

Escom supplies more than 90 % of the electricity used in South Africa, which is nearly 60 % of the electricity generated on the African continent. Its objective is to provide electricity at cost price wherever it can be used for the economic advancement of the Republic.

Electricity Supply Commission

Megawatt Park, Maxwell Drive, Sandton

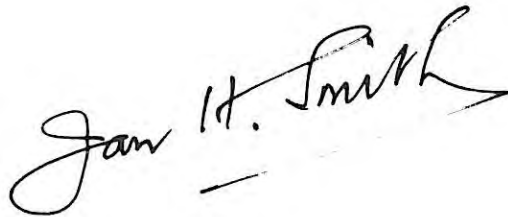
The Minister of
Mineral and Energy Affairs
House of Parliament
Cape Town

30 April 1985

Sir

As required by Section 19 of the Electricity Act No. 40 of 1958, the Commission has the honour of presenting its sixty-second Annual Report and Financial Statements covering its work for the financial year ended 31 December 1984.

Chairman

A handwritten signature in black ink that reads "Jan H. Smith". The signature is written in a cursive style and is positioned above a short horizontal line.

Contents

Highlights of the year	3
Members of the Commission	4
Members of the Management Committee	5
Functional chart	6
Regional managers and national grid	7
Electricity Supply Commission	8
Chairman's review	11
Management report	17
Report of the auditors and financial statements	36
Tables	57

Highlights of the year

	1979	1980	1981	1982	1983	1984	Change 1983-84 %	Average yearly increase 1979-84 %
Financial								
Revenue R(million)	1 529	1 772	2 141	2 695	3 302	3 832	16,0	20,2
Charges against revenue R(million)	1 512	1 870	2 218	2 753	3 405	3 995	17,3	21,5
Net expenditure on fixed assets R(million)	1 375	1 447	1 951	2 741	2 757	3 719	34,9	22,0
Accumulated surplus/(deficit) R(million)	79	(18)	(96)	(154)	(257)	(420)	(63,4)	(—)
Fixed assets at 31 December R(million)	6 794	8 219	10 144	12 858	15 591	19 261	23,5	23,2
Average price per kWh sold (cents)	1,90	2,02	2,28	2,80	3,36	3,58	6,7	13,5
Average cost per kWh sold (cents)	1,88	2,14	2,36	2,86	3,47	3,74	7,9	14,8
Average coal cost per ton (Rand)	6,96	8,12	9,71	11,75	12,44	12,55	0,9	12,5
Electricity sold by Escom (mill. kWh) ¹	80 583	87 539	93 844	96 136	98 251	106 904	8,8	5,8
Operating statistics								
Total electricity sent out by Escom (mill. kWh) ²	86 037	93 021	100 425	104 920	108 321	117 086	8,1	6,4
Electricity available for distribution (mill. kWh)	85 979	92 950	99 713	102 516	105 404	113 898	8,1	5,8
Coal burnt in Escom power stations (Mt)	43,3	46,8	53,9	55,2	55,0	58,7	6,7	6,3
Water consumed in Escom power stations (Ml)	206 318	214 813	235 138	265 933	255 654	269 868	5,6	5,7
Maximum demand on integrated Escom system (MW)	12 855	13 668	14 674	15 532	15 639	17 296	10,6	6,1
Escom plant in service at 31 December								
Installed capacity (MW)	15 974	18 349	20 049	21 749	22 949	24 514	6,8	8,9
Assigned sent-out rating (MW)	15 056	17 339	18 989	20 523	21 673	23 168	6,9	9,0
<i>Transmission lines:</i>								
533 kV (DC) (km)	1 030	1 030	1 030	1 030	1 030	1 030	—	—
400-220 kV (km)	14 358	14 557	14 998	15 251	16 017	16 842	5,2	3,3
165 kV and below (km)	95 313	99 840	105 344	111 535	121 343	130 425	7,5	6,5
<i>Underground cables:</i>								
132 kV and below (km)	7 321	7 687	7 191	7 319	7 596	8 024	5,6	1,9
Capacity of transformers (MVA)	114 343	122 825	126 638	136 131	143 590	156 198	8,8	6,5
Staff employed	43 690	47 490	52 080	58 850	62 420	64 560	3,4	8,1

¹Includes sales to SWAWFA

²Includes gross purchases from SWAWEK

Members of the Electricity Supply Commission

Back: JFW Haak and Richard Castle.
Front: DJ Malan, Jan H Smith (Chairman) and E Pavitt.
Absent: J Wilkens.



JAN H SMITH:
Member of the Commission since 1974 and Chairman since 1980.

DJ MALAN:
Appointed to the Commission in 1968.

E PAVITT:
Appointed to the Commission in 1969.

JFW HAAK:
Appointed to the Commission in 1980.

RICHARD CASTLE:
Appointed to the Commission in 1980.

J WILKENS:
Appointed to the Commission in 1980 and
resigned in December 1984.

Members of the management committee

Back: RA Forbes, Dr GF Lindeque, E H Ralph, GA Park, AA Loots, JS Els.
Front: L te Groen, IC McRae, ID van der Walt (Senior General Manager), JL Rothman, FJW Barnard.
Absent: PJT Oosthuizen.



SENIOR GENERAL MANAGER:

ID van der Walt, Pr Eng, BSc (Elec Eng), BSc (Mech Eng) (RAND). Joined Escom in 1948 and appointed to management committee in 1971.

DEPUTY SENIOR GENERAL MANAGER:

IC McRae, Pr Eng, BSc (Eng) (RAND). Joined Escom in 1947 and appointed to management committee in 1976.

ASSISTANT SENIOR GENERAL MANAGER AND GENERAL MANAGER (OPERATIONS):

JL Rothman, Pr Eng, BSc, BSc (Eng) (US). Joined Escom in 1955 and appointed to management committee in 1975.

GENERAL MANAGER (FINANCE):

L te Groen, BCom (RAND), CA (SA). Joined Escom in 1975 and appointed to management committee in 1976.

GENERAL MANAGER (SERVICES):

FJW Barnard, Pr Eng, BSc (Eng) (US), MBL (SA). Joined Escom in 1960 and appointed to management committee in 1979.

LEGAL MANAGER:

PJT Oosthuizen, BA, LLB (UOFS). Joined Escom in 1959 and appointed to management committee in 1966 (seconded to the Commission of Inquiry on Electricity Supply in 1983).

COMMERCIAL MANAGER:

GA Park, Pr Eng, BSc (Eng) (RAND). Joined Escom in 1969 and appointed to management committee in 1978.

ASSISTANT GENERAL MANAGER (FINANCE):

RA Forbes, Pr Eng, BSc (Eng) (RAND), MBL (SA). Joined Escom in 1949 and appointed to management committee in 1982.

ASSISTANT GENERAL MANAGER (OPERATIONS):

JS Els, Pr Eng, BSc (Eng) (US), BSc (Hons) (SA), GDE (RAND). Joined Escom in 1953 and appointed to management committee in 1982.

ACTING GENERAL MANAGER (ENGINEERING):

EH Ralph, Pr Eng, BSc (Eng) (Natal). Joined Escom in 1955 and appointed to management committee in 1982.

PERSONNEL MANAGER:

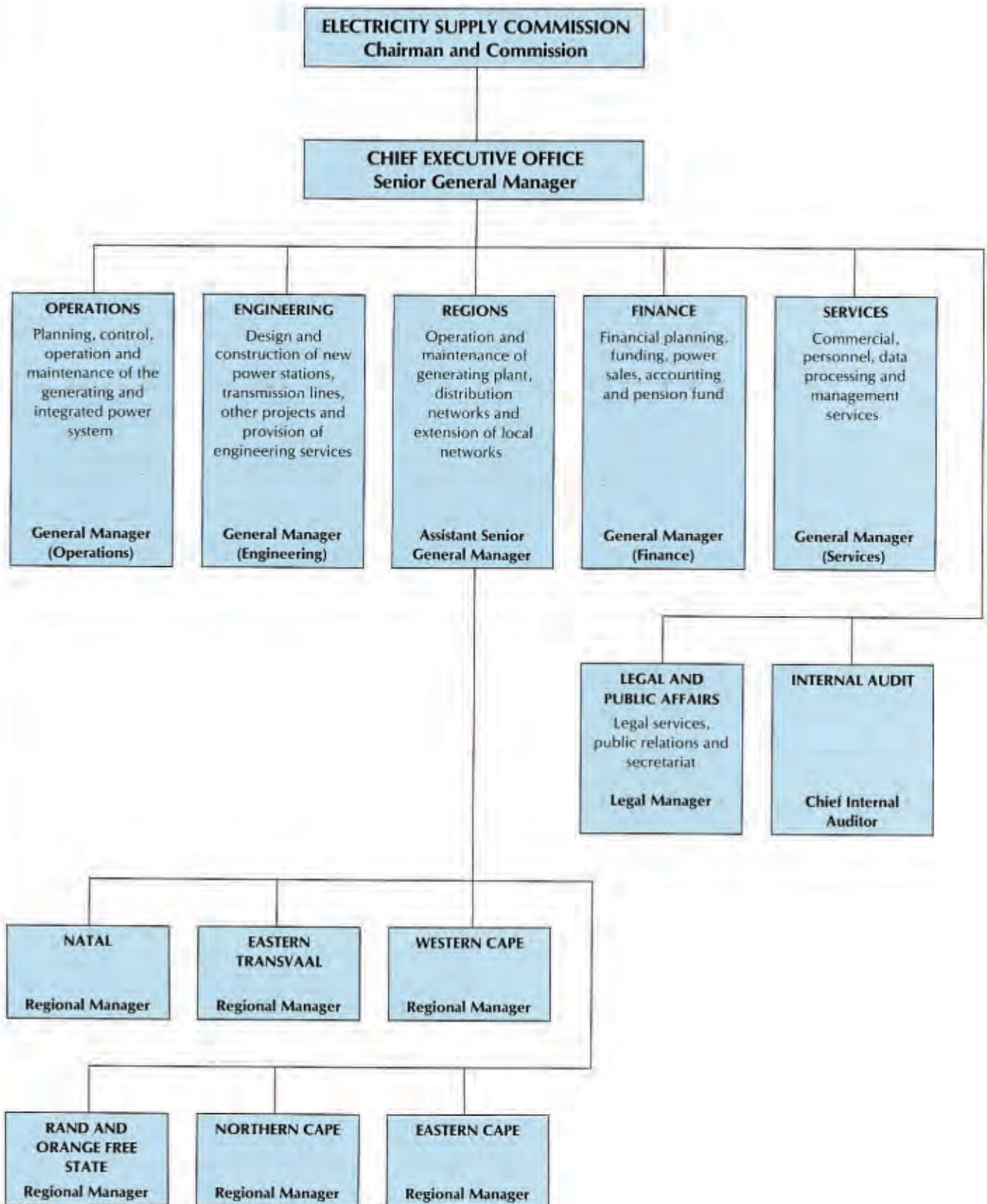
GF Lindeque, DPhil (PU for CHE), MA (Soc) (UP). Joined Escom in 1975 and appointed to management committee in 1982.

ACTING LEGAL MANAGER:

AA Loots, BA, LLB (UOFS). Joined Escom in 1966 and appointed to management committee in 1983 in an acting capacity.

Functional chart

at 31 December 1984



Regional managers and national grid

RAND AND OFS:
MW Walter, Pr Eng,
 BSc (Eng) (Natal). Joined
 Escom in 1949 and
 appointed regional
 manager in 1979.

**EASTERN CAPE (including
 Border and Orange River
 Undertakings):**
EF Otten, Pr Eng, BSc (Eng)
 (RAND). Joined Escom in
 1959 and appointed
 regional manager in 1976.

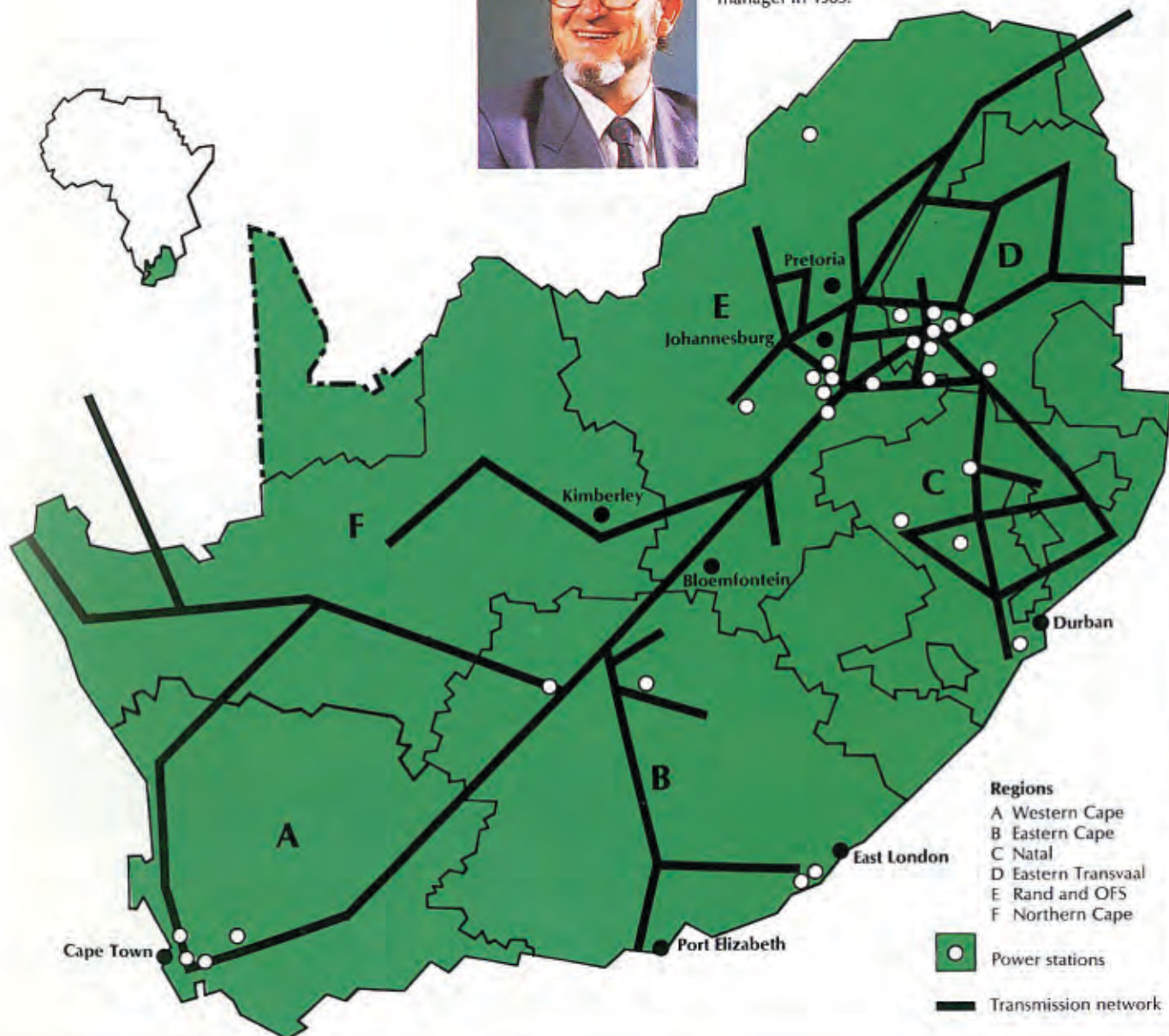
NORTHERN CAPE:
JP Rodger, Pr Eng,
 BSc (Eng) (UCT). Joined
 Escom in 1955 and
 appointed regional
 manager in 1975.

NATAL:
HE Wohlberg, Pr Eng,
 BSc (Eng) (US). Joined
 Escom in 1951 and
 appointed regional
 manager in 1976.

WESTERN CAPE:
GF Hellström, Pr Eng,
 BSc (Eng), BCom (US).
 Joined Escom in 1957 and
 appointed regional
 manager in 1981.



EASTERN TRANSVAAL:
H Edeling, Pr Eng,
 BSc (Elec Eng) (RAND).
 Joined Escom in 1968 and
 appointed regional
 manager in 1983.



Electricity Supply Commission

Profile

The Electricity Supply Commission was incorporated in 1923 and governed by the provisions of the Electricity Act No. 40 of 1958, as amended, which replaced the Electricity Act of 1922. The organisation has been directed by a chairman and up to six other commissioners, all appointed by the State President. Management is vested in a senior general manager, who reports to the Commission and is assisted by corporate and regional management teams.

The Electricity Amendment Act of 1985 provides for the replacement of the Electricity Supply Commission by a body corporate, to be known only as Eskom, with a two-tier management and control structure comprising the Electricity Council and Management Board. Members of the Electricity Council are appointed by the Minister of Mineral and Energy Affairs and represent the interests of the electricity supply industry, consumers and the government. It will be responsible for determining Eskom's policy, objectives and long-term planning. It will also appoint the Management Board and control Eskom's performance of its functions, the exercise of its powers and the fulfilment of its duties.

The functional structure of the Electricity Supply Commission, as at 31 December 1984, is outlined in the accompanying chart.

Eskom ranks among the largest electrical utilities in the world. At the end of 1984, it had a sent-out capacity of 23 168 MW, providing more than 90 % of the electricity sold in South Africa, and plant with a sent-out capacity of 19 530 MW was under construction or on order.

The price of its electricity is among the lowest in the world.

Objectives and contribution to the economy

Eskom's objective is to provide an adequate supply of electricity, at cost price, to be used for the economic advancement of the Republic of South Africa.

Eskom's performance can therefore be measured by criteria such as the amount and price of electricity provided for consumption. It is estimated that electrical energy constitutes 23 % of the total net energy usage in South Africa. It is expected that Eskom will supply nearly 33 % of the country's total net energy requirements by the turn of the century.

In addition to its direct contribution to the economy, Eskom indirectly promotes the level of wealth in the country by spending over 80 % of its capital expenditure on local goods and services. In so doing it acts as a stimulus to the economy during the troughs in the business cycle. This applies particularly to the civil and heavy engineering sectors which can be provided with a reasonably constant volume of work because of the long



One of the most significant developments in electricity supply in South Africa during the past 25 years was the establishment and completion of a national high-voltage transmission system, linking all major load centres. In this way the expensive transportation of coal over long distances could be eliminated, power stations could be built on coal-fields and the reliability of supply improved. It also enabled high-technology industry to expand away from the old industrial centres.



One of Escom's first power stations was Congella in Durban. It was commissioned in 1928 and had an initial installed capacity of 24 MW, which was extended to 86 MW in 1938. It was one of the world's most advanced power stations in its day. Today, Escom's new power stations have installed capacities ranging between 3 600 MW and 4 000 MW. Congella was the first station in South Africa to burn pulverized coal and the first to be equipped with electrostatic precipitators, yet its nickname, Old Snokey, persisted. Congella was in service for more than 50 years before it was finally decommissioned in 1978. Escom's longest serving station is Colenso (85 MW), commissioned in 1927 and still part of the system in 1984.



lead-times of Escom's capital projects and the requirement that short-lived economic fluctuations may not be allowed unduly to affect such projects.

Besides the obvious economic benefits of Escom's expenditure programme, employment is provided for thousands of people locally and overseas. A power station forms an important part of the country's infrastructure; it promotes the development of the economy and this again assists in raising the standard of living.

Financial policy

Escom has no share capital. Capital expenditure and loan repayments 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 local and overseas capital markets, and through trade finance arranged in conjunction with suppliers of capital equipment. While most of the external finance is used to fund capital expenditure, a portion is used to refinance loans which are of too short a duration to be amortised over their lives without undue strain being placed on electricity tariffs.

Internal finance, obtained by the retention of tariff income, is the other source of funds available to Escom and is controlled by the provisions of the Electricity Act.

Escom has three funds: the Redemption Fund, the Capital Development Fund and the Reserve Fund.

- Escom does not depreciate its fixed assets but instead amortises the loans used to finance them. The amortisation of local loans is achieved on a sinking fund basis through the Redemption Fund. Contributions from tariff income are credited to the fund and these ensure that finance is available for the redemption of local loans. Separate provision is made for the repayment of foreign loans.
- The Capital Development Fund is used to finance part of Escom's capital expansion and the replacement of assets taken out of service. In respect of the latter it contributes to the difference between historical cost depreciation as implied by the Redemption Fund operation and replacement cost depreciation.
- The Reserve Fund is used to finance expenditure for the betterment of plant, exceptional repairs or emergencies. It is also used to a limited extent for self-insurance purposes, thereby reducing expenditure on insurance premiums.

The cash in these three funds is invested either in Escom stock or in other prescribed investments, with interest income providing additional finance.

Escom is a major borrower in local and foreign capital markets. It currently undertakes two local public issues a year. It also makes use of foreign finance in the form of project-related facilities, direct placements and syndicated bank loans.

Over several years Escom has developed and promoted a secondary market in its local registered stock, which is actively traded on the Johannesburg Stock Exchange. Because its internal funds are invested primarily in its own stock, Escom is able to buy and sell such stock on behalf of its various funds and, although a buyer of last resort, aims to be a net seller of its own stock. Proceeds from sales are reinvested by Escom, on behalf of its funds, in new issues.



Construction work at Lethabo power station, near Vereeniging. When a project of this nature is undertaken, consideration is given to the socio-economic impact on the area. During the height of the construction phase about 6 500 people are employed. Once completed, it will provide employment for 2 000 people. Housing, schools, shops and other facilities have to be provided. In the case of Lethabo the housing and associated facilities were integrated with those of the nearest towns, and the entire area is benefiting from the economic impetus the project is providing.

Chairman's review

Overview

Electricity supply and the economy

Financial position

The supply system

New management and control structure

Prospects

Commission and staff

OVERVIEW

The electricity supply industry in South Africa in 1984 was subject to four major influences: the state of the economy; Escom's financial position; the performance of the electricity supply system; and a proposed new management and control structure for Escom resulting from the report of the Commission of Inquiry into the Supply of Electricity in the Republic of South Africa.

Electricity sales grew by 8,8 % in 1984 which was high in view of the depressed state of the economy and the low growth rates of 2,2 % in 1983 and 2,4 % in 1982. The 1984 sales increase was the result of higher industrial sales in the middle months of the year brought about, primarily, by exports benefiting from the lower value of the Rand. It is apparent that the August 1984 austerity measures of the government took effect and by the end of the year the growth rate in electricity sales was slowing down. It is not expected that the high growth rate of 1984 will be maintained in 1985.

At the request of the government, to help combat inflation, Escom entered the 1984 financial year with only a 6 % tariff increase although the inflation rate for the year, measured by the consumer price index, was 11,7 %. The increase was introduced on the basis of an optimistic assumption that the rate of inflation would decline in 1984 and that the severe drought would end, thus reducing pressure on the economy.

The inflation rate, however, did not abate and although rains did come in the summer of 1984 the economy encountered further problems. In response to the strength of the US Dollar, the Rand declined markedly in value.

Escom believes it has done nearly all it can to minimise the effect external factors have on its costs.

In line with the expectation of lower economic growth, Escom adjusted its capital expansion programme downwards. This will reduce financing requirements over the next ten years. Finance, however, remains a critical resource.

The level of internal financing declined marginally during 1984. A further deficit on the Supply Account could not be avoided, increasing the accumulated deficit from R257 million to R420 million. In terms of the Electricity Act all deficits must be carried forward to the

following year and, ultimately, the amount has to be recovered from revenue.

A substantial tariff increase for 1985, therefore, was necessary and a 10 % increase became effective on 1 January 1985. The tariff position is being reviewed constantly in the light of the current situation of Escom and of the economy.

Sufficient funds for expansion financing were raised in 1984 from internal sources (R1 266 million) and loan capital from the foreign and local markets (R3 511 million). External finance was very expensive because of high interest rates. Cash-flow requirements will be more difficult to meet in the current economic and political climate.

