

Administration

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Electricity Council

J.B. Maree (*Chairman*)
P.J. Botes
T.R. Castle
Dr. J.W.L. de Villiers
A.B. Dickman
Dr. R.A.P. Fockema
B.J. Groenewald
J.F.W. Haak
Prof. D. Konar
Prof. I.J. Lambrechts
F.J. Malan
I.C. McRae
Dr. D.C. Neethling
G.Y. Nisbet
R.B. Savage
Dr. C.L. Stals
R.C. Webb

Management Board

I.C. McRae
Senior General Manager and Chairman of the Management Board
J.L. Rothman
Assistant Senior General Manager and head of Distribution
F.J.W. Barnard
General Manager, Resources Services
H. Edeling
General Manager, Generation
J.S. Els
General Manager, Operations
R.A. Forbes
General Manager, Power Marketing and Distribution Services
L.C. Harper
General Manager, Finance
P.J.T. Oosthuizen
General Manager, Strategic Services
E.H. Ralph
General Manager, Engineering

Head Office

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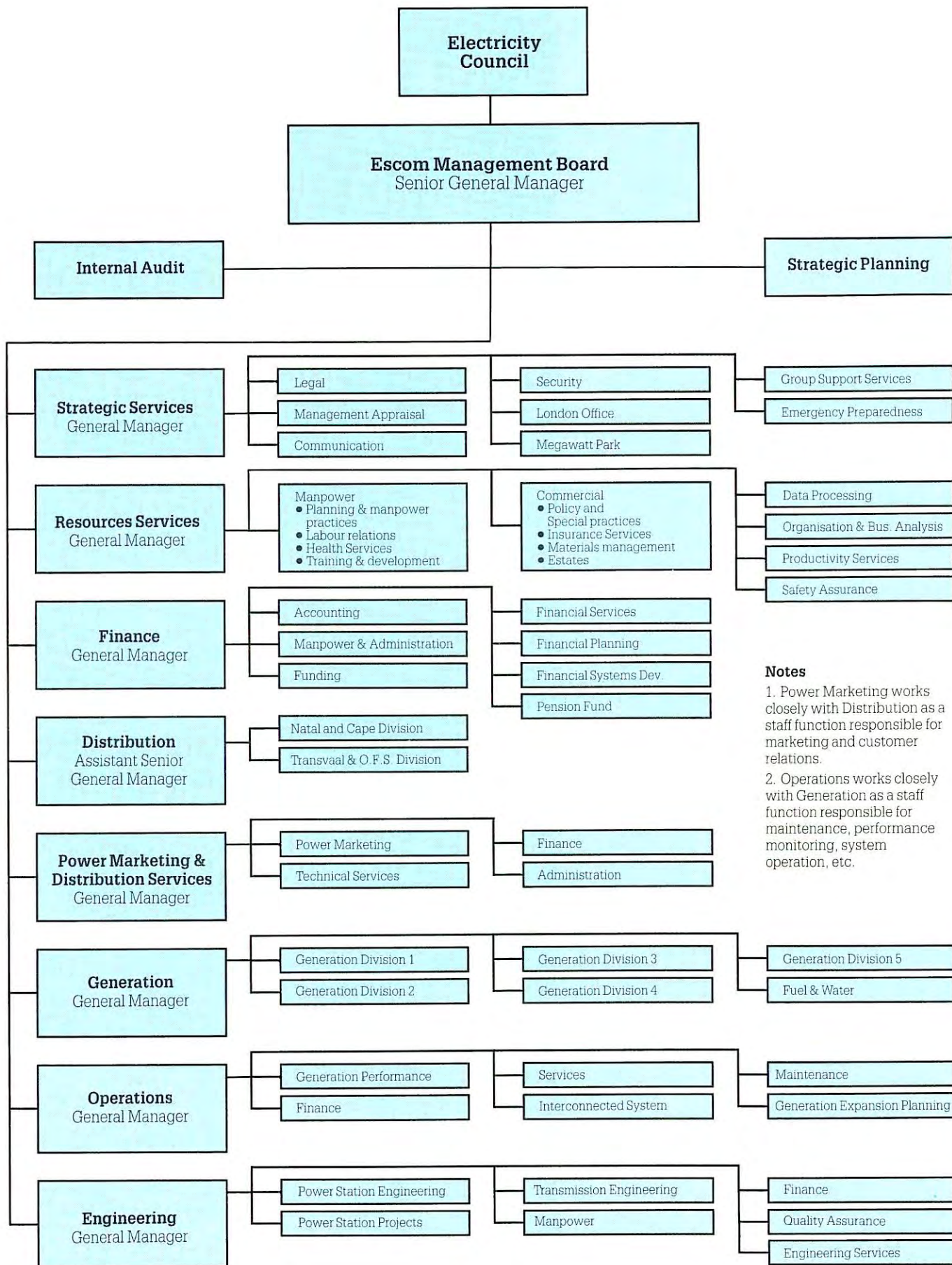
Copies of this report, as well as Escom's Statistical Yearbook, may be obtained from the Communication Manager at the address above. These publications are also available in Afrikaans.

Highlights of the year

	1985	1984	1983	1982	1981	1980	Change 1984-85 %	Average yearly increase 1980-85 %
Financial								
Revenue (R million)	4 625	3 832	3 302	2 695	2 141	1 772	20,7	21,2
Charges against revenue (R million)	4 585	3 995	3 405	2 753	2 218	1 870	14,8	19,6
Net expenditure on fixed assets (R million)	4 757	3 719	2 757	2 741	1 951	1 447	27,9	26,9
Fixed assets at 31 December (R million)	23 969	19 261	15 591	12 858	10 144	8 219	24,4	23,9
Average price per kWh sold (cents)	4,12	3,58	3,36	2,80	2,28	2,02	14,9	15,3
Average cost per kWh sold (cents)	4,08	3,74	3,47	2,86	2,36	2,14	9,1	13,8
Average coal cost per ton (Rand)	13,25	12,55	12,44	11,75	9,71	8,12	5,6	10,3
Electricity sold by Escom (mill. kWh)	112 306	106 904	98 251	96 136	93 844	87 539	5,1	5,1
Operating statistics								
Total electricity sent out by Escom (mill. kWh)	122 494	117 086	108 321	104 920	100 425	93 021	4,6	5,7
Electricity available for distribution (mill. kWh)	119 229	113 898	105 404	102 516	99 713	92 950	4,7	5,1
Coal burnt in Escom power stations (Mt)	59,5	58,7	55,0	55,2	53,9	46,8	1,4	4,9
Water consumed in Escom power stations (Ml)	275 716	269 868	255 654	265 933	235 138	214 813	2,2	5,1
Peak demand on integrated Escom system (MW)	17 852 (12/7/85)	17 296 (15/6/84)	15 639 (10/8/83)	15 532 (2/7/82)	14 674 (12/6/81)	13 668 (18/7/80)	3,2	5,5
Escom plant in service at 31 December								
Installed capacity (MW)	25 716	24 514	22 949	21 749	20 049	18 349	4,9	7,0
Assigned sent-out rating (MW)	24 359	23 168	21 673	20 523	18 989	17 339	5,1	7,0
<i>Transmission lines:</i>								
533 kV (DC) (km)	1 030	1 030	1 030	1 030	1 030	1 030	—	—
400-220 kV (km)	17 488	16 842	16 017	15 251	14 998	14 557	3,8	3,7
165 kV and below (km)	142 528	130 425	121 343	111 535	105 344	99 840	9,3	7,4
<i>Underground cables:</i>								
132 kV and below (km)	8 378	8 024	7 596	7 319	7 191	7 687	4,4	1,7
Capacity of transformers (MVA)	169 112	156 198	143 590	136 131	126 638	122 825	8,3	6,6
Staff employed at 31 December								
	66 000	64 560	62 420	58 850	52 080	47 490	2,2	6,8

Organisation structure

(From 1 January 1986)



Notes

1. Power Marketing works closely with Distribution as a staff function responsible for marketing and customer relations.
2. Operations works closely with Generation as a staff function responsible for maintenance, performance monitoring, system operation, etc.

Profile of Escom

Escom is the electricity utility of South Africa. It ranks among the largest and technically most advanced utilities in the world, supplying more than 90% of the electricity used in South Africa, which is nearly 60% of the electricity generated on the African continent. It serves the whole of South Africa and exports electricity to Bophuthatswana, Botswana, Ciskei, Lesotho, Mozambique, Swaziland, Transkei and Venda.

Escom was established in 1923 as the Electricity Supply Commission. In 1985, the Electricity Amendment Act replaced the Commission with a body corporate known as Escom, which has a new control and management structure, embodied in the Electricity Council and the Management Board.

Electricity Council and Management Board

The Electricity Council is a non-executive body. Its members, appointed by the Minister of Mineral and Energy Affairs, are drawn from organisations representing major electricity consumers, the Government and electricity suppliers. Members are appointed for their specialist knowledge and skills. The Council is responsible for policy, setting of objectives, planning and control. It also appoints the Management Board.

The Management Board is the executive body responsible for the day-to-day running of Escom, subject to the directives of the Electricity Council.

Mission

Escom's mission is to satisfy customers' electricity needs in the most cost-effective way, subject to resource constraints and the national interest.

Strategy

The strategy adopted by the organisation is to develop Escom as a business that maximises the value of its products and services for the benefit of South Africa.

Structure

Escom's structure, effective from January 1986, is based on a high degree of decentralisation and customer orientation.

The corporation is divided into eight functional groups. The two main line functions, Generation and Distribution, are supported by a further line function, Engineering, and five head-office service functions – Operations, Power Marketing and Distribution Services, Finance, Resources Services and Strategic Services.

The Distribution Group is headed by the Assistant Senior General Manager and the other seven groups by general managers.

The Management Board is composed of the Senior General Manager, who is its Chairman, the Assistant Senior General Manager and the general managers.

Financial policy

Escom uses a fund accounting convention. There is no share capital; capital expenditure is financed from borrowings and own funds, as prescribed by the Electricity Act. Fixed assets are not depreciated but, instead, the debt used to finance them is amortised.

Borrowings are obtained by raising loans and issuing bonds in local and overseas capital markets, through local money-market operations and through trade finance arranged in conjunction with suppliers of capital equipment.

Own funds, obtained from tariff income, as prescribed by the Electricity Act, is the other source of finance available to Escom.

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

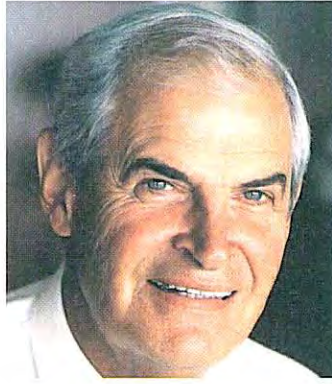
The Capital Development Fund finances capital expansion and the replacement of assets taken out of service. The Reserve Fund is for up-grading plant, exceptional repairs or emergencies. It is also used, to a limited extent, for self-insurance, thereby reducing expenditure on insurance premiums. The Redemption Fund provides for the redemption of local loans on a sinking-fund basis.

The contributions and interest earned by these three Funds are invested either in Escom stock or in other prescribed investments, with interest income from these investments providing additional finance.

There is a secondary market in Escom's locally registered stock, which is actively traded on the Johannesburg Stock Exchange and by Escom itself. 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.

Escom is examining an alternative to the fund accounting method. The objective is to ensure that its financial results are reported in more conventional business terms. However, as an amendment to the Electricity Act is required before changes can be introduced, the new principles can be applied only from the 1987 financial year.

Electricity Council (Members were all appointed in 1985)



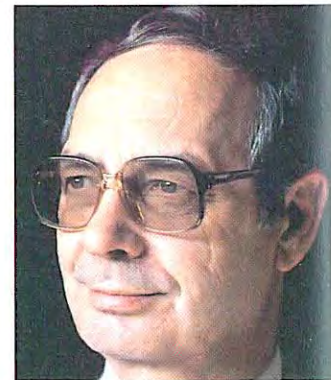
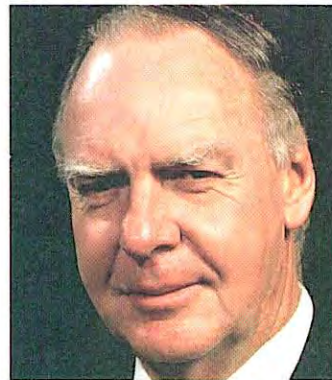
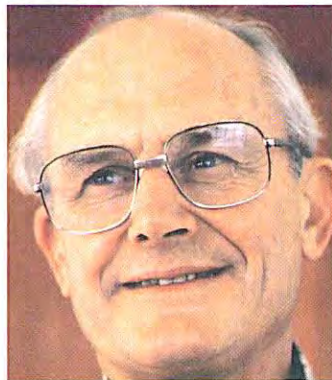
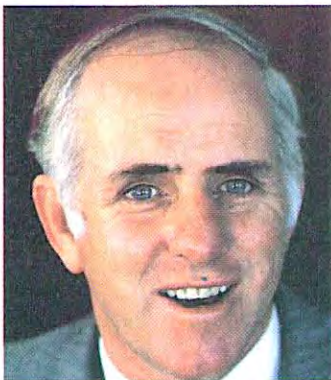
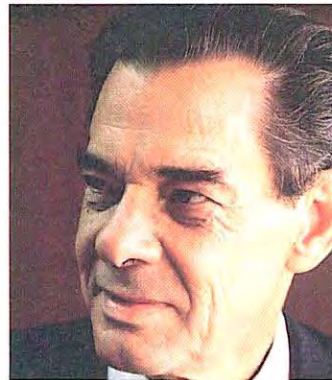
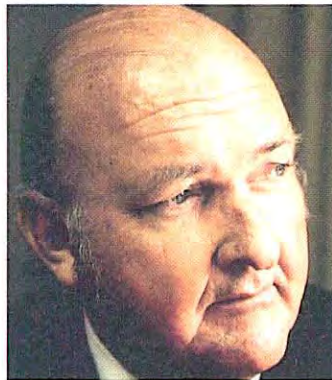
J.B. Maree (62)
Chairman
Director of Companies

