	0,928	14 724,5	8,3	0,495 1	13 947	0,947	453 130	30,77
1960	0,929	16 094,1	9,3	0,507 9	14 654	0,911	491 471	30,54
1961	0,930	17 013,2	5,7	0,515 5	15 441	0,908	529 565	31,13
1962	0,933	18 121,0	6,5	0,516 4	16 467	0,909	581 579	32,09
1963	0,937	19 500,0	7,6	0,517 7	16 804	0,862	637 076	32,67
1964	0,937	21 247,5	9,0	0,510 1	17 172	0,808	679 193	31,97
1965	0,937	23 143,3	8,9	0,507 6	17 851	0,771	741 109	32,02
1966	0,940	24 554,3	6,1	0,525 4	18 579	0,757	840 782	32,24
1967	0,937	26 657,1	8,6	0,546 7	19 817	0,743	950 863	35,67
1968	0,936	28 885,0	8,4	0,555 0	20 893	0,723	1 114 390	38,58
1969	0,937	31 505,6	9,1	0,556 5	21 644	0,687	1 271 785	40,37
1970	0,935	34 890,6	10,7	0,554 5	22 700	0,651	1 429 862	40,98
1971	0,934	38 040,0	9,0	0,577 2	25 050	0,659	1 604 755	42,19
1972	0,936	41 648,9	9,5	0,610 8	26 937	0,647	1 774 350	42,60
1973	0,936	46 578,4	11,8	0,648 4	28 559	0,613	1 942 949	41,71
1974	0,935	52 585,1	12,9	0,682 2	29 891	0,568	2 175 842	41,38
1975	0,940	57 869,2	10,0	0,795 0	33 999	0,588	2 569 803	44,41
1976	0,940	63 355,7	9,5	1,036 0	36 915	0,583	3 211 261	50,69
1977	0,942	67 125,4	6,0	1,535 3	39 112	0,583	4 192 918	62,46
1978	0,935	72 796,7	8,4	1,788 3	41 040	0,564	5 411 271	74,33

Summary of consolidated revenue and expenditure account

Statement No. 8

Year	Total Escom mill. kW.h sold		Total Escom costs: Interest	Redemption and other provision for loan repayment	Reserve Fund	Capital Development Fund	Sub-total capital related costs	Purchase of electricity	Fuel	Other power station operating and maintenance costs	Distribution, operation and maintenance costs	General expenses	Total costs	Total revenue
1967	26 657,1	R(000)	37 312	24 536	9 912	—	71 760	313	42 488	14 618	7 146	10 603	146 928	146 783
		C/kW.h sold	0,140 0	0,092 0	0,037 2	—	0,269 2	0,001 2	0,159 4	0,054 8	0,026 8	0,039 8	0,551 2	0,550 6
		% of total cost	25,39	16,70	6,75	—	48,84	0,21	28,92	9,95	4,86	7,22	100,00	99,90
1968	28 885,0	R(000)	43 282	23 884	12 300	—	79 466	121	45 117	17 016	8 097	12 176	161 993	161 475
		C/kW.h sold	0,149 8	0,082 7	0,042 6	—	0,275 1	0,000 4	0,156 2	0,058 9	0,028 0	0,042 2	0,560 8	0,559 0
		% of total cost	26,72	14,74	7,59	—	49,06	0,07	27,85	10,50	5,00	7,52	100,00	99,68
1969	31 505,6	R(000)	50 943	20 809	13 605	—	85 357	102	48 035	19 038	9 264	13 578	175 374	176 106
		C/kW.h sold	0,161 7	0,066 0	0,043 2	—	0,270 9	0,000 3	0,152 5	0,060 4	0,029 4	0,043 1	0,556 6	0,559 0
		% of total cost	29,05	11,87	7,76	—	48,67	0,06	27,39	10,86	5,28	7,74	100,00	100,42
1970	34 890,6	R(000)	59 484	23 654	15 202	—	98 340	89	49 440	21 955	10 594	15 448	195 866	193 475
		C/kW.h sold	0,170 5	0,067 8	0,043 6	—	0,281 9	0,000 3	0,141 7	0,062 9	0,030 4	0,044 3	0,561 4	0,554 5
		% of total cost	30,37	12,08	7,76	—	50,21	0,05	25,24	11,21	5,41	7,89	100,00	98,78
1971	38 040,0	R(000)	70 266	30 928	8 568	—	109 762	82	53 587	26 276	11 492	18 440	219 639	219 584
		C/kW.h sold	0,184 7	0,081 3	0,022 5	—	0,288 5	0,000 2	0,140 9	0,069 1	0,030 2	0,048 5	0,577 4	0,577 2
		% of total cost	31,99	14,08	3,90	—	49,97	0,04	24,40	11,96	5,23	8,40	100,00	99,97
1972	41 648,9	R(000)	86 631	30 575	3 056	13 596	133 858	95	57 259	31 586	13 486	21 737	258 021	254 394
		C/kW.h sold	0,208 0	0,073 4	0,007 3	0,032 6	0,321 4	0,000 2	0,137 5	0,075 8	0,032 4	0,052 2	0,619 5	0,610 8
		% of total cost	33,58	11,85	1,18	5,27	51,88	0,04	22,19	12,24	5,23	8,42	100,00	98,59
1973	46 578,4	R(000)	101 858	34 200	3 760	15 366	155 184	117	68 634	38 685	17 082	26 460	306 162	302 034
		C/kW.h sold	0,218 7	0,073 4	0,008 1	0,033 0	0,333 2	0,000 3	0,147 4	0,083 1	0,036 7	0,056 8	0,657 3	0,648 4
		% of total cost	33,27	11,17	1,23	5,02	50,69	0,04	22,42	12,64	5,58	8,64	100,00	98,65
1974	52 585,1	R(000)	114 308	27 151	66	28 114	169 639	86	92 530	48 572	20 617	32 611	364 055	358 768
		C/kW.h sold	0,217 4	0,051 6	0,000 1	0,053 5	0,322 6	0,000 2	0,176 0	0,092 4	0,039 2	0,062 0	0,692 3	0,682 2
		% of total cost	31,40	7,46	0,02	7,72	46,60	0,02	25,42	13,34	5,66	8,96	100,00	98,55
1975	57 869,2	R(000)	136 963	30 814	1 400	40 730	209 907	114	141 913	44 980*	18 477*	71 758*	487 149	460 073
		C/kW.h sold	0,236 7	0,053 2	0,002 4	0,070 4	0,362 7	0,000 2	0,245 2	0,077 7	0,031 9	0,124 0	0,841 8	0,795 0
		% of total cost	28,12	6,33	0,29	8,36	43,09	0,02	29,13	9,23	3,79	14,73	100,00	94,44
1976	63 355,7	R(000)	173 829	41 470	1 700	53 584	270 583	2 399	208 316	62 477	19 712	92 835	656 322	656 381
		C/kW.h sold	0,274 4	0,065 5	0,002 7	0,084 6	0,427 1	0,003 8	0,328 8	0,098 6	0,031 1	0,146 5	1,036 0	1,036 0
		% of total cost	26,49	6,32	0,26	8,16	41,23	0,37	31,74	9,52	3,00	14,14	100,00	100,01
1977	67 125,4	R(000)	224 418	63 403	900	224 000	512 721	15 501	239 228	76 294	19 859	133 494	997 097	1 030 552
		C/kW.h sold	0,334 3	0,094 5	0,001 3	0,333 7	0,763 8	0,023 1	0,356 4	0,113 7	0,029 6	0,198 9	1,485 4	1,535 3
		% of total cost	22,51	6,36	0,09	22,47	51,42	1,55	23,99	7,65	1,99	13,39	100,00	103,36
1978	72 796,7	R(000)	308 970	76 036	900	300 000	685 906	26 364	271 222	89 193	23 677	138 106	1 234 468	1 301 829
		C/kW.h sold	0,424 4	0,104 4	0,001 2	0,412 1	0,942 2	0,036 2	0,372 6	0,122 5	0,032 5	0,189 7	1,695 8	1,788 3
		% of total cost	25,03	6,16	0,07	24,30	55,56	2,14	21,97	7,22	1,92	11,19	100,00	105,46