The Escom supply system performed well during the year and, generally, the quality of supply was high except in the Eastern Transvaal, Natal and Southern Cape where particularly severe storms disrupted supplies for short periods. Compared with 1983 the maximum one-hour demand on the system increased by 10,6 % to 17 296 MW.

As a result of an extraordinary effort during recent years Escom now has an installed capacity of 24 514 MW, giving it a reserve margin which, for the first time in many years, is considered adequate. Scheduled maintenance and a large proportion of backlog maintenance could consequently be carried out with no deterioration in the quality of supply.

Escom continued with its power station construction programme during 1984, which includes five large coal-fired power stations, each with an installed capacity of between 3 600 MW and 4 000 MW, one 400 MW pumped-storage scheme and Koeberg nuclear power station.

Plant with an installed capacity of 1 565 MW – 600 MW from Duvha power station's sixth and last set and 965 MW from the first set at Koeberg – was taken into service. No plant was decommissioned in 1984, but some decommissioning of plant no longer economic to maintain and operate is planned for 1985.

The report and recommendations of the Commission of Inquiry which the government accepted, with minor amendments, was released in November 1984. Escom agrees with most of its findings, which tend to coincide with our own assessment of the electricity supply situation. The Electricity Act No. 40 of 1958 was amended in April 1985 to implement some of the main recommendations. The Electricity Supply Commission was replaced by a body corporate, known as Escom, with a proposed two-tier control structure comprising an Electricity Council and a Management Board.

This 62nd annual report is, therefore, the last to be presented by the Electricity Supply Commission.

ELECTRICITY SUPPLY AND THE ECONOMY

Electricity supply is a function, and a reflection, of the economy it serves. In line with the growth of the South African economy Escom has grown rapidly. In the 20 years to 1984 the average annual increase in kWh sales was 8,3 %, an extremely high figure by world standards.

To meet the growth in demand for electricity, Escom had to increase its installed capacity and expand its supply system continuously. It managed its growth well. In recent years, however, the high inflation rate, high interest rates, the declining value of the Rand and increases in sales tax and import duties have made the cost of capital equipment, and its financing, almost prohibitive.

Escom has little control or influence over those factors. A 3 600 MW coal-fired power station which had construction costs of R1 440 million in 1980, now costs R3 420 million, which represents an average escalation of about 20 % a year. Productivity improvements can only marginally off-set such cost increases. The equivalent annual capital charge (interest and redemption) for such a station would now be R580 million, as opposed to R130 million in 1980.

For a number of years Escom has expressed concern about rising costs. The effect on the electricity tariff is dramatic. Loan charges, until recently about 30 % of total annual debits against revenue will rise to above 50 % in 1985 and will for the first time exceed operational costs.

Escom is responding strongly to the problems of the economy.

Following new, lower estimates of long-term growth in gross domestic product, Escom adjusted its capital expansion projections downwards from a long-term annual average growth rate of 7 % to 6 %, and may even go below this depending on future economic conditions. Escom has to be careful not to over-react to pressures to curtail its long-term expansion plan, particularly during a severe recession. A shortage of generating capacity will seriously damage the future economic growth of the Republic.

The possibility that the long-term growth rate in electricity demand may taper off was foreseen by Escom in the 1970s. For nearly 15 years Escom has provided flexibility in its power station construction programme, allowing for the deferment, or cancellation, of later generating sets if this should become necessary.

This policy was followed in 1984 when a number of such generating sets and other projects were deferred. In present Rand values the deferments represent a decline in capital expenditure of R6 800 million over the next ten years. Total capital expenditure for this period is now estimated at R55 400 million.

The lower projection eases the burden of financing

growth, but does not eliminate the effect on costs of high inflation and lower value of the Rand.

FINANCIAL POSITION

The financial climate in which Escom operates has increased in complexity over the years.

During 1984 Escom, like most companies with foreign exchange dealings, had to change its approach in order to account for, and manage, the unexpectedly large decline in the Rand's value. Interest rates reached record levels in South Africa but, with the high cost of forward exchange cover, borrowing overseas was equally, if not more, expensive.

Such financial trends have caused Escom to consider a number of major financial policy shifts. It became apparent that it may be unwise to continue regarding financial requirements as an outcome of the planning process that ensures an adequate electricity supply. Placing a financial constraint on the planning process at the outset may be the only viable approach for Escom. The opinion is expressed by some that in future the availability of funds, and not the actual demand for electricity, will become the crucial determinant in deciding on growth rates in electricity sales.

Whatever the outcome of the financial policy studies now under way, it is clear that at this stage Escom's revenue will have to be increased and financing expansion will require a significant internal financing contribution. There appears to be no alternative if Escom is to meet the country's electricity needs, even if those needs are reduced.

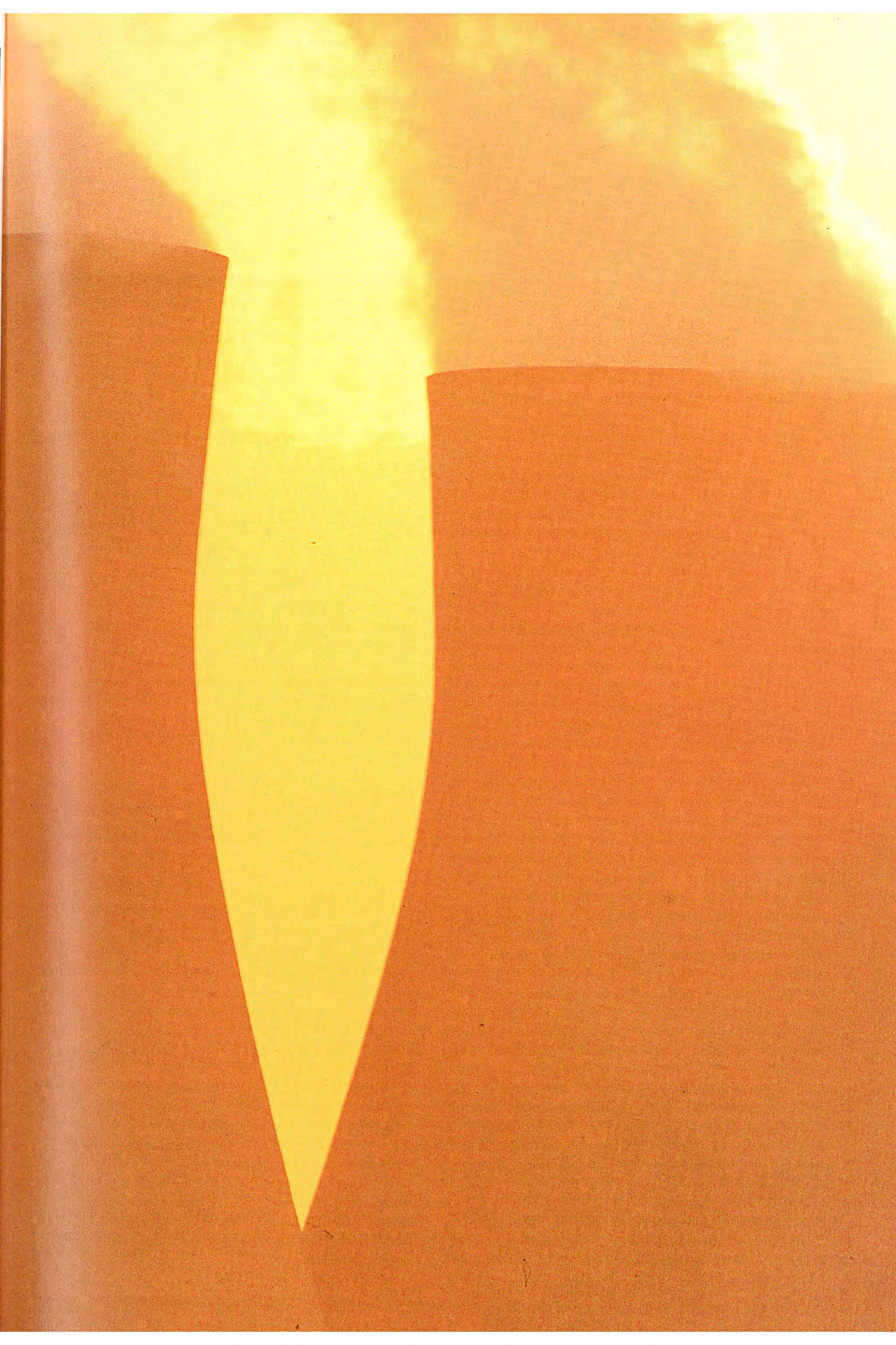
Revenue and expansion financing

The 6 % tariff increase effective 1 January 1984 was inadequate for the year and the 10 % increase effective 1 January 1985 will not cover the expected charges against revenue during the current year.

Internal financing levels in 1984 represented 26 % of the total application of funds during the year. Conditions did not permit Escom to increase the internal financing levels during the year but fortunately external finance was available to meet commitments, albeit at a high cost.

For the third year in succession the contribution from revenue to the Capital Development Fund was maintained at R450 million. The contribution from revenue to the Capital Development Fund is therefore steadily decreasing and now stands at 11,7 %, compared with the peak of 24,8 % in 1979.

Internal financing generated by the Capital Development Fund has declined steadily since 1980. In 1984 it represented 28,5 % of capital expenditure, compared with a high of 41,3 % in 1980. The present coverage of capital expenditure by the Capital Development Fund is not regarded as satisfactory in the long term. Escom has



allowed the coverage to drop temporarily in the hope of obtaining some short-term economic gain for the country. However, in the longer term it will be necessary to increase internal financing to at least 30 % of capital expenditure. Investors will be watching the situation carefully and it is doubtful whether the present lower rates of internal financing will be accepted as sound practice.

Koeberg costs

There have been additional and unforeseen costs associated with Koeberg nuclear power station, such as losses on the sale of nuclear fuel (i.e. uranium in the forms of natural ore concentrate, converted and enriched hexafluoride), delays following the sabotage attempt in 1982, and cost overruns of R519 million.

Outline details of these losses are given below, but in terms of the secrecy laws full particulars cannot be disclosed.

The refusal of the authorities in the United States to release enriched uranium, under contract with the Department of Energy, obliged Escom to find alternative supplies on the open market so that the power station could be brought into operation without undue delay. The problems involved in arranging these alternative supplies, together with the project delays arising from the sabotage in 1982, led to an excess stock of natural uranium feed (converted material) and enriched uranium in the United States, as well as surplus stocks of natural uranium ore concentrate in South Africa.

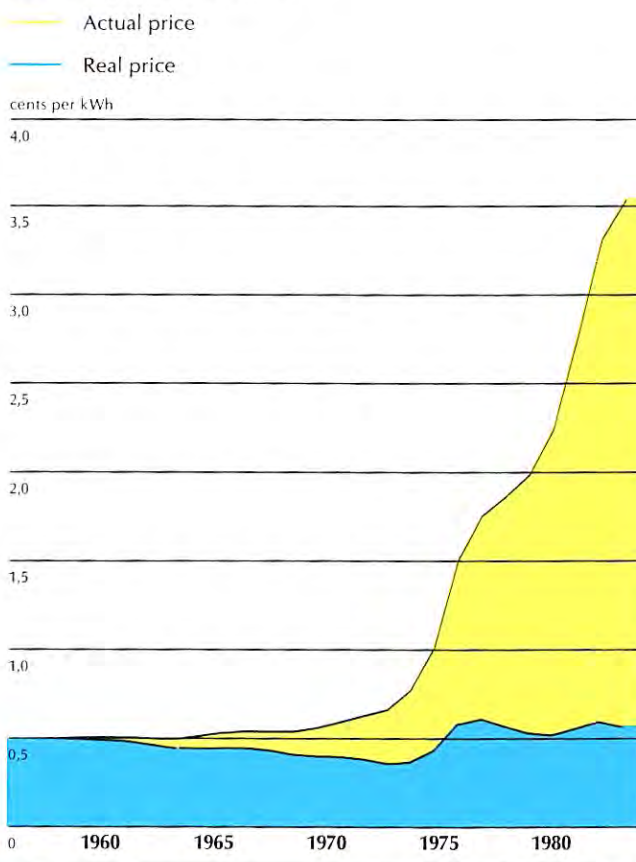
In 1983 it was necessary to write down the value of stocks of uranium feed and enriched uranium held by Escom in the United States because there had been a sharp reduction in the market price of such stock. The provision of R59,3 million required to write down the stocks to market value was done in accordance with normal accounting practice and included in the 1983 accounts.

In collaboration with and with the approval of the Atomic Energy Corporation and the South African government it was decided to dispose of all stocks of natural uranium feed and enriched uranium held in the United States. This was done mainly because it was unlikely that the authorities in the United States would release supplies of enriched uranium to South Africa or that there would be an improvement in the Dollar market price of the enriched uranium. The sale, finalised in 1984, resulted in a realised loss, including holding costs, of R56,8 million. This was R2,5 million less than the R59,3 million provided in 1983.

A comparison was also made between the costs of holding surplus stocks of natural uranium ore concentrate in South Africa for a prolonged period and

Escom average selling price of electricity

Price of Escom electricity deflated by consumer price index 1960-1984



The graph shows that from 1960 the actual price of electricity increased gradually until 1975, and thereafter rapidly. At the same time, however, the real price as deflated by the consumer price index remained approximately the same as it was in 1960. In fact, in most years it was marginally under the 1960 level.

selling surplus stocks at present day prices. That indicated that it would be advisable to sell the surplus stock at present day prices. This action resulted in a loss of R59,5 million, which is shown in the notes to the financial statements before deduction of the surplus provision of R2,5 million.

The delay in commissioning Koeberg, mainly because of the sabotage incident, has resulted in interest and other costs amounting to R68 million being written off in the income statement for 1984. Further amounts will be written off over the next few years.

The cost overrun of R519 million on Koeberg took place over a ten-year period from 1975 to 1984 on a R3 000 million project. Of this overrun, R463 million is attributable to inflation and higher interest charges which were capitalised.

Foreign exchange losses

It is mentioned earlier in this review that the unexpectedly large decline in the value of the Rand affected all companies with foreign exchange dealings. In 1984 Escom suffered a net loss of R9,6 million on foreign exchange transactions, compared with a gain of R11,7 million in 1983.

The management of Escom's foreign exchange exposure is a top priority and is discussed further in the Management Report.

Savings on coal costs

In 1984 the cost of coal was lower than budgeted. The main reasons for the saving of R18 million was Escom's policy of partly financing collieries, improved thermal efficiency and the small increase in the price of coal.

Escom's relatively new policy of partly financing collieries tied to some of its power stations is beginning to have a positive effect on the cost of coal, with the benefits being passed on to the consumer. Funds borrowed by Escom are cheaper than those which the mining houses can raise for financing such collieries.

In addition, improved thermal efficiency over the past few years resulted in lower consumption of coal per kWh of electricity produced. In 1983, while kWh sales increased by 2,2 %, the quantity of coal consumed decreased by 0,4 %, the first such decline in coal used in more than 50 years. Improved production techniques at the collieries and a general improvement in productivity have also contributed to a lower than expected increase in the price of coal. Escom has received good cooperation from the mining houses in this regard.

Coal is a major cost component in the production of electricity. In 1984, total charges against revenue were R3 995 million, of which R743 million was for coal burnt. By reducing the rate of cost escalation, savings worth hundreds of millions of Rand in the longer term are being achieved. Even with the high annual cost increases that have been experienced in the past, the average coal price paid by Escom is below the controlled price.

THE SUPPLY SYSTEM

Escom operates one of the most advanced electricity supply systems in the world and ranks among the ten largest electrical utilities. With 26 power stations, an installed capacity of 24 514 MW and a national grid system of about 150 000 km of high-voltage lines, Escom endeavours to supply electricity wherever it is economically feasible in southern Africa.

From an electricity supply system point of view the South African environment is climatically aggressive. Despite this, the vast distances that have to be covered and the sparseness of the population outside the major cities, the quality of supply is generally high.

This is a technical achievement which ranks with the best in the world and most of these developments took place during the past 20 years. The South African consumer generally takes it for granted that an electricity supply will be available, but is often not aware of the sophisticated technical and other expertise that is required, nor the very high generating and distribution costs involved.

A major achievement in 1984 was the commissioning of the first generating set at Koeberg, Africa's first nuclear power station. It performed well in 1984 and in its first six months generated 4 000 million kWh.

Practically no supply was received from Cahora Bassa in Mozambique during the year under review.

NEW MANAGEMENT AND CONTROL STRUCTURE

The new Electricity Council as legislated for in 1985 will, like the present Electricity Supply Commission, determine Escom's policy and objectives and long-term planning. It will also control performance by Escom of its functions, the exercise of its powers and the fulfilment of its duties. The Management Board will manage Escom's affairs in accordance with the policy and objectives determined by the Electricity Council. The Management Board will be appointed by the Electricity Council.

The inclusion of consumer and other interest groups on the Electricity Council, a step welcomed by the present Electricity Supply Commission, means that the responsibility of estimating, providing and financing South Africa's electricity requirements and determining the tariff policy, will now be shared between the supply authority, the government and the consumer.

PROSPECTS

South Africa is going through a difficult phase of adjustment to secure sound economic development. The electricity supply industry has responded well to the situation by, on the one hand, trying to contain rising costs and, on the other hand, adopting a flexible approach in its capital expansion programme. The objective of this response is neither to burden future consumers with unduly high costs nor to prejudice future economic growth of the Republic by inadequate provisions for electricity demand.

The outlook for both the economy and the electricity supply industry is healthy, provided the major problem of spiralling costs can be contained. It is hoped that the official remedies now being applied will be successful.

In the more realistic approach to economic development now adopted in the Republic of South Africa, it is evident that the growth in electricity demand will not be as high as before, which Escom anticipated many years ago. In the past, major growth in electricity demand came from electricity-intensive industries and the mining

sector. Much of this development has now moderated, and future growth will tend to be associated with secondary industrial development of a less electricity-intensive nature and domestic applications.

Domestic electricity is, however, a high-growth component in Escom's bulk supplies to municipal authorities as an increasing number of black homes are electrified. The resulting demand for household appliances and consumer goods will, in due course, have an impact on the growth of secondary industry.

Even with the reduced growth rate in electricity demand now forecast, Escom's expansion remains formidable. It is expected that over the next ten years 16 000 MW of plant will be phased into the supply system, and distribution and reticulation networks will have to be extended to cope with the increased demand.

Financing these developments, however, has become a constraint. The challenge for the electricity supply industry is to keep the price of electricity not only reasonable but low by world standards. This can only be achieved if South Africa overcomes its present economic ills. Failing that, a reasonable price for electricity can only be maintained if some constraint is placed on the supply of electricity and conservation is practised successfully.

COMMISSION AND STAFF

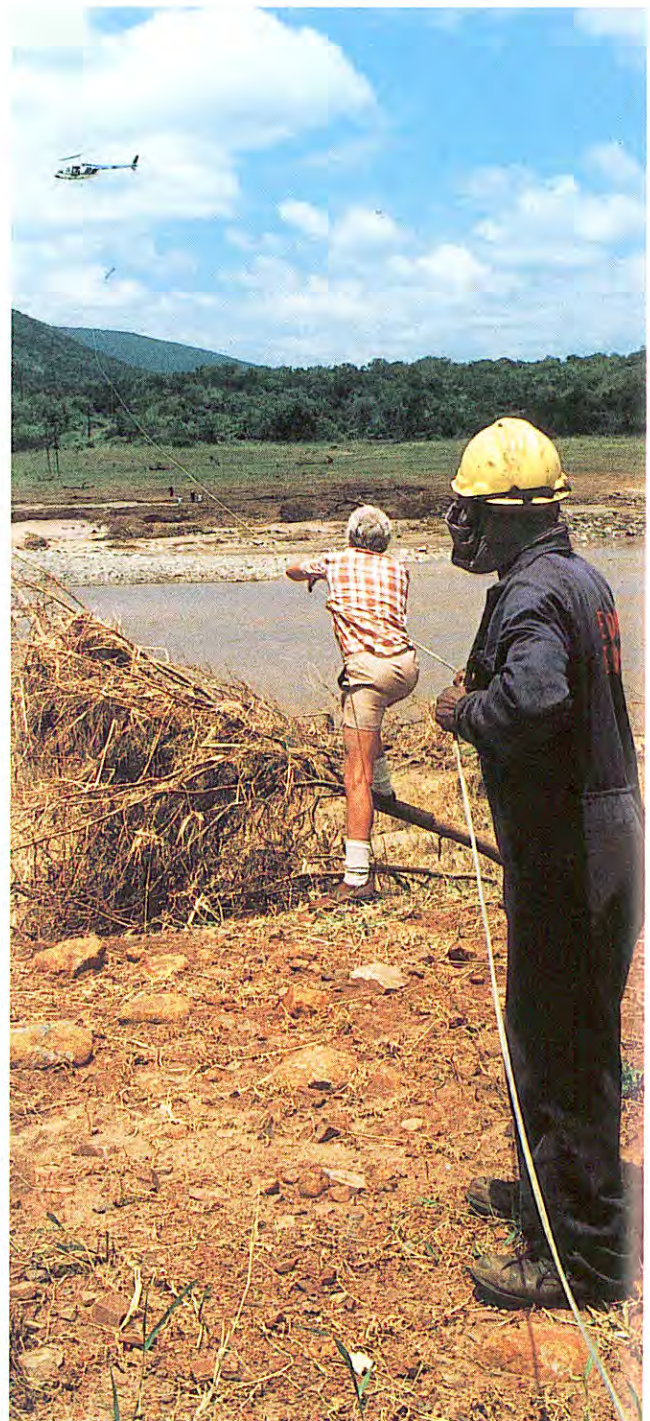
Mr J Wilkens, a member of the Commission since 1980, resigned in December.

The functions of the head-office departments New Works (now known as Engineering) and Operations were restructured in 1984 to meet the changed needs of the organisation.

Mr JL Rothman, previously General Manager (New Works), was appointed Assistant Senior General Manager in April 1984, and is now responsible for the regions and the Operations Department.

Mr IC McRae, previously General Manager (Operations), was appointed General Manager (Engineering) in April 1984, and Deputy Senior General Manager in December. He subsequently became Senior General Manager in March 1985, following the retirement on pension of Mr ID van der Walt. Mr EH Ralph was appointed General Manager (Engineering) in March 1985.

The Commission extends its appreciation to the management and staff of Escom for meeting the exceptional demands made on them during 1984. Despite the high inflation rate, cost savings were achieved and this was done without impairing the quality of service Escom provides. The Commission is grateful for this continued loyalty and dedication.



Severe storms and floods in 1984 disrupted power supplies in the Eastern Transvaal, Natal and the Southern Cape. Pylons and in some cases substations were washed away. Escom repair teams worked, in appalling conditions, around the clock to restore supplies; in some instances in shifts lasting up to 36 hours.

Management report

Overview
Financial
Operations
Expansion of the electricity supply system
Research
Manpower
Public affairs

OVERVIEW

In a year in which the South African recession deepened, Escom's electricity sales grew by an unexpectedly high 8,8 % – from 98 251 million kWh in 1983 to 106 904 million kWh in 1984. Maximum demand increased by 10,6 % to a new record of 17 296 MW.

Although this was the highest growth rate since 1979, it should not necessarily be seen as the start of a consistently higher demand for electricity. Growth in electricity consumption was low in 1983 and 1982, and an economic upswing in certain sectors in 1984 caused a surge in demand above those depressed levels. Following the austerity measures announced by the government in August, the growth rate of sales slowed down.

With an average inflation rate of 11,7 % in 1984, as measured against the consumer price index, the declining value of the Rand, increased sales tax and high interest rates, the low 6 % increase in the electricity tariff effective from January 1984, was inadequate to cover increased costs and other charges that had to be made against revenue. As a result, Escom's accumulated deficit increased by R163 million to R420 million.

Escom met the demand for electricity throughout the year. Generating plant coped with the higher demand and teething problems with some of the newer plant could be accommodated. Except for problems associated with floods in the eastern Transvaal, Natal and the southern Cape, interruptions on the distribution system were infrequent and localised; no major faults occurred on the main transmission system.