P.J. Botes (57)
Association of Municipal
Electricity Undertakings of South
Africa
City Electrical and Mechanical
Engineer, Roodepoort

T.R. (Richard) Castle (50)
Independent Expert
Stockbroker and Director
of Companies

Dr J.W.L. de Villiers (59)
Independent Expert
Chairman, Atomic Energy
Corporation

A.B. Dickman (56)
Association of Chambers of
Commerce of South Africa
Senior Economic Consultant,
Anglo American Corporation of
South Africa Limited



Prof. I.J. Lambrechts (43)
Afrikaanse Handelsinstituut
Professor of Business Economics,
University of Stellenbosch

F.J. Malan (58)
South African Agricultural
Union
Farmer

I.C. McRae (56)
Escom
Senior General Manager and
Chairman of Management Board

Dr D.C. Neethling (53)
Department of Mineral and
Energy Affairs
Chief Director (Energy)

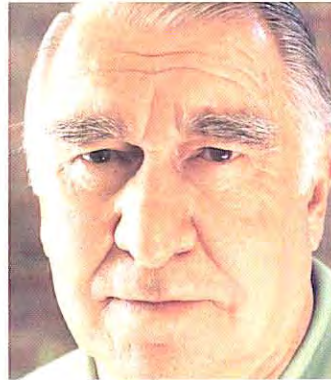
Dr R.A.P. Fockema (62)
South African Federated
Chamber of Industries
Deputy Chairman and Executive
Director, Gypsum Industries
Limited



B.J. Groenewald (58)
South African Transport Services
Deputy General Manager
(Technical, Planning and
Harbours)



J.F.W. Haak (69)
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Attorney and Businessman



Prof. D. Konar (32)
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Associate Professor of
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G.Y. Nisbet (63)
Chamber of Mines
Executive Director,
Johannesburg Consolidated
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R.B. Savage (43)
South African Federation of Steel
and Engineering Industries
Chief Executive Officer,
Electronics and Engineering
Division, Barlow Rand Limited



Dr C.L. Stals (51)
Department of Finance
Director-General



R.C. Webb (56)
Independent Expert
Director of Companies

Chairman's review

This is the first annual report of the restructured Escom, following the acceptance by Government of the recommendations of the Commission of Inquiry into the Supply of Electricity in the Republic of South Africa. The main recommendations were: a new management and control structure; a national programme of energy conservation; optimum use of capital; a sound balance sheet; maximization of availability and performance of plant; tighter control of operating costs; and maintenance of realistic electricity prices.

Consequently, the year under review saw the beginning of a new chapter in the development of Escom. The Electricity Act was amended in April 1985 to permit the replacement of the Electricity Supply Commission by a new control and management structure, incorporated in the Electricity Council and a Management Board.

I would like to pay tribute to the members of the Electricity Supply Commission for their contribution to electricity supply in South Africa. Three members of the Commission are no longer associated with Escom. Mr Jan H. Smith, Chairman of the Commission since 1980, had a distinguished career with Escom spanning 35 years. The longest-serving members, Mr D.J. Malan and Mr E. Pavitt, served on the Commission since the late 1960s. I wish them all well in their retirement from electricity affairs.

Electricity Council

The Electricity Council was appointed in May 1985 and meets monthly. The 17 members of the Council are drawn from both the private and public sectors, with the main electricity consumer groups fully represented. The Council settled down quickly to its main task of formulating policy for the future of Escom.

The members have a wide spectrum of interests, qualifications and expertise, utilisation of which is greatly benefiting Escom and its customers.

Council members have already demonstrated their understanding of the needs of customers and the problems associated with meeting those needs.

Management Board

One of the Council's first tasks was to appoint the Management Board, which is responsible for the day-to-day management of Escom.

Escom already has a well-deserved local and international reputation for technical excellence, supported by a good track record on product quality and reliability. The aim is for the corporation to earn an equally deserved reputation for professional management.

The management team has made a good start and is moving Escom in this new direction. I am particularly appreciative of the strong leadership demonstrated by the Chief Executive, Mr Ian McRae.

Meetings with managers

One of the first tasks Mr McRae and I undertook was to visit all of Escom's main centres. Meetings were held with more than 300 managers to obtain their views and a series of meetings was then held with the top 30 managers in order to identify those aspects of the business that needed management attention. Priorities for 1986 were agreed upon and a number of management task forces were established to plan for the rapid achievement of agreed objectives.

Certain proposals emanating from the task forces have already been implemented. The encouraging progress being made can be attributed largely to the involvement of managers at all levels and their participation in setting goals and formulating plans for the efficient achievement of those goals. This process has revealed considerable leadership potential in the Escom management ranks and we will make every effort to encourage and develop this potential to its full.

New organisation

To achieve greater operational efficiency, it was decided that the two major line functions, generation and distribution, should each report to their own general manager. In addition, a general manager was appointed for the important new function of power marketing, with the objective of promoting energy conservation through the more efficient use of electricity. It was felt that, in view of Escom's size and geographical dispersion, a decentralised organisation would more effectively serve customers' needs.

Consequently, a new structure was developed and took effect in January 1986, with Escom divided into 52 strategic business units, each with its own support services. Greater responsibility, authority and accountability have been delegated to these units and the lines of communication to top management have been shortened. While the introduction of the new structure has created insecurity among some staff members, there is general enthusiasm for the greater efficiency and better service to customers that will result.

Economic climate

Economically, 1985 was a most difficult year for South Africa. The business environment began to change dramatically after August 1984, as measures introduced by the authorities to curb excessive demand started to take effect.

By the beginning of 1985 the worsening economic situation was exacerbated by a deteriorating international perception of the domestic political climate. Most of the leading economic indicators confirmed the deepening recession. The number of business failures rose and unemployment increased. Civil strife in Black urban areas escalated. These factors led to negative foreign perceptions of South Africa. During this period, however, the current account of the balance of payments was showing substantial improvements compared with the previous year.

Towards the middle of the year there were some signs of the beginnings of an economic recovery. This, however, was short-lived. The civil unrest in the Black urban areas increased, culminating in the declaration of a state of emergency in some magisterial districts in July 1985.

Certain American banks became concerned and took the unprecedented step of not renewing credit lines to South African banks. In addition, a few European banks were reluctant to renew maturing debt. This, in turn, resulted in a large net outflow of capital and the two measures adopted by the South African authorities to halt the outflow were the imposition of a standstill on repayments of some types of foreign debt and the re-imposition of the Financial Rand. Subsequently, loan repayment negotiations were commenced with the major creditor banks. In the meantime, new foreign loans to South African organisations had become almost unobtainable.

The international value of the Rand dropped to new lows and the rate of inflation, which had shown an encouraging decline, started to move upwards again.

On the positive side, exports continued to rise throughout 1985, while imports showed substantial decreases resulting in a current account surplus of about R7 000 million.

The overall effect of these events was that the South African economy contracted by about 1% during 1985, compared with the previous year.

Effect on Escom

Despite the decline in South Africa's real gross domestic product, electricity sales continued to grow in 1985. The lower Rand, together with continued economic growth in most developed countries, stimulated exports, particularly of mining and other electricity-intensive industries. The accelerated electrification of rural and Black urban areas also contributed to the overall growth in sales.

In the longer term, however, low growth in the economy will result in slower growth in electricity sales. Consequently, it was necessary to make a further downward revision of electricity demand forecasts. An average annual growth rate in the demand for electricity of around 5,5% is now foreseen for the next 10- to 15-year period.

Electricity supply

The planning of electricity generation is a 15-year rolling cycle and capital commitments are made well in advance.

Electricity demand during the first half of this decade has been lower than originally forecast. As a result, Escom will have spare generating capacity. This, together with the lower growth in demand now expected in the future, has enabled the corporation to defer some of its capital projects and will permit the reduced use or reserve storage of older, less efficient power stations.

Where firm capital commitments have already been made, deferment is not possible without incurring substantial costs. Escom is, however, negotiating with both equipment suppliers and coal producers in order to arrive at the most cost-effective way of scaling down its expansion programme.

During 1985, 1 574 MW of generating capacity, including the first generating set at Tutuka and the second of the two Koeberg nuclear units, was added to the system. The advent of Koeberg has provided Escom, traditionally heavily dependent on coal-fired stations, with a more diversified generating mix. Since the year-end, the first 600 MW set at Lethabo has been brought into commercial operation.

Following an intensive enhancement programme, plant availability increased from 75% to 77,5% in 1985. This important aspect of our business is receiving continued management attention.

Finance

During the year, Escom raised more than R4 900 million in local and foreign markets. Before the standstill on certain foreign debt repayments, Escom was particularly active and successful in the Eurobond market with a number of public bond issues.

Despite its reduced capital expansion programme, Escom will continue to be a big borrower for a number of years. As mentioned earlier, one of the effects of the standstill is that new foreign loans are very difficult to obtain and large South African borrowers will, in the immediate future, have to look to the limited local capital market to supply more capital funds. In view of this, drastic steps were taken to reduce Escom's need for money. Capital programmes were further reviewed and operating costs severely pruned. As a result, Escom's planned borrowing needs for 1986 will be reduced by about R1 250 million to R3 650 million.

Close contact is being maintained with all our sources of funds and I am happy to report that Escom remains a sought-after borrower.

Tariffs

Escom strives to keep electricity tariffs as low as possible, but it also needs to ensure that it maintains a sound capital structure in order to remain attractive to financial institutions for its borrowing requirement.

Providers of capital require that at least one-third of Escom's investment be financed from its own resources. In recent years we have not been able to meet this requirement and in 1985 only 27% of our application of funds was funded from this source. We anticipate that, by reducing capital expenditure and operating costs, the proportion of internally generated funds will increase and it is planned to get back to the level of one-third within the next three years.

Flowing from this, and factors such as the unrealistically low tariff increase in 1984, the high rate of inflation, high interest rates and the high cost of

imports, 1985 saw two increases in electricity prices, with an average of 10% in January and a further 10% in September. In December, two increases of 10% each were announced for 1986, the first effective from January and the second from July.

South Africa has one of the lowest electricity prices in the world and we are committed to keeping future increases below the rate of inflation. To ensure that electricity customers are charged the most realistic price possible, the policy of regional pricing was discontinued in January 1986. Customers now pay a uniform tariff, with an additional, small transmission charge based on the distance from the main generating area.

Personnel

Escom has 66 000 employees, of whom 40 000 are Black. Our people are our most important asset and it is our aim to give each of them the best opportunity to develop skills and talents and to ensure that the organisation employs them to best advantage.

Escom's equal-opportunity employment practices were restated and re-emphasised during the year. Management will monitor continually this aspect of our business.

It is our view that there are opportunities for reducing staff numbers from the present 66 000 to 60 000. No general retrenchment programme is planned and the reduction will be achieved by natural attrition through resignations and retirements.

If we succeed in holding numbers at the 60 000 level over the medium term, while electricity output increases at the projected 5.5% a year, the higher output will have to be achieved by improved productivity.

There is enthusiasm and support among the vast majority of Escom employees for the businesslike, cost-conscious approach we have adopted, and for the high standard of performance and discipline for which we are striving. Poor performers are being identified and encouraged to meet the higher standards required.

Management has adopted an open line of communication with employees and every effort is being made to mobilise the considerable resources of intelligence, education, skills and ability among the people who work for Escom.

Management

In order to run Escom more efficiently, steps have been taken to reduce costs and to improve the utilisation of the assets under our control. This calls for improved budgeting, financial control and management information systems, all of which are being introduced.

Escom is also proposing to change its method of financial reporting from fund accounting to conventional business reporting. The matter is discussed more fully in the Chief Executive's report.

The future

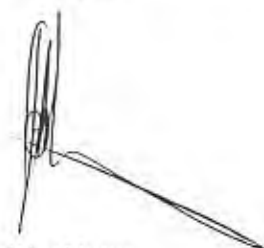
Escom is well set to meet the demands that will be made on it during 1986, both as a supplier of electricity and as a corporate citizen.

Indications are that the South African economy reached a turning point in the last quarter of 1985 and that a growth rate of about 3% can be achieved in 1986. Escom has noted the Government's aims to stimulate small businesses and the electrification of Black urban areas and farming communities. We are confident that we will be able to meet the additional electricity demand that such growth implies. Future economic growth in southern Africa will not be constrained by inadequate supplies of electricity.

The far-reaching steps being taken to resolve the political problems facing South Africa are most encouraging. Similarly, the broad consensus reached between South Africa and international creditor banks, through the mediation of Dr Fritz Leutwiler, is a step towards the resolution of this country's short-term liquidity problem. It is hoped the combination of these two factors will allow Escom to resume drawing funds from overseas in the not too distant future.

The past few years have been difficult for Escom. It has had to contend with mounting criticism of its financial and operations management and of its relations with customers. The corporation's image suffered and it was largely forgotten what a fine technical organisation Escom is and what a great service it renders to our country.

It is our firm intent to rebuild the good name of Escom, but we know full well that, to do so, we will have to render a superior service. The achievements of an organisation are no more than the sum total of the achievements of its people. It is imperative that each one of us here at Escom achieves a high standard of performance. This is what we are striving for.



John Maree
Chairman

John Maree and Ian McRae talking to Escom's top managers about far-reaching plans to restructure the organisation.



Chief Executive's report



The immediate priority of the Senior General Manager is to establish an organisation structure within which staff can achieve the corporation's objectives.

I.C. McRae (56), **Senior General Manager**

Pr Eng, BSc (Eng) (RAND). Joined Escom in 1947 and appointed to the Management Board in 1985.

The Senior General Manager and Chief Executive, as Chairman of the Management Board, is answerable to the Electricity Council for all aspects of Escom's performance. The Board is committed to a professionally managed Escom, high performance from people and equipment, improved productivity and a high quality of electricity supply.

Main management issues

For Escom's management, the past year was dominated by two main issues: the necessity for the corporation to adapt rapidly to changes in its environment; and the need, during this transition, to continue to perform with optimum efficiency.

On both these counts, 1985 was a successful year for Escom. In a remarkably short time, both management and staff adapted to a series of major changes in structure and corporate culture. At the same time, good operating results were achieved, with significant improvements in some areas.