*Basis of allocation changed in 1975.



Craighall substation, designed to blend in with its urban environment.

The distribution undertakings

Tables showing consumer details, sales of electricity

Maps showing licensed areas of supply

Border Undertaking

AREA OF SUPPLY ..... 55 400 SQUARE KILOMETRES

REFERENCE

- Area of Supply .....
- E.S.C. Power Stations ..... WEST BANK
- Transmission Lines .....
- Transmission Lines Under Construction .....
- Ducat's Outspan Substation .....
- International Boundary .....

TRANSKEI

N

BARKLY EAST
MACLEAR
JAMESTOWN
QUMBU
STEYNSBURG
ELLIOT
TSOLO
MOLTENO
SCHOOMBIE
INDWE
CALA
LIBODE
HOFMEYR
STERKSTROOM
UMTATA
LADY FRERE
ENGCOBO
NGOELENI
QUEENSTOWN
MQANDULI
TARKASTAD
QAMATA
ELLIOTDALE
TSOMO
TYLDEN
CRADOCK
IDUTYWA
WHITTLESEA
NQAMAKWE
HYDRA
CATHCART
WILLOWVALE
BUTTERWORTH
SEYMOUR
KENTANI
STUTTERHEIM
KUBUSI
KOMGA
BEDFORD
BOSBERG
ADELAIDE
BLINKWATER
MT. KEMP
KEIMOUTH
FORT BEAUFORT
FORT COX
KEI ROAD
ROSEPOEN
ALICE
DIMBAZA
MACLEAN TOWN
KOONAP FARMERS
MIDDLEDRIFT
PEMBROKE
ALOE GLEN
DUCATS
KING WILLIAM'S TOWN
BERLIN
GOOD HOPE TEXTILE S.S.
GOODRICH
GONUBIE
BUFFALO
BEACON BAY
WEST BANK
EAST LONDON
PORT REX
BREAKFAST VLEI
PROSPECT
KIDDS BEACH
RIEBEEK EAST
PEDDIE
WOOLDRIDGE
ALBANY
BELL
HAMBURG
GRAHAMSTOWN
ALICEDALE
PATERSON
GRASSRIDGE
BATHURST
GREAT FISH POINT LIGHTHOUSE
KARIEGA
ALEXANDRIA
PORT ALFRED
PORT ELIZABETH