At the end of 1984 Escom had an installed capacity of 24 514 MW.

Escom continued with its construction programme in the year under review. Duvha power station was completed in 1984, and the first set of Koeberg nuclear power station was commissioned in July. At present, seven power stations are under construction, but because the growth rate in demand is forecast to slow down, some of these projects have been deferred, either wholly or in part, including the fifth and sixth sets at some power stations.

Escom continued with its various research programmes during the year, and a number of new projects were started. The incidence and effects of acid rain, the use of low quality coal in power stations, plant design and dry

cooling are among the subjects being studied. In the past, research of this nature has led to considerable cost savings and improved productivity.

The growth rate in Escom manpower was lower than in 1983, which was the result of a deliberate effort to restrict staff appointments to critical categories. Even so, there remained a serious shortage of staff in some of the skilled categories.

Escom's public affairs programmes reflected the organisation's declared policy to maintain and expand



A pylon, pulled down by floods in the Eastern Transvaal. About 30 km of overhead lines were damaged and 53 transformers washed away. In the Cape, the situation was aggravated by snow in isolated mountain areas.



Repair teams busy pulling up lines in the Pongola area. Power was restored to all affected areas in about three weeks, and entailed building nearly 50 km of lines on new and old routes and clearing more than 10 km of dense bush.

contact with its consumers and their representatives. Special efforts were made to create effective communication lines to keep Escom informed of consumers' requirements and problems, and, in turn, to explain Escom's actions.

FINANCIAL

Escom's financial position during the year was determined by issues which were often conflicting. The cost-saving campaign, started in 1982, was intensified, but its effects were largely counteracted by external forces over which Escom had little control.

Revenue

Revenue from electricity sales, Escom's only source of income, rose by 16 % to R3 832 million in 1984. Of the increase, R309 million was attributable to the 8,8 % increase in the volume of electricity sales; the balance, R221 million, was the result of the January 1984 tariff increase.

In terms of the Electricity Act, Escom is required to operate at neither a profit nor a loss, and electricity has to be provided to the consumer at cost. Surpluses and deficits have to be carried forward to the next financial year and ultimately have to be recovered from the consumer.

Tariffs

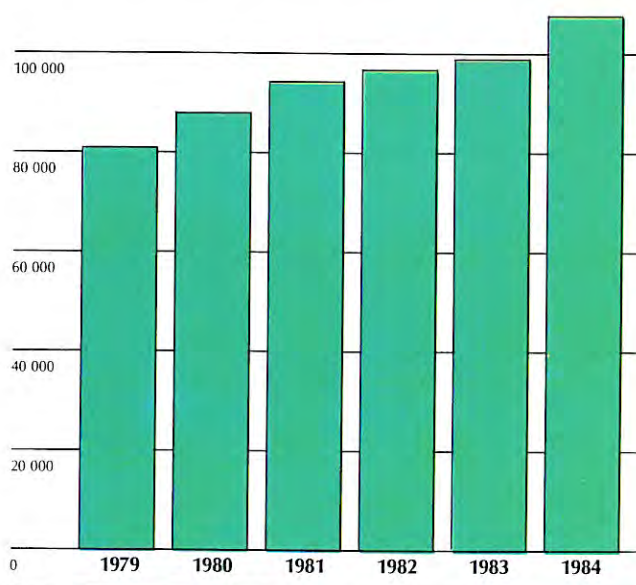
The price of electricity is made up of the tariff and a separate adjustment for coal costs. This adjustment varies with changes in the price of coal during the year and in past years has, on average, added about 2 % to the price of

Electricity sales

in million kilowatthours

million kWh

120 000



electricity. Last year Escom's average coal cost increased by only 0,9 % and consequently the adjustment to tariffs for coal was not significant. As explained in the Chairman's review, this can be attributed to Escom's policy of

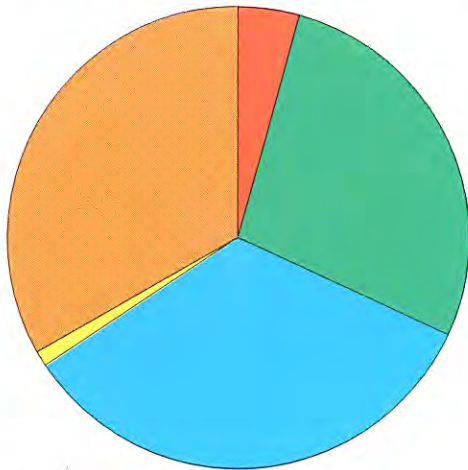
Sales of electricity to categories of consumers

Category of supply	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average increase 1979-1984 %
million kWh								
Bulk sales ¹	24 133	26 923	29 961	32 349	32 729	35 541	8,6	8,0
Domestic ²	940	906	1 002	1 020	1 078	1 144	6,1	4,0
Industrial	27 475	29 373	31 091	30 959	32 286	36 118	11,9	5,6
Mining	24 000	25 882	27 131	27 372	28 021	29 506	5,3	4,2
Traction	4 035	4 455	4 659	4 436	4 137	4 595	11,1	2,6
Total	80 583	87 539	93 844	96 136	98 251	106 904	8,8	5,8
% of total								
Bulk sales ¹	29,9	30,8	31,9	33,6	33,3	33,2		
Domestic ²	1,2	1,0	1,1	1,1	1,1	1,1		
Industrial	34,1	33,6	33,1	32,2	32,9	33,8		
Mining	29,8	29,5	28,9	28,5	28,5	27,6		
Traction	5,0	5,1	5,0	4,6	4,2	4,3		

¹This category includes sales to municipalities and electricity undertakings in neighbouring territories

²Sales in this category include street lighting

Electricity sales to different consumer categories



- 4 % traction
- 28 % mining
- 34 % industrial
- 1 % domestic and street lighting
- 33 % bulk sales

partly financing some of the collieries tied to power stations and to improved productivity.

Since costs for a given year have to be estimated up to 18 months in advance significant differences may arise between the cost and price of electricity, particularly in economically unstable times. It is necessary to take such differences into account when adjusting the electricity tariff, to avoid deficits or surpluses accumulating.

To make adequate provision to cover costs, Escom favours one tariff adjustment a year, usually in January. Moreover, that allows consumers, particularly electricity-intensive industries, to plan on the basis of a known and stable electricity price.

At the request of the government, to help with the fight against inflation, and on the assumption that the inflation rate would decline, Escom limited its 1984 increase to a modest 6 %, less than half the original estimate. Unfortunately, at 11,7 % for the year (as measured by the consumer price index) the rate of inflation did not abate. The year's revenue consequently did not cover costs which also came under severe pressure from unprecedented high interest rates in the local capital market, the fall in the value of the Rand and an increase in sales tax.

As a result, a 10 % tariff increase had to be introduced in January 1985. This is still below the current inflation rate as well as the level required to cover estimated charges

Electricity sales to sectors of industry



- 3 % paper and paper products
- 24 % foodstuffs, consumer goods, commercial and other
- 47 % engineering, iron, steel and base metals
- 22 % chemical
- 4 % building, cement and quarrying

against revenue.

Electricity sales

About 33 % of Escom's electricity is sold in the form of bulk supplies to municipalities and neighbouring states; 34 % is accounted for by direct supplies to industrial users and about 28 % to the mining sector. Just over 4 % of sales goes to railways and domestic users not supplied by municipalities take about 1 %.

Bulk sales

Sales to municipalities and neighbouring states increased by 8,6 % in 1984. In the past, bulk sales tended to show a growth rate higher than the Escom average as more municipalities increased their take-off from Escom rather than replace their own obsolete plant. With Escom now supplying more than 90 % of the electricity used in South Africa, growth in this category will increasingly be attributable to natural development and the electrification of black towns and neighbouring states.

Sales to the Soweto Town Council, for example, increased from 31,5 million kWh in 1983 to 226,1 million kWh in 1984. Although the figures reflect the transfer of a number of consumers from the Johannesburg Municipality supply network to the Escom system, the growth is still an indication of the rate at which Soweto is being electrified.

Less electricity was sold to neighbouring states in 1984 than in 1983. Sales to Transkei decreased following the

commissioning of their latest hydro-electric power station. Drought, floods and the recession affected sales to Swaziland, while supplies to Mozambique were also hampered by natural disasters and other factors. Sales to Lesotho and Botswana grew by 5,3 % and 16,3 % respectively.

The South West African Water and Electricity Corporation (Swawek) exported electricity to Escom for the larger part of the year. Consequently Escom's sales to Swawek decreased from 267 to 50 million kWh.

Sales to industry

Sales to industrial users grew by 11,9 % in 1984, compared with the 4,3 % growth recorded the year before. Chemical, explosives and aluminium producers, Sasol 2 and 3 and the ferro-alloy industry accounted for 48 % of the electricity sales in this category.

Much of the growth can be attributed to a recovery in the export-oriented mineral beneficiation sector. The ferro-alloys producers recorded a 32,2 % increase in their electricity consumption, which was largely a recovery to earlier levels.

Mining sales

Sales to the mining sector rose by 5,3 %, which is slightly higher than the average annual growth rate of 4,2 % for the past five years. Much of the growth is attributable to an 18,5 % increase in sales to platinum mines. Sales to gold mines increased by 3,4 %.

Traction sales

Sales to the South African Transport Services increased by 11,1 %, compared with a 6,7 % decrease the year before. Much of this growth is attributable to increased rail transport in the northern Cape. The low Rand/Dollar exchange rate and an improvement in some western economies stimulated demand for most of the metals and minerals mined in the northern Cape.

Domestic and rural sales

Escom encourages municipalities to buy in bulk and undertake the distribution of electricity to domestic users in their areas. As a result, domestic consumers supplied direct by Escom account for only 1 % of total sales. In 1984 Escom networks were sold to Roodepoort, Kempton Park, Verwoerdburg and a number of smaller municipalities.

Rural systems have been expanded over the past years and sales now constitute just over 1 % of Escom's total sales.

Charges against revenue

Overall charges against revenue increased by 17,3 % (R590 million) to R3 995 million in 1984. The main cost categories are generation costs, loan charges, contributions to funds, distribution costs, corporate management and electricity purchased.

Generation costs

Generation costs rose by 13,1 % to R1 554 million, which represents 38,9 % of total charges against revenue. The cost of primary energy and electricity purchased increased by 16,5 %. Price increases account for 7,7 %; the balance is associated with the higher volume of electricity produced.

Coal costs rose by 9,1 %; railage on coal decreased by 0,7 %; other costs, which include nuclear fuel and water charges, increased by 29,5 %; maintenance expenditure increased by 4,9 %, and administration charges associated with generation rose by 17,5 %. Through the control of major cost components the operating surplus expressed as a percentage of income before interest and finance charges, increased marginally by 1,4 %.

Loan charges

Interest and finance charges amounted to R1 283,7 million, or 32,1 % of total charges against revenue (27,6 % in 1983). This represents an increase of 36,6 % compared with 1983. If contributions from revenue to the Capital Development Fund and Reserve Fund are excluded as charges against revenue, the percentage is 36,9 % of total charges (32,3 % in 1983).

This substantial increase was due to the high cost of new borrowings during 1984 and is clearly demonstrated by the 40 % increase in total finance charges when comparing 1984 with 1983. The amount of capital in commercial operation increased by R2 839 million (30,8 %) compared with 1983.

Contributions from revenue to funds

Contributions from revenue to the Capital Development Fund and the Reserve Fund in 1984 were R450 million and R70 million respectively, or 13,0 % of total charges against revenue. This should be compared with the 1983 figure of 14,7 %, which shows that these charges represent a declining percentage of overall costs and charges.

The contribution from revenue to the Capital Development Fund has remained constant at R450 million a year in 1982, 1983 and 1984. An amount of R70 million was added to the Reserve Fund, compared with R50 million in 1983, to maintain its balance.

Distribution costs

Distribution costs increased by 13,2 % to R310,6 million, which represents 7,8 % of the year's total charges against revenue.

Corporate management

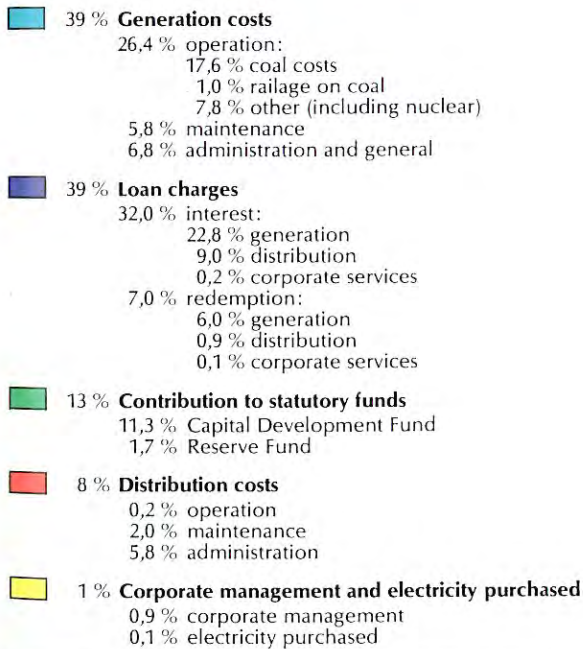
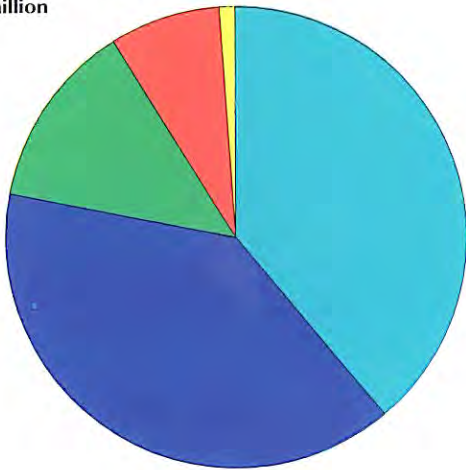
Expenses associated with corporate management rose by 19,9 % to R39,8 million, which represents 1,0 % of the total charges against revenue for the year.

Electricity purchased

Electricity purchased by Escom decreased by 56,3 % to R4,2 million. This represents 0,1 % of the year's charges

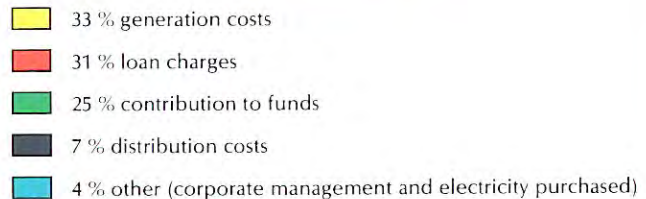
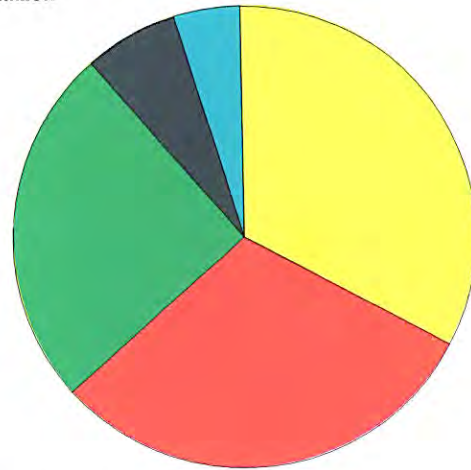
Breakdown of costs - 1984

R3 995 million



Breakdown of costs - 1979

R1 512 million



A comparison of the breakdown of costs in 1979 and 1984 shows some significant movements in the major Escom cost components. Contributions to statutory funds decreased from 25 % of total costs of the year in 1979 to 13 % in 1984. In 1979, generation costs represented 33 % of total costs for that year as opposed to 39 % in 1984. Loan charges moved from 31 % of total costs to 39 %.

of the century; more recent estimates indicate a growth rate closer to 6 %. If long-term conservation can be practised successfully or the present economic climate should continue for some years, an even lower growth rate is possible.

Because of the long lead-times in the planning and construction of electrical plant, the financial commitment to a specific project begins up to eight years before the first electricity is produced from that source. Thereafter, particularly in the case of the larger, modern power stations, a further five years elapse before the last set is taken into commercial service.

These long lead-times, as well as the capital-intensive nature of electricity supply (R4 has to be invested to produce R1 of revenue), require that the future demand for electricity should not be significantly over- or underestimated. A 1 % deviation from the long-term growth trend can, for example, affect capital requirements by billions of Rand over a period as short as five years. If over-estimated, costly plant does not produce revenue; if under-estimated there may be power shortages which will put a severe constraint on the economy.

against revenue. Escom buys electricity from Cahora Bassa in Mozambique and, when excess power is available, from Swawek and some municipalities for distribution in its own system.

Financing expansion

Escom's capital expansion is necessary to provide for the replacement of old, inefficient plant and to provide for growth in the demand for electricity. Future demand for electricity is estimated over a 10-year period. These estimates are revised annually with the 10-year period advanced by a year.

Projections of demand made two years ago, indicated an average annual growth rate of about 7 % until the turn

Escom's capital requirements are financed by way of internally generated funds and loan capital.

Internally generated funds are provided mainly by the Capital Development Fund (contributions from revenue and interest earned from investments). The Redemption Fund and Reserve Fund, along with some minor provisions, are also sources of such finance. Loan capital consists of money raised on the local capital market, foreign loans and import financing facilities. The objective is to maintain a healthy balance between these various sources of finance, thus reflecting Escom's standing as a responsible borrower.

In 1984 R4 835 million was obtained from all of these sources to meet Escom's financing requirements. Of this amount, R508 million was utilised for repayments, leaving net proceeds of R4 327 million. Internally generated funds from all sources provided 26 %, local external finance 36 %, foreign external finance (excluding import financing) 27 % and import financing 11 %.

Escom was successful in raising substantial amounts of external finance in both local and foreign capital markets in 1984. Towards the end of the year greater use had to be made of short-term financing and this could adversely affect cash-flow in future years when such loans have to be repaid.

The 1985 cash-flow requirement is a matter of concern when seen against the background of the current economic climate and environment within which Escom operates. Although a re-examination of capital and other requirements is under way, it is not expected that sufficient cash-flow savings will be achieved in the short term because of the level of committed expenditure, servicing of existing debt and the high interest rates prevailing.

Use will have to be made once again of short-term financing, which will further aggravate the cash-flow problems in future years, but should result in some cost-saving if re-financing can be done at lower rates.

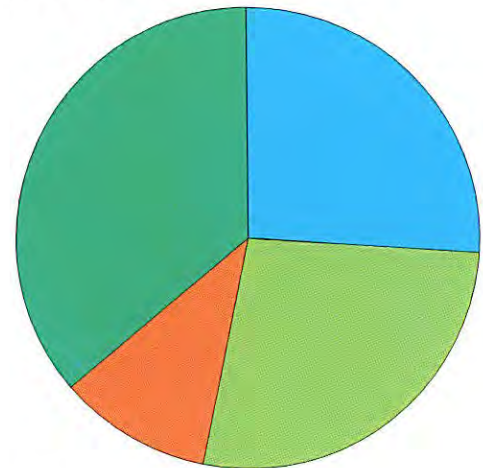
Internal financing

Funds generated internally amounted to R1 266 million in 1984, slightly below the 1983 level of R1 277 million. The amounts credited to the Capital Development Fund in 1984 were the contribution of R450 million from revenue and R599,2 million in interest, totalling R1 049,2 million (1983: R922,6 million).

The Reserve Fund was credited with R70 million from revenue and R26,5 million from interest, totalling R96,5 million (1983: R73,6 million).

The amounts credited to the two funds were slightly higher than in 1983, but the increase was offset by the net deficit and adjustments made for foreign liabilities and interest capitalised on fuel funding. The provisions made

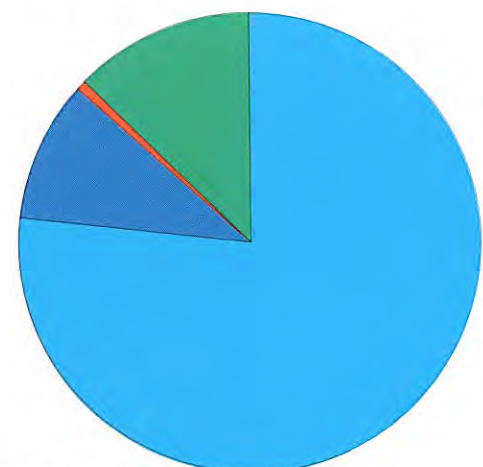
Source of funds



R4 835 million

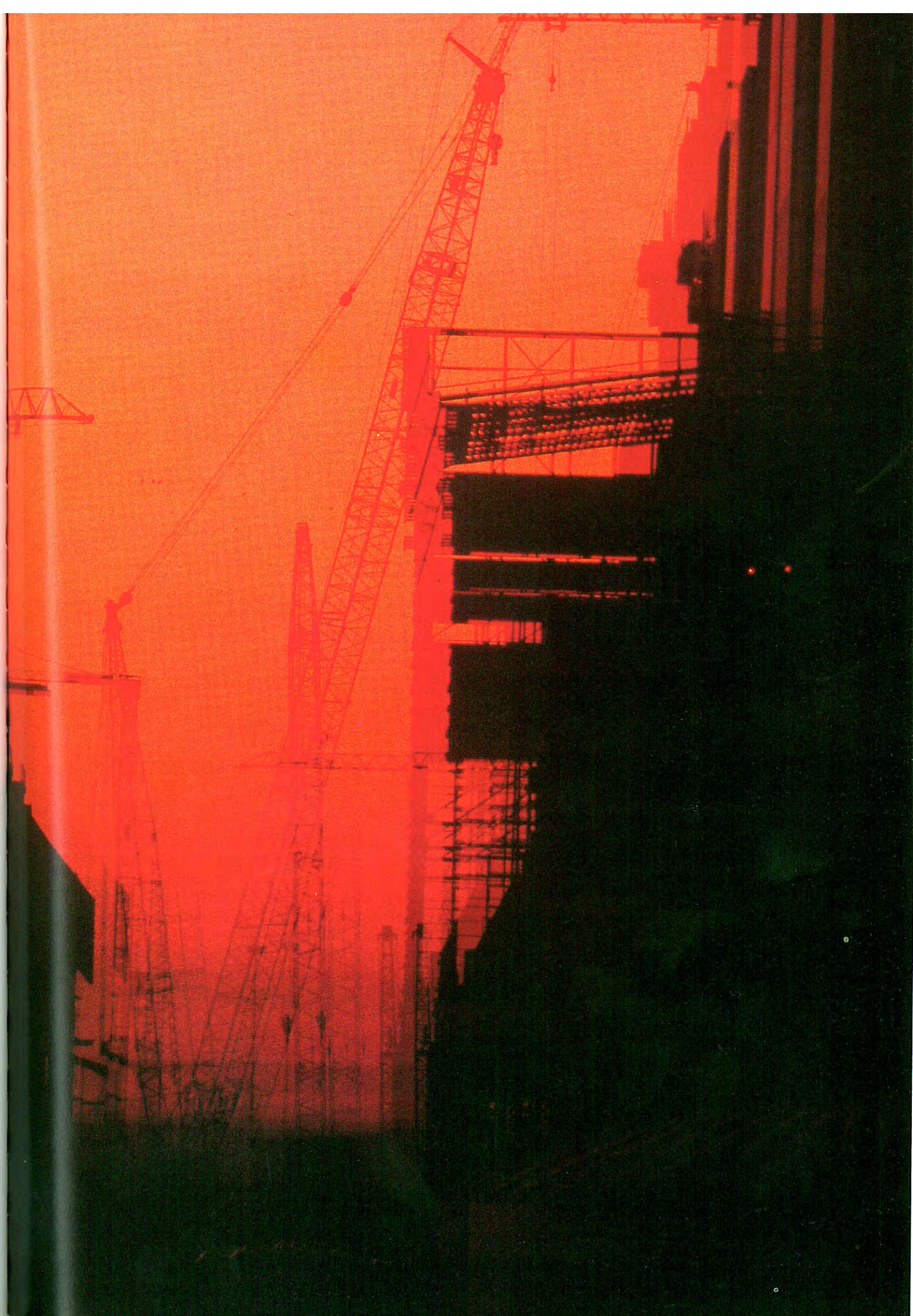
- 26 % funds generated internally
- 11 % import financing facilities
- 27 % other foreign external finance
- 36 % local external finance

Application of funds



R4 835 million

- 77 % expenditure on fixed assets
- 10 % repayment of foreign external finance
- 1 % repayment of local external finance
- 12 % other



for the redemption of local and foreign loans totalled R439,7 million (1983: R380,5 million).