Operating results

The volume of electricity sold during the year reached a record level, a firm indication that, despite the economic recession, some sectors of the economy continued to prosper. This was particularly true of sales to the electricity-intensive, export-oriented industries.

Revenue from electricity sales was sufficient to cover the year's expenses of R4 585 million. These expenses do not include a Capital Development Fund contribution which Escom is no longer making in view of management's intention to change accounting practices. Consequently, a surplus of R40 million is shown on the Income Statement and this has been applied to reducing Escom's accumulated deficit.

Escom had no difficulty in meeting the increased demand for electricity. Supply problems that did occur were of a technical nature and not caused by a lack of installed capacity.

New organisation structure

Escom's new, decentralised structure is designed to promote efficiency and closer contact with customers.

Countrywide, the corporation has been divided into strategic business units, each of which, typically, has between 1 000 and 2 000 employees, the ideal size for effective management. They are self-contained business operations, with responsibility for the cost-effective management of the output or services required by Escom. Each is also responsible, and accountable, for the effective management of its resources, assets and cash flow.

Strategic business units report to their respective general managers through divisional managers based at head office. Service functions, which are not strategic business units, are treated as overheads to the organisation as a whole.

Strategic business units in the Generation Group are associated with power stations, fuel and water services and power station dismantling. The Operations Group, which works closely with Generation, has strategic business units for expansion planning, control and operation of the interconnected power system, power station performance monitoring and maintenance. The strategic business units in the Engineering Group are associated with the construction of power stations, transmission lines and facilities. The Resources Services Group has strategic business units for data processing and education.

The Distribution Group, which has the most direct contact with customers, has been structured to ensure that management has the closest possible link with the end-user of electricity. For distribution purposes, Escom's supply area has been divided into 12 regions, each of which functions as a separate strategic business unit. Each region is divided into areas, which are subdivided into districts. The district manager is the vital point of contact with the customer. (See generation and distribution map and structures on pages 14, 15 and 36).

Philosophy

Escom's commitment to adjusting to its new environment is not reflected just in its organisation structure. Management has also committed itself to a number of position statements and is actively promoting their acceptance by all employees.

In terms of this philosophy, Escom strives to provide customers with products and services of the greatest possible value, measured in terms of quality and price. It will maintain good relations with customers through constant contact with them regarding their requirements and the quality of service they receive.

Employees will be provided with an environment in which they can develop their full potential through education, training, work experience, problem solving and innovation. Escom is an equal-opportunity employer where remuneration and advancement are based on performance and market considerations, regardless of race, creed or sex.

Escom's interdependence with its suppliers of goods, services and finance is recognised, and a healthy, long-term business relationship with them is pursued.

Proposed financial and accounting policy changes

From January 1987, Escom proposes to report on its financial activities and position in conventional business accounting terms.

The intention is to move away from the concept of fund accounting, as provided for under present legislation. The practice of investing internal funds in Escom's own loan stock issues and the associated accounting mechanism for raising internal interest charges is to be abolished.

In future, Escom's financial reporting will incorporate a depreciation accounting convention for its fixed assets in commercial operation.

It is further intended that its reporting will demonstrate fully how the annual surplus, or deficit, has been derived. Costs, including depreciation charges, transfers which have been made to accumulated retained earnings and any appropriations which have been made from past accumulations, will be reported.

Considerable progress has been made in assessing the effects of the proposed accounting changes, but before they can be implemented the Electricity Act has to be amended.

Effects of reduced growth

The lower forecast for long-term growth in demand for electricity is having a considerable, positive effect on Escom. Some capital projects have been deferred and, as can be seen in the various management reports, this has resulted in a general scaling down of operations in all disciplines and on all levels to produce a leaner, fitter organisation. It has, furthermore, eased the pressure on the corporation's financial, technical and human resources.

Over the period 1986 to 1989, estimated capital expenditure has been reduced by R1 100 million and operating expenses by R1 400 million. Because of rapid growth in the past, the Escom power system, particularly in the early 1980s, was operating with very low reserve margins. The situation is now much improved. The severe shortage of staff in some technical grades is also easing.

During periods of rapid growth the demands of the marketplace take precedence over efficiency. Periods of slower growth give an organisation the opportunity to re-assess its priorities and make appropriate adjustments. Escom's intention of becoming a more professionally managed, efficient, customer-oriented organisation, with disciplined and highly motivated staff, can be achieved more rapidly and effectively during this period of reduced growth.

We are indeed grateful for the guidance and strong support given by the Electricity Council under the chairmanship of Mr John Maree.



Ian McRae
Senior General Manager



Distribution Group



The objective of the Distribution Group is to provide customers with a reliable and cost-effective electricity supply. To achieve this, Distribution has created a decentralised organisational structure which brings Escom managers closer to the end user of electricity.

J.L. Rothman (59), **Assistant Senior General Manager and head of Distribution**
Pr Eng, BSc, BSc (Eng) (US), Joined Escom in 1955 and appointed to the Management Board in 1985.

The Group is responsible for distributing Escom's electricity to the customer. The supply area is separated into two main divisions, each consisting of six distribution regions which operate as self-contained strategic business units. These regional strategic business units are divided into areas, which are sub-divided into districts, the smallest management unit in the Distribution Group. District managers, of whom there are 63, are responsible for meeting the electricity requirements of Escom customers in their districts.

Quality of supply

For many years, it has been Escom policy, based on economic considerations, to build base-load power stations close to a source of primary energy, coal, and to transmit electricity, rather than transport coal, around the country. As a result, South Africa has one of the most advanced transmission and distribution systems in the world. Its high-voltage national grid, with about 10 000 km of 400 kV lines, connects power stations with all the main metropolitan and industrial areas of South Africa.

In 1985, demand for electricity was met in full and the distribution system performed well. Generally, the quality of supply was good, although there were a number of line faults which led to power interruptions, mainly in the southern Cape, which is served by lines particularly susceptible to storm damage. These lines are being upgraded and most of the present problems will be eliminated.

Most other power interruptions were localised and of short duration, with small numbers of customers affected.

Distribution system

The distribution infrastructure is, at present, wholly adequate for South Africa's needs. However, to cater for future needs, the country's first 765 kV line, with four times the carrying capacity of a 400 kV line, was built to link Tutuka power station, near Standerton, with the national grid. In time, the existing 400 kV system will be strengthened with additional 765 kV lines when power stations now under construction are brought into the system.

Extensions to the distribution and reticulation systems are a constant priority. Not only are new customers connected to the Escom system daily, but existing customers often need additional supplies. Consequently, new systems have to be added and existing systems enhanced in an on-going programme of improvements.

Escom is a bulk seller of electricity and prefers local authorities to undertake their own reticulation. In some areas, however, where no other reticulation authority is available, Escom supplies direct to households. In the Cape Town metropolitan area, Escom is negotiating with seven municipalities for them to take over reticulation to about 70 000 customers.

Rural electrification

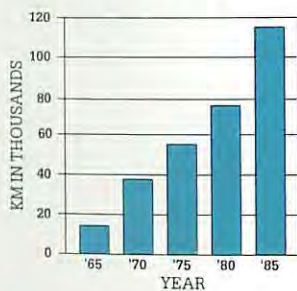
The rural electrification programme was accelerated in 1985 through the increasing use of private contractors. About 12 000 km of reticulation lines were built during the year, which was 11% more than in 1984.

The net number of farming supplies provided during the year was 5 346, an increase of 8% over 1984. The total number at the end of 1985 was 70 364.

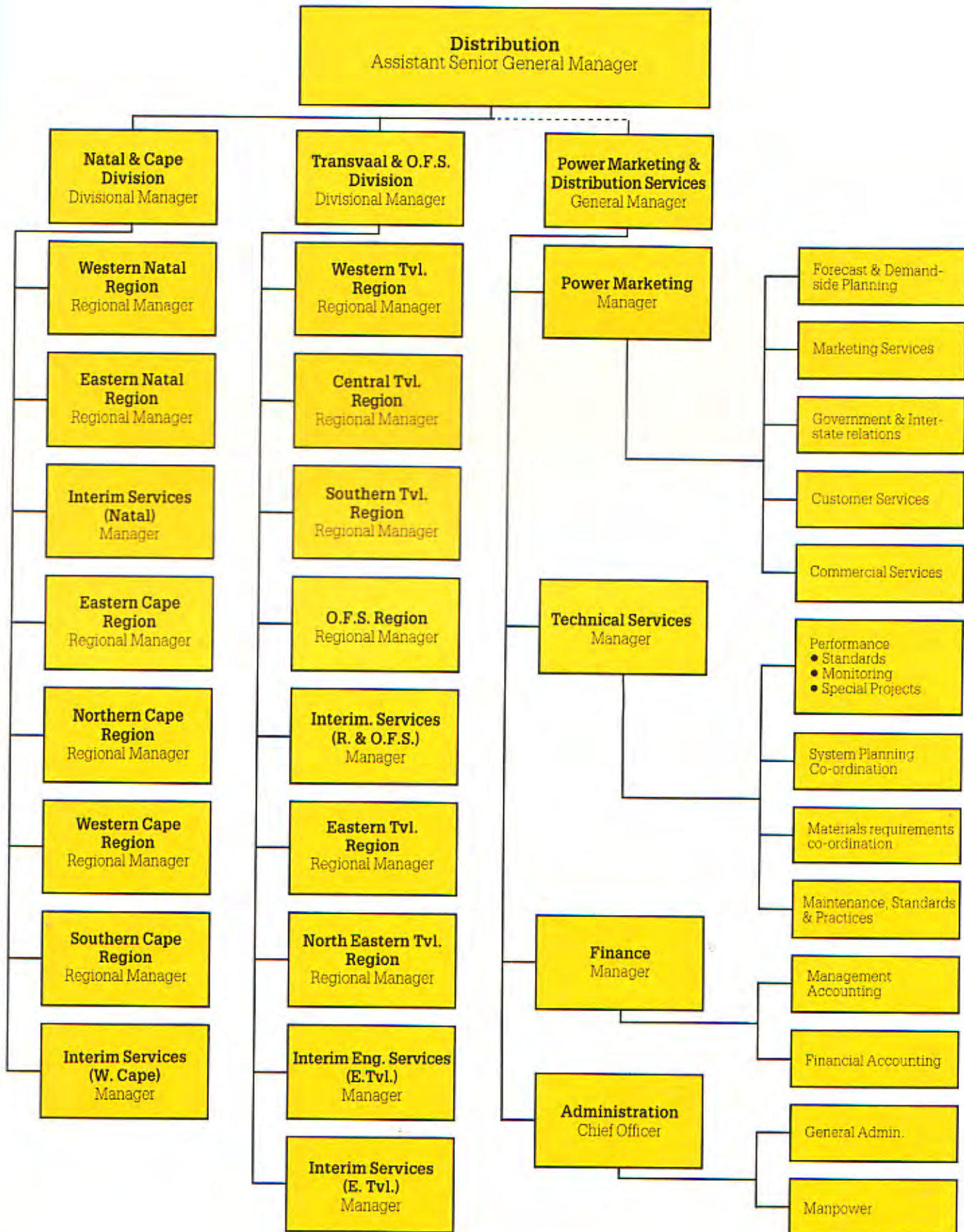


Growth in rural electrification

Total lines & cables of 22 kV and lower



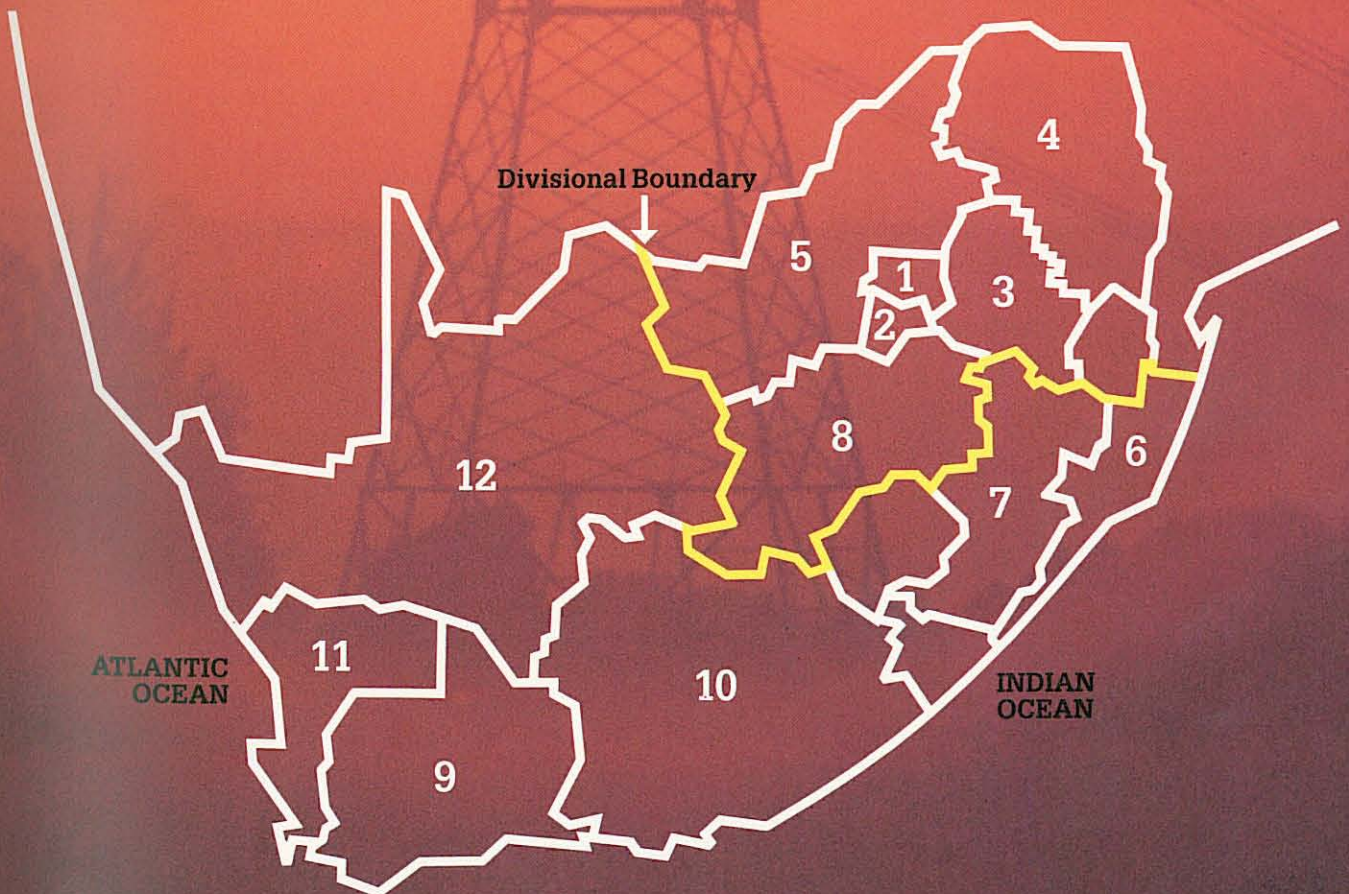
Distribution structure



Escom distribution regions

The distribution structure consists of 12 regions grouped into two distribution divisions – Natal and Cape; Transvaal and OFS. Each of these divisions has a divisional manager who assists the head of the Distribution Group. The 12 distribution regions are classified as SBUs. They will service 26 areas which have been divided into 85 districts. Each district manager is responsible for ensuring that the electricity needs of his customers are met in the most cost effective way, with the emphasis on customer service.