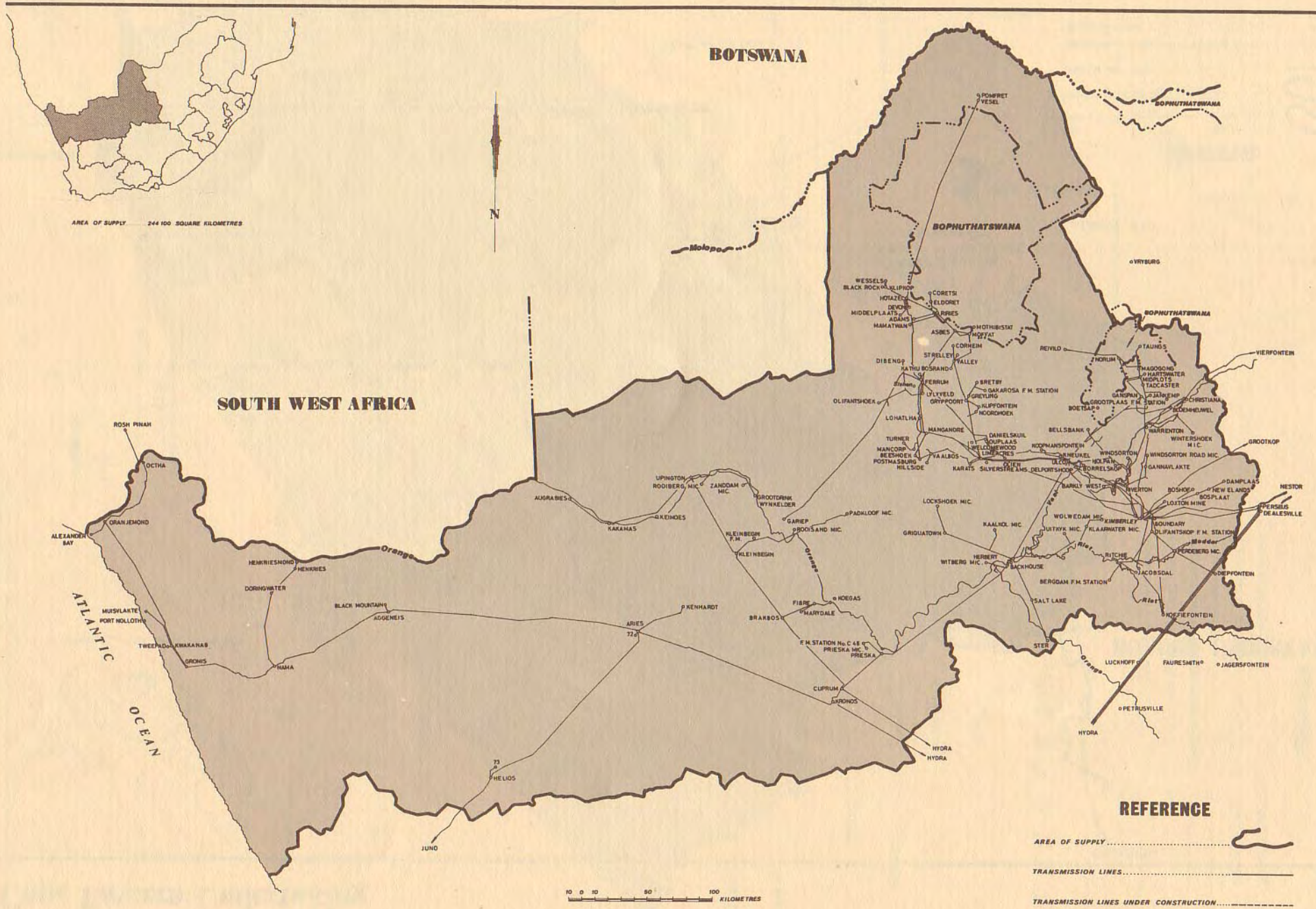
INDIAN OCEAN

10 0 10 20 30 40 50 60 70 80 90 100 KILOMETRES

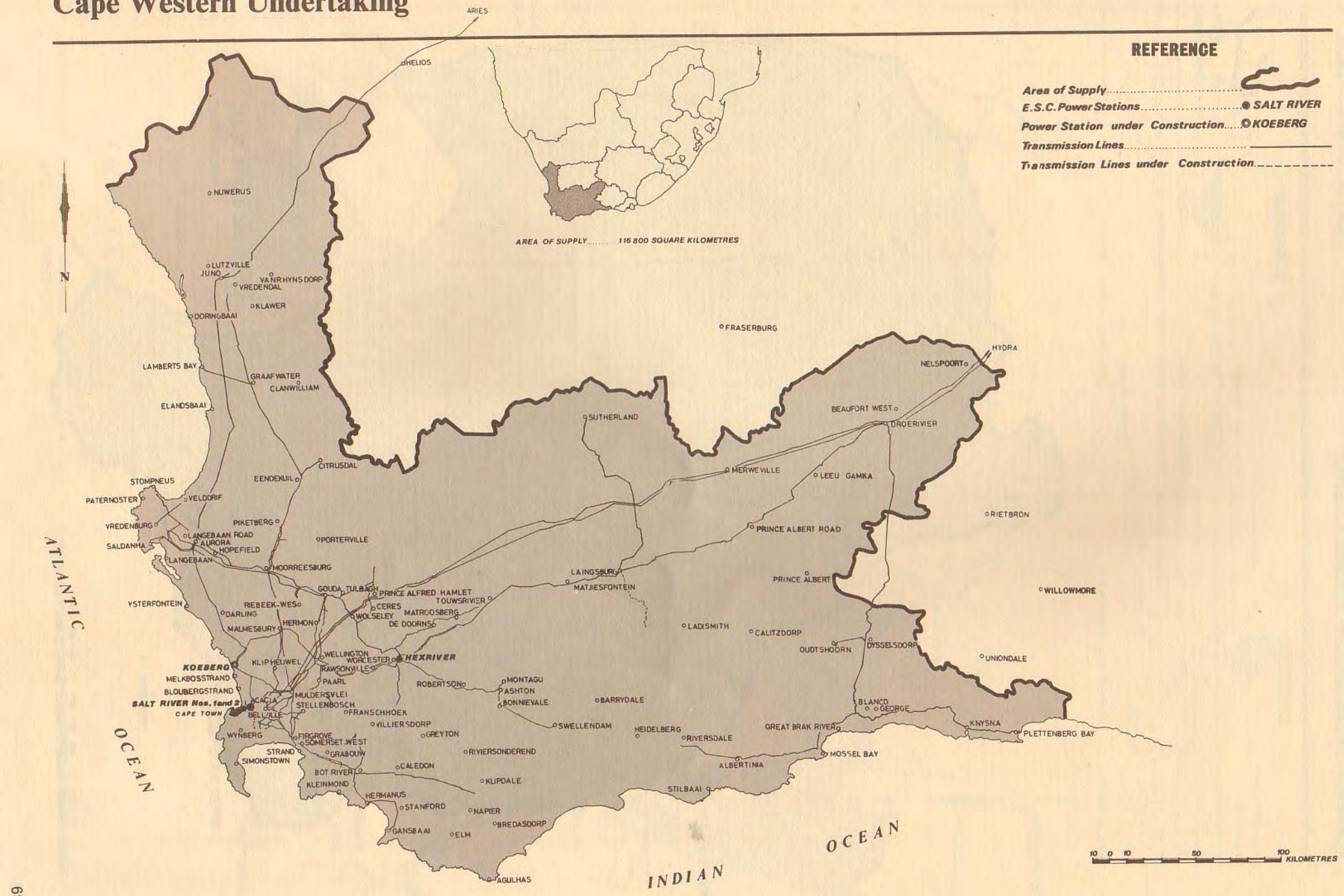
Cape Eastern Undertaking

AREA OF SUPPLY.....8 000 SQUARE KILOMETRES

Cape Northern Undertaking



Cape Western Undertaking



Eastern Transvaal Undertaking

AREA OF SUPPLY.....97 600 SQUARE KILOMETRES

REFERENCE

Area of Supply.....

E.S.C. Power Stations.....◉ HENDRINA .....◎ MATLA (Under Construction)

Transmission Lines.....

Transmission Lines Under Construction.....

CABORA BASSA

PIETERSBURG

TZANEEN

GRAVELOTTE

SELATI

CHEMIE

FOSKOR

LETABA

OLIFANTSKAMP

SATARA

MIDDELPUNT

PENGE

STEELPOORT

TUBATSE

MERENSKY

ACORNHOEK

Kruger Park

BOPHUTHATSWANA

MARBLE HALL

WOLWEKRAAL

GROBLERSDAL

ROOSSENEKAL

MAPOCH

LYDENBURG

C.M.I.

SABIE

KIEPERSOL

LISBON

SKUKUZA

LOWER SABIE

SELONSRIVIER

MARATHON

KARINO

MALELANE

KOMATIPOORT

SAMOZ

ROOIKOP

PALMER

WAPADSKLOOF

SAPPI

MACHADODORP

PRAIRE

BOULDERS

LOUWS CREEK

NOORDKAAP

LOMATI

FORFAR

ERASMUS

VULCAN

MIDDELBURG

PAN

ROCKDALE

WONDERFONTEIN

BOSLOOP

PRINCETOWN

APOLLO

H.S.V.

WITBANK

WILGE

DUVHA

ARNOT

WITKLOOF

KAFFERSKRAAL

WINTERSHOEK

ARBOR

DUVHA COLL.

GROOTPAN

GELUK

HENDRINA

KOMATI

M'SAULI

STRUBEN

MIDDELDRIFT

CAROLINA

KRUISPUNT

OSHOEK

NEVIS

MATLA

KRIEL

DELMAS COLL.