Some electricity consumers feel that by contributing to the Capital Development Fund they are in fact paying more for their electricity than what it costs to produce. Yet, it is necessary and permitted in terms of the Electricity Act for Escom to generate funds internally. If it is to maintain investor confidence and attract external loan capital in the volumes required it is essential that Escom generate funds internally.

It should, however, be pointed out that the annual contribution from revenue to the Capital Development Fund is the only additional charge to the consumer. The interest earned by the Fund would be payable if the amount of the present and past contributions to it was borrowed from external sources (assuming that it could be borrowed, for in the absence of adequate internal financing investors would be reluctant to provide funds).

For the last 5 years there has been a steady decrease in the proportion of revenue contributed annually to the Capital Development Fund. In 1984 this amounted to 11,7 % of revenue, as opposed to a peak of 24,8 % in 1979.

About 12 % of revenue is not a high price to pay to ensure continued investor interest and confidence, and consequent availability of funds from external sources.

External financing

Escom attracted a cash inflow of R3 511 million in external loans and credit facilities in 1984.

The amount was made up as follows:

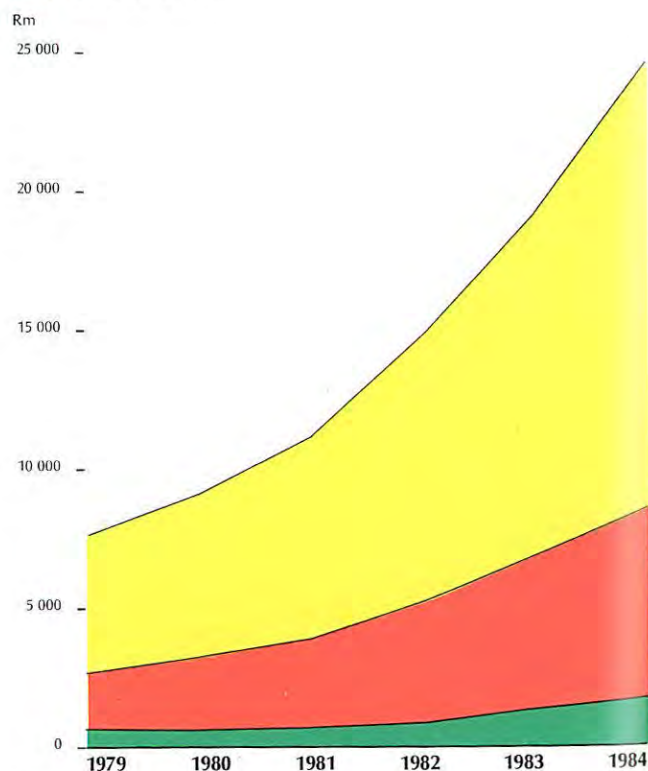
	R (million)	
Local:		
Secondary market	1 097	
Project-related	460	
Primary market	127	1 684
Foreign:		
Loans raised	1 310	
Import financing facilities	517	1 827
Total		3 511
Less repayments		508
Net amount raised		3 003

Local external financing

Of the R1 684 million obtained from local markets, R1 097 million came from the secondary market in Escom stock. With minor exceptions the Capital Development Fund, the Reserve Fund and the Redemption Fund are

Relationship external/internal financing

External net debt
Statutory funds
Other reserves



invested in Escom stock and these stocks are the source of the secondary market operations.

Schedules 3, 4 and 5 of the financial statements set out clearly the instruments of the funds at the nominal value of the stocks held, as well as the cost (book value).

By taking a view on the local capital market interest rates Escom took advantage of the liquidity offered by this market and arranged about 50 % of its annual sales of stock during the first quarter of 1984 at rates well below those ruling later in the year. During the second half of the year Escom relied more on short-term financing, rather than issue long-term stock at high interest rates, and will continue with this method of financing until long-term rates return to lower levels.

Foreign external finance

Of the total amount of R1 827 million raised from foreign external sources, R647 million was raised from foreign direct loans, R536 million from project-related loans, R127 million from two bond issues and the balance of R517 million from import financing facilities.

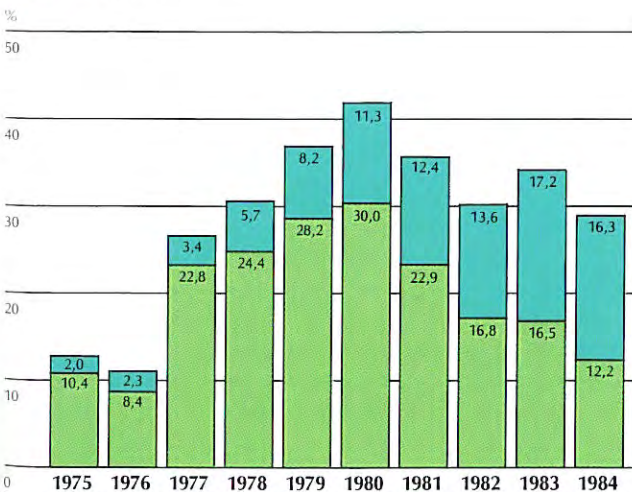
The sharp rise in local interest rates together with the



Capital Development Fund

Contribution and interest as a percentage of the year's capital expenditure

■ Interest
■ Contribution



Sales to municipalities and neighbouring states increased by 8,6 % in 1984. Escom supplies to Soweto Town Council, for example, increased to over 226 million kWh as more and more black houses are electrified.

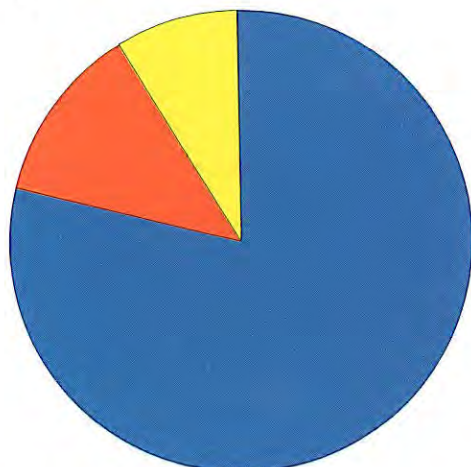
The Capital Development Fund is making a smaller contribution to financing capital expenditure. In addition, the annual contribution to the Fund from revenue is becoming less important than the interest earned from the investment of earlier contributions.

fall in American interest rates increased the cost of forward cover on foreign commitments with the cost often exceeding the coupon or base rate.

Foreign exchange cover

The management of Escom's large foreign currency exposure has become a major problem. In the world of floating exchange rates, fluctuating interest rates and an ever-changing environment, accurate predictions about future exchange rates are impossible. Moreover, nearly 24,8 % of Escom's total liabilities are denominated in foreign currencies.

Debt mix



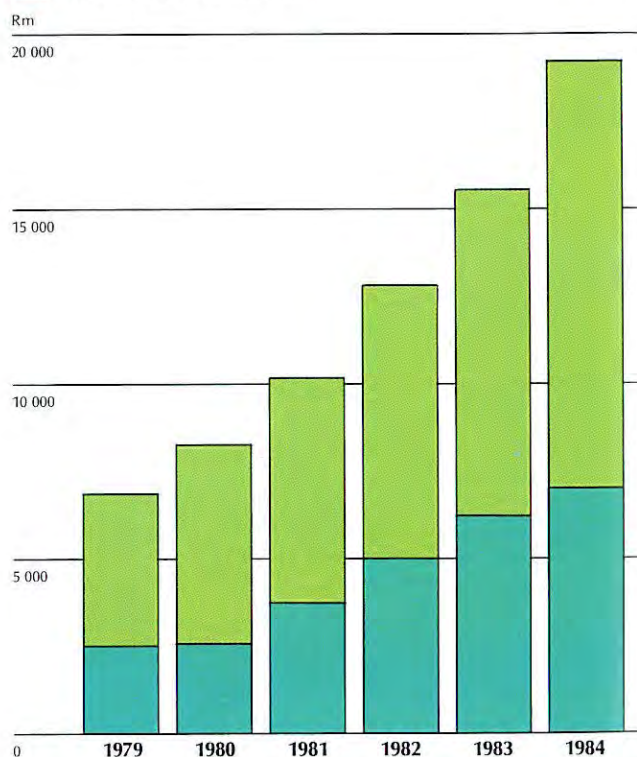
- 79 % loans
54 % local registered stock
25 % foreign loans
- 12 % import financing and extended credit facilities
- 9 % revolving credit and short-term advances

Because of this uncertainty, the Commission has for some time adopted the general policy of covering all foreign commitments. Due to the complexities involved and the shortcomings of the local foreign exchange market, however, it is not always prudent or possible to cover all foreign commitments because of non-availability or of excessive costs of cover. The forward cover policy followed by Escom is, to a very large extent, therefore, determined by the terms of forward cover facilities provided by the South African Reserve Bank to public corporations.

At present only US Dollar commitments in respect of loans and credit facilities are being covered by the South African Reserve Bank. All other commitments (including non-loan US Dollar commitments) have to be covered in the foreign exchange market. These include commitments arising from contracts for the supply of equipment

Capital expenditure on assets

- Assets in commission
- Works under construction



and materials from overseas sources as well as those in respect of the second leg of loans and credit facilities denominated in currencies other than the US Dollar, but swapped into Dollars. Forward cover opportunities in the foreign exchange market are subject to the vagaries of national and international money markets.

Availability, cost of cover and the period are all subject to market conditions ruling at the time of taking out cover. Experience has shown that forward cover is generally not available for the relatively long periods required by Escom. Furthermore, the cost of cover increases progressively with the period and fluctuates in line with interest rate differentials and, in certain instances, exceeds the interest rate payable on the loan or credit facility.

It is therefore not always possible to adhere to the general policy of covering all foreign commitments. Contingent on the cost of forward cover, economic factors and general market expectations in respect of exchange rates, it has been found prudent at times to leave certain commitments temporarily uncovered. These are, however, kept to a minimum and are covered when considered appropriate or are paid from proceeds of

loans raised from overseas sources. Recommendations in respect of the hedging strategy to be followed are submitted to, and considered by, the Commission at its monthly meetings.

Due to a sharp drop in the value of the Rand, certain long-term uncovered commitments have been revalued resulting in a deferred unrealised loss of R141,6 million. These unrealised losses are in respect of known commitments payable during the period up to 1989 and will be written off over the outstanding period of the commitments. The unrealised loss is valued at exchange rates ruling on 31 December 1984. This is not yet an actual loss and is therefore subject to change. In the event of a Rand appreciation the amount could be substantially lower.

The net loss Escom suffered in 1984 on foreign exchange transactions was R9,6 million, compared with a R11,7 million gain in 1983.

Application of funds

Expenditure on fixed assets during 1984 amounted to R3 719,2 million (1983: R2 757,1 million). Machinery, plant, land and buildings to the value of R2 839,3 million were put into commercial operation during the year, leaving R7 028,2 million representing work under construction.

It is significant that the new expenditure on fixed assets in 1984 represents 24 % of the value of Escom's total fixed assets at the beginning of the year. This clearly demonstrates the very large financing burden which Escom has to carry at present. High inflation rates and the declining value of the Rand have increased the capital expenditure requirement markedly. In order to meet growth requirements large amounts of both external and internal financing must be raised.

Escom has followed a policy of keeping increases in stores, materials and fuel to a minimum. Some success has been achieved with the increases in 1984 being only R41,7 million compared with 1983's R224,2 million. The financing of future fuel supplies increased to R992,6 million from R748,4 million in 1983.

Deferred and Reserve Fund expenditure had to be increased due to conditions totally beyond Escom's control. These items are influenced by interest and exchange rates and extraordinary occurrences.

With the approval of the South African Reserve Bank, a number of overseas banks hold funds on Escom's behalf in order to effect certain contract and interest payments as well as the settlement of forward exchange contracts.

Replacement cost depreciation

In the table, the internal financing generated during the year on a funds basis is compared to projected results based on replacement cost depreciation policies.

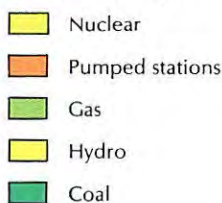
The basis for arriving at the depreciation values is summarised below:

1. The charge for historical cost depreciation has been arrived at using straight-line depreciation on the basis of a 30-year asset life with no residual value.
2. The charge for replacement cost depreciation has been arrived at assuming:
 - 2.1 a replacement cost of R1 166 (1983 – R1 041) per kW installed (generation, transmission and distribution);
 - 2.2 a like depreciation period of 30 years with no residual value; and
 - 2.3 an allowance for depreciation under this heading on the increase in the replacement cost of assets that arose in 1984 only.

The comparative operating results based on depreciation accounting following the above assumptions indicate that the contribution made available in 1984 (i.e. R309,2 million) towards meeting the cost of capital expenditure incurred in that year, namely R3 679,3 million was 8,4 % and that no allowance was made available from revenue in that year towards making good arrears of replacement cost depreciation on assets placed in commercial operation prior to 1983. If allowance was made for making good these arrears, there would be no balance available for financing capital expansion.

Comparative supply account 1984	Funds basis R (million)	Depreciation basis R (million)
Revenue from electricity sold	3 831,7	3 831,7
Total debits on funds basis (excluding contribution to the Capital Development Fund)	3 544,6	3 544,6
Adjustments to convert to depreciation basis – Reduced by aggregate of increases in statutory funds (excluding contribution to Capital Development Fund), capital reserve and provision for repayment of foreign loans		(1 005,3)
add: Depreciation charges on basis of historical cost		304,2
Total debits depreciation basis		2 843,5
Operating surplus for year	287,1	988,2
Appropriations		
<i>Funds basis:</i>		
Contribution to Capital Development Fund	(450,0)	
<i>Depreciation basis:</i>		
Contribution towards higher replacement cost of assets		679,0
Contribution towards cost of capital expansion		309,2
Deficit for year	(162,9)	—

Sent-out capacity of Escom power stations



OPERATIONS

The net amount of energy sent out by Escom was 8,1 % more than in 1983.

Duvha power station, with a sent-out capacity of 3 450 MW, was completed during the year. It is one of the largest coal-fired power stations in the world. The first set at Koeberg, Africa's first nuclear power station, went critical in April 1984 and added 920 MW to the sent-out capacity of the system.

The average availability of Escom's generating plant improved during the year, as did the thermal efficiency of its coal-fired plant. Coal consumption increased by 6,7 %, but specific coal consumption was 2,4 % better than during the previous year. Specific water consumption also improved marginally.

A good quality of supply was maintained throughout the year.

The reliability of the transmission, distribution and reticulation systems was within the targets set for 1984. The two cyclones experienced in the Eastern Transvaal and Natal and the major storms which swept the Western and Southern Cape in May caused extensive local damage and power failures. Computerised storm tracking is now being used increasingly to anticipate areas where storm damage may occur in order to minimise outage

times.

A total of 10 335 km of overhead lines and cables were constructed during the year (see table 3, page 59). This brings the total to 156 321 km.

About 6 000 new farm supplies were furnished in 1984. The total number of such supplies now stands at 65 018.

Plant capability and loading

Details of Escom's generating plant and the national transmission system are shown in tables 1 and 3 on pages 57 to 59.

Escom now has an installed capacity of 24 514 MW, with an assigned sent-out rating of 23 168 MW. In 1984 its power stations sent out 116 581 million kWh of electricity and some 505 million kWh - less than 0,5 % - was imported from other sources.

The contractual capacity from Cahora Bassa was not available in 1984, because transmission lines in Mozambique had been sabotaged. A new supply contract was negotiated during 1984 but is still to come into operation.

Of the total sent-out energy, the Drakensberg pumped-storage scheme absorbed 3 088 million kWh. Coal-fired generation contributed 94 % of the total energy sent out on the Escom system, followed by nuclear power with a contribution of 3,3 % from Koeberg's first set which went into service during the year. Generation at the Orange River hydro power stations remained restricted due to low water inflows.

The end of the drought in Natal and the Eastern Transvaal made normal generation possible again at Camden, Ingagane and Umgeni power stations.

The one-hour maximum supplied demand on the interconnected Escom system was 17 296 MW in 1984.

Plant performance

The average availability of Escom's generating plant improved from 71,9 % in 1983 to 74,9 % in 1984.

The improvement was partly a result of the low figure in 1983 when the effects of the drought decreased availabilities abnormally. Even discounting the drought there is still an encouraging upward trend in plant availability, mainly because of the improved performance of the 500-600 MW sets. These sets are now reaching maturity and the effects of Escom's performance enhancement programme implemented some years ago are beginning to show positive results.

The programme aims at achieving an overall system availability of 77 % by 1989 and has been given the highest priority.

The overall thermal efficiency of Escom's coal-fired power stations was 31,4 % in 1984 compared with 31,1 % in 1983.

The initial performance of the first operational set at Koeberg was excellent and an availability of 90 % was attained over the first months of operation. The station

In the 30 years up to 1984 the average annual growth in electricity sales was 8,3 %, which is indicative of the remarkable development that took place in all sectors of the economy. In 1984 Escom sold nearly 107 000 million kWh of electricity, which is more than 90 % of the electricity used in South Africa. Now that the South African economy is maturing, a lower average annual growth rate of around 6 % is forecast until the end of the century, with most of the prospects for growth coming from secondary industry and increased domestic use. Escom is building for that future.



has been shut down since January 1985 for in-service inspection and analyses of stainless-steel piping and fittings in the primary circuit following the discovery of some ferritic inclusions in a pipe elbow in the second reactor's pipework.

Maintenance

Most of the maintenance planned for 1984 was carried out as a result of the better plant reserve margins.

The maintenance burden, however, remains high because of the backlog of work rescheduled from previous years when inadequate plant margins existed. Although the shortages of manpower eased considerably in 1984, there is still a need for skilled personnel.

Fuel

Escom's power stations burned 58,7 million tons of coal during 1984, 6,7 % more than in 1983. Energy sent out by coal-fired stations increased by 9,3 %. The specific coal consumption rate of 0,533 kg per kWh was 2,4 % better than in 1983. The improvement in overall thermal efficiency resulted from the introduction of newer, high-efficiency plant.

Reserve margins on the power system were adequate throughout the year so that coal supplies could be drawn from the most economic sources. Also, the establishment and development of collieries to serve new power stations progressed well during the year.

Constant attention is given to problems resulting from lower than planned quality coal. Although the policy of using low-quality coal increases the optimal use of the country's prime energy sources, it has detrimental technical effects on the power stations and often results in lowered availabilities as fuel quality falls below the levels for which the plant has been designed.

Methods to improve certain characteristics, such as abrasiveness of this low-quality coal, are being examined. The benefit of various cleaning systems is being quantified to determine whether the introduction of any of them may be cost justified.

Water

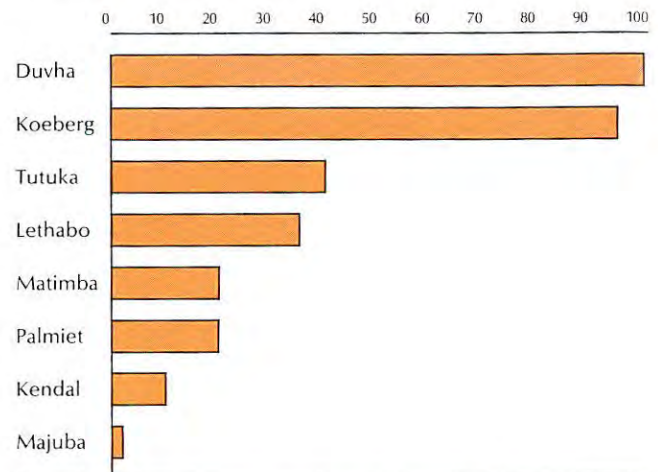
Specific water consumption improved from 2,34 litres per kWh sent out in 1983 to 2,25 litres per kWh sent out in 1984.

The adoption of water conservation and anti-pollution technologies at new and old power stations continues. Where they can be economically applied electro-dialysis, reverse osmosis and vapour compression plants are planned and installed so that no liquid effluent will be discharged. Water is also recovered from the ashing system and is supplemented by stormwater.

The low level of the Vaal Dam early in 1985 is a cause for concern because several power stations draw their water either from this dam or the river downstream. Reservoirs

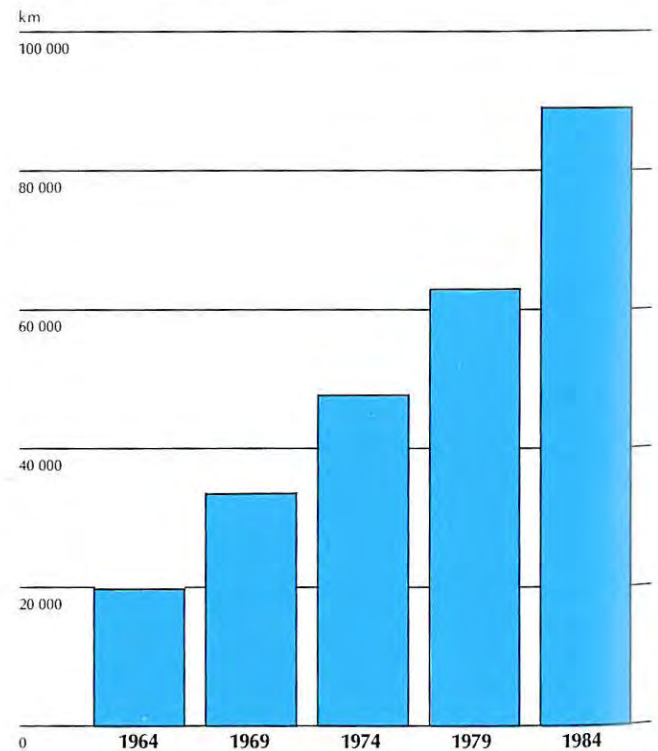
Power stations under construction

% of construction completed



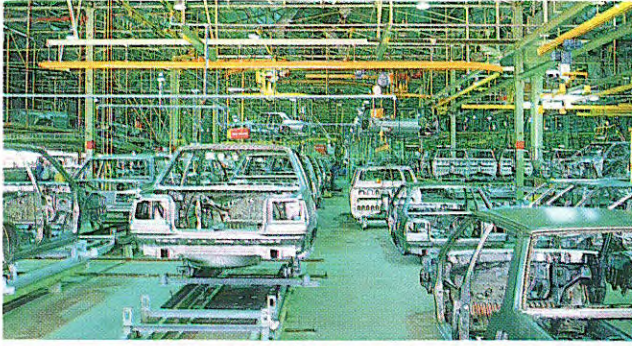
Growth in rural electrification

Lines of 22 kV and lower



in Natal, Orange Free State and the Eastern Transvaal, however, contain sufficient water to meet Escom's needs until the 1986 rainy season.

Further investigations are continuing into dry cooling for large generating sets. These investigations are in-



Electricity sales to industry increased by 11,9 % in 1984.

Kilburn, the lower dam of the Drakensberg pumped-storage scheme. It is Escom policy to give due regard to environmental matters and it cooperates closely with governmental and other bodies in this respect. The Drakensberg pumped-storage scheme, built in an ecologically sensitive area, is one such example. The station was built underground, with only minimum surface buildings which were carefully blended with the environment. On completion of the project, construction sites were restored to their original appearance.



tended to improve the reliability and efficiency of dry cooling. Studies show that water consumption for power generation at a dry-cooled station is about 0,4 litres per kWh produced, compared with over 2 litres at a wet-cooled station. Matimba, Kendal and Majuba power stations now under construction will all be dry cooled.