- | | |
|--|---|
| 1. Central Transvaal – Pretoria | 7. Western Natal – Pietermaritzburg |
| 2. Southern Transvaal – Johannesburg | 8. Orange Free State – Bloemfontein, Welkom |
| 3. Eastern Transvaal – Witbank | 9. Southern Cape – Worcester |
| 4. North Eastern Transvaal – Nelspruit | 10. Eastern Cape – East London |
| 5. Western Transvaal – Klerksdorp | 11. Western Cape – Bellville |
| 6. Eastern Natal – Durban | 12. Northern Cape – Kimberley, Walvis Bay |





Power Marketing and Distribution Services Group



The Group's main objectives are to identify customer needs, foster sound customer relations and promote more efficient use of electricity. Achievement of these objectives will help reduce upward pressure on the price of electricity.

R. A. Forbes (53), **General Manager, Power Marketing and Distribution Services**
Pr Eng, BSc (Eng) (RAND), MBL (SA). Joined Escom in 1949 and appointed to the Management Board in 1985.



The Power Marketing and Distribution Services Group is responsible for: monitoring electricity sales and customer services; producing sales forecasts; tariff management; customer supply agreements; interface with Government, other authorities and electricity user groups. It also provides technical and financial services to the Distribution Group.

Electricity sales

Electricity sales increased by 5,1% in 1985, from 106 904 to 112 306 million kWh. While this growth was well down on the 8,8% growth recorded in 1984, it was still high, particularly in view of the depressed state of the economy. All supply categories, except traction, showed growth (see table on page 19).

Much of the growth in electricity sales during 1985 took place in the second half of the year because of a surge in demand from the export-oriented mining and industrial sectors. Higher bulk sales to local authorities include increased electricity use by urban Black customers.

Tariffs

There were two tariff increases in 1985. An average increase of 10% on 1 January and 10% on 1 September, together with adjustments for changes in the price of coal, resulted in an average price of 4,118 cents per kWh for the year.

Escom prefers to adjust its tariffs only once a year, usually in January, so that customers can plan their electricity expense with reasonable accuracy. However, to lessen the effect on customers during the current period of economic uncertainty, the 1986 tariff increase will be implemented in two stages, with an average increase of 10% on 1 January and a further 10% scheduled for 1 July.

It is Escom's stated objective to limit increases in the price of electricity to below the inflation rate.

A uniform, national tariff was introduced in January 1986, and this is benefiting customers in most parts of the country. Most of the regional price differences have now been eliminated. A small transmission surcharge is levied in areas remote from the main generating areas, but this covers only

the cost of power lost in transmission. Monthly extension charges to rural customers have also either been eliminated or greatly reduced.

The policy of adjusting the price of electricity to reflect fluctuations in the cost of coal has been changed. In the past, these quarterly adjustments added about 2% to the average annual price of electricity, but they are now included in the tariff.

An interruptible tariff scheme is under investigation. This will allow customers who do not require a continuous supply of electricity to opt for reduced quality at a lower price. The scheme, providing the investigation shows it to be viable, will be launched in 1987. It could, in the longer term, reduce the need for new power stations.

An off-peak tariff came into effect in January 1986. Customers who opt for this scheme will reduce their total cost of electricity by shifting their peak demand to Escom's off-peak periods. Nearly 30 major customers have already chosen this tariff and more are expected to follow once the benefits become widely known.

Additional capacity has been allocated to the major self-generating municipalities in the summer months to encourage higher sales to those customers. This enables the municipalities concerned to reduce their production costs and carry out essential maintenance so that their demand on Escom during the winter months is minimised.

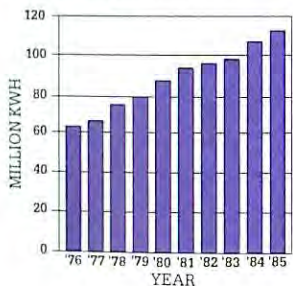
Supply agreements

Following the upgrading of supplies to Swaziland, a new agreement between Escom and the Swaziland Electricity Board was signed in 1985. Escom provides part of the electricity requirement of Swaziland, Mozambique and Botswana and all of the electricity used in Lesotho.

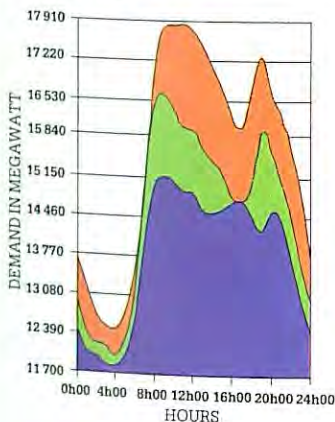
Escom is assisting the consultants carrying out feasibility studies on hydro-electric generation for the Lesotho Highlands Water Scheme.

Conditions of supply to municipalities and industries which generate part of their own electricity requirement are being revised. The aim is to encourage co-generation, which is the generation of

Electricity sales



Electricity demand patterns



- Maximum demand day 12/7/1985
- A typical winter day 13/9/1985
- A typical summer day 14/2/1985



Electricity sales to different customer categories



- Domestic and Street lighting 1,1%
- Traction 4,1%
- Mining 27,4%
- Industrial 33,9%
- Bulk sales 33,5%

Electricity sales to sectors of industry



- Engineering, iron, steel, base metals 50,1%
- Building, cement, quarrying 3,3%
- Paper, paper products 3,8%
- Chemical 21,4%
- Food, consumer goods, commerce, other 21,4%

electricity using waste heat produced in industrial processes. Co-generation will provide part of the electricity requirement of industry and this reduces Escom's need for additional generating capacity.

Customer services

Customer services personnel will help customers determine their electricity requirement more accurately and also establish how Escom can meet those needs cost-effectively.

Demand-side management and awareness programmes are being introduced to advise customers on how to use electricity efficiently. Through careful management and optimisation of patterns of usage, the effectiveness of the total electricity supply system will be improved.

Relations with the Government and user groups

Escom maintains close contact with Government and user groups in all aspects of electricity supply policy and planning. Escom is geared to accommodate growth emanating from the Government's decentralisation policy; with its high-voltage transmission system Escom is able to supply electricity, or connect to power stations, anywhere in South Africa or in neighbouring countries.

During 1985, Escom met with various customer groups to discuss and clarify supply issues. A marketing programme has also been launched to keep customers better informed of the services we provide.

Sales of electricity to categories of customers

Million kWh

Category	1985	1984	1983	1982	1981	1980	Increase		Average price	
							1984-1985	%	yearly increase 1981-1985	cents/kWh sold 1984 1985
Bulk sales ¹	37 568	35 541	32 729	32 349	29 961	26 923	5,7	6,9	3,593	4,127
Domestic ²	1 203	1 144	1 078	1 020	1 002	906	5,2	5,8	6,662	7,521
Industrial	38 123	36 118	32 286	30 959	31 091	29 373	5,5	5,4	3,595	4,112
Mining	30 825	29 506	28 021	27 372	27 131	25 882	4,5	3,6	3,268	3,795
Traction	4 587	4 595	4 137	4 436	4 659	4 455	(0,2)	0,6	4,696	5,368
Total	112 306	106 904	98 251	96 136	93 844	87 539	5,1	5,1	3,584	4,118

¹ Includes sales to municipalities and neighbouring countries.

² Includes street lighting. Escom supplies a small number of domestic customers direct, most households are supplied by local authorities.

The future

Escom uses four independent forecasting techniques, including customer opinion surveys, time series modelling, sectoral consumption forecasting models and an energy/GDP model. These techniques produce a range of forecasts to guide management in its final assumptions.

Escom anticipates that electrical energy sales will grow, on average, by about 5,5% a year until the end of the century, whereas average growth in demand over the past 30 years was more than 8% a year.

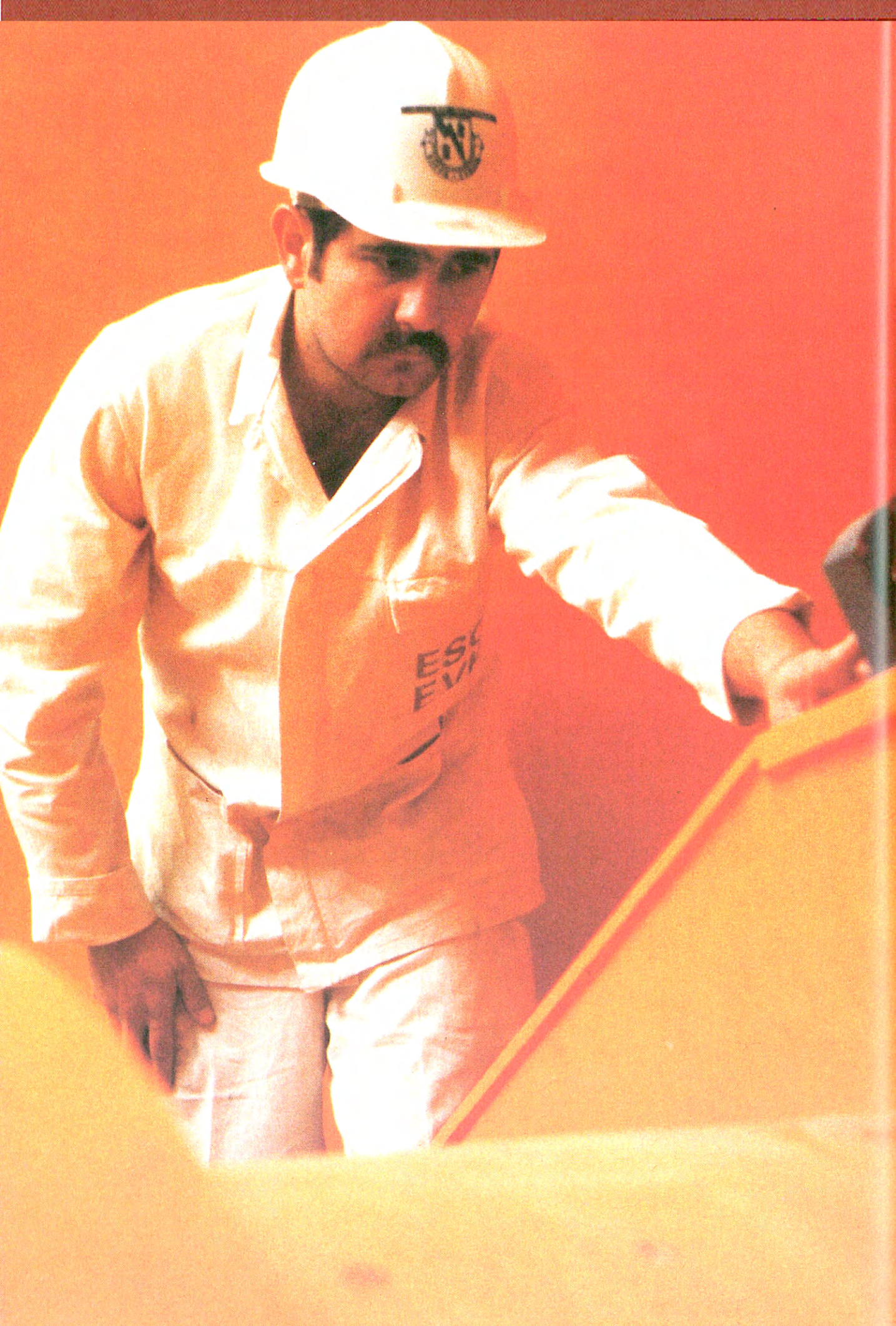
These consistently high growth rates were the result of rapid development of the electricity-intensive sectors of South Africa's economy. Indications are that future economic development will be towards less energy-intensive industries and will be matched by a drive towards energy conservation.

Farm supplies

as at 31 December

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

1985	1984	1983	1982	1981	1980	Increase		Average
						1985	%	yearly increase 1981-1985
70 364	65 018	59 098	53 467	49 238	45 156		8,2	9,3



Engineering Group



The objective of the Engineering Group is to provide new assets required for the generation and transmission of electricity. It also provides technical expertise and services throughout Escom.

E.H. Ralph (57), **General Manager, Engineering**

Pr Eng, BSc (Eng) (Natal). Joined Escom in 1955 and appointed to the Management Board in 1985.



The responsibilities of the Engineering Group centre mainly on the design, construction and equipping of Escom's power stations, transmission network and related projects.

Power stations

The downward adjustment in the estimates of the long-term growth in electricity supply has led to a reduction in Escom's capital expansion programme. Some projects have been deferred.

At the end of 1985, there were six power stations under construction.

Tutuka. The first of Tutuka's six sets was commissioned in May 1985, and the second one early in 1986. Sets 5 and 6 were deferred by nine and 18 months respectively.

Lethabo. Set 1 of Lethabo's six sets was taken into commercial service in January 1986. Set 2 will follow in the third quarter of 1986. The last two sets – sets 5 and 6 – have been deferred by nine months and 18 months respectively.