RIETFONTEIN

ESTANCIA

MBABANE

BETHAL

WILDEBEES

SECONDA

DAVEL

ERMELO

SASOL

GROOTVLEI

WES-SKAG

OOS-SKAG

CAMDEN

UITKOMS

JERICHO

ZEUS

GROOTFONTEIN

KLIPHOEK

GROOTVLEI

SWAZILAND

INCANDU

STANDERTON

KEMP

NORMANDIE

UMFOLOZI

BLOEDRIVIER

MOÇAMBIQUE

10 0 10 20 30 40 50 60 70 80 90 100 KILOMETRES

Natal Undertaking

AREA OF SUPPLY ..... 106 700 SQUARE KILOMETRES

REFERENCE

Area of Supply .....
E.S.C. Power Stations ..... INGAGANE
E.S.C. Power Station under Construction ..... DRAKENSBERG
Transmission Lines .....
Transmission Lines under Construction .....
Provincial Boundaries .....
International Boundaries .....

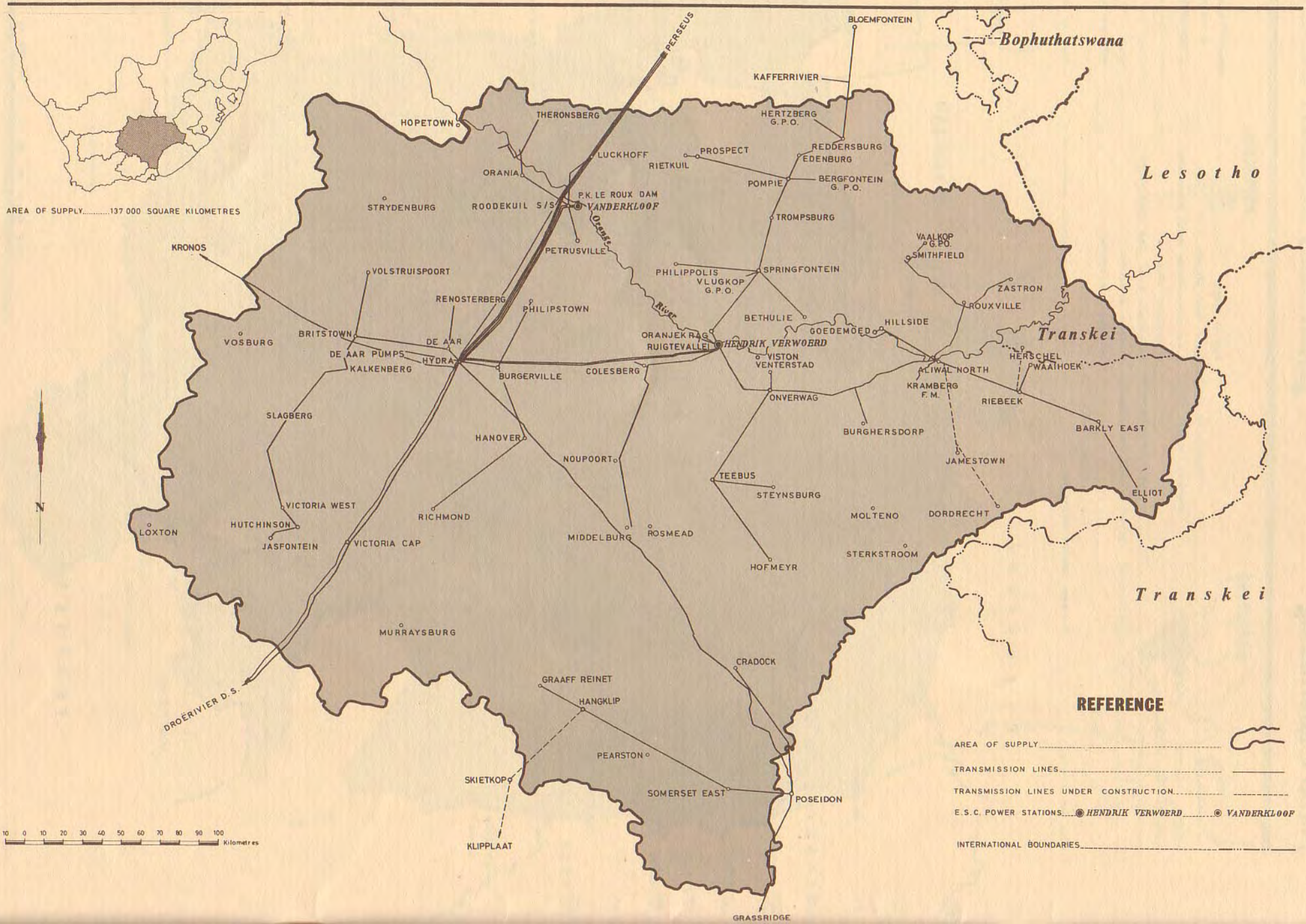
Transvaal
MOCAMBIQUE
SWAZILAND
Orange
Free
State
LESOTHO
Natal
TRANSKEI
INDIAN OCEAN
Transkei