EXPANSION OF THE ELECTRICITY SUPPLY SYSTEM

The average annual growth rate in the demand for electricity to the end of the century is now estimated at about 6%, compared with earlier estimates of 7% growth. The general economic outlook necessitated a downward adjustment.

Escom accordingly adjusted its expansion programme to reflect the new situation and some projects were delayed or deferred. This flexibility had been catered for in the contracts placed for all new power stations over the past 15 years as the possibility of lower growth rates in the future was foreseen.

At the moment, seven power stations are under construction. At some of them, work is being delayed or deferred. Lekwe power station, still at the planning stage, was deferred for two years and will then be reconsidered. Expansion of the transmission system is also in accordance

with the projected lower growth rate in the demand for electricity.

Koeberg

The commissioning and raising to power of Koeberg's first set was completed and the plant taken over in July 1984. Apart from short outages for minor adjustments the set achieved satisfactory reliability. It attained 2 000 effective full-power hours in a shorter time than any similar first set at a French-built nuclear power station.

By the end of 1984 the second set was licensed to load fuel and pre-critical testing began.

Duvha

The sixth and last set of Duvha was commissioned early in 1984, about seven months ahead of schedule.

The South African Institute of Steel Construction declared Duvha the 1983 winner in its Structural/Functional Application category. The award was in respect of Duvha's boiler and turbine houses. More than 80 000 tons of steel was used in the main station building.

Tutuka

Good progress was made during the year on all sets. The first set is due to go into commercial operation in the second quarter of 1985. As a result of the lower load

forecast it was decided to delay sets five and six by nine and eighteen months respectively.

The second chimney at Tutuka received the Concrete Society of South Africa's 1983 Fulton Award for Excellence in the use of concrete (Civil Engineering category).

Lethabo

Progress is satisfactory and the first set should come on stream in the second half of 1985. The completion of sets five and six has been deferred by nine months and eighteen months respectively.

Matimba

This will be the first of the new stations with full direct dry cooling. Good progress was made during the year with boiler and cooling plant installation. The first set is scheduled for service in the second half of 1986.

Kendal

Kendal is the second Escom power station fully committed to dry cooling. Here an indirect cooling process is used. Six dry cooling towers each 164 m in diameter and 165 m high are being built. These will be the largest cooling towers in the world and construction on the project is progressing well. Commissioning of the first set was deferred to 1988.

Majuba

Construction at this dry-cooled station has been deferred for two years. Earthworks, which had reached an advanced stage, will be completed immediately.

Palmiet

This pumped-storage station will provide power during peak demand periods and also transfer water from the Palmiet River across the Hottentots Holland mountains to the Steenbras reservoir to augment the water supply of the Cape Town metropolitan area. Work of both Escom and the Department of Water Affairs is progressing well. The first set should be completed in 1987.

Extensions to the transmission and distribution system

Work continued to extend transmission, distribution and reticulation systems and to enhance the quality of supply where necessary.

In the Rand and Orange Free State Region supplies from Perseus substation near Bloemfontein were improved. Taunus and Leander substations were constructed for the strengthening of supplies to Soweto, the West Rand and Welkom. Supplies to Iscor (Vereeniging) and the Vanderbijlpark industries were also improved, as were supplies to the Northern Transvaal and Pretoria City Council.

In the Eastern Transvaal Region the reliability of the 400 kV link between the southern and northern generating pools was improved by connecting Matla and Duvha power stations direct. The integration into the power network of Matimba power station near Ellisras

Matimba, near Ellisras in the North-Western Transvaal. This is one of three dry-cooled stations of the total of five coal-fired power stations under construction for Escom. With South Africa's scarce inland water resources in mind, Escom has been improving since the early 1970s on dry-cooling techniques, which now use less than a third of the water required by conventional wet-cooling systems.



was started, while supplies to the North-Eastern Transvaal were reinforced following the energising of 400 kV lines between Arnot power station and Pietersburg. A section of the 400 kV busbar at Tutuka power station near Standerton was switched in and tied into the existing 400 kV network in preparation for the commissioning of this station's first set in 1985. The Middelburg industrial area was given a firmer supply.

In the Natal Region the capacity of the main 275 kV lines to the Durban area was uprated. This work was successfully completed without interruption of supply. A modification to the 400 kV switchyard at the Drakensberg pumped-storage power station was completed.

In the Western Cape Region about 40 km of 400 kV line, part of the connection of Palmiet pumped-storage scheme to the main Escom system, and 90 km of 132 kV line were constructed. This will also improve supplies in the Bot River area temporarily until a permanent improvement is made in 1987.

In the Northern Cape Region supplies were given to the Douglas Co-operative for an emergency pumping scheme to transfer water from the Orange River to the Douglas Weir on the Vaal River via a 22 km earth canal. A supply was also made available to the multi-million Rand cement works and quarrying operations at Ulco near Barkly West.

In the Eastern Cape Region work to provide a supply for the electrification of the Port Elizabeth-Cradock railway line was completed. Projects to provide supplies for the electrification of the Cradock-De Aar railway line progressed well and will be completed late in 1985. Projects to improve voltage regulation in the Eastern Cape areas were completed during the year.

Rural electrification

A total of 5 920 new farm supplies were provided during

the year, 10,0 % more than in 1983. Escom has now provided 65 018 farm supplies (see table 14 on page 71).

Although the backlog is being reduced, there is still a considerable delay in some regions before farm supplies can be provided. In the Rand and Orange Free State Region, for example, this could take four to five years. Escom, however, is doing its best to reduce this delay. Measures include the extensive use of contractors, assistance of construction teams from other regions and obtaining help from farmers. It is Escom policy to allow farming communities, where possible, to construct their own distribution systems under Escom supervision.

The government's decision to subsidise the extension charges of farmers for the last nine months of 1984 offered welcome relief to many of Escom's rural consumers.

In the Eastern Cape five schemes were connected to the Escom system and nine future rural schemes were approved. Supplies were made available to five municipalities.

The Natal Region's rural electrification programme centred on urgently required supplies for irrigation purposes. In addition, Louwsberg and environs were given a supply.

In the Rand and Orange Free State Region construction of 21 schemes with more than 2 500 supply points was under way. The tempo of construction was increased and 3 800 km of rural lines were built during the year. In 1985 work will start on the huge Schweizer-Reneke scheme, with 700 connection points and provision for another 300. Existing systems will also be strengthened.

The Western Cape Region completed five schemes and construction was started on two schemes. During 1985 construction should start on six new schemes. Supplies were made available to three municipalities and to two townships. Areas which benefit from the government's decentralisation subsidy, in general had high growth rates.

The Northern Cape Region has more than kept pace with supplies to rural consumers and as a result all four of its line construction teams are assisting full-time with construction work in other regions.

Facilities

Work continued on the regional headquarters at Bellville in the Western Cape. In the Northern Cape a building accommodating telecommunication facilities, a store and workshop were completed.

In 1984 Escom took delivery of the computer-based energy management system, SCALD (System Control and Load Despatch), which should be in operation by mid-1985. This will provide improved efficiency and economy

Turbine hall at a power station. Escom has an installed capacity of 24 514 MW, with an assigned sent-out rating of 23 168 MW. Following the downward adjustment in its capital expansion programme some of the later sets at a number of the coal-fired stations under construction have been deferred. The programme is flexible inasmuch as contracts for certain projects can be accelerated, slowed down or even cancelled.



in the remote control operation of power generation and distribution throughout the Escom system.

RESEARCH

Escom conducts numerous research and development projects with the dual objectives of increasing productivity and, as part of its social responsibility programme, reducing the environmental effects of its activities.

Biological effects of power lines

Investigations continue into electric field phenomena associated with alternating-current transmission lines. World literature on the possible biological effects of such lines is being studied, particularly the prediction of field intensities and development of measurement techniques. This is part of a general study on the environmental effects of such lines.

765 kV lines

A new design for the transmission towers of 765 kV lines has been developed with a considerable saving in erection cost and volume of steel used. Towers supported on a single, central foundation are not as high as earlier designs and occupy less land, which is welcomed by farmers.

Live-line work

To avoid the expense and inconvenience of switching out large transmission lines for servicing and repairs, specially trained "live-line teams" have, for some years, been available to perform work on operating lines.

As part of a review of the safety of some of the live-line methods, tests were started in 1984 to measure the influence of live-line personnel and their equipment on the electrical flashover strength of 400 kV transmission line insulators. This will lead to improved safety measures.

Atmospheric and groundwater pollution control

A techno-economic study was launched in 1984 to improve the performance of electrostatic precipitators at

older power stations. After the fitting of precipitators Komati power station now has a minimal dust discharge. At Kriel a continuous dry-ashing system is being installed to improve precipitator availability.

The quality of groundwater near the ash disposal site at Lethabo power station is being monitored. This will establish if pollutants reach the Vaal River and borehole water in the Vereeniging district.

Acid rain

The nationwide programme to obtain scientific information on acid rain continued. Farmers are assisting with readings. Acid rain has become a controversial subject internationally and its origins have not yet been determined conclusively. Escom's programme is aimed at establishing in the first instance whether power stations do contribute to acid rain.

MANPOWER

Escom has 64 560 employees. In 1984, the number of staff increased by 3,4 % which is less than half the 1983 increase. In view of the estimated lower growth rate in the demand for electricity, the deferment of a number of capital projects and the on-going internal cost-saving campaign, only critical posts were filled. Staff turnover remained virtually unchanged at about 8,3 %.

In some critical areas a shortage of manpower continues, particularly in the more skilled categories.

Labour relations

Sound labour relations existed in 1984. Many of Escom's black employees were exposed to the eruptions of violence which occurred periodically throughout the year. The responsible action by labour unions and a progressive approach by management ensured stability.

Negotiations on wage and salary adjustments were difficult, but agreements were reached with labour unions in all but one case. A dispute about the adjustments of salaried staff was referred by the Minister of Manpower to the Industrial Court for arbitration and has since been settled.

Training

Because of Escom's unique requirements, training is of vital importance. Training is provided on all levels of employment. Management training extends to the middle, senior and top management levels.

The development of generic and specific training for power station operators was particularly emphasised in 1984. The programme is computer-based. Simulators for the large coal-fired power stations are nearing completion. An increasing number of pupil technicians and apprentices were enrolled for Escom's training schemes. Good progress was made with training facilities.

It is Escom's policy to use tertiary institutions for general training and to develop its own training facilities for

specialised needs. At the end of 1984 a total of 3 576 candidates in the critical employee categories were in training, compared with 3 419 at the end of 1983.

Employee category	Employees-in-training	
	1983	1984
Engineers-in-training	191	204
Pupil technicians	1 034	1 103
Apprentices	1 637	1 767
Plant operators	557	502

At the end of 1984 a total of 740 candidates in the critical employee categories qualified after formal training, compared with 562 during 1983.

Employee category	Employees who qualified after formal training	
	1983	1984
Engineers-in-training	37	60
Pupil technicians	59	88
Apprentices	154	241
Plant operators	312	351

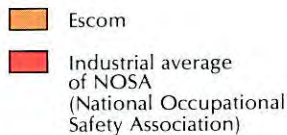
Staff benefits

Escom provides all the usual benefits to staff, such as housing or housing loans, pension scheme and medical assistance.

Because many of Escom's new power stations and related installations require a large number of con-

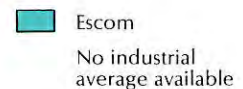
Disabling injuries

per million man-hours worked



Fatal accidents

per five million man-hours worked



struction and ultimately operating staff to be brought into relatively small communities with an inadequate infrastructure, housing and other facilities have to be provided. During the peak construction period at a

Driekloof dam is part of the dual-purpose Tugela-Vaal project. Water is pumped over the Drakensberg escarpment to supplement supplies to the Witwatersrand and for the generation of electricity at Escom's Drakensberg pumped-storage scheme.



power station housing has to be provided for as many as 6 500 workers. At the end of 1984 Escom had over 16 300 houses at more than 50 sites.

Houses are erected according to a predetermined programme to ensure their availability for construction and operating staff. Following the deferment of a number of capital projects in 1984, the occupation rate dropped to 85 % and about 2 500 houses will consequently only be occupied when these projects are resumed. It is expected that by the end of 1986 normal occupation of housing will have been restored.

The vacant houses are, in the interim, where possible, being rented out to, for example, maintenance contractors, mines and members of the public.

Safety assurance

The fatal injury rate per five million man-hours worked increased from 0,34 to 0,70 in 1984. This is not abnormally above the Escom average of 0,53 over the last five years. It is, however, a matter of concern and increased safety assurance action is planned.

The disabling injury rate was 2,3 per one million man-hours worked and compared most favourably with the national average disabling frequency rate (National Occupational Safety Association) of 8,6 for the year ending June 1984.

Safety and health standards in Escom improved substantially in 1984 following occupational hygiene programmes directed at the elimination of identified health

hazards.

PUBLIC AFFAIRS

As an electricity utility Escom's activities affect the lives of South Africans in many ways. As the major supplier of electricity, it accepts that there is a need to keep the public informed and to exchange views.

Two years ago the National Electricity Users Forum, consisting of representatives of consumer bodies and major consumers, was established. The forum met twice in 1984 and various issues were discussed.

Information of a general and specialised nature is also made available to members of the public. During the year more than 34 000 people visited Escom's information centres in Johannesburg and Cape Town, and at Koeberg and Drakensberg pumped-storage scheme.

In addition, there are various programmes aimed at specific interest groups, such as domestic consumers, the business community, investors, farmers, environmentalists and young people.

There is, however, an unfortunate tendency, associated largely with western democratic society, to criticise and even condemn outright, organisations such as Escom, with little or no information on perceived misdemeanours. It is clear that Escom will have to take greater cognisance of this phenomenon and concentrate to an even greater extent on keeping the public more fully informed on the complexity of its activities.

Financial statements

for the year ended 31 December 1984

The annual financial statements set out on pages 37 to 56 have been approved by the Electricity Supply Commission and were signed on its behalf on 29 March 1985.

Jan H Smith *Chairman*

IC McRae *Senior General Manager and
Chief Executive Officer*

BM Murray *Chief Accountant*

Report of the auditors

**The Chairman and Members
Electricity Supply Commission
SANDTON**

We have examined the financial statements of the Commission set out on pages 97 to 98. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements fairly present the financial position of the Electricity Supply Commission at 31 December 1984 and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a consistent basis, and in the manner required by the Electricity Act.

We further report that, in terms of the Electricity Act:

- (i) due provision has been made for the redemption and repayment of moneys borrowed by or advanced to the Commission and the Redemption Fund has been properly maintained, and
- (ii) sums fixed by the Commission have been set aside to the Reserve Fund and Capital Development Fund.

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

Johannesburg
29 March 1985

Balance sheet

at 31 December 1984

	Notes	1984	1983
Fixed assets	3	19 261 310	15 590 919
Stores, materials and fuel	4	713 507	671 812
Other non-current assets	5	3 836 582	2 352 072
Current assets		602 166	359 733
Accounts receivable and payments in advance		397 766	359 733
Moneys at call		204 400	—
		24 413 565	18 974 536
Financed by			
Loans and extended credit	6	14 813 518	11 340 230
Local registered stock, bond issues and direct placings (Schedule 2)		19 154 933	14 676 593
less Escom stock held internally	7	7 445 023	5 832 680
Import financing facilities and extended credit		11 709 910	8 843 913
Revolving credits and short-term advances		1 834 857	1 686 254
		1 268 751	810 063
Current liabilities		1 147 167	866 016
Creditors and accrued liabilities		789 691	592 498
Interest accrued		322 967	239 717
Bank overdrafts		34 509	33 801
Total net debt		15 960 685	12 206 246
Statutory funds	8	6 775 935	5 471 030
Capital Development Fund (Schedule 7)		5 328 861	4 279 674
Reserve Fund (Schedule 8)		214 429	239 677
Redemption Fund (Schedule 9)		1 232 645	951 679
Reserves		1 676 945	1 297 260
Capital reserve	9	875 999	763 581
Provision for repayment of foreign loans		133 705	144 520
Other reserves	10	1 086 749	645 811
Accumulated deficit	11	(419 508)	(256 652)
		24 413 565	18 974 536

Income statement

for the year ended 31 December 1984

	Notes	R000	
		1984	1983
Sales of electricity		3 831 713	3 301 904
Operating expenditure	12	<u>1 909 097</u>	<u>1 691 317</u>
Net operating income		1 922 616	1 610 587
less: Loan charges		1 565 472	1 213 580
Interest and finance	12	<u>1 283 742</u>	<u>939 553</u>
Contributions – Redemption of local loans		237 018	225 664
– Redemption of foreign loans		44 712	48 363
Contribution to Reserve Fund		<u>70 000</u>	50 000
		<u>287 144</u>	<u>347 007</u>
Amount set aside to the Capital Development Fund in terms of Section 13 of the Electricity Act		<u>450 000</u>	450 000
Net deficit for the year as shown in the Electricity Supply Account	11	<u>162 856</u>	102 993
Accumulated deficit at beginning of year		<u>256 652</u>	153 659
Accumulated deficit at end of year	11	<u>419 508</u>	256 652

Statement of source and application of funds

for the year ended 31 December 1984

	R000	
	1984	1983
Source of funds		
Funds generated internally	1 266 141	1 277 472
Net deficit	(162 856)	(102 993)
Add Items not affecting the flow of funds		
Forward cover and exchange adjustments – foreign liabilities	(94 601)	2 394
Depreciation on equipment, vehicles and furniture	46 449	40 698
Future fuel supplies –	(108 335)	(39 302)
Written off to coal costs	14 308	10 963
Interest capitalised on fuel funding	(122 643)	(50 265)
Loan amortisation charges	439 743	380 450
Repayment of foreign loans	44 712	48 363
Redemption of local loans	237 018	225 664
Interest credited to the Redemption Fund	158 013	106 423
Amounts credited to Capital Development and Reserve Funds	1 145 741	996 225
Contributions	520 000	500 000
Interest credited	625 741	496 225
Net proceeds of external finance	3 003 420	2 236 565
Loans and extended credit	2 414 328	1 582 880
Repayments	(508 251)	(313 304)
Sale of Escom Stock on secondary market	2 439 879	1 603 836
Purchase of Escom Stock on secondary market	(1 342 536)	(636 847)
Increase in net current liabilities	38 718	165 812
Other	18 731	12 066
	4 327 010	3 691 915
Application of funds		
Fixed assets, net	3 719 159	2 757 108
Increase in stores and materials	41 695	224 197
Expenditure and deposits to secure future fuel supplies	135 857	446 300
Increase in housing loans to employees	33 087	41 366
Deferred expenditure	275 410	170 637
Reserve Fund expenditure	121 802	52 307
	4 327 010	3 691 915

Notes to the financial statements

for the year ended 31 December 1984

1. Accounting policies

The principal accounting policies adopted by the Commission are:

1.1 Fixed assets

(a) *Fixed assets in commission*

Fixed assets in commission are not depreciated but are reflected at historical cost. Loans are raised to finance these assets. The charge to revenue for loan amortisation takes the place of depreciation in recognition of the relationship between the loans so raised and the fixed assets.

(b) *Works under construction*

Interest and a charge for corporate overhead expenses are capitalised during the period of construction.

(c) *Equipment, vehicles and furniture*

Equipment, vehicles and furniture are depreciated at rates considered appropriate to write them off over their estimated useful lives.

(d) Certain expenditure on fixed assets, as provided for in Section 13(1)(a) of the Electricity Act, is written off in full against the Reserve Fund.

1.2 Stores, materials and fuel

Stores and materials, excluding fuel, are valued at standard cost which approximates the latest purchase price. A provision for obsolescence is made where appropriate. Coal stocks are valued at average cost. Nuclear fuel is valued at cost.

1.3 Foreign currencies

Assets and liabilities in foreign currencies are translated to South African currency at rates of exchange ruling at balance sheet date or at forward exchange contract rates where applicable. Loans raised in European units of account are translated using the currencies most favourable to lenders. Unrealised gains and losses relating to the translation of foreign loans not covered are written off to the Supply Account on a straight line basis over the remaining periods of the loans.

All other translation gains and losses are accounted for in terms of the interest recovery procedure.

1.4 Deferred expenditure

Discount on loans is amortised on a sinking fund basis over the period of each loan through the full provision for redemption of the relevant loans. The amortised portion of the discount is set off against

the Redemption Fund and is transferred to the Capital Reserve on repayment of the loans.

Expenditure and deposits to secure future fuel supplies are accumulated for amortisation once deliveries commence.

The difference between the book value and the proceeds of stock sold is written off over the remaining life of the original investment and accounted for in terms of the interest recovery procedure. Other deferred charges are amortised over appropriate periods.

1.5 Amortisation of borrowings

A Redemption Fund has been established in terms of the Electricity Act and provision for the redemption of local 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 revolving credits and short-term advances, as these are made under the provisions of paragraph 1(3) of the Schedule to the Act.

1.6 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.

1.7 Interest recovery procedure

Interest and finance charges, including exchange gains and losses, on loans used to fund fixed assets in commercial operation and on short term funds used for working capital are charged against revenue. Where funds are used to finance fixed assets under construction and expenditure and deposits to secure future fuel supplies, the charges are included in the cost of the related assets.

2. Change in the bases of accounting

Exchange gains and losses relating to loans applied in financing of fixed assets in commercial operation are amortised over the life of the loans. Previously such gains and losses were accounted for in terms of the interest recovery procedure. This change had the effect of increasing the deficit by approximately R32,5 million.

Notes (continued)

	R000		
	1984		1983
3. Fixed assets			
Assets in commission, at cost			
Land and rights	177 262		162 470
Buildings and facilities	1 208 794		973 834
Production plant	10 672 185		8 082 642
Total in commission	12 058 241		9 218 946
Works under construction	7 028 217	19 086 458	6 209 611
Equipment, vehicles and furniture, at cost	347 740		294 932
less: Accumulated depreciation	172 888	174 852	132 570
		<u>19 261 310</u>	<u>15 590 919</u>
4. Stores, materials and fuel			
Maintenance and consumable stores		196 923	159 769
Construction material		243 091	224 072
Fuel		273 493	287 971
		<u>713 507</u>	<u>671 812</u>
5. Other non-current assets			
Unamortised portion of loan discount		1 405 668	758 216
Expenditure and deposits to secure future fuel supplies		992 574	748 382
Unrealised exchange losses on foreign liabilities		141 565	—
Difference between book value and proceeds of Escom stock sold		629 680	486 388
Other deferred charges		479 855	204 445
Deferred expenditure		3 649 342	2 197 431
External listed investments held for Reserve Fund	2 141		2 796
Redemption Fund	318	2 459	312
Housing loans to employees secured by first mortgage		180 570	147 483
Amounts owing in respect of reticulation systems sold		4 211	4 050
		<u>3 836 582</u>	<u>2 352 072</u>
6. Loans and extended credit			
The current portion (excluding revolving credits) included in loans and extended credit amounts to approximately		<u>808 000</u>	<u>579 000</u>
Borrowings in the following currencies are not covered by forward exchange contracts:			
	Conversion rate at 31.12.84		
European units of account	0,3200 = R1	2 710	4 040
Deutsche Marks	1,5725 = R1	4 240	3 572
US Dollars	0,5008 = R1	290 149	107 914
Swiss Francs	1,2945 = R1	4 756	7 043
French Francs	4,8090 = R1	55	—

In accordance with the provisions of the Electricity Act, stock issued in respect of loans raised, together with interest thereon has a first charge on all the assets of the Commission.