Matimba. Set 1 will go into commercial operation in the last quarter of 1986. Set 2 is scheduled for commercial service in 1987. It is not envisaged, at present, that any of the four remaining sets will be deferred.

Palmiet. The first set of this 400 MW pumped-storage station, a joint undertaking with the Department of Water Affairs, will be commissioned in 1987. The second of the two sets will be commissioned in 1988, as originally planned.

Kendal. The first set of this station will be commissioned towards the middle of 1988, nine months later than originally planned. Work on each of the remaining five sets has been delayed for 12 months.

Majuba. The start of construction of this station was postponed until early 1987, when the main civil works will begin. Most of the site preparation and establishment of the infrastructure has been completed. The first set is scheduled for commissioning in 1991.

Transmission

The first 765 kV section of the national transmission grid was completed in 1985. This line, 436 km long, runs from Tutuka power station to Perseus substation near the Orange Free State gold fields. Eventually, the line will be extended to Koeberg in the Cape.

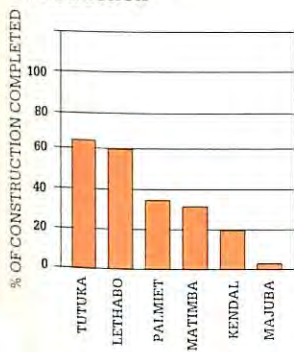
This is the first line of its kind in South Africa. It was energised in February 1986, initially at 400 kV, but it will be switched to its full voltage in 1987.

Planned completion dates of power station units¹

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Kendal	1988	1989	1990	1991	1992	1993
Lethabo	1986	1986	1987	1987/88	1989	1990/91
Majuba	1991	1992	1993	1994	1994/95	1995
Matimba	1986	1987	1988	1989	1990	1991
Palmiet	1987	1988	—	—	—	—
Tutuka	1985	1986	1986	1987	1988/89	1990

¹ Dates on which units will be taken into commercial service may change, depending on growth in electricity demand.

Power stations under construction





Finance Group



The objective of the Finance Group is to plan, obtain and manage Escom's finances and, in doing so, it seeks to maintain a sound debt to reserves ratio.

L.C. Harper (36), **General Manager, Finance.**

BCom (RAND), BCom (Hons) (SA), MBA (Alabama-Birmingham). First joined Escom in 1973 and appointed to the Management Board in 1985.

1980 – Actual costs



- Generation costs 33,5%
- Distribution costs 6,7%
- Loan charges 32,4%
- Contribution to funds 22,9%
- Other 4,5%

The Group is responsible for analysing and assessing the financial performance of Escom, securing the financing of operations and capital projects on the best available terms, maintaining adequate accounting records and reporting on Escom's finances.

The 1985 auditors' report, financial statements and notes and schedules to these statements appear on pages 37 to 55.

Revenue

In 1985, revenue from electricity sales rose by R793 million to R4 625 million. The increase in revenue is attributable to both a higher volume of sales, 5 402 million kWh more than the year before, netting R193 million, and to increases in the electricity tariff, which produced additional revenue of R600 million.

Charges against revenue

Charges against revenue rose by R590 million to R4 585 million, mainly as a result of increases in generating costs and loan charges. The net increase in generation operating costs was 11,5%, which was well below the rate of inflation as measured by the production price index. This was achieved through a disciplined and comprehensive programme of cost control.

Loan charges, primarily because of higher interest rates, rose by 46,4%. Electricity utilities are capital intensive and highly geared, so they are particularly vulnerable to fluctuations in interest rates. Escom is no exception.

The Reserve Fund, which serves various purposes, including self-insurance provision, has been strengthened in line with recommendations made by insurance consultants who have advised Escom on reducing costs through self insurance.

Operating surplus

A surplus, amounting to R40 million, on the Income Statement was applied in reducing the accumulated deficit to R380 million. The elimination of this deficit, coupled with the attainment of a satisfactory ratio of own funds to borrowed funds, is necessary in order to meet lender expectations and comply with the principles embodied in the Electricity Act.

As it is management's intention to eliminate the Capital Development Fund through a change in legislation, no contributions have been made to the Fund for 1985.

Capital expenditure

In 1985, net expenditure on fixed assets was R4 757 million, which increases Escom's investment in fixed assets to R23 969 million.

The lowering of the estimates of long-term growth in electricity demand to 5,5% is having a considerable effect on Escom's capital expansion programme. Through expenditure cuts already agreed upon, Escom's capital requirement will be reduced by over R1 100 million in the period up to 1989.

Financing from own resources

Financing from own resources, measured in terms of funds generated internally as a percentage of total application of funds, was 27% in 1985, down from 31% in 1984.

Foreign providers of capital have indicated that they require that at least one-third of investment be met from Escom's own resources. Our objective is to restore this financing level within three years.

Borrowings

In 1985, Escom raised sufficient funds from the local and foreign financial markets to meet its borrowing requirement. A total of R4 909 million was obtained, with R3 651 million coming from local markets and R1 258 million from abroad. A detailed breakdown of the borrowings, valued in terms of cash proceeds, is given below.

Borrowings in 1985 (Rand million)

Local financial markets		
Primary market	260	
Secondary market	1 646	
Project related	1 745	3 651
Foreign financial markets		
Loans raised	922	
Import financing facilities	336	1 258
Total	4 909	
Less: repayment of loans	1 588	
Net amount raised	3 321	

1985 – Actual costs



- Generation costs 37,8%
 - operation 23,2%
 - coal 16,8%
 - fallage on coal 0,4%
 - other (including nuclear) 6,0%
 - maintenance 6,3%
 - admin. and general 8,3%
- Distribution costs 8,1%
 - operation 0,2%
 - maintenance 2,1%
 - administration 5,8%
- Loan charges 50,0%
 - interest 41,9%
 - generation 28,6%
 - distribution 12,7%
 - corporate services 0,6%
 - redemption 8,1%
 - generation 7,3%
 - distribution 0,7%
 - corporate services 0,1%
- Contribution to funds 3,3%
- Other 0,8%
 - corporate management 0,7%
 - electricity purchased 0,1%



Source of funds – 1985



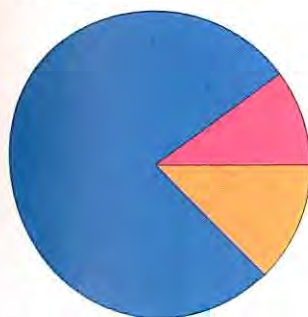
- Local borrowings 57,7%
- Import financing facilities 9,7%
- Other foreign finance 13,0%
- Funds generated internally 19,6%

Application of funds – 1985



- Expenditure on fixed assets 62,3%
- Repayment of local loans 15,6%
- Repayment of foreign loans 11,9%
- Other 10,2%

Type of debt



- Import financing and extended credit facilities 10,0%
- Revolving credits and short-term advances 12,6%
- Local and foreign loans 77,4%

Local capital market

There were two successful primary issues during the year, which, together, raised R260 million, compared with R127 million from the primary market in 1984.

The net proceeds of the secondary market operations amounted to R1 646 million.

In accordance with its policy of being responsive to market needs, and in line with its aim of achieving greater marketability of its stock, Escom has consolidated a number of smaller issues as an added attraction to the investing public. Many more investors now have the opportunity to trade Escom stock in the capital market. That, along with the computerisation of the transfer register, has made administration more efficient, which means a better and quicker service to investors.

Foreign financing

Before the imposition of the foreign debt standstill, announced by the South African authorities in August 1985, Escom's participation in foreign capital markets was highly successful. With the assistance of foreign and local banks, Escom issued the first-ever Euro-Rand bond in one of the most successful transactions undertaken by the corporation. Its entry into the Euro-Sterling and Ecu markets was of similar significance, because those markets are accessible only by borrowers of the highest quality.

Funds totalling R1 258 million were obtained during the year from various foreign markets. The bulk of the funds, R1 115 million, was raised before the introduction of the standstill. Subsequently, the utilisation of previously arranged import credit facilities amounted to R143 million.

Of the total amount of R6 198 million, based on forward-covered rates, owing to foreign lenders at the end of 1985, R3 487 million is affected by the debt standstill. Escom has the resources to repay the full amount on due date, but must wait for agreement between the South African authorities and foreign banks on the precise terms of a settlement.

Foreign exchange markets

Escom is a major participant in the foreign exchange markets. Its total foreign currency liability portfolio, including commitments to contractors, amounts to about R22 000 million at ruling exchange rates.

Escom was largely insulated against the potentially adverse effects of the slump in the Rand by its forward cover policy, which is to cover future commitments as comprehensively as possible. However, the growing difficulty in obtaining suitable coverage for exchange rate risks is recognised and new avenues will have to be explored to ensure proper management of the risks that exist.

Outlook

Electricity sales, in kilowatt-hours, are expected to grow by about 5,4% in 1986, which, along with the average tariff increase of 10% in January 1986 and the increase of 10% approved for introduction in July 1986, should provide revenue of about R5 940 million. Charges against revenue are estimated at R5 850 million.

Capital expenditure for 1986 is estimated at R4 350 million. After taking into account loan repayments and own financing, R3 650 million will be required during the year from borrowings. We propose to raise R3 350 million through the local capital and money markets and the balance of R300 million from foreign sources through utilisation of import-financing facilities tied to equipment supplies. Of the portion to be raised locally, it is anticipated that R1 600 million will be derived from the capital market, R1 450 million from the money market and R300 million from the re-financing of assets.

For 1986, projections show that cash flows will be satisfactory. Because of the unavailability of new foreign loans, Escom has taken steps to reduce its borrowing requirement, but, at the same time, every attempt will be made to attract overseas funding as soon as this can be arranged.



Resources Services Group



The objective of the Resources Services Group is to support management by providing effective human resources management, logistics support and management services and information to meet Escom's business needs.

F. J. W. Barnard (57), General Manager, Resources Services.

Pr Eng, BSc (Eng) (US), MBL (SA). Joined Escom in 1960 and appointed to Management Board in 1985.



The responsibilities of the Group include manpower management, industrial and labour relations, training, productivity services, organisation and business analysis, safety assurance, commercial services, data processing and environmental impact control.

Manpower

In 1985, Escom's manpower complement increased by 2,2% to 66 000. This stemmed mainly from staffing power stations now under construction.

Because of the reduced growth rate now forecast, a limit was imposed on new appointments, other than for new power stations, and this was strictly adhered to.

Following the restructuring of Escom, there will be a redeployment of certain staff. This will be done with as little personal disruption as possible and without any financial loss to the staff concerned.

Labour and industrial relations

Escom continues to make good progress in formalising industrial relations. Draft collective agreements have been accepted in principle by trade unions and will be implemented in 1986.

Future negotiations will take place at racially mixed forums. An important step was taken when a combined meeting of all trade unions was convened during 1985 to discuss a draft disciplinary code. A new code was accepted by the unions and will be introduced this year.

Unions submitted widely divergent wage and salary and conditions of service demands. The diversity of the demands, and the unfavourable economic climate, resulted in protracted negotiations which, however, were concluded successfully.

The main concern of unions representing non-White employees continues to be to obtain the same benefits for their members as those enjoyed by White employees.

Parity committees, to consider the position of non-White employees who perform the same work as White employees, as well as that of women who perform the same work as men, were appointed. Parity has been achieved for security personnel and most of the extra-heavy vehicle drivers in Escom. It is our policy that people, irrespective of race or sex, doing equal

work, should receive equal benefits.

Total trade union membership increased by 14,6% during 1985 and about 49% of all Escom employees now belong to trade unions. The Electricity Workers' Union, representing Black employees, showed the greatest growth during the year and is still the trade union with the largest membership in Escom.

Trade unions responded positively to Escom's proposals for improved productivity, particularly the rewards for high performance. All unions are expected to participate in the next round of negotiations on manpower utilisation, which will include discussion of such issues as equal opportunities for all employees.

The year was marked by an increase in labour disputes, although the more serious disputes involved contractors' staff employed at Escom premises. All disputes were settled peacefully through negotiation.

A training course in industrial relations for supervisors was developed and most supervisors will have undergone training by the end of this year. An industrial relations course for management is nearing completion. Other courses, such as race relations and employee relations, will follow.

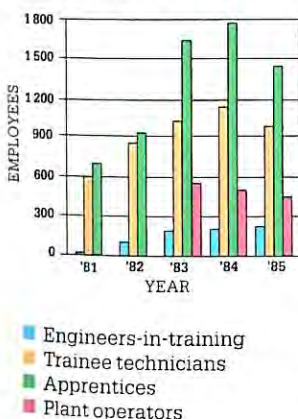
Social responsibility

Escom's caring approach to its employees and their environment has resulted in a number of employee assistance and quality of life programmes.

Advice and assistance were given to a large number of employees during 1985 and covered areas such as: dependency problems – alcoholism and drug dependency; job-related problems – grievances, interpersonal conflict, investigations of poor performance, absenteeism and assistance to the dependants of deceased employees; marital conflict; stress and related problems; and other difficulties such as housing, residence problems and early retirement.

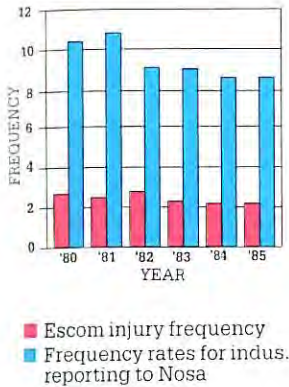
Particular attention was given to the housing problems of Black and Coloured employees who have difficulty in buying homes. As a result of negotiations with the Urban Foundation, a number of employees were able to buy land in the Johannesburg

Employees-in-training

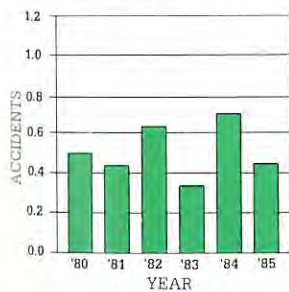




Disabling injuries
per million man-hours worked



Fatal accidents
Fatal accidents per 5 million man-hours worked



area and a recommendation that personal loans be granted to employees who cannot participate in Escom's home ownership scheme, was made to management.