CAMDEN
STANDERTON
AMERSFOORT
PIET RETIEF
PLATRAND
PERDEKOP
NORMANDIE
HEILBRON
FRANKFORT
SANDSPRUIT
VOLKSRUST
VREDE
WAKKERSTROOM
PAUL PIETERSBURG
PONGOLA
PETRUS STEYN
MEMEL
INCANDU
UTRECHT
CORONATION
HLOBANE
LOUWSBURG
REITZ
NEWCASTLE
MKUZE
LINDLEY
WARDEN
VRYHEID
NGWIBI
KOMSPRUIT
INGAGANE
CHIVELSTON
ARLINGTON
BLOEDRIVIER
BETHLEHEM
AFRIKASKOP
RUSTON
HLUHLUWE
SENEKAL
PAUL ROUX
KESTELL
HARRISMITH
GLENCOE
DUNDEE
UMFOLOZI
ULUNDI
STERKFONTEIN
GOLDEN GATE
CLARENS
VAN REENEN
WITZIESHOEK
DANSKRAAL
FOURIESBURG
DRAKENSBERG
TUGELA
LADYSMITH
MTUBATUBA
ST. LUCIA
JOELSDRIFT
ROYAL NATAL NATIONAL PARK
ORIEL
BERGVILLE
COLENSO
BLOUKRANS
MELMOTH
KWAMBONAMBI
MHLATUZE
RABBIT
NKWALENI
INVUBU
WINTERTON
EMPANGENI
IMPALA
RICHARD'S BAY
ALUSAF
CATHEDRAL PEAK
WEENEN
ESHOWE
MBONYOLWANA
MUDEN
KRANSKOP
GREYTOWN
MTUNZINI
ESTCOURT
CHAMPAGNE CASTLE
AHRENS
GINGINDLOVU
RIETVLEI
MOOI RIVER
SEVEN OAKS
MANDINI
DALTON
GLENDALE
GLENSIDE
STANGER
MERSEY
WARTBURG
HOWICK
CEDARA
DRIEFONTEIN
SHAKASKRAAL
IMPENDHLE
PIETERMARITZBURG
TONGAAT
THORNVILLE
CATO RIDGE
UNDERBERG
BULWER
GEORGEDALE
UMGENI
DURBAN
DONNYBROOK
RICHMOND
ESTON
KLAARWATER
CONGELLA
CREIGHTON
UMLAZI
REUNION
UMBUMBULU
ILLOVO
TRANSKEI
IXOPO
MATATIELE
HIGHFLATS
UMKOMAAS
UMZIMKULU
UMZINTO
CEDARVILLE
KELSO
KOKSTAD
HARDING
HIBBERDENE
MOUNT FLETCHER
WEZA
MOUNT AYLIFF
MARBURG
PORT SHEPSTONE
MOUNT FRERE
BIZANA
MARGATE
PORT EDWARD