Notes (continued)

		R000			
		1984		1983	
	Schedule	Book Value	Nominal Value	Book Value	Nominal Value
7. Escom Stock held for					
Capital Development Fund	3	4 958 275	5 695 395	4 063 263	4 421 098
Reserve Fund	4	221 454	277 969	228 350	275 698
Redemption Fund	5	1 179 522	1 468 018	944 960	1 132 036
Repayment of foreign loans	6	3 234	3 641	3 920	3 848
		<u>6 362 485</u>	<u>7 445 023</u>	<u>5 240 493</u>	<u>5 832 680</u>
Difference between nominal and book value			<u>1 082 538</u>		<u>592 187</u>

8. Statutory funds

8.1 The statutory funds are credited with amounts as provided for in the Electricity Act. These amounts are invested mainly in Escom Stock and the interest accrues to the respective funds.

The Redemption Fund provides, on a sinking fund basis, for the repayment of local loans.

The Reserve Fund is used, when required, for the replacement of obsolete machinery or plant and generally for the betterment of plant or for or in lieu of insurance, or for exceptional repairs or emergencies.

The Capital Development Fund provides internal financing for capital expansion.

8.2 The Redemption Fund at the year-end is stated as follows:

	1984	1983
Redemption Fund (Schedule 9)	1 330 190	1 000 456
Amortised portion of discount on loans	97 545	48 777
	<u>1 232 645</u>	<u>951 679</u>

9. Capital reserve

Loans repaid	1 016 927	883 146
Production plant financed from Reserve Fund	10 360	10 360
	<u>1 027 287</u>	<u>893 506</u>
less Cost of commissioned assets scrapped or sold	151 288	129 925
	<u>875 999</u>	<u>763 581</u>

10. Other reserves

Difference between nominal and book values of Escom Stock held internally	1 082 538	592 187
Deferred proceeds of reticulation systems sold	4 211	4 050
Unrealised exchange profits on foreign liabilities	—	49 574
	<u>1 086 749</u>	<u>645 811</u>

11. Accumulated surplus or deficit

In terms of the Electricity Act, electricity should be supplied at prices calculated to cover operating expenditure, loan amortisation charges and amounts to be set aside to the Reserve Fund and the Capital Development Fund. The surplus or deficit in any financial year is carried forward and taken into account when charges are adjusted from time to time.

A detailed analysis of the revenue and charges for each undertaking of the Commission is given in the Electricity Supply Account (Schedule 1).

Notes (continued)

	1984	R000	1983
12. Supplementary information:			
Total interest and finance costs	2 340 050		1 665 331
Amounts capitalised and charged to Redemption Fund (in respect of assets sold)	<u>1 056 308</u>		<u>725 778</u>
	1 283 742		939 553
Leasing charges on equipment	16 000		13 000
Depreciation of equipment, vehicles and furniture	46 000		41 000
Loss on sale of nuclear fuel	57 000		59 000
Interest and other costs, related to damage and delays in commissioning of plant, written off	68 000		23 000
13. Commitments			
The Commission is committed for			
13.1 Capital expenditure contracted for, excluding contract price adjustments and general sales tax, amounting to approximately	6 395 000		6 808 000
This expenditure will be financed from external borrowings and from cash generated internally, and is expected to be incurred, as follows:-			
	R000		
1985	1 471 000		
1986	1 006 000		
1987	856 000		
1988	688 000		
1989	572 000		
thereafter	<u>1 802 000</u>		
13.2 Payment in respect of housing loans granted to employees of approximately	10 600		10 600
14. 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.			

Schedules to the financial statements

Electricity Supply Account

for the year ended 31 December 1984

Schedule 1

1983	R000								1984
	Total	Corporate Services	Central Generating	Distribution					
				Total	Cape Western	Cape Northern	Border	Orange River	
3 301 904	Electricity sold	3 831 713	—	—	3 831 713	344 483	131 068	61 998	79 520
1 090 281	Industrial	1 298 353	—	—	1 298 353	115 340	19 199	9 525	8 400
1 102 009	Bulk	1 277 135	—	—	1 277 135	153 926	30 775	48 868	65 924
854 168	Mining	964 271	—	—	964 271	—	62 479	—	—
188 245	Traction	215 760	—	—	215 760	30 552	18 044	—	4 813
67 201	Domestic and lighting	76 194	—	—	76 194	44 665	571	3 605	383
1 691 317	Operating expenditure	1 909 097	39 850	1 558 603	310 644	54 513	16 277	11 519	10 512
929 086	Operations	1 059 581	1 368	1 052 551	5 662	460	358	118	120
281 813	Maintenance	306 746	1 021	229 811	75 914	10 478	2 974	2 000	2 026
9 603	Electricity purchased	4 201	—	4 201	—	—	—	—	—
470 815	Administration and general expenses	538 569	37 461	272 040	229 068	43 575	12 945	9 401	8 366
1 213 580	Loan charges	1 565 472	10 776	1 155 320	399 376	53 235	32 939	8 272	12 412
939 553	Interest and finance charges	1 283 742	9 245	912 225	362 272	48 419	29 956	7 330	11 311
225 664	Redemption of local loans	237 018	1 531	198 383	37 104	4 816	2 983	942	1 101
48 363	Repayment of foreign loans	44 712	—	44 712	—	—	—	—	—
50 000	Contribution to Reserve Fund	70 000	—	70 000	—	—	—	—	—
—	Distribution of costs	—	(50 626)	(2 783 923)	2 834 549	227 375	83 243	37 321	42 700
—	Corporate burden	—	(50 626)	37 732	12 894	1 645	1 119	309	471
—	Interconnectors	—	—	3 199	(3 199)	—	—	—	(1 717)
—	Use of circuits	—	—	—	—	—	(11)	107	(107)
—	Transmission costs	—	—	(23 910)	23 910	10 041	5 017	713	1 023
—	Pooled generation	—	—	(2 800 944)	2 800 944	215 689	77 118	36 192	43 030
2 954 897	Total charges against revenue	3 544 569	—	—	3 544 569	335 123	132 459	57 112	65 624
347 007	Operating surplus/(deficit) for year	287 144	—	—	287 144	9 360	(1 391)	4 886	13 896
450 000	Amount set aside to Capital Development Fund	450 000	—	—	450 000	33 485	11 183	4 947	7 398
(102 993)	Surplus/(deficit) for year	(162 856)	—	—	(162 856)	(24 125)	(12 574)	(61)	6 498
(153 659)	Accumulated surplus/(deficit) at beginning of year	(256 652)	—	—	(256 652)	(43 098)	(12 479)	5 125	(3 574)
(256 652)	Accumulated surplus/(deficit) at end of year	(419 508)	—	—	(419 508)	(67 223)	(25 053)	5 064	2 924

1983			R000									
Undertakings			Corporate Services	Central Generating	Distribution Undertakings							
Natal	Eastern Transvaal	Rand and O.F.S.			Total	Cape Western	Cape Northern	Border	Orange River	Natal	Eastern Transvaal	Rand and O.F.S.
617 055	621 550	1 976 039	—	—	3 301 904	302 172	122 947	54 373	64 111	533 131	505 638	1 719 532
226 026	406 716	513 147	—	—	1 090 281	100 265	15 686	7 699	5 889	199 519	317 800	443 423
302 261	66 184	609 197	—	—	1 102 009	133 787	33 031	43 810	57 897	253 181	59 063	521 240
13 095	118 757	769 940	—	—	854 168	—	58 921	—	—	11 904	103 108	680 235
64 896	28 398	69 057	—	—	188 245	28 213	14 807	—	—	59 247	23 850	62 128
10 777	1 495	14 698	—	—	67 201	39 907	502	2 864	325	9 280	1 817	12 506
54 445	49 344	114 034	33 244	1 383 773	274 300	49 755	14 661	10 831	9 190	46 428	41 735	101 700
687	800	3 119	1 153	923 645	4 288	347	241	96	95	550	611	2 348
13 083	15 322	30 031	871	219 003	61 939	7 948	2 586	1 775	1 919	9 789	12 794	25 128
—	—	—	—	9 603	—	—	—	—	—	—	—	—
40 675	33 222	80 884	31 220	231 522	208 073	41 460	11 834	8 960	7 176	36 089	28 330	74 224
57 049	58 263	177 206	7 412	900 839	305 329	41 338	26 768	6 690	8 860	41 502	46 574	133 597
51 648	51 841	161 767	6 466	662 065	271 022	36 648	23 952	5 820	7 943	36 538	40 726	119 395
5 401	6 422	15 439	946	190 524	34 194	4 690	2 816	870	917	4 851	5 848	14 202
—	—	—	—	48 250	113	—	—	—	—	113	—	—
—	—	—	—	50 000	—	—	—	—	—	—	—	—
469 484	442 104	1 532 322	(40 656)	(2 334 612)	2 375 268	199 969	77 025	31 493	33 744	388 919	344 637	1 299 481
1 837	2 010	5 503	(40 656)	30 357	10 299	1 435	960	256	297	1 338	1 610	4 403
—	(135)	(1 347)	—	2 942	(2 942)	—	—	—	(1 297)	—	(173)	(1 472)
189	(276)	98	—	—	—	—	37	125	(125)	164	(227)	26
6 761	54	301	—	(20 864)	20 864	9 780	4 195	650	932	4 969	60	278
460 697	440 451	1 527 767	—	(2 347 047)	2 347 047	188 754	71 833	30 462	33 937	382 448	343 367	1 296 246
580 978	549 711	1 823 562	—	—	2 954 897	291 062	118 454	49 014	51 794	476 849	432 946	1 534 778
36 077	71 839	152 477	—	—	347 007	11 110	4 493	5 359	12 317	56 282	72 692	184 754
73 586	75 383	244 018	—	—	450 000	33 751	12 544	5 087	7 109	73 529	70 100	247 880
(37 509)	(3 544)	(91 541)	—	—	(102 993)	(22 641)	(8 051)	272	5 208	(17 247)	2 592	(63 126)
(31 860)	(12 579)	(158 187)	—	—	(153 659)	(20 457)	(4 428)	4 853	(8 782)	(14 613)	(15 171)	(95 061)
(69 369)	(16 123)	(249 728)	—	—	(256 652)	(43 098)	(12 479)	5 125	(3 574)	(31 860)	(12 579)	(158 187)

Borrowings

as at 31 December 1984

Schedule 2

Loan	R000		Repayment date/s	R000		Loan	R000		Repayment date/s	R000	
	R000	%		Out-standing	1983		R000	%		Out-standing	1983
Internal registered stock						Brought forward					
40	22 000	5,625	1979/84	—	22 000	120	4 000	11	1986	4 000	4 000
42	20 000	5,375	1979/84	—	20 000	121	40 000	11,4	2001	40 000	40 000
43	16 000	5,375	1979/85	16 000	16 000	122	6 000	11,1	1986/96	3 299	3 299
44	16 000	5,375	1980/85	16 000	16 000	123	40 000	12,75	1996	40 000	40 000
45	17 000	5,5	1980/86	17 000	17 000	124	10 000	12,65	1986	10 000	10 000
46	16 000	5,875	1981/86	16 000	16 000	126	40 000	12,5	2001	40 000	40 000
47	18 000	6,25	1981/86	18 000	18 000	127	150 000	12,6	1999	150 000	150 000
49	18 000	6,125	1982/87	18 000	18 000	128	20 000	12,45	1987	20 000	20 000
50	22 000	5,25	1982/87	22 000	22 000	130	50 000	11,5	1989	50 000	50 000
51	29 000	5	1983/88	29 000	29 000	131	250 000	11,15	2002	250 000	250 000
53	20 000	5	1982/84	—	20 000	132	250 000	11,75	2002	250 000	250 000
54	20 000	5,5	1982/84	—	20 000	133	60 000	10,9	1988	60 000	60 000
55	32 000	5,875	1983/85	32 000	32 000	134	170 000	10,75	2003	170 000	170 000
56	38 000	6,5	1983/85	38 000	38 000	135	270 000	11,3	2003	270 000	270 000
58	30 000	6,5	1989/91	30 000	30 000	136	7 800	7,25	1985/87	7 800	7 800
60	35 000	6,75	1991	35 000	35 000	137	60 000	9,7	1986	60 000	60 000
61	35 000	6,875	1992	35 000	35 000	138	150 000	9,7	2003	150 000	150 000
64	12 000	6,5	1992	12 000	12 000	139	340 000	10,25	2003	340 000	340 000
65	37 000	6,875	1992	37 000	37 000	140	120 000	8	1986	120 000	120 000
70	10 000	6,5	1993	10 000	10 000	141	130 000	8,65	2004	130 000	130 000
71	70 000	6,875	1993	70 000	70 000	142	350 000	9,15	2004	350 000	350 000
75	22 000	6,5	1993	22 000	22 000	143	50 000	7,55	1985	50 000	50 000
76	48 000	6,875	1993	48 000	48 000	144	130 000	9,05	2005	130 000	130 000
78	20 000	6,5	1994	20 000	20 000	145	270 000	9,55	2005	270 000	270 000
79	30 000	6,875	1994	30 000	30 000	146	70 000	8,10	1987	70 000	70 000
81	10 000	6,5	1994	10 000	10 000	147	100 000	9,05	1992	100 000	100 000
82	25 000	6,875	1994	25 000	25 000	148	100 000	9,05	2005	100 000	100 000
83	18 000	7,5	1995	18 000	18 000	149	230 000	9,55	2005	230 000	230 000
84	3 000	7	1995	3 000	3 000	150	150 000	10,25	1990	150 000	150 000
85	35 000	8,75	1995	35 000	35 000	151	275 000	10,95	2004	275 000	275 000
86	10 000	8,5	1995	10 000	10 000	152	100 000	12,80	1993	100 000	100 000
87	45 000	9,25	1996	45 000	45 000	153	400 000	12,95	2006	400 000	400 000
88	10 000	8,75	1996	10 000	10 000	154a	250 000	10,00	2007	250 000	250 000
89	20 000	9,25	1996	20 000	20 000	154b	250 000	10,00	2007	250 000	250 000
90	30 000	9,25	1996	30 000	30 000	154c	595 000	10,00	2007	595 000	595 000
91	10 000	8,75	1996	10 000	10 000	154d	505 000	10,00	2007	505 000	505 000 ⁽¹⁾
92	20 000	9,25	1997	20 000	20 000	154e	400 000	10,00	2007	400 000	—
93	22 000	9,125	1997	22 000	22 000	155a	700 000	13,20	2007	700 000	700 000
94	5 000	8,75	1997	5 000	5 000	155b	900 000	13,20	2007	900 000	—
95	25 000	8,5	1997	25 000	25 000	156	300 000	15,15	1987	300 000	300 000
96	28 000	8,25	1997	28 000	28 000	157	650 000	14,25	2008	650 000	650 000
97	7 000	8	1997	7 000	7 000	158a	250 000	9,25	1994	250 000	250 000
98	45 000	8,25	1997	45 000	45 000	158b	410 000	9,25	1994	410 000	410 000
99	30 000	8,25	1998	30 000	30 000	158c	45 000	9,25	1994	45 000	45 000 ⁽²⁾
100	20 000	8,375	1998	20 000	20 000	158d	200 000	9,25	1994	200 000	—
101	5 000	8	1998	5 000	5 000	159a	800 000	12,00	2008	800 000	800 000
103	24 000	8	1998	24 000	24 000	159b	800 000	12,00	2008	800 000	800 000 ⁽³⁾
104	6 000	7,625	1998	6 000	6 000	159c	1 300 000	12,00	2008	1 300 000 ⁽⁴⁾	—
106	45 000	8	1998	45 000	45 000	160	995 000	11,00	2009	995 000	995 000
107	27 000	9	1999	27 000	27 000	161	500 000	14,00	1989	500 000 ⁽⁵⁾	—
108	3 000	8,5	1999	3 000	3 000					15 576 240	12 358 240
110	30 000	9,5	1999	30 000	30 000						
111	11 000	10,75	2000	8 527	8 527						
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	9 614	9 614						
Carried forward				1 336 141	1 418 141					15 468 262	12 289 277

Less payable by stockholders

- (1) 154d Not later than 17 January 1984
 (2) 158c Not later than 17 January 1984
 (3) 159b Not later than 17 January 1984
 (4) 159c Not later than 17 January 1985
 (5) 161 Not later than 17 January 1985

—	44 085
—	23 239
—	1 639
84 442	—
23 536	—

Borrowings (continued)

Loan	Foreign currency	R000 Note 1	%	Repayment date/s	R000		
					Out- standing	1983	
Brought forward					15 468 262	12 289 277	
Foreign bond issues							
005	DEM	100 000 000	(19 583)	8,5	1976/85	1 958	3 917
007	DEM	100 000 000	(19 556)	8	1977/86	3 911	5 867
009	UA	20 000 000	(14 210)	8,25	1972/86	8 469	9 199
013	USD	20 000 000	(14 304)	8,5	1974/86	2 503	3 576
017	DEM	100 000 000	(25 132)	6,25	1977/87	7 540	10 053
020	CHF	50 000 000	(8 293)	6,5	1979/88	7 284	7 284
023	DEM	100 000 000	(24 975)	7	1979/88	10 144	12 641
027	USD	15 000 000	(10 080)	9,25	1975/89	5 040	6 048
123	DEM	50 000 000	(24 102)	9	1984/87	44 224	26 513
129	DEM	100 000 000	(37 682)	9,25	1987	67 712	47 069
148	DEM	100 000 000	(47 330)	9,5	1990	37 920	41 114
156	DEM	150 000 000	(65 416)	8,5	1990	84 737	73 187
159	USD	75 000 000	(85 324)	11,5	1988	82 363	85 324
172	DEM	150 000 000	(71 785)	12,1125	1984/92	73 231	—
175	DEM	100 000 000	(55 035)	8,25	1992	53 657	—
Direct placings							
008	DEM	10 000 000	(2 054)	8	1977/86	411	616
010	DEM	20 000 000	(3 644)	8,5	1977/86	728	1 093
011	DEM	20 000 000	(4 016)	8,5	1977/86	803	1 205
088/02	CHF	4 500 000	(2 191)	5,5	1981/84	—	369
091	DEM	40 000 000	(20 192)	7,5	1981/84	—	20 192
092	DEM	20 000 000	(10 096)	8	1984	—	10 096
093	DEM	68 500 000	(30 690)	6,6250	1984	—	30 695
097	DEM	60 000 000	(27 696)	7	1985	31 473	31 481
098	CHF	60 000 000	(30 140)	5,5	1984	—	35 457
099	DEM	23 000 000	(11 087)	7,875	1984/85	7 764	9 465
100	DEM	13 144 937	(5 894)	7,375	1984	—	6 549
107	DEM	20 000 000	(10 215)	8,75	1984	—	10 214
108	DEM	20 000 000	(10 160)	8,75	1984	—	10 160
110	USD	33 000 000	(24 450)	12,3125	1983/84	—	18 224
111A	USD	13 000 000	(11 845)	13,625	1983/84	—	12 340
111B	USD	5 000 000	(4 648)	11,3125	1983/86	5 017	4 746
116	CHF	100 000 000	(47 590)	6,75	1984	—	59 404
119	USD	25 000 000	(16 716)	11,4375	1984/85	11 270	16 716
120	USD	200 000 000	(188 045)	13	1984/87	151 565	173 049
122	DEM	80 000 000	(34 312)	11,25	1985/87	23 569	27 920
125	USD	50 000 000	(34 648)	12,5625	1985	87 230	57 019
127	USD	150 000 000	(132 478)	10,875	1984/87	116 116	132 478
130	USD	35 000 000	(30 783)	13,3125	1984/87	31 663	30 783
131	USD	25 000 000	(21 779)	10,1875	1986/87	22 906	21 779
132	USD	50 000 000	(33 463)	11,8125	1984/85	25 381	33 463
Carried forward					16 474 851	13 376 582	

Note 1: Rand value of original loan.

Borrowings (continued)

Loan	Foreign currency	R000	%	Repayment date/s	R000		
					Out-standing	1983	
Brought forward					16 474 851	13 376 582	
Direct placings (continued)							
133	CHF	50 000 000	(24 048)	6,5	1984	—	30 724
135	USD	30 000 000	(21 873)	12,4375	1985/86	22 119	21 873
137	CHF	100 000 000	(48 092)	6,75	1985	48 092	48 092
138	USD	100 000 000	(69 232)	12,1875	1987/88	73 855	69 232
139	DEM	100 000 000	(46 315)	7,125	1986/88	35 854	47 172
140	USD	100 000 000	(105 520)	10,50	1986/88	107 295	105 821
141	USD	250 000 000	(263 951)	12,50	1987/89	278 214	258 132
142	USD	120 000 000	(128 500)	13	1987/89	131 504	128 500
143	USD	100 000 000	(103 050)	13,0625	1987/89	109 565	103 050
144	CHF	30 000 000	(17 259)	8,25	1985	25 399	21 217
145	DEM	26 185 583	(13 781)	6,8125	1987/89	13 038	—
146	DEM	223 814 417	(99 835)	6,5625	1987	85 217	99 835
147	DEM	250 000 000	(125 478)	7	1987/89	118 272	62 923
149	DEM	30 000 000	(16 634)	6,875	1989/92	16 634	—
150	USD	40 000 000	(73 651)	10,5	1992	73 651	—
151	USD	200 000 000	(366 492)	12	1991/93	366 492	—
152	CHF	60 000 000	(33 188)	7,625	1986	47 632	36 638
153A	USD	65 796 000	(76 179)	13,93	1989	131 382	80 248
153B	USD	34 204 000	(41 717)	13,93	1989	68 299	—
155	CHF	50 000 000	(26 968)	6,5	1987	32 197	27 846
162	USD	100 000 000	(131 763)	10,75	1988	120 361	131 763
163	CHF	50 000 000	(26 945)	6,25	1988	26 044	26 945
164	USD	50 000 000	(68 027)	13,625	1988/89	99 840	—
168	USD	50 000 000	(61 921)	10,9375	1987	99 840	—
169	USD	100 000 000	(160 671)	10,4375	1991	167 366	—
170	CHF	100 000 000	(56 041)	11,9125	1989	52 272	—
171	USD	22 000 000	(29 932)	13	1986	43 930	—
174	DEM	68 500 000	(40 459)	6,8125	1989	40 459	—
176	USD	40 168 708	(67 635)	13,15	1990	67 635	—
177	USD	40 000 000	(66 560)	10,25	1989	79 872	—
179	USD	50 000 000	(97 752)	10,5	1991	97 752	—
Total borrowings					19 154 933	14 676 593	

Investments of the Capital Development Fund

at 31 December 1984

Schedule 3

Description	Loan	R000	
		Nominal value	Book value
Escom internal registered stock			
%			
5,375	1979/85	43	880
5,375	1980/85	44	1 347
5,500	1980/86	45	802
5,875	1981/86	46	1 022
6,250	1981/86	47	2 989
6,125	1982/87	49	910
5,250	1982/87	50	131
5,000	1983/88	51	87
5,875	1983/85	55	8 546
6,500	1983/85	56	6 734
6,750	1991	60	881
6,875	1992	61	1 749
6,500	1993	70	646
6,875	1993	71	103
6,500	1993	75	2 328
6,875	1993	76	7 068
6,500	1994	78	2 347
6,875	1994	79	1 323
6,875	1994	82	511
7,500	1995	83	1 317
8,750	1995	85	6 971
8,500	1995	86	762
9,250	1996	87	4 940
8,750	1996	88	850
9,250	1996	89	1 875
9,250	1996	90	14 029
8,750	1996	91	2 246
9,250	1997	92	3 363
9,125	1997	93	1 889
8,750	1997	94	279
8,500	1997	95	9 046
8,250	1997	96	5 379
8,000	1997	97	506
8,250	1997	98	3 961
8,250	1998	99	3 125
8,375	1998	100	3 034
8,000	1998	101	30
8,000	1998	103	2 284
8,000	1998	106	276
9,000	1999	107	1 141
8,500	1999	108	584
9,500	1999	110	4 628
10,750	2000	111	3 091
10,750	2000	112	4 112
10,750	2000	113	2 681
10,750	2000	114	1 862
10,250	2000	115	27
10,750	2000	116	7 485
10,875	1985	117	377
Carried forward		132 554	104 553