Productivity and quality programme

Escom embarked on a corporation-wide total productivity and quality improvement programme, known as TPQ, about three years ago.

The TPQ approach includes objectives set by top management, measurement of achievements against objectives and the development and participation of employees through decision making and problem solving. This, in turn, should lead to more effective management. The programme also includes TPQ management teams and productivity and quality circles.

The TPQ approach is meeting with considerable success. The programme itself is considered one of the best in South Africa and Escom has been invited by a number of utilities in the United States to lecture on productivity improvement.

Environmental impact control

The purpose of Escom's environmental impact control programme is to ensure that the negative effects of its activities on the total environment are minimised, taking full account of the long-term interests of both the customer and the country.

Environmental input is provided during all phases of Escom's activities, from the earliest planning and design stages, through construction, operation and maintenance. This process also applies to the decommissioning and dismantling of installations.

At present, there are programmes ranging from the protection of natural resources when siting new power stations and routing new power lines to the reduction of air pollution and the rehabilitation of disturbed areas.

Palmiet pumped-storage scheme, situated in the ecologically sensitive mountain fynbos of the southern Cape, is one example of Escom's approach to responsible environmental development. A comprehensive environmental impact control plan was compiled to protect indigenous fauna and flora, limit pollution of natural water courses and prevent

erosion. The programme is supervised by a resident environmental impact control officer.

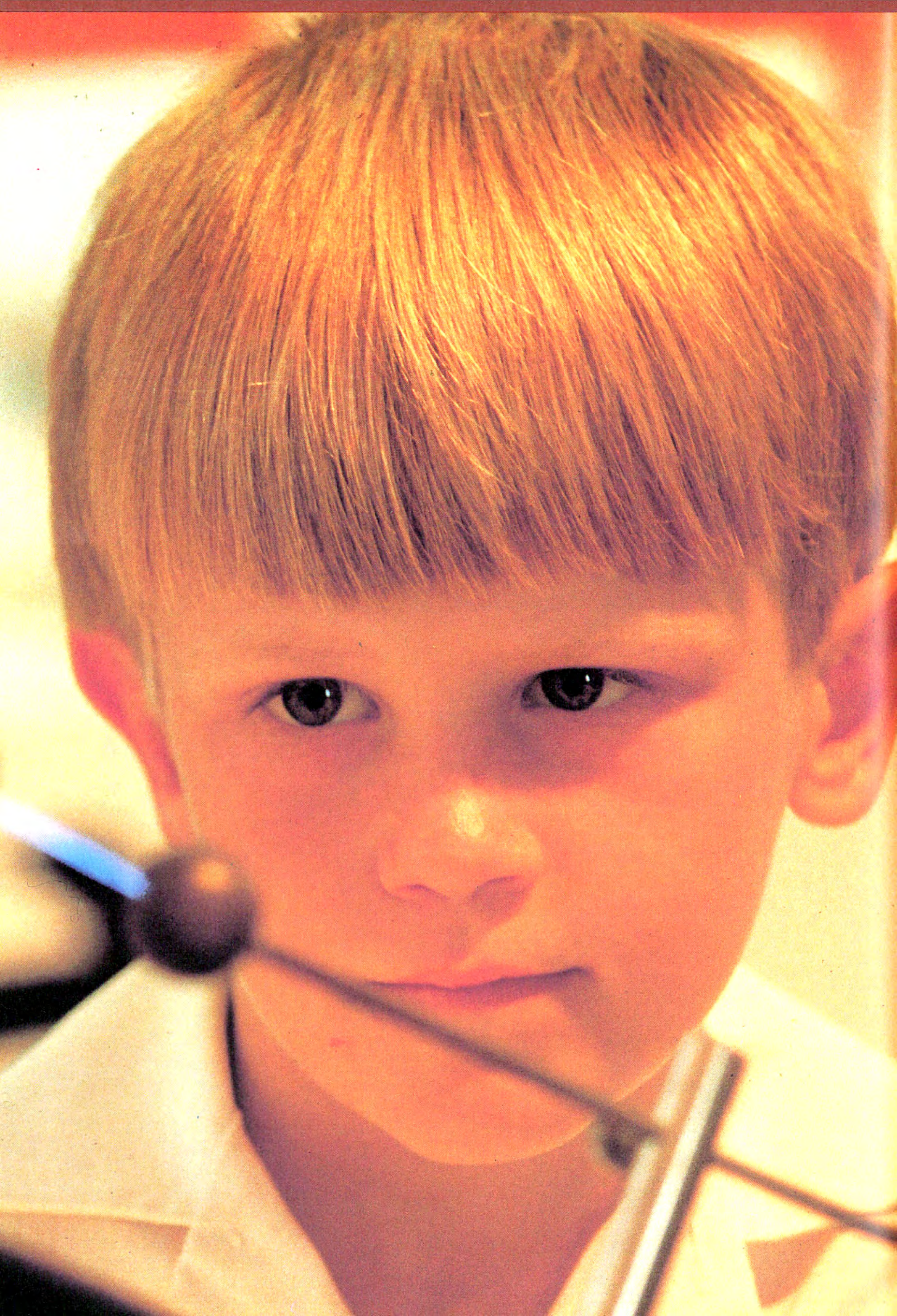
A programme will be started in 1986 to further reduce air pollution from smoke stacks by improving the performance of existing electrostatic precipitators. This will require considerable investment and must be regarded as a high-cost item in future capital expenditure.

In a different programme, pioneering work is being done on the sources and consequences of gaseous pollutants and acid rain.

Escom strives to educate all its personnel to be sensitive to the environment in which they live and work and to cooperate closely with environmental interest groups and local communities.

Data processing

During 1986 and 1987, Escom will centralise its mainframe computer installation for commercial applications at head office. This will result in cost saving and more effective use of equipment. Systems are currently located at eight sites.



Strategic Services Group



The objective of the Group is to create and maintain a politico-legal environment in which Escom can perform optimally, to assist all levels of management with future cost savings and to foster good relations between management, employees, customers and interest groups.

P. J. T. Oosthuizen (56), **General Manager, Strategic Services**

BA LLB (UOFS). Joined Escom in 1959 and appointed to the Management Board in 1985.



The main responsibilities of the Strategic Services Group are to provide legal services to Escom, to appraise the effectiveness of managerial decisions and practice and to develop effective internal and external communication. It is also responsible for the corporation's security and emergency preparedness programmes.

Legal services

In 1985, the Legal Department played a major role in drafting legislation to implement the recommendations of the Commission of Inquiry. It is continuing with this work in 1986.

Other activities during the past year include the re-negotiation of contracts affected by the deferments in generation expansion and ensuring an open approach to labour relations.

Management appraisal

A new department, Management Appraisal, was established in January 1986 in response to public interest in Escom's operations and their influence on the national economy. The department will structure its work around evaluating managerial decisions and practices and finding additional ways of improving total performance and demonstrating accountability.

Communication

In line with Escom's policy of open-door communication, the public relations function was upgraded late in 1985 and a new department, Communication, was established. The department is responsible for both internal and external communication.

The main objective of the department is to bring management closer to employees and Escom closer to its customers and other interested parties.

Management has accepted the need for both employees and the public to be kept informed about Escom and its activities and, conversely, that employees and the public should have greater access to management.

Internally, management is now sharing information on a much wider basis, both horizontally and vertically. All employees are being made aware of their vital role in the organisation and, in particular, their part in promoting effective customer relations.

All senior managers, along with the Chairman and Senior General Manager, are available to the media at all times. Regular discussions are being held with customer and other interest groups, both on a national and a regional level.

The response, from personnel and the public, to Escom's open approach to communication has been most encouraging.

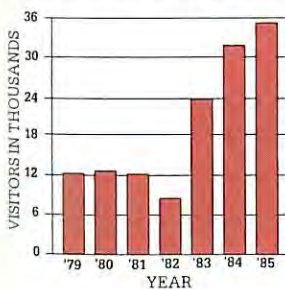
Security

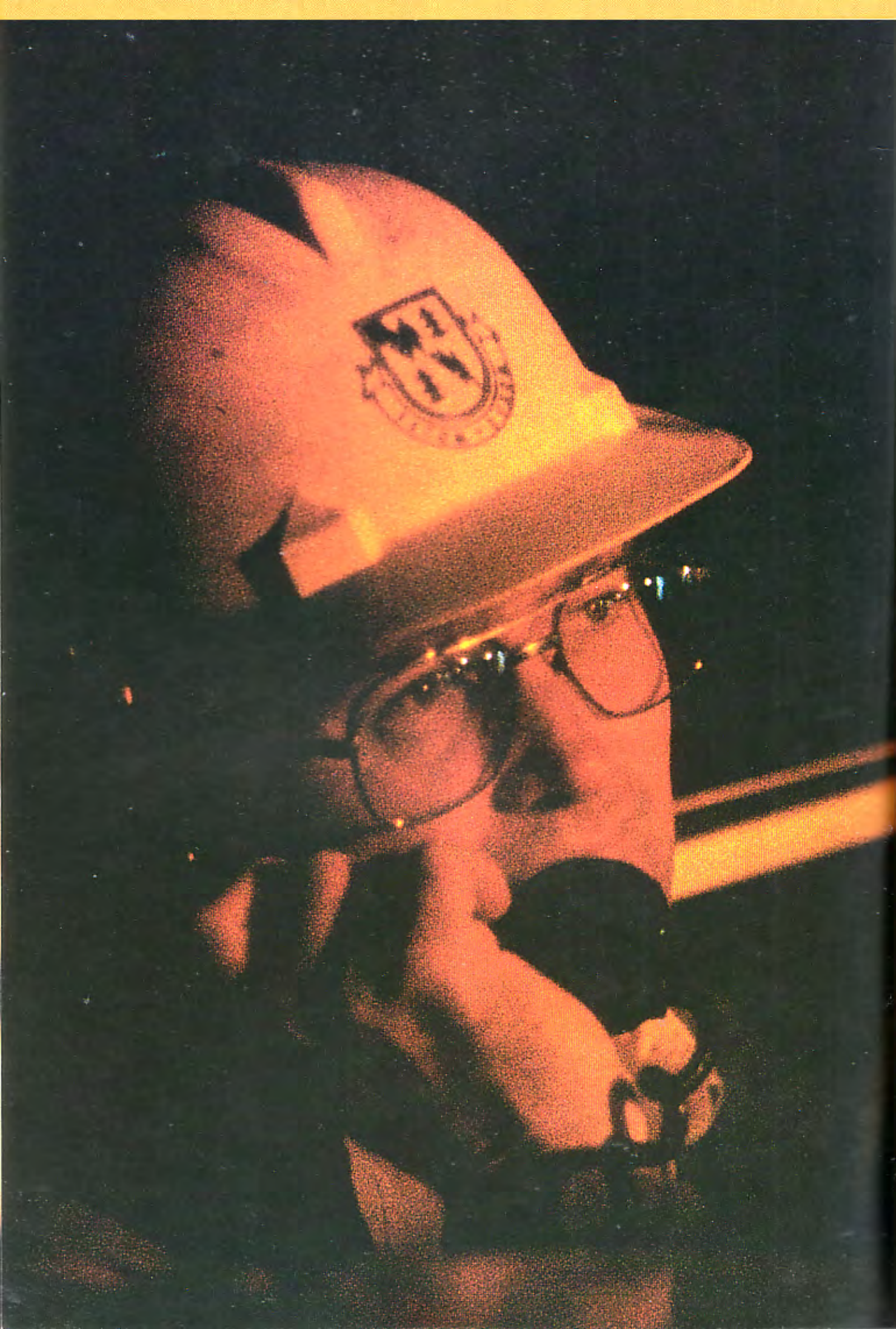
The physical security of the electricity supply system ranks high in Escom's priorities. New security methods are always under investigation in order to ensure that the most cost effective systems, compatible with the need to protect facilities, are utilised.

Emergency preparedness

Escom's emergency preparedness programme is being integrated into all Escom activities. The objective of this programme is to combat emergency situations and minimise their consequences.

Visitors to Escom information centres





Operations Group



The objective of the Group is to ensure that Escom's power system is planned, operated and maintained in the most economical manner, taking into account requirements such as quality, reliability and security of supply.

J.S. Els (57), General Manager, Operations

Pr Eng, BSc (Eng) (US), BSc (Hons) (SA), GDE (RAND). Joined Escom in 1953 and appointed to the Management Board in 1985.

The responsibilities of the Operations Group are to plan the expansion of the main generation and transmission system and to manage the interconnected system in a cost-effective way. It also sets maintenance standards and services and monitors the performance of the system. It assists the Generation Group in optimising the use of its assets and provides it with financial and other services. A number of these functions operate as separate strategic business units.

System operation

During 1985, 122 494 million kWh of electricity were sent out on the Escom system, 4,6% more than in 1984. Of this, 121 987 million kWh were sent out from its own power stations, with the balance imported from other sources. The small supplies coming from Cahora Bassa early in 1985 stopped after transmission lines were sabotaged in February.

The one-hour maximum demand supplied on the interconnected system in 1985 was 17 852 MW.

Plant performance

There was a marked improvement in the availability, reliability and thermal efficiency of generating plant in 1985. In particular, the performance of the 500 to 600 MW sets at newer power stations is now much improved.

Escom's target of an average availability of 77% for generating plant has been reached four years ahead of schedule. The average availability improved from 74,9% in 1984 to 77,5% last year.

The encouraging and continuing upward trend in plant availability is largely the result of enhancement programmes started some years ago. The root causes of low availability are identified and deficiencies are rectified through either improved maintenance or design modifications. One of the main causes of poor availability is boiler tube leaks, many of which result from the use of low grade coal.

Another factor that contributed to the improved performance of generating plant was the larger plant reserve margin. For many years, Escom operated on a very low reserve margin and, as a result, some items

of plant were pushed to their limit.

The tapering off of growth in electricity demand in recent years has resulted in an improvement in the generating capacity reserve. This means that plant can be used more efficiently and be taken out of service for timely maintenance.

Overall thermal efficiency of coal-fired power stations was 32,0% in 1985, compared with 31,4% in 1984. A marginal increase of 0,6% was achieved in the average heat content of coal burnt. The average heat content over the past six years was 21,3 MJ/kg, compared with 21,52 MJ/kg for 1985.