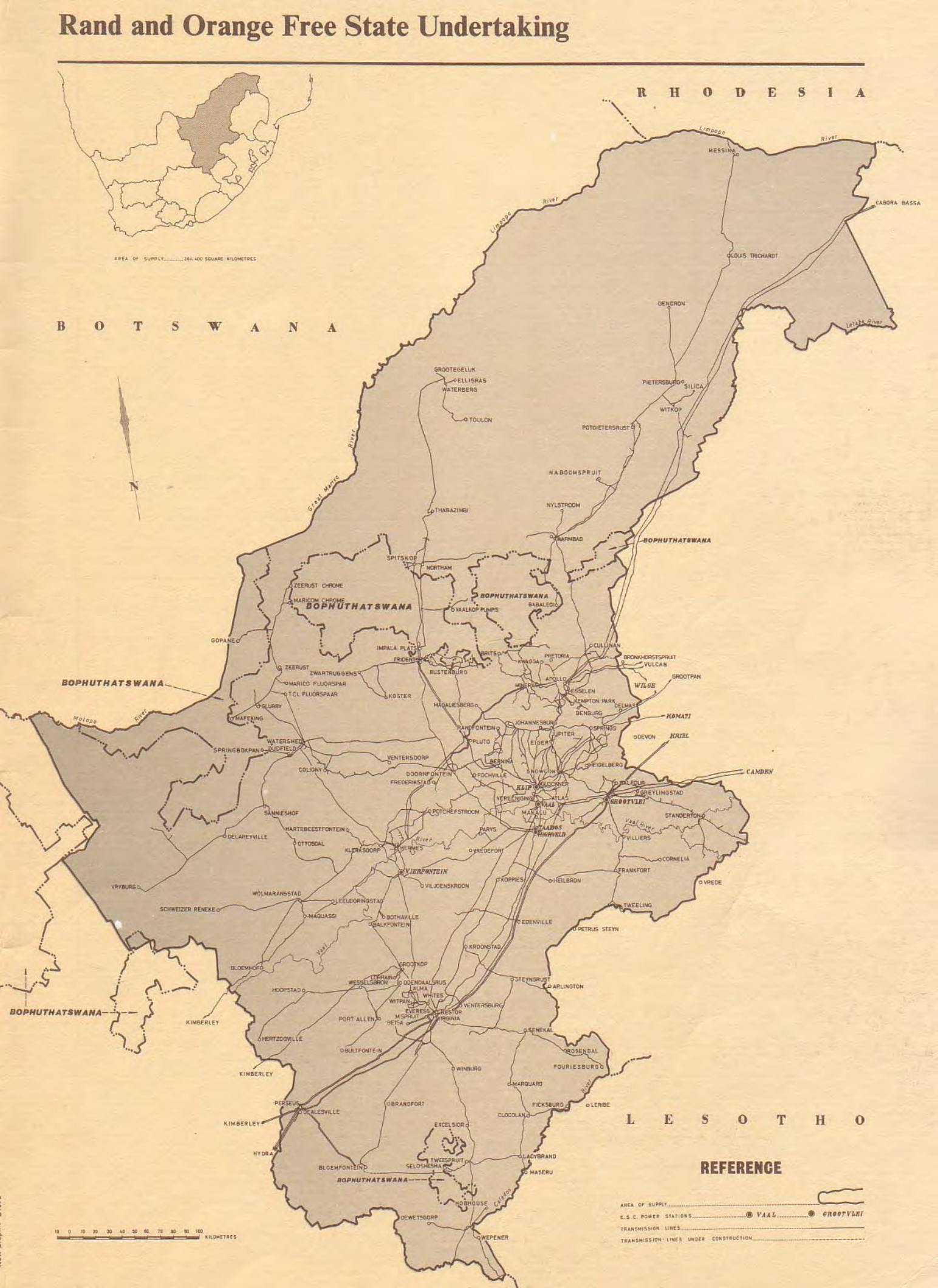
N

10 0 10 50 100 KILOMETRES

Orange River Undertaking



Rand and Orange Free State Undertaking



REFERENCE

AREA OF SUPPLY

E.S.C. POWER STATIONS ● VAAL ● GROOTVLEI

TRANSMISSION LINES

TRANSMISSION LINES UNDER CONSTRUCTION

Border Undertaking

Category	Consumer details: Number		Sales of electricity: Per cent of total		kW.h sold		Per cent change		Revenue from sales in Rand		Average price in cents per kW.h sold	
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	19	20	88,59	88,58	644 342 182	689 802 940	+ 7,87	+ 7,06	17 390 784	18 713 306	2,699 0	2,712 8
Direct supplies:												
Domestic and street lighting	3 231	3 395	3,35	3,26	24 337 612	25 434 714	− 2,98	+ 4,51	1 145 771	1 196 007	4,707 8	4,702 3
Industrial	1 643	1 694	8,06	8,16	58 645 920	63 520 387	+13,71	+ 8,31	2 662 389	2 910 134	4,539 8	4,581 4
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Total	4 893	5 109	100,00	100,00	727 325 714	778 758 041	+ 7,77	+ 7,07	21 198 944	22 819 447	2,914 6	2,930 2

Cape Eastern Undertaking

Category	Consumer details: Number		Sales of electricity: Per cent of total		kW.h sold		Per cent change		Revenue from sales in Rand		Average price in cents per kW.h sold	
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	2	2	38,00	48,74	8 448 680	14 437 720	+226,16	+ 70,87	222 348	433 665	2,631 7	3,003 7
Direct supplies:												
Domestic and street lighting	287	283	6,99	5,22	1 553 726	1 545 536	+ 8,68	− 0,53	127 235	137 110	8,189 0	8,871 4
Industrial	644	646	55,01	46,04	12 229 923	13 635 680	+24,56	+11,49	744 050	880 140	6,083 8	6,463 9
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Total	933	931	100,00	100,00	22 232 329	29 618 936	+ 57,33	+ 33,22	1 093 633	1 450 915	4,919 1	4,898 7

Cape Northern Undertaking

Category	Consumer details: Number		Sales of electricity: Per cent of total		kW.h sold		Per cent change		Revenue from sales in Rand		Average price in cents per kW.h sold	
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	30	32	21,86	19,99	364 616 201	387 161 346	+ 8,42	+ 6,18	7 021 819	9 372 658	1,925 8	2,420 9
Direct supplies:												
Domestic and street lighting	3 243	3 490	1,72	1,54	28 735 285	29 894 202	+ 7,48	+ 4,03	935 484	1 195 183	3,255 5	3,998 0
Industrial	981	1 033	7,22	7,20	120 483 832	139 355 655	− 2,43	+15,66	3 376 850	4 810 692	2,802 7	3,452 1
Mining	77	86	52,92	57,89	882 659 765	1 121 198 223	+21,70	+27,02	17 447 618	31 606 009	1,976 7	2,818 9
Traction	3	5	16,28	13,38	271 504 656	259 215 800	− 7,93	− 4,53	6 140 519	8 211 291	2,261 7	3,167 7
Total	4 334	4 646	100,00	100,00	1 667 999 739	1 936 825 226	+10,71	+16,12	34 922 290	55 195 833	2,093 7	2,849 8

Cape Western Undertaking

Category	Consumer details: Number		Sales of electricity: Per cent of total		kW.h sold		Per cent change		Revenue from sales in Rand		Average price in cents per kW.h sold	
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	57	58	52,85	51,73	2 657 539 507	2 698 192 969	+ 4,67	+ 1,53	44 122 788	47 894 533	1,660 3	1,775 1
Direct supplies:												
Domestic and street lighting	59 990	62 574	8,26	8,33	415 144 757	434 643 466	−13,87	+ 4,70	16 509 079	18 544 380	3,976 7	4,266 6
Industrial	16 151	16 400	29,70	31,14	1 493 572 014	1 624 476 519	+ 4,99	+ 8,76	40 044 740	45 509 481	2,681 1	2,801 5
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Traction	6	7	9,19	8,80	461 946 636	458 890 042	− 5,13	− 0,66	11 307 284	12 413 598	2,447 7	2,705 1
Total	76 204	79 039	100,00	100,00	5 028 202 914	5 216 202 996	+ 1,98	+ 3,73	111 983 891	124 361 992	2,227 1	2,384 1