Description	Loan	R000	
		Nominal value	Book value
Brought forward		132 554	104 553
%			
11,000	2000	118	1 539
10,750	1995	119	3 164
11,000	1986	120	22
11,400	2001	121	2 991
11,100	1986/96	122	42
12,750	1996	123	5 453
12,500	2001	126	907
12,600	1999	127	13 599
11,500	1989	130	50
11,150	2002	131	129 481
11,750	2002	132	60 376
10,900	1988	133	2 263
10,750	2003	134	33 857
11,300	2003	135	163 009
9,700	1986	137	12 229
9,700	2003	138	30 422
10,250	2003	139	59 334
8,000	1986	140	25 340
8,650	2004	141	7 309
9,150	2004	142	17 829
7,550	1985	143	2 252
9,050	2005	144	4 787
9,550	2005	145	250
8,100	1987	146	990
9,050	1992	147	3 845
9,050	2005	148	820
9,550	2005	149	28 573
10,250	1990	150	6 955
10,950	2004	151	192 446
12,950	2006	153	48 193
10,000	2007	154	53 380
13,200	2007	155	1 373 904
15,150	1987	156	3 505
14,250	2008	157	464 207
9,250	1994	158	25 179
12,000	2008	159	1 819 433
11,000	2009	160	907 616
14,000	1989	161	57 290
Total (Note 7)			5 695 395
			4 958 275
Interest accrued			152 218
			5 110 493
Market value	4 233 608		

Investments of the Reserve Fund

at 31 December 1984

Schedule 4

Description	Loan	R000	
		Nominal value	Book value
Escom internal registered stock			
%			
5,375	1979/85	43	4 835
5,375	1980/85	44	1 884
5,875	1981/86	46	362
6,250	1981/86	47	112
6,125	1982/87	49	127
5,250	1982/87	50	488
6,500	1983/85	56	1 939
6,500	1989/91	58	149
6,750	1991	60	13
6,500	1992	64	17
6,875	1992	65	512
6,500	1993	70	21
6,875	1993	71	561
6,500	1993	75	46
6,875	1993	76	99
6,875	1994	79	31
6,500	1994	81	42
6,875	1994	82	37
7,500	1995	83	515
7,000	1995	84	28
8,750	1995	85	960
8,750	1996	88	4
8,750	1996	91	9
9,125	1997	93	65
8,750	1997	94	35
8,500	1997	95	49
8,250	1997	96	33
8,000	1998	103	11
9,500	1999	110	14
10,250	2000	115	13
10,750	2000	116	16
10,875	1985	117	55
11,000	2000	118	2
Carried forward			13 084
			12 635

Description	Loan	R000	
		Nominal value	Book value
Brought forward			
			13 084
			12 635
%			
10,750	1995	119	2
11,000	1986	120	378
11,100	1996	122	174
11,500	1989	130	347
9,700	1986	137	634
8,000	1986	140	1 579
7,550	1985	143	8 165
8,100	1987	146	3 056
10,000	2007	154	57 800
9,250	1994	158	119 250
14,000	1989	161	73 500
Total (Note 7)			277 969
			221 454
Municipal stock			
Cape Town:			
5,375	1980/85	203	600
5,500	1981/86	208	850
5,500	1983/88	219	610
Germiston:			
5,375	1985	16	150
External investments			2 210
			2 141
			280 179
			223 595
Interest accrued			
			6 378
			229 973
Market value	205 108		

Investments of the Redemption Fund

at 31 December 1984

Schedule 5

Description	Loan	R000	
		Nominal value	Book value
Escom internal registered stock			
%			
5,375	1979/85	43	6 594
5,375	1980/85	44	6 045
5,500	1980/86	45	11 026
5,875	1981/86	46	5 014
6,250	1981/86	47	8 304
6,125	1982/87	49	6 844
5,250	1982/87	50	7 670
5,000	1983/88	51	1 153
5,875	1983/85	55	16 054
6,500	1983/85	56	14 252
6,500	1989/91	58	5 031
6,750	1991	60	8 500
6,875	1992	61	13 640
6,500	1992	64	3 429
6,875	1992	65	3 150
6,500	1993	70	3 153
6,875	1993	71	3 990
6,500	1993	75	4 731
6,875	1993	76	25
6,500	1994	78	5 421
6,875	1994	79	10 975
6,500	1994	81	4 429
6,875	1994	82	4 242
7,500	1995	83	1 969
7,000	1995	84	2 150
8,750	1995	85	4 806
8,500	1995	86	7 031
9,250	1996	87	5 816
8,750	1996	88	5 316
9,250	1996	89	5 672
9,250	1996	90	2 998
8,750	1996	91	4 874
9,250	1997	92	1 155
9,125	1997	93	11 984
8,750	1997	94	3 274
8,500	1997	95	6 770
8,250	1997	96	3 948
8,000	1997	97	2 520
8,250	1997	98	6 086
8,250	1998	99	5 966
8,375	1998	100	5 173
8,000	1998	101	1 953
8,000	1998	103	132
7,625	1998	104	4 197
8,000	1998	106	4 694
9,000	1999	107	5 269
8,500	1999	108	1 378
9,500	1999	110	7 102
10,750	2000	111	2 716
10,750	2000	112	2 465
10,750	2000	113	9 905
10,750	2000	114	1 153
10,250	2000	115	1 582
10,750	2000	116	6 269
10,875	1985	117	1 211
11,000	2000	118	16 537
10,750	1995	119	2 587
Carried forward			310 330
			247 663

Description	Loan	R000	
		Nominal value	Book value
Brought forward			
		310 330	247 663
%			
11,000	1986	120	1 237
11,400	2001	121	13 582
11,100	1996	122	685
12,750	1996	123	1 050
12,650	1986	124	3 147
12,500	2001	126	438
12,600	1999	127	24 965
12,450	1987	128	1 799
11,500	1989	130	11 639
11,150	2002	131	34 898
11,750	2002	132	20 311
10,900	1988	133	891
10,750	2003	134	34 023
11,300	2003	135	42 083
9,700	1986	137	12 054
9,700	2003	138	32 924
10,250	2003	139	43 290
8,000	1986	140	25 448
8,650	2004	141	12
9,150	2004	142	41 657
7,550	1985	143	25 461
9,050	2005	144	24 531
9,550	2005	145	43 075
8,100	1987	146	12 224
9,050	1992	147	21 484
9,050	2005	148	10 685
9,550	2005	149	54 746
10,250	1990	150	14 174
10,950	2004	151	21 566
12,800	1993	152	5 629
12,950	2006	153	7 432
10,000	2007	154	172 304
15,150	1987	156	775
9,250	1994	158	45 667
12,000	2008	159	121 802
14,000	1989	161	230 000
Total (Note 7)			1 468 018
			1 179 522
Municipal stock			
Cape Town:			
5,375	1980/85	203	300
			298
Germiston:			
5,375	1985	16	20
			20
External investments			320
			318
		1 468 338	1 179 840
Interest accrued			
			30 778
			1 210 618
Market value			
	1 049 912		

Investments in Escom foreign bond issues

at 31 December 1984

Schedule 6

Description	%	Loan	Foreign currency	R000		
				Nominal value	Book value	
German	8,5	1970/85	FF 005	DEM 198 000	39	36
German	8	1971/86	FF 007	DEM 1 538 000	300	265
Euro-dollar	8,5	1971/86	FF 013	USD 71 000	51	48
German	6,25	1972/87	FF 017	DEM 2 056 000	517	426
German	7	1973/88	FF 023	DEM 2 794 000	698	582
Euro-dollar	9,25	1974/89	FF 027	USD 253 000	170	161
German	9,25	1980/87	FF 129	DEM 2 750 000	1 866	1 716
Total (Note 7)					3 641	3 234
Accrued interest						95

Capital Development Fund account

for the year ended 31 December 1984

Schedule 7

	R000	
	1984	1983
Amounts set aside	450 000	450 000
Cape Western Undertaking	33 485	33 751
Cape Northern Undertaking	11 183	12 544
Border Undertaking	4 947	5 087
Orange River Undertaking	7 398	7 109
Natal Undertaking	73 586	73 529
Eastern Transvaal Undertaking	75 383	70 100
Rand and Orange Free State Undertaking	244 018	247 880
Central Generating Undertaking	—	—
Interest earned	599 187	472 651
Balance at beginning of year	4 279 674	3 357 023
Balance at end of year	5 328 861	4 279 674

Reserve Fund account

for the year ended 31 December 1984

Schedule 8

	1984	R000	1983
Amounts set aside		70 000	50 000
Cape Western Undertaking	—		—
Cape Northern Undertaking	—		—
Border Undertaking	—		—
Orange River Undertaking	—		—
Natal Undertaking	—		—
Eastern Transvaal Undertaking	—		—
Rand and Orange Free State Undertaking	—		—
Central Generating Undertaking	70 000		50 000
Interest earned		26 554	23 574
		96 554	73 574
Expenditure		121 802	52 307
Cape Western Undertaking	1 335		286
Cape Northern Undertaking	2 861		397
Border Undertaking	—		—
Orange River Undertaking	124		(78)
Natal Undertaking	1 104		222
Eastern Transvaal Undertaking	1 704		1 397
Rand and Orange Free State Undertaking	2 575		198
Central Generating Undertaking	112 099		49 885
Balance at beginning of year		(25 248)	21 267
		239 677	218 410
Balance at end of year		214 429	239 677

Redemption Fund account

for the year ended 31 December 1984

Schedule 9

	1984	R000	1983
Amounts contributed		235 487	224 718
Cape Western Undertaking	4 816		4 690
Cape Northern Undertaking	2 983		2 816
Border Undertaking	942		870
Orange River Undertaking	1 101		917
Natal Undertaking	5 401		4 851
Eastern Transvaal Undertaking	6 422		5 848
Rand and Orange Free State Undertaking	15 439		14 202
Central Generating Undertaking	198 383		190 524
Other contributions		1 531	946
Proceeds of sales of fixed property		16 703	11 673
Interest earned		158 013	106 423
Repayment of internal registered stock		411 734	343 760
		82 000	88 000
5,125% 1977/83 (Loan 38)	—		24 000
5,375% 1978/83 (Loan 39)	—		24 000
5,000% 1980/83 (Loan 52)	—		40 000
5,625% 1979/84 (Loan 40)	22 000		—
5,375% 1979/84 (Loan 42)	20 000		—
5,000% 1982/84 (Loan 53)	20 000		—
5,500% 1982/84 (Loan 54)	20 000		—
Balance at beginning of year		329 734	255 760
		1 000 456	744 696
Balance at end of year (Note 8.2)		1 330 190	1 000 456

Tables

1 Power station equipment installed as at 31 December 1984

Power station	Station capacity ¹			Boilers		Main turbo-generators		Steam conditions at turbine inlet	
	Boilers kg/s	Installed rating Generators MW	Assigned sent-out rating MW	Number	Maximum continuous rating each kg/s	Number	Nominal rating each MW	Pressure MPa (abs)	Temperature °C
Coal-fired stations									
Arnot	1 998,6	2 100	1 980	6	333,1	6	350	15,9/3,98	510/510
Camden	1 814,4	1 600	1 520	8	226,8	8	200	10,3	538
Colenso	141,2	80	70	4	22,7	2	25	2,0	385
				2	25,2	1	30	2,0	385
Duvha	3 042,0	3 600	3 450	6	507,0	6	600	16,1/3,55	535/535
Grootvlei	1 301,6	1 200	1 130	5	214,2	6	200	10,3	538
				1	230,6			10,3	538
Hendrina	2 142,0	2 000	1 900	10	214,2	10	200	10,3	538
Hex River	170,0	120	111	4	25,2	3	20	4,2	427
				2	34,6	2	30	4,2	482
Highveld	554,4	480	412	8	69,3	8	60	6,3	482
Ingagane	567,0	500	465	5	113,4	5	100	8,4	510
Klip	544,8	424 ¹	325	24	22,7	12	33	2,5	390
Komati	1 133,8	1 000	906	5	113,4	5	100	8,4	510
				4	141,7	4	125	8,4	510
Kriel	2 640,0	3 000	2 850	6	440,0	6	500	16,0/3,17	510/510
Matla	3 049,2	3 600	3 450	6	508,2	6	600	16,1/3,68	535/535
Salt River	328,0	240	228	10	32,8	4	30	4,2	482
						2	60	4,2	482
Taaibos	584,0	480	440	8	73,1	8	60	4,2	441
Umgeni	345,6	240	222	8	22,7	4	30	4,2	454
				5	32,8	2	60	4,2	454
Vaal	430,2	318 ²	270	18	23,9	9	33	2,5	427
Vierfontein	503,5	360	336	19	26,5	12	30	4,2	441
West Bank	138,6	85	80	4	21,4	3	15	2,9	427
				2	26,5	2	20	2,9	427
Wilge	337,5	240	221	4	15,7	2	30	4,2	454
				4	50,4	3	60	4,2	454
				1	73,1				
Total, coal-fired stations	21 766,4	21 667	20 366	189		141			
Carried forward									

¹Difference between installed and sent-out rating reflects auxiliary power consumption and reduced capacity caused by age of the plant and/or low coal quality.

²Includes four 7 MW house sets.

³Includes three 7 MW house sets.

Tables

1 Power station equipment installed as at 31 December 1984 *continued*

Power station	Station capacity			Boilers		Main turbo-generators		Steam conditions at turbine inlet	
	Boilers kg/s	Installed rating Generators MW	Assigned sent-out rating MW	Number	Maximum continuous rating each kg/s	Number	Nominal rating each MW	Pressure MPa (abs)	Temperature °C
Total, coal-fired stations	21 766,4	21 667	20 366	189		141			
Brought forward									
Gas-turbine stations									
Acacia		171	171			3	57		
Port Rex		171	171			3	57		
Total, gas-turbine stations		342	342			6			
Hydro-electric stations									
Hendrik Verwoerd		320	320			4	80		
Vanderkloof		220	220			2	110		
Total, hydro-electric stations		540	540			6			
Pumped-storage station									
Drakensberg		1 000	1 000			4	250		
Total, pumped-storage station		1 000	1 000			4			
Nuclear plant									
Koeberg	1 512,5	965	920	3	504,2	1	965	5,5/1,1	270/252
Total, nuclear plant	1 512,5	965	920			1			
Total, all Escom	23 278,9	24 514	23 168	192		158			

Other power sources

	Firm contractual capacity MW
Cahora Bassa	1 373

Tables

2 Immovable property and rights acquired during the year ending 31 December 1984

Undertaking	Immovable property acquired for considerations amounting to R000	Servitudes and other interest in or over land or other property acquired or hired R000
Border	448	30
Cape Northern	352	79
Cape Western	578	785
Eastern Transvaal	35	446
Natal	262	745
Orange River	458	100
Rand and OFS	1 536	2 507
Central Generating	37 895	194
Head office facilities	1 097	140

3 Transmission system: equipment in service as at 31 December 1984

Circuit kilometres (excluding service connections on reticulation systems) of lines and cables and capacity of transformers in service

Undertaking	Transmission lines							Transformers		
	533 kV DC (Monopolar)	400 kV	275 kV	220 kV	165 kV to 132 kV	88 kV to 33 kV	22 kV and below	Total	Capacity MVA	Number in service
Border				160	258	913	4 300	5 631	2 015	2 775
Cape Northern			811	417	2 367	1 134	7 462	12 191	4 855	5 969
Cape Western		24			1 387	2 390	13 806	17 607	6 806	17 723
Eastern Transvaal			1 534		2 574	1 630	18 854	24 592	16 405	14 620
Natal			1 452		1 476	3 648	17 919	24 495	14 446	16 103
Orange River				554	618	870	4 052	6 094	3 994	2 157
Rand and OFS		436	2 507		4 874	10 345	29 409	47 571	73 316	28 916
Central Generating	1 030	8 839		108	49	57	33	10 116	34 361	1 282
Total	1 030	9 299	6 304	1 239	13 603	20 987	95 835	148 297	156 198	89 545
Underground cables										
Border							175	175		
Cape Northern							42	42		
Cape Western					22	132	4 472	4 626		
Eastern Transvaal							292	292		
Natal						3	1 004	1 007		
Orange River							19	19		
Rand and OFS					60	237	1 566	1 863		
Total					82	372	7 570	8 024		
Total lines and cables										
1984	1 030	9 299	6 304	1 239	13 685	21 359	103 405	156 321	156 198	89 545
1983	1 030	8 926	5 965	1 126	13 021	21 030	94 888	145 986 ¹	143 590	82 160 ¹
Additions		373	339	113	664	329	8 517	10 335	12 608	7 385

¹Revised figures.

Tables

4 Power station operating statistics for the year ended 31 December 1984

Power station	Sent-out rating on 31 December 1984 MW	Energy sent out million kWh	Maximum demands 1 hour sent out MW	Station load factor ¹ %
Coal-fired stations				
Arnot	1 980	11 403	1 984	65,6
Camden	1 520	7 598	1 333	56,9
Colenso	70	163	77	26,6
Duvha	3 450 ²	20 661	3 452	69,9
Grootvlei	1 130	5 758	1 125	58,0
Hendrina	1 900	9 941	1 494	59,6
Hex River	111	194	105	19,9
Highveld	412	1 609	415	44,5
Ingagane	465	2 447	464	59,9
Klip	325	810	274	28,4
Komati	906	4 953	820	62,2
Kriel	2 850	15 124	2 789	60,4
Matla	3 450 ²	22 271	3 548	73,5
Salt River	228	712	227	35,5
Taaibos	440	1 880	443	48,6
Umgeni	222	502	224	25,8
Vaal	270	1 382	254	58,3
Vierfontein	336	1 153	289	39,1
West Bank	80	243	85	34,6
Wilge	221	1 290	217	66,5
Sub-total for coal-fired stations	20 366	110 094		61,8
Gas-turbine stations				
Acacia	171	3	170	0,2
Port Rex	171	5	171	0,3
Sub-total for gas-turbine stations	342	8		0,3
Hydro-electric stations				
Hendrik Verwoerd	320	252	360	9,0
Vanderkloof	220	308	242	15,9
Sub-total for hydro stations	540	560		11,8
Pumped-storage station				
Drakensberg	1 000	1 994	1 244	22,7
Sub-total for pumped-storage station	1 000	1 994	1 244	22,7
Nuclear station				
Koeberg 1	920 ²	3 925	931	64,8
Sub-total for nuclear station	920	3 925		64,8
Total/weighted average all Eskom	23 168			58,1
Other power sources				
Cahora Bassa	1 373			
Other		505		
Sub-total other power sources	1 373	505		
Total/weighted average	24 541	117 086		55,0

$$^1\text{Station load factor} = \frac{\text{kWh sent out} \times 100}{(\text{assigned sent out rating}) \times \text{hours in year}}$$

²Operating statistics are based on average capacity during the year

Availability ¹ %	Overall thermal efficiency % sent out	Fuel burnt tons	kg of coal/kWh sent out	Heat content of coal (as received) MJ/kg	Station heat rate MJ/kWh sent out
72,8	33,5	5 687 435	0,499	21,37	10,73
68,3	28,6	4 191 176	0,552	22,82	12,61
97,6	18,7	120 453	0,737	26,17	19,28
78,1	34,5	9 469 823	0,458	22,70	10,45
71,3	30,2	3 181 389	0,552	21,54	11,94
66,6	31,6	4 935 839	0,497	22,88	11,38
62,3	21,2	120 166	0,619	27,44	16,98
71,4	26,3	1 207 218	0,750	18,14	13,68
72,2	27,5	1 399 319	0,572	22,78	13,10
74,4	15,6	971 484	1,199	19,20	23,02
68,5	25,9	3 205 775	0,647	21,36	13,88
66,7	34,6	7 862 935	0,520	19,97	10,41
78,5	36,3	10 336 912	0,464	21,28	9,92
83,6	24,6	397 035	0,558	26,26	14,65
76,7	25,1	1 513 535	0,805	17,79	14,37
85,7	19,8	368 543	0,734	24,82	18,21
81,9	18,2	1 552 976	1,124	17,64	19,82
78,9	19,3	1 124 323	0,975	19,10	18,63
83,4	21,7	157 244	0,647	25,70	16,63
69,9	24,4	900 022	0,698	21,09	14,75
73,2	31,4	58 703 602	0,533	21,38	11,45
93,9	17,1	1 471			
92,7	18,8	1 885			
93,3	18,0	3 356			
97,5					
94,7					
96,4					
86,7					
86,7					
89,7		7 113 ⁴	54,5 ⁵		
89,7					
74,9					
70,6					

$$^1\text{Availability} = \frac{\text{capacity hours available} \times 100}{\text{total capacity hours in year}}$$

⁴Burn-up of nuclear fuel MW.d/t

⁵Burn-up as a percentage of target burn-up for cycle

Tables

5 Summary of operations

Year	Coal-fired power stations						Coal cost	
	Coal Used				Overall thermal efficiency sent-out basis %	Average R/ton	c/kWh sent out	
	Thousands of tons	Average heat content (as received) MJ/kg	Consumption sent-out basis kg/kWh	Average heat rate sent-out basis MJ/kWh				
1965	16 726.7	22.39	0.680	15.23	23.6	2.09	0.142 3	
1966	16 982.3	22.20	0.666	14.79	24.4	2.23	0.148 6	
1967	18 307.7	22.44	0.645	14.47	24.9	2.30	0.148 2	
1968	19 133.9	22.63	0.620	14.03	25.6	2.33	0.144 6	
1969	19 982.9	22.73	0.595	13.52	26.6	2.37	0.141 2	
1970	21 630.6	22.97	0.580	13.32	27.0	2.26	0.130 8	
1971	23 416.2	23.30	0.576	13.42	26.8	2.25	0.129 7	
1972	24 952.8	22.89	0.571	13.07	27.5	2.25	0.128 5	
1973	27 907.9	22.47	0.563	12.65	28.5	2.39	0.134 8	
1974	30 891.4	22.42	0.560	12.56	28.7	2.92	0.163 7	
1975	34 231.7	22.21	0.567	12.59	28.6	4.05	0.229 5	
1976	37 257.4	21.87	0.579	12.66	28.4	5.39	0.312 2	
1977	37 505.6	21.78	0.576	12.55	28.7	6.22	0.358 2	
1978	39 589.5	21.61	0.574	12.44	28.9	6.67	0.382 4	
1979	43 264.9	21.22	0.580	12.33	29.2	6.96	0.404 5	
1980	46 755.0	21.34	0.568	12.16	29.6	8.12	0.461 4	
1981	53 903.7	21.25	0.563	12.01	30.0	9.71	0.547 3	
1982	55 198.4	21.39	0.551	11.82	30.5	11.75	0.647 1	
1983	55 010.2	21.11	0.546	11.57	31.1	12.44	0.679 3	
1984	58 703.6	21.38	0.533	11.45	31.4	12.55	0.669 2	

All power stations							Total power station capacity assigned sent-out rating at 31 December MW	Average power station plant load factor sent-out basis %
Output (sent-out basis)					Total power station output million kWh			
Coal-fired stations million kWh	Hydro-electric stations million kWh	Pumped-storage station million kWh	Diesel and gas-turbine stations million kWh	Nuclear station million kWh		Total power station output million kWh	Total power station capacity assigned sent-out rating at 31 December MW	Average power station plant load factor sent-out basis %
24 583	—	—	—	—	24 583	4 181	67.4	
25 504	—	—	—	—	25 504	4 377	67.1	
28 371	—	—	—	—	28 371	5 328	66.8	
30 843	—	—	—	—	30 843	5 800	62.9	
33 598	—	—	—	—	33 598	6 441	62.1	
37 321	—	—	—	—	37 321	7 060	62.9	
40 645	94	—	—	—	40 739	8 373	61.3	
43 662	813	—	—	—	44 475	8 849	59.6	
49 570	189	—	—	—	49 759	9 482	62.5	
55 141	1 110	—	—	—	56 251	10 002	66.3	
60 400	1 098	—	—	—	61 498	10 522	68.6	
64 309	1 853	—	26	—	66 188	11 688	66.8	
65 114	1 924	—	12	—	67 050	12 756	61.9	
69 004	1 887	—	11	—	70 902	13 595	60.7	
74 485	1 144	—	14	—	75 643	15 056	60.9	
82 342	992	—	28	—	83 362	17 339	57.8	
95 675	1 653	415	81	—	97 824	18 989	62.2	
100 217	1 016	1 519	17	—	102 769	20 523	59.3	
100 738	595	1 957	5	—	103 295	21 673	55.6	
110 094	560	1 994	8	3 925	116 581	23 168	58.1	

Tables

6 Electricity sent out and sold

Year	Electricity sent out							
	South Africa total sent out million kWh	Escom electricity sent out as % of South African total ¹	Electricity sent out from Escom power stations million kWh	Electricity purchased from other sources million kWh	Own consumption million kWh	Available for distribution million kWh	Peak demand on integrated Escom system MW	Integrated Escom system load factor %
1965	31 939	77.4	24 583	126	—	24 709	3 669	76.9
1966	33 929 ²	77.0	25 504	630 ³	—	26 134	3 906	76.4
1967	36 897	77.1	28 371	70	—	28 441	4 227	76.8
1968	39 761	77.6	30 843	8	—	30 851	4 658	75.4
1969	42 847	78.4	33 598	8	—	33 606	5 055	75.9
1970	47 456	77.7	37 321	7	—	37 328	5 622	75.8
1971	51 081	79.8	40 739	8	—	40 747	6 115	76.1
1972	55 332	80.4	44 475	10	—	44 485	6 630	76.4
1973	60 700	82.0	49 759	11	—	49 770	7 350	77.3
1974	66 412	84.7	56 251	8	—	56 259	8 552	75.1
1975	70 111	87.8	61 498	35	—	61 533	9 185	76.5
1976	75 381	89.4	66 188	1 226	—	67 414	10 085	76.1
1977	79 352	89.8	67 050	4 241	27	71 264	10 735	75.8
1978	84 812	91.7	70 902	6 924	52	77 774	11 490	77.3
1979	92 615	92.8	75 643	10 394	58	85 979	12 855	76.4
1980	99 905	93.0	83 362	9 659	71	92 950	13 668	77.5
1981	106 135	93.9	97 824	2 601	712	99 713	14 674	77.6
1982	109 536	93.6	102 769	2 151	2 404	102 516	15 532	75.3
1983	111 124	94.9	103 295	5 026	2 917	105 404	15 639	76.9
1984	118 483	96.1	116 581	505	3 188	113 898	17 296	75.2

¹Includes Escom electricity sent out to neighbouring territories.