Specific water consumption for coal-fired power generation increased from 2,25 litres/kWh sent out in 1984 to 2,30 litres/kWh sent out in 1985. Overall specific water consumption, which includes consumption at Escom properties, Koeberg and stations not yet commissioned was 2,31 litres/kWh sent out in 1984 and 2,26 litres/kWh sent out in 1985.

Koeberg's unit 1 performed very well. It achieved an average availability of 96,3% between July and December last year, which, by world standards, is extremely high. Unit 2 was taken into commercial service in November and is performing satisfactorily.

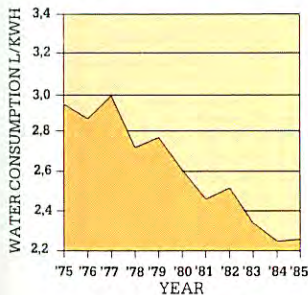
Maintenance

Nearly all maintenance planned for 1985 was carried out. The maintenance strategy is being geared increasingly to a condition-based, rather than a time-based, approach. This is expected to lead to better performance, lower maintenance costs and reduced manpower requirements.

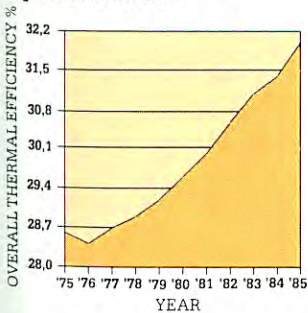
Because of the economic recession Escom has been able to attract much-needed technical staff, although the shortage, particularly in the highly-skilled categories, has not been completely eliminated. Escom has embarked on an accelerated training and re-training programme.



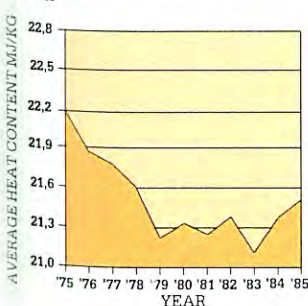
Water consumption per kWh sent-out from coal-fired stations

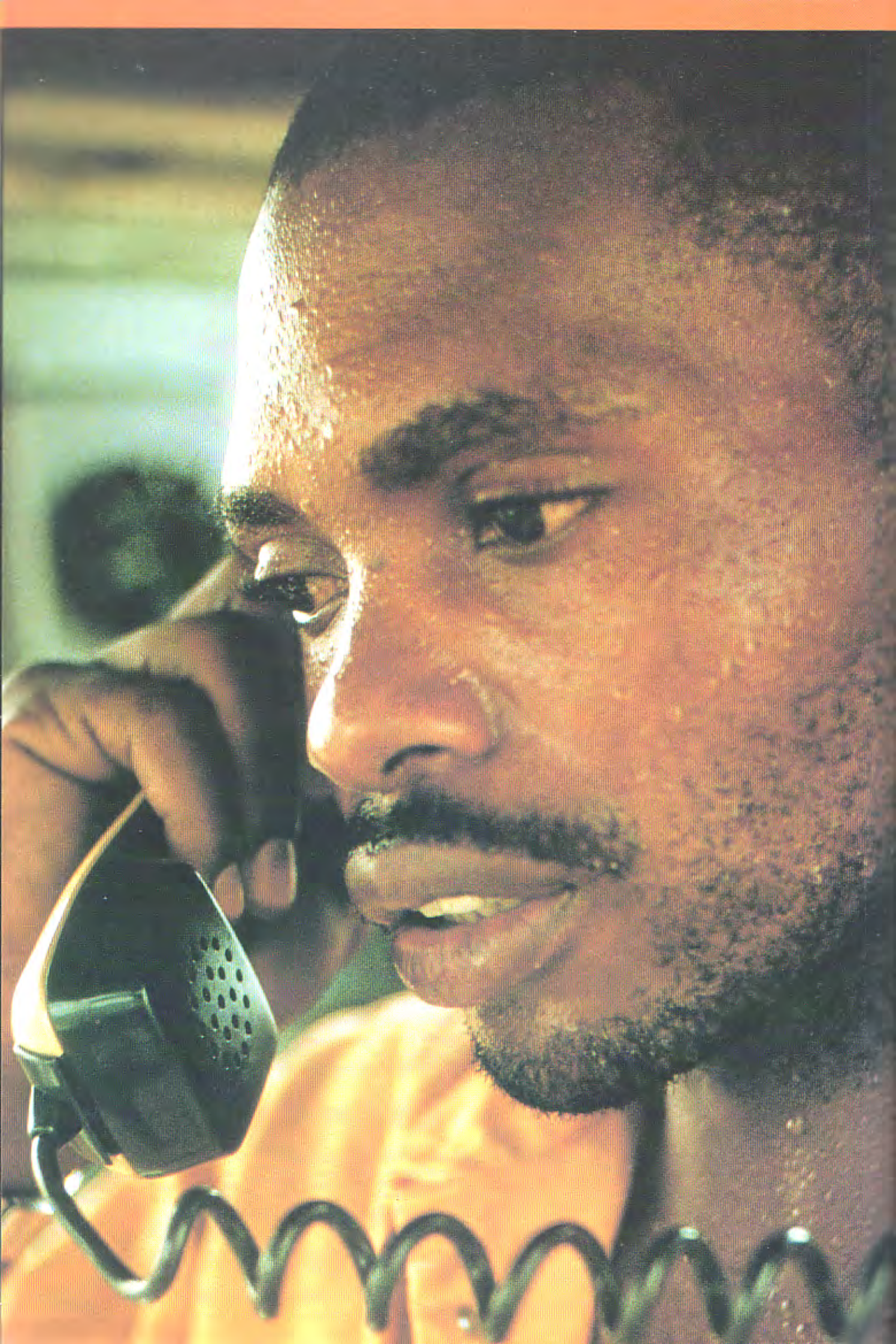


Thermal efficiency of power stations



Average heat content of coal used





Generation Group



The objective of the Group is to generate electricity as and when needed by Escom's customers. To do this, it has to manage and use Escom's generating assets in the most cost-effective and optimal manner. Generation relies heavily on the services provided by the Operations Group.

H. Edeling (60), **General Manager, Generation**

Pr Eng, BSc (Elec Eng) (RAND). Joined Escom in 1968 and appointed to the Management Board in 1986.

The Generation Group is responsible for operating Escom's 26 power stations. The electricity generated is supplied to the Distribution Group. Generation is divided into five divisions, each consisting of a number of strategic business units. A strategic business unit may consist of one large power station or a number of smaller stations. There are also strategic business units associated with power station townships and power station dismantling.

Plant capability and loading

There was sufficient generating capacity to meet the demand for electricity in 1985. At the year end, Escom had an installed capacity of 25 716 MW, with an assigned sent-out rating of 24 359 MW.

Generating capacity is made up of coal-fired, nuclear, hydro, pumped-storage and gas-turbine plant. The generation mix is dominated by coal-fired plant.

Colenso power station, whose original generating sets were commissioned in 1924, was decommissioned in September.

The first sets at Tutuka and Lethabo power stations, both coal-fired, were put into service during the year. When they are completed in 1990, these stations will eventually add 7 068 MW to the system.

Unit 2 at Koeberg was taken into commercial operation at the beginning of November. The nuclear station is now complete and has added a total of 1 840 MW to the sent-out capacity of Escom.

During pre-service inspections on Koeberg's unit 2 at the end of 1984, a ferritic inclusion was found in a stainless steel pipe elbow. Because such an inclusion could lead to a pipe-wall failure, thorough investigations were considered necessary. The commissioning of unit 2 was delayed and unit 1 was shut down early in 1985 for inspection.

On completion of the investigations, Escom, the Licensing Branch of the Atomic Energy Corporation and the Council for Nuclear Safety agreed that the work on unit 2 could be resumed safely and unit 1 be returned to full operation. The project delay was just over five months. Unit 1 was back to full power by the middle of the year

and the reactor of unit 2 went critical in July.

Despite the delay, the commissioning programme was completed in a time scale as good as the best achieved at comparable plants in other countries.

In November, a generating set at Kriel power station was damaged when it was inadvertently synchronised out of phase with the system.

Coal supplies

There were no significant problems with coal supplies to power stations in 1985. However, because of the relatively low increase in the demand for power, there was under-utilisation at most of the collieries supplying mid-merit and peaking stations. Two new collieries, New Denmark and New Vaal, tied to Tutuka and Lethabo power stations, came into production and contributed to the imbalance between coal requirements and productive capacity of collieries.

Controlling coal costs is a top priority and needs the cooperation of the coal mines supplying Escom. During 1984, the cost/ton of coal burnt increased by only 0,9%, compared with 1983, and in 1985 the increase was 5,6%. During the same two-year period the production price index rose by 28,6%.

The quantity of coal burnt increased by 1,4%, from 58,7 million tons in 1984 to 59,5 million tons in 1985.

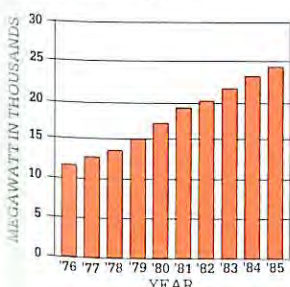
Construction of the Khutala colliery, to supply Kendal power station, progressed well. Work at the colliery associated with Majuba power station was deferred, following the deferment of the power station project.

Water

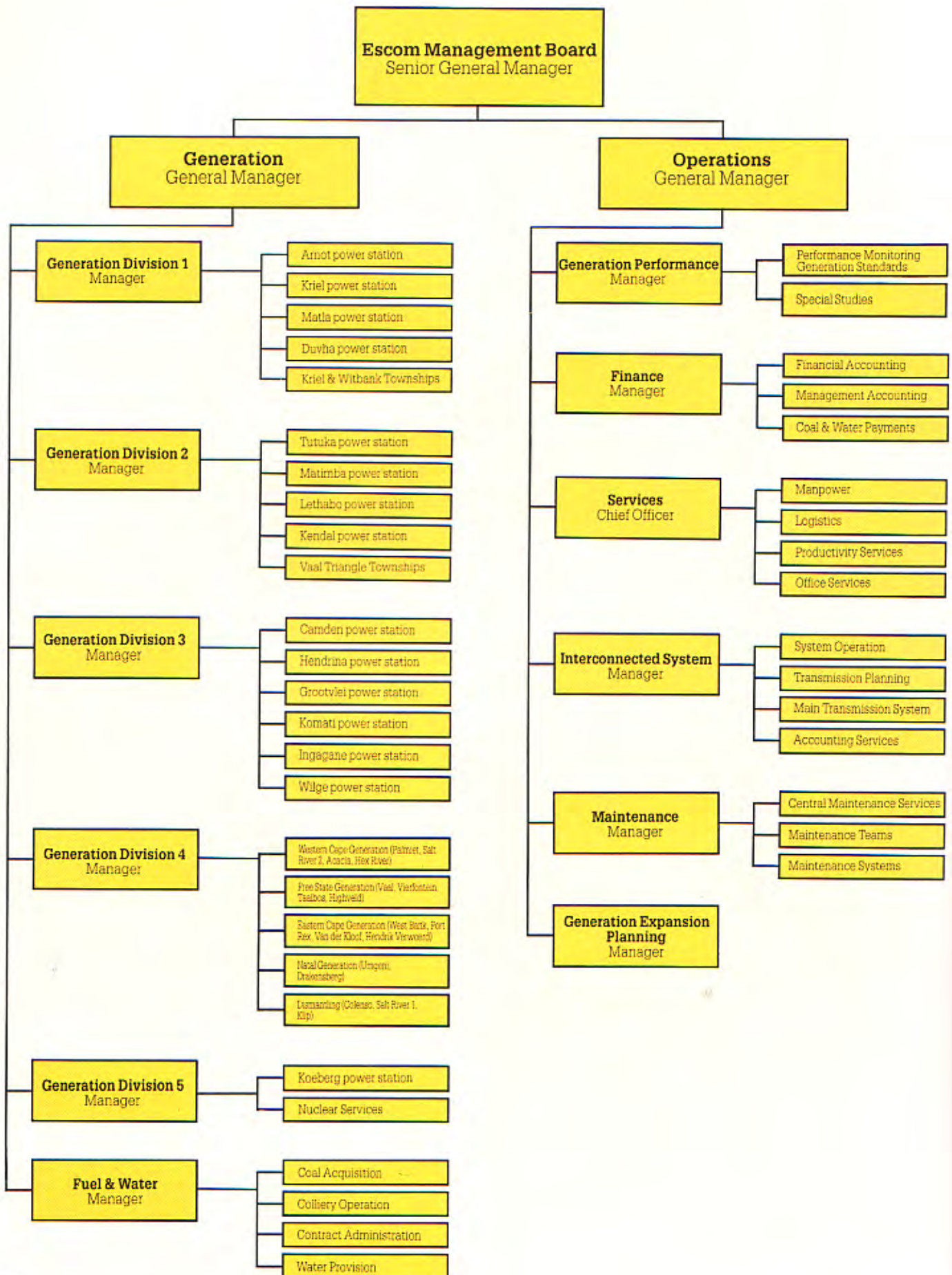
The level of the Vaal Dam remained a cause for concern throughout 1985. It was maintained at only 15% of capacity to limit evaporation losses and at times large volumes of water had to be released from Sterkfontein Dam to support the lower Vaal system. The upper Vaal system reservoirs have enough water to meet power station requirements in the area until the 1987 rainy season.



Sent-out capacity of Escom power stations



Generation structure



Financial statements

for the year ended 31 December 1985

The annual financial statements set out on pages 38 to 55 have been approved by the Electricity Council and were signed on its behalf on 21 March 1986.

J.B. Maree, *Chairman of the Electricity Council*
I.C. McRae, *Senior General Manager of Escom*
B.M. Murray, *Accounting Manager of Escom*

Report of the Auditors

The Members of the Electricity Council

We have examined the financial statements of Escom set out on pages 38 to 55. 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 Escom at 31 December 1985 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 Escom and the Redemption Fund has been properly maintained, and
- (ii) a sum fixed by Escom has been set aside to the Reserve Fund.