Eastern Transvaal Undertaking

Consumer details			Sales of electricity						Revenue from sales in Rand		Average price in cents per kW.h sold	
Category	Number		Per cent of total		kW.h sold		Per cent change					
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	32	30	9,99	8,64	904 874 826	870 584 200	+ 7,41	− 3,79	13 083 532	15 323 432	1,445 9	1,760 1
Direct supplies:												
Domestic and street lighting	2 420	2 479	0,32	0,20	29 089 420	20 569 318	−20,17	−29,29	731 471	900 789	2,514 6	4,379 3
Industrial	7 297	7 604	61,57	64,10	5 579 472 269	6 459 656 980	+13,83	+15,78	75 662 760	104 780 225	1,356 1	1,622 1
Mining	127	128	23,45	22,66	2 125 672 143	2 283 271 514	+13,71	+ 7,41	29 199 297	39 848 437	1,373 7	1,745 2
Traction	12	13	4,67	4,40	423 116 496	443 036 424	+11,75	+ 4,71	8 204 436	12 338 253	1,939 0	2,784 9
Total	9 888	10 254	100,00	100,00	9 062 225 154	10 077 118 436	+12,88	+11,20	126 881 496	173 191 136	1,400 1	1,718 7

Natal Undertaking

Consumer details			Sales of electricity						Revenue from sales in Rand		Average price in cents per kW.h sold	
Category	Number		Per cent of total		kW.h sold		Per cent change					
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	35	34	53,70	51,95	5 771 157 852	6 097 026 418	+ 7,24	+ 5,65	101 947 965	107 431 096	1,766 5	1,762 0
Direct supplies:												
Domestic and street lighting	17 131	17 168	1,15	1,00	123 057 191	118 013 698	−28,40	− 4,10	5 010 439	4 798 151	4,071 6	4,065 8
Industrial	12 403	12 905	32,66	35,30	3 510 282 293	4 142 588 511	+13,17	+18,01	64 094 798	76 075 263	1,825 9	1,836 4
Mining	34	34	2,29	2,26	245 561 785	265 258 520	+14,20	+ 8,02	5 280 044	5 739 631	2,150 2	2,163 8
Traction	15	12	10,20	9,49	1 096 441 367	1 113 518 267	+ 3,36	+ 1,56	23 809 333	26 484 931	2,171 5	2,378 5
Total	29 618	30 153	100,00	100,00	10 746 500 488	11 736 405 414	+ 8,21	+ 9,21	200 142 579	220 529 072	1,862 4	1,879 0

Orange River Undertaking

Consumer details			Sales of electricity						Revenue from sales in Rand		Average price in cents per kW.h sold	
Category	Number		Per cent of total		kW.h sold		Per cent change					
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	39	40	97,42	98,16	1 010 730 688	1 027 965 461	+ 1,31	+ 1,71	13 180 972	17 817 780	1,304 1	1,733 1
Direct supplies:												
Domestic and street lighting	13	8	0,01	0,01	58 918	19 826	+ 0,44	−66,35	4 354	1 895	7,389 9	9,559 6
Industrial	266	290	2,57	1,83	26 692 469	19 295 852	−28,88	−27,71	977 870	874 176	3,663 5	4,530 4
Mining	—	—	—	—	—	—	—	—	—	—	—	—
Traction	—	—	—	—	—	—	—	—	—	—	—	—
Total	318	338	100,00	100,00	1 037 482 075	1 047 281 139	+ 0,26	+ 0,94	14 163 196	18 693 851	1,365 2	1,785 0

Rand and O.F.S. Undertaking

Consumer details			Sales of electricity						Revenue from sales in Rand		Average price in cents per kW.h sold	
Category	Number		Per cent of total		kW.h sold		Per cent change					
	1977	1978	1977	1978	1977	1978	77/76	78/77	1977	1978	1977	1978
Bulk supplies	157	170	24,47	23,98	9 500 614 134	10 064 675 720	+ 1,08	+ 5,94	132 204 798	171 411 176	1,391 5	1,703 1
Direct supplies:												
Domestic and street lighting	19 328	19 920	1,05	0,78	408 466 969	329 370 630	+19,94	−19,36	8 282 091	9 586 560	2,027 6	2,910 6
Industrial	24 240	25 225	27,77	27,92	10 784 810 476	11 719 785 470	+ 4,65	+ 8,67	150 063 319	199 162 741	1,391 4	1,699 4
Mining	102	106	43,48	44,20	16 884 793 243	18 549 280 769	+ 5,95	+ 9,86	208 781 982	279 284 044	1,236 5	1,505 6
Traction	2	2	3,23	3,12	1 254 744 065	1 311 362 008	+ 0,10	+ 4,51	20 834 282	26 142 209	1,660 4	1,993 5
Total	43 829	45 423	100,00	100,00	38 833 428 887	41 974 474 597	+ 4,29	+ 8,09	520 166 472	685 586 730	1,339 5	1,633 3