²Estimates based on limited information.

³Includes purchases from City of Johannesburg during serious drought.

Electricity sales				Employees	Assets in commission at 31 December		
Ratio million kWh sold/ million kWh sent out	Electricity sold million kWh	Growth for the year %	Average selling price c/kWh	Total number at 31 December	Ratio number/ million kWh sold	R000	Ratio R000/ million kWh sold
0,937	23 143,3	8,9	0,507 6	17 851	0,771	673 626	29,11
0,940	24 554,3	6,1	0,525 4	18 579	0,757	714 213	29,09
0,937	26 657,1	8,6	0,546 7	19 817	0,743	846 818	31,77
0,936	28 885,0	8,4	0,555 0	20 893	0,723	911 479	31,56
0,937	31 505,6	9,1	0,556 5	21 644	0,687	1 059 123	33,62
0,935	34 890,6	10,7	0,554 5	22 700	0,651	1 165 360	33,40
0,934	38 040,0	9,0	0,577 2	25 050	0,659	1 390 095	36,54
0,936	41 648,9	9,5	0,610 8	26 937	0,647	1 526 697	36,66
0,936	46 578,4	11,8	0,648 4	28 559	0,613	1 699 279	36,48
0,935	52 585,1	12,9	0,682 2	29 891	0,568	1 847 484	35,13
0,940	57 869,2	10,0	0,795 0	33 999	0,588	2 008 917	34,71
0,940	63 355,7	9,5	1,036 0	36 915	0,583	2 311 725	36,49
0,942	67 125,4	5,9	1,535 3	39 112	0,583	2 851 103	42,47
0,936	72 780,4	8,4	1,788 7	41 040	0,564	3 564 600	48,98
0,937	80 582,8	10,7	1,898 0	43 690	0,542	4 255 502	52,81
0,942	87 539,3	8,6	2,024 2	47 490	0,542	5 604 038	64,02
0,941	93 844,0	7,2	2,281 1	52 080	0,555	6 323 048	67,38
0,938	96 135,9	2,4	2,803 8	58 850	0,612	7 689 399	79,98
0,932	98 251,1	2,2	3,360 6	62 420	0,635	9 218 946	93,83
0,939	106 904,1	8,8	3,584 2	64 560	0,604	12 058 241	112,79

Tables

7 Summary of consolidated revenue and expenditure account

Year	Total Escom million kWh sold	R000 cents/kWh sold % of total cost	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, operating and maintenance costs	General expenses	Total costs	Total revenue
1967	26 657.1	R000 cents/kWh sold % of total cost	37 312 0,140 0 25.39	24 536 0,092 0 16.70	9 912 0,037 2 6.75	—	71 760 0,269 2 48.84	313 0,001 2 0.21	42 488 0,159 4 28.92	14 618 0,054 8 9.95	7 146 0,026 8 4.86	10 603 0,039 8 7.22	146 928 0,551 2 100.00	146 783 0,550 6 99.90
1968	28 885.0	R000 cents/kWh sold % of total cost	43 282 0,149 8 26.72	23 884 0,082 7 14.74	12 300 0,042 6 7.59	—	79 466 0,275 1 49.06	121 0,000 4 0.07	45 117 0,156 2 27.85	17 016 0,058 9 10.50	8 097 0,028 0 5.00	12 176 0,042 2 7.52	161 993 0,560 8 100.00	161 475 0,559 0 99.68
1969	31 505.6	R000 cents/kWh sold % of total cost	50 943 0,161 7 29.05	20 809 0,066 0 11.87	13 605 0,043 2 7.76	—	85 357 0,270 9 48.67	102 0,000 3 0.06	48 035 0,152 5 27.39	19 038 0,060 4 10.86	9 264 0,029 4 5.28	13 578 0,043 1 7.74	175 374 0,556 6 100.00	176 106 0,559 0 100.42
1970	34 890.6	R000 cents/kWh sold % of total cost	59 484 0,170 5 30.37	23 654 0,067 8 12.08	15 202 0,043 6 7.76	—	98 340 0,281 9 50.21	89 0,000 3 0.05	49 440 0,141 7 25.24	21 955 0,062 9 11.21	10 594 0,030 4 5.41	15 448 0,044 3 7.89	195 866 0,561 4 100.00	193 475 0,554 5 98.78
1971	38 040.0	R000 cents/kWh sold % of total cost	70 266 0,184 7 31.99	30 928 0,081 3 14.08	8 568 0,022 5 3.90	—	109 762 0,288 5 49.97	82 0,000 2 0.04	53 587 0,140 9 24.40	26 276 0,069 1 11.96	11 492 0,030 2 5.23	18 440 0,048 5 8.40	219 639 0,577 4 100.00	219 584 0,577 2 99.97
1972	41 648.9	R000 cents/kWh sold % of total cost	86 631 0,208 0 33.58	30 575 0,073 4 11.85	3 056 0,007 3 1.18	13 596 0,032 6 5.27	133 858 0,321 4 51.88	95 0,000 2 0.04	57 259 0,137 5 22.19	31 586 0,075 8 12.24	13 486 0,032 4 5.23	21 737 0,052 2 8.42	258 021 0,619 5 100.00	254 394 0,610 8 98.59
1973	46 578.4	R000 cents/kWh sold % of total cost	101 858 0,218 7 33.27	34 200 0,073 4 11.17	3 760 0,008 1 1.23	15 366 0,033 0 5.02	155 184 0,333 2 50.69	117 0,000 3 0.04	68 634 0,147 4 22.42	38 685 0,083 1 12.64	17 082 0,036 7 5.58	26 460 0,056 8 8.64	306 162 0,657 3 100.00	302 034 0,648 4 98.65
1974	52 585.1	R000 cents/kWh sold % of total cost	114 308 0,217 4 31.40	27 151 0,051 6 7.46	66 0,000 1 0.02	28 114 0,053 5 7.72	169 639 0,322 6 46.60	86 0,000 2 0.02	92 530 0,176 0 25.42	48 572 0,092 4 13.34	20 617 0,039 2 5.66	32 611 0,062 0 8.96	364 055 0,692 3 100.00	358 768 0,682 2 98.55
1975	57 869.2	R000 cents/kWh sold % of total cost	136 963 0,236 7 28.12	30 814 0,053 2 6.33	1 400 0,002 4 0.29	40 730 0,070 4 8.36	209 907 0,362 7 43.09	114 0,000 2 0.02	141 913 0,245 2 29.13	44 980 ¹ 0,077 7 9.23	18 477 ¹ 0,031 9 3.79	71 758 ¹ 0,124 0 14.73	487 149 0,841 8 100.00	460 073 0,795 0 94.44
1976	63 355.7	R000 cents/kWh sold % of total cost	173 829 0,274 4 26.49	41 470 0,065 5 6.32	1 700 0,002 7 0.26	53 584 0,084 6 8.16	270 583 0,427 1 41.23	2 399 0,003 8 0.37	208 316 0,328 8 31.74	62 477 0,098 6 9.52	19 712 0,031 1 3.00	92 835 0,146 5 14.74	656 322 1,036 0 100.00	656 381 1,036 0 100.01
1977	67 125.4	R000 cents/kWh sold % of total cost	224 418 0,334 3 22.51	63 403 0,094 5 6.36	900 0,001 3 0.09	224 000 0,333 7 22.47	512 721 0,763 8 51.42	15 501 0,023 1 1.55	239 228 0,356 4 23.99	76 294 0,113 7 7.65	19 859 0,029 6 1.99	133 494 0,198 9 13.39	997 097 1,485 4 100.00	1 030 552 1,535 3 103.36
1978	72 780.4	R000 cents/kWh sold % of total cost	308 970 0,424 5 25.03	76 036 0,104 4 6.16	900 0,001 2 0.07	300 000 0,412 1 24.30	685 906 0,942 4 55.56	26 364 0,036 2 2.14	271 222 0,372 6 21.97	89 193 0,122 5 7.22	23 677 0,032 5 1.92	138 106 0,189 7 11.19	1 234 468 1,696 1 100.00	1 301 829 1,788 7 105.46
1979	80 582.8	R000 cents/kWh sold % of total cost	373 718 0,463 7 24.72	88 800 0,110 1 5.87	900 0,001 1 0.06	380 000 0,471 5 25.14	843 418 1,046 6 55.79	36 061 0,044 7 2.39	319 428 0,396 3 21.13	95 887 0,118 9 6.34	28 689 0,035 6 1.90	188 203 0,233 5 12.45	1 511 686 1,875 9 100.00	1 529 474 1,898 0 101.18
1980	87 539.3	R000 cents/kWh sold % of total cost	504 732 0,576 6 26.99	101 629 0,116 1 5.44	900 0,001 0 0.05	426 400 0,487 1 22.80	1 033 661 1,180 8 55.28	35 806 0,040 9 1.91	405 630 0,463 3 21.69	117 968 0,134 8 6.31	36 824 0,042 1 1.97	240 078 0,274 2 12.84	1 869 967 2,136 1 100.00	1 772 000 2,024 2 94.76
1981	93 844.0	R000 cents/kWh sold % of total cost	603 546 0,643 1 27.21	117 088 0,124 8 5.28	900 0,001 0 0.04	435 478 0,464 0 19.63	1 157 012 1,232 9 52.16	4 106 0,004 4 0.19	569 949 0,607 3 25.70	170 206 0,181 4 7.67	43 034 0,045 9 1.94	273 756 0,291 7 12.34	2 218 063 2,363 6 100.00	2 140 689 2,281 1 96.51
1982	96 135.9	R000 cents/kWh sold % of total cost	721 948 0,751 0 26.22	154 758 0,161 0 5.62	26 000 0,027 0 0.95	450 000 0,468 1 16.34	1 352 706 1,407 1 49.13	3 615 0,003 7 0.13	693 979 0,721 9 25.21	261 842 0,272 3 9.51	59 852 0,062 3 2.17	381 348 0,396 7 13.85	2 753 342 2,864 0 100.00	2 695 422 2,803 8 97.90
1983	98 251.1	R000 cents/kWh sold % of total cost	939 553 0,956 3 27.59	274 027 0,278 9 8.05	50 000 0,050 9 1.47	450 000 0,458 0 13.22	1 713 580 1,744 1 50.33	9 603 0,009 8 0.28	726 534 0,739 4 21.34	418 138 0,425 6 12.28	66 227 0,067 4 1.95	470 815 0,479 2 13.83	3 404 897 3,465 5 100.00	3 301 905 3,359 1 96.98
1984	106 904.1	R000 cents/kWh sold % of total cost	1 283 742 1,200 8 32.14	281 730 0,263 5 7.05	70 000 0,065 5 1.75	450 000 0,420 9 11.27	2 085 472 1,950 7 52.21	4 201 0,003 9 0.11	852 591 0,797 5 21.34	432 160 0,404 3 10.82	81 576 0,076 3 2.04	538 569 0,503 8 13.48	3 994 569 3,736 5 100.00	3 831 713 3,584 2 95.92

¹Basis of allocation changed in 1975.

Tables

8 Consumer categories by undertakings

Undertaking and category	Number of consumers 1984	% of total 1984	Electricity sales			Revenue R000 1984	Average price in c/kWh sold 1984	
			Million kWh 1984	Increase 1983-1984 %	Average Increase 1979-1984 %		1983	1984
Border								
Bulk sales ¹	26	86,3	1 014,0	4,6	6,8	48 868	4,520	4,820
Domestic and street lighting	5 939	3,4	40,1	14,2	8,8	3 605	8,149	8,983
Industrial	2 809	10,3	121,2	13,9	11,6	9 525	7,239	7,861
Total	8 774	100,0	1 175,3	5,8	7,3	61 998	4,896	5,275
Cape Northern								
Bulk sales ¹	48	23,5	623,3	-23,1	8,4	30 775	4,075	4,938
Domestic and street lighting	895	0,3	7,6	4,9	-25,4	571	6,965	7,541
Industrial	6 038	10,6	279,8	8,1	12,7	19 199	6,058	6,862
Mining	84	53,4	1 415,4	1,4	0,8	62 479	4,223	4,414
Traction	3	12,2	322,7	21,0	-4,6	18 044	5,552	5,592
Total	7 068	100,0	2 648,8	-3,3	2,3	131 068	4,489	4,948
Cape Western								
Bulk sales ¹	83	56,7	4 513,1	8,6	8,9	153 926	3,219	3,411
Domestic and street lighting	87 470	8,0	635,2	5,1	7,2	44 665	6,601	7,031
Industrial	20 661	27,9	2 222,3	7,8	5,7	115 340	4,863	5,190
Traction	3	7,4	584,7	7,0	2,9	30 552	5,163	5,225
Total	108 217	100,0	7 955,3	8,0	7,3	344 483	4,101	4,330
Eastern Transvaal								
Bulk sales ¹	37	10,1	1 815,0	2,9	11,3	66 184	3,350	3,647
Domestic and street lighting	1 915	0,1	23,0	-25,5	-2,4	1 495	5,896	6,511
Industrial	11 734	67,7	12 121,1	22,3	9,6	406 716	3,206	3,355
Mining	148	18,5	3 315,5	7,6	6,3	118 756	3,345	3,582
Traction	5	3,6	635,3	23,3	5,6	28 398	4,630	4,470
Total	13 839	100,0	17 909,9	17,0	8,9	621 549	3,304	3,470
Natal								
Bulk sales ¹	37	50,7	8 864,7	12,4	6,3	302 261	3,211	3,410
Domestic and street lighting	20 716	1,0	169,5	8,6	5,7	10 777	5,946	6,358
Industrial	18 701	38,7	6 776,7	5,2	7,0	226 026	3,099	3,335
Mining	49	1,7	290,5	1,3	0,0	13 095	4,151	4,507
Traction	9	7,9	1 381,6	7,3	2,8	64 896	4,602	4,697
Total	39 512	100,0	17 483,0	8,9	6,1	617 055	3,321	3,529
Orange River								
Bulk sales ¹	57	91,5	1 607,5	8,6	6,6	65 924	3,913	4,101
Domestic and street lighting	614	0,2	3,5	11,2	15,7	383	10,451	11,084
Industrial	2 102	4,9	86,4	24,5	20,3	8 400	8,482	9,718
Traction	1	3,4	60,2	0,0	0,0	4 812	0,000	7,998
Total	2 774	100,0	1 757,6	13,2	7,9	79 519	4,130	4,524
Rand and OFS								
Bulk sales ¹	199	29,5	17 103,7	9,2	8,7	609 197	3,327	3,562
Domestic and street lighting	12 922	0,5	264,9	9,7	-0,8	14 698	5,180	5,548
Industrial	32 818	25,0	14 511,1	8,0	2,2	513 147	3,300	3,536
Mining	129	42,2	24 484,3	5,3	4,2	769 939	2,925	3,145
Traction	162	2,8	1 610,5	5,9	2,4	69 057	4,084	4,288
Total	46 230	100,0	57 974,5	7,1	4,8	1 976 038	3,177	3,408
Total Escom								
Bulk sales ¹	487	33,2	35 541,2	8,6	8,0	1 277 136	3,367	3,593
Domestic and street lighting	130 471	1,1	1 143,8	6,1	4,0	76 193	6,232	6,662
Industrial	94 863	33,8	36 118,6	11,9	5,6	1 298 354	3,377	3,595
Mining	410	27,6	29 505,7	5,3	4,2	964 270	3,048	3,268
Traction	183	4,3	4 595,0	11,1	2,6	215 760	4,551	4,696
Total	226 414	100,0	106 904,1	8,8	5,8	3 831 713	3,361	3,584

¹Supplies to municipalities and electricity undertakings in neighbouring states.

Tables

9 Sales to industry, million kWh

Industrial sector	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Building cement and quarrying	1 121	1 194	1 353	1 413	1 375	1 480	7,6	5,7
Chemical	4 657	5 751	7 215	7 258	7 645	8 051	5,3	11,6
Engineering, iron, steel and base metals	15 600	15 900	15 316	14 754	15 348	17 025	10,9	1,8
Foodstuffs, consumer goods, commercial and other	5 378	5 688	6 341	6 688	6 965	8 384	20,3	9,3
Paper and paper products	719	840	866	846	953	1 178	23,6	10,4
Total	27 475	29 373	31 091	30 959	32 286	36 118	11,9	5,6

10 Sales to mining, million kWh

Mining sector	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Gold and uranium	17 201	18 477	19 406	20 069	20 724	21 427	3,4	4,5
Platinum	2 772	2 973	3 014	2 466	2 552	3 023	18,5	1,7
Coal	1 248	1 426	1 522	1 691	1 686	1 873	11,1	8,5
Copper	1 042	1 117	1 131	1 178	1 178	1 160	-1,5	2,2
Diamonds	596	678	714	656	649	634	-2,3	1,2
Asbestos	233	242	240	235	225	186	-17,3	-4,4
Iron	334	361	335	305	215	286	33,0	-3,1
Chrome	126	127	117	105	99	106	7,1	-3,4
Antimony	67	67	58	58	54	64	18,5	-0,9
Manganese	83	94	104	113	77	73	-5,2	-2,5
Other	298	320	490	496	562	674	19,9	17,7
Total	24 000	25 882	27 131	27 372	28 021	29 506	5,3	4,2

11 Sales by undertakings, million kWh

Undertaking	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Border	826	901	971	1 035	1 111	1 175	5,8	7,3
Cape Northern	2 368	2 577	2 730	2 667	2 739	2 649	-3,3	2,3
Cape Western	5 593	6 168	6 677	7 015	7 369	7 955	8,0	7,3
Eastern Transvaal	11 698	12 887	14 584	14 053	15 305	17 910	17,0	8,9
Natal	12 988	13 989	14 885	15 973	16 054	17 483	8,9	6,1
Orange River	1 203	1 326	1 368	1 382	1 552	1 758	13,2	7,9
Rand and OFS	45 907	49 691	52 629	54 011	54 121	57 974	7,1	4,8
Total	80 583	87 539	93 844	96 136	98 251	106 904	8,8	5,8

Tables

12 Electricity sent out, million kWh

Undertaking	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Border	895	968	1 052	1 128	1 221	1 287	5,4	7,5
Cape Northern	2 647	2 883	3 032	3 010	2 949	2 921	-0,9	2,0
Cape Western	6 139	6 807	7 387	7 837	8 429	8 727	3,5	7,3
Eastern Transvaal	12 190	13 346	14 765	14 589	15 582	18 530	18,9	8,7
Natal	13 900	14 812	15 901	16 885	17 294	18 674	8,0	6,1
Orange River	1 272	1 406	1 454	1 462	1 619	1 872	15,6	8,0
Rand and OFS	48 936	52 728	56 122	57 605	58 310	61 887	6,1	4,8
Net electricity sent out	85 979	92 950	99 713	102 516	105 404	113 898	8,1	5,8
Own consumption	58	71	712	2 404	2 917	3 188	9,3	122,9
Gross electricity sent out	86 037	93 021	100 425	104 920	108 321	117 086	8,1	6,4

13 Maximum one-hour demands, MW

Undertaking	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Border	175	177	213	219	221	236	6,8	6,2
Cape Northern	433	465	507	496	540	494	-8,5	2,7
Cape Western	922	1 005	1 122	1 244	1 311	1 377	5,0	8,4
Eastern Transvaal	1 716	2 048	2 201	2 318	2 398	2 678	11,7	9,3
Natal	2 167	2 211	2 424	2 637	2 541	2 810	10,6	5,3
Orange River	191	208	209	232	232	304	31,0	9,7
Rand and OFS	7 468	7 965	8 517	9 235	8 972	9 831	9,6	5,7
Aggregate of non-simultaneous maximum demands	13 072	14 079	15 193	16 381	16 215	17 730	9,3	6,3
Maximum simultaneous one-hour demand on total Escom system	09h00 26/7/79	09h00 18/7/80	09h00 12/6/81	09h00 2/7/82	09h00 10/8/83	09h00 15/6/84	10,6	6,1

Tables

14 Farm supplies as at 31 December

Farm supplies include supplies which are furnished to agricultural holdings and small holdings and which are primarily used for farming purposes.

Undertaking	1979	1980	1981	1982	1983	1984	Increase 1983-1984 %	Average yearly increase 1979-1984 %
Border	1 054	1 135	1 244	1 427	1 714	2 012	17,4	13,8
Cape Northern	3 149	3 801	4 322	4 487	5 074	5 260	3,7	10,8
Cape Western	9 473	10 017	10 603	11 159	11 695	12 396	6,0	5,5
Eastern Transvaal	5 906	6 495	7 003	8 095	9 382	10 338	10,2	11,8
Natal	8 034	8 571	9 362	10 176	10 977	12 388	12,9	9,0
Orange River	769	889	995	1 166	1 433	1 800	25,6	18,5
Rand and OFS	13 220	14 248	15 709	16 957	18 823	20 824	10,6	9,5
Total	41 605	45 156	49 238	53 467	59 098	65 018	10,0	9,3

15 Plant taken into commercial service and on order

Name of power station	Plant taken into commercial service in 1984		Plant under construction or on order at 31 December 1984		Year of completion	
	Boilers kg/s	Generators MW	Boilers kg/s	Generators MW	First set	Last set
Coal-fired plant						
Duvha	507	600			1980	1984
Tutuka			3 042	3 654	1985	1990
Lethabo			3 049	3 708	1985	1990
Matimba			3 360	3 990	1986	1991
Kendal			3 462	4 050	1988	1993
Majuba			3 462	3 942	1991	1995
Pumped-storage hydro plant						
Palmiet				400	1987	1988
Nuclear plant						
Koeberg		965		965	1984	1985