Deloitte Haskins & Sells **Aiken & Carter**

Chartered Accountants (S.A.), Auditors

Johannesburg
21 March 1986

Balance Sheet as at 31 December 1985

<i>(All figures in Rand thousands)</i>	Notes	1985	1984
Fixed assets	2	23 969 263	19 261 310
Stores, materials and fuel	3	867 551	713 507
Other non-current assets	4	5 855 748	3 836 582
Current assets		559 024	602 166
Accounts receivable and payments in advance		487 337	397 766
Bank balances and cash		11 487	—
Moneys at call		60 200	204 400
		31 251 586	24 413 565
Financed by			
Loans and extended credit	5	19 032 996	14 813 518
Local registered stock, bond issues and direct placings (Schedule 2)		25 005 597	19 154 933
Less: Escom Stock held internally	6	10 269 940	7 445 023
		14 735 657	11 709 910
Import financing facilities and extended credit		1 906 131	1 834 857
Revolving credits and short-term advances		2 391 208	1 268 751
Current liabilities		1 441 149	1 147 167
Creditors and accrued liabilities		1 036 171	789 691
Interest accrued		404 978	322 967
Bank overdrafts		—	34 509
Total net debt		20 474 145	15 960 685
Statutory funds	7	7 947 982	6 775 935
Capital Development Fund (Schedule 7)		6 073 727	5 328 861
Reserve Fund (Schedule 8)		344 124	214 429
Redemption Fund (Schedule 9)		1 530 131	1 232 645
Reserves		2 829 459	1 676 945
Capital reserve	8	1 053 271	875 999
Provision for repayment of foreign loans		138 113	133 705
Other reserves	9	2 017 613	1 086 749
Accumulated deficit	10	(379 538)	(419 508)
		31 251 586	24 413 565

Income Statement for the year ended 31 December 1985

<i>(All figures in Rand thousands)</i>	Notes	1985	1984
Sales of electricity		4 624 672	3 831 713
Operating expenditure	11	2 143 520	1 909 097
Net operating income		2 481 152	1 922 616
Less: Loan charges		2 291 182	1 565 472
Interest and finance	11	1 922 053	1 283 742
Contributions – Redemption of local loans		323 096	237 018
– Redemption of foreign loans		46 033	44 712
Contribution to Reserve Fund		150 000	70 000
		39 970	287 144
Contribution to Capital Development Fund		—	450 000
Net surplus/(deficit) for the year as shown in the Electricity Supply Account	10	39 970	(162 856)
Accumulated deficit at beginning of year		(419 508)	(256 652)
Accumulated deficit at end of year	10	(379 538)	(419 508)

Statement of Source and Application of Funds

for the year ended 31 December 1985

(All figures in Rand thousands)

	1985	1984
Source of Funds		
Funds generated internally	1 497 338	1 388 784
Net surplus/(deficit)	39 970	(162 856)
Add Items not affecting the flow of funds		
Forward cover and exchange adjustments	(142 431)	(94 601)
Depreciation	55 085	46 449
Amortisation of expenditure to secure future fuel supplies	14 708	14 308
Loan amortisation charges	602 725	439 743
Repayment of foreign loans	46 033	44 712
Redemption of local loans	323 096	237 018
Interest credited to the Redemption Fund	233 596	158 013
Amounts credited to Capital Development and Reserve Funds	927 281	1 145 741
Contributions	150 000	520 000
Interest	777 281	625 741
Net proceeds of external finance	3 677 259	3 003 420
Loans and extended credit	4 228 045	2 414 328
Repayments	(2 105 314)	(508 251)
Sale of Escom Stock	6 590 635	2 439 879
Purchase of Escom Stock	(5 036 107)	(1 342 536)
Increase in net current liabilities	337 124	38 718
Other	14 295	18 731
Total Source of Funds	5 526 016	4 449 653
Application of Funds		
Fixed assets, net	4 756 911	3 719 159
Increase in stores and materials	72 609	41 695
Expenditure to secure future fuel supplies	438 095	258 500
Increase in housing loans to employees	55 431	33 087
Deferred expenditure	150 250	275 410
Reserve Fund expenditure	52 720	121 802
Total Application of Funds	5 526 016	4 449 653

Notes to the financial statements

for the year ended 31 December 1985

(Figures in Rand thousands)

1. Accounting policies

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 standards which approximate 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 and premiums on long-term forward cover are written off to the Electricity Supply Account on a straight line basis over the remaining periods of the loans.

All other translation gains and losses are accounted for as interest in terms of Note 1.7.

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 to secure future fuel supplies is amortised 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 is accounted for as interest in terms of Note 1.7.

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 capitalisation

Interest and finance charges, including exchange gains and losses, on funds borrowed to finance fixed assets under construction and expenditure to secure future fuel supplies, are capitalised.

These policies are consistent with those of the previous year.

Notes (continued)

	1985	1984
2. Fixed assets		
Assets in commission, at cost		
Land and rights	232 799	177 262
Buildings and facilities	1 596 692	1 208 794
Production plant	13 667 462	10 672 185
Total in commission	15 496 953	12 058 241
Works under construction	8 277 729	7 028 217
Equipment, vehicles and furniture, at cost	410 368	347 740
Less Accumulated depreciation	215 787	172 888
	<u>23 969 263</u>	<u>19 261 310</u>
3. Stores, materials and fuel		
Maintenance and consumable stores	239 577	196 923
Construction material	274 024	243 091
Fuel	353 950	273 493
	<u>867 551</u>	<u>713 507</u>
4. Other non current assets		
Unamortised loan discount	2 883 100	1 405 668
Expenditure to secure future fuel supplies	1 334 526	992 574
Unrealised exchange losses and premiums on long term forward cover	331 635	236 922
Difference between book value and proceeds of Escom stock sold	541 570	629 680
Housing loans to employees secured by first mortgage	236 001	180 570
Other deferred charges	528 916	391 165
	<u>5 855 748</u>	<u>3 836 582</u>
5. Loans and extended credit		
5.1 The current portion (excluding revolving credits) included in loans and extended credit amounts to approximately	880 000	808 000
5.2 Borrowings in the following currencies are not covered by forward exchange contracts (foreign currencies thousands):		
European units of account	1 380	2 710
Deutsche Marks	4 838	4 240
US Dollars	267 529	290 149
Swiss Francs	1 762	4 756
French Francs	33	55

5.3 Options have been given to certain investors to hold their investment of R607 million in either capital project bills or Escom local registered stock numbers 154, 160 and 164. These options are available until 1992, at which time the investors are obliged to convert remaining capital project bills into local registered stock.

5.4 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 Escom.

Notes (continued)

6. Escom Stock held for	Schedule	1985		1984	
		Book Value	Nominal Value	Book Value	Nominal Value
Capital Development Fund	3	6 170 498	7 477 768	4 958 275	5 695 395
Reserve Fund	4	383 366	443 588	221 454	277 969
Redemption Fund	5	1 685 388	2 329 801	1 179 522	1 468 018
Repayment of foreign loans	6	17 547	18 783	3 234	3 641
		<u>8 256 799</u>	<u>10 269 940</u>	<u>6 362 485</u>	<u>7 445 023</u>
Difference between nominal and book value			2 013 141		1 082 538

7. Statutory funds

7.1 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.

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

	1985	1984
Redemption Fund (Schedule 9)	1 736 999	1 330 190
Amortised loan discount	206 868	97 545
	<u>1 530 131</u>	<u>1 232 645</u>

8. Capital reserve

Loans repaid	1 216 120	1 016 927
Production plant financed from Reserve Fund	10 360	10 360
	<u>1 226 480</u>	<u>1 027 287</u>
Less Cost of commissioned assets scrapped or sold	173 209	151 288
	<u>1 053 271</u>	<u>875 999</u>

9. Other reserves

Difference between nominal and book values of Escom Stock held internally	2 013 141	1 082 538
Deferred proceeds of reticulation systems sold	4 472	4 211
	<u>2 017 613</u>	<u>1 086 749</u>

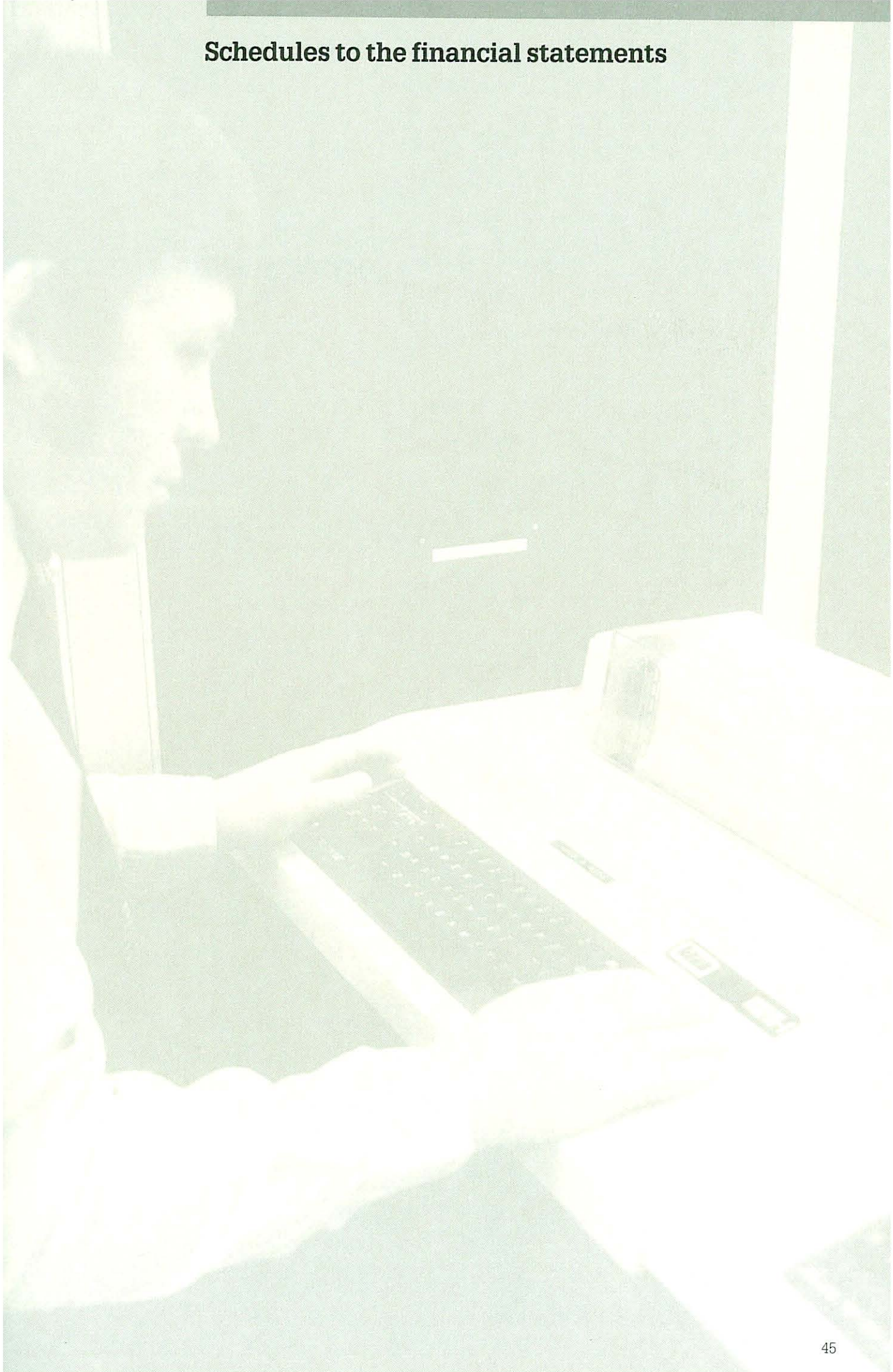
10. Accumulated surplus or deficit

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

Notes (continued)

	1985	1984
11. Supplementary information		
Total interest and finance costs	3 157 275	2 340 050
Amounts capitalised	1 235 222	1 056 308
	1 922 053	1 283 742
Leasing charges on equipment	16 889	15 843
Depreciation	55 085	46 449
Loss on sale of nuclear fuel	—	56 837
Interest and other costs, related to damage and delays in commissioning of plant, written off	86 416	68 012
12. Commitments		
12.1 Capital expenditure contracted for, excluding contract price adjustments and general sales tax, amounting to approximately	9 122 000	9 502 000
This expenditure will be financed from external borrowings and from cash generated internally and is expected to be incurred, as follows:		
1986 2 136 000		
1987 1 833 000		
1988 1 275 000		
1989 1 106 000		
1990 902 000		
thereafter <u>1 870 000</u>		
12.2 Payment in respect of housing loans granted to employees of approximately	11 000	11 000
13. Contingent liabilities		
Escom 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 1985

Schedule 1 (All figures in Rand thousands)

Total 1984	1985										1984							
	Total	Corporate Services	Central Generating	Distribution Undertakings						Corporate Services	Central Generating	Distribution Undertakings						
				Total	Northern & Western Cape	Eastern Cape	Natal	Eastern Transvaal	Rand and O.F.S.			Total	Northern & Western Cape	Eastern Cape	Natal	Eastern Transvaal	Rand and O.F.S.	
3 831 713	Electricity sold	4 624 672	—	—	4 624 672	561 726	162 268	748 318	753 508	2 398 852	—	—	3 831 713	475 551	141 518	617 055	621 550	1 976 039
1 298 353	Industrial	1 574 395	—	—	1 574 395	162 870	22 229	276 780	491 669	620 847	—	—	1 298 353	134 539	17 925	226 026	406 716	513 147
1 277 135	Bulk	1 544 578	—	—	1 544 578	219 724	126 267	370 353	85 001	743 233	—	—	1 277 135	184 701	114 792	302 261	66 184	609 197
964 271	Mining	1 168 866	—	—	1 168 866	72 322	—	15 778	143 158	937 608	—	—	964 271	62 479	—	13 095	118 757	769 940
215 760	Traction	245 474	—	—	245 474	51 590	10 963	72 616	32 103	79 202	—	—	215 760	48 596	4 813	64 896	28 398	69 057
76 194	Domestic and lighting	90 359	—	—	90 359	55 220	2 809	12 791	1 577	17 962	—	—	76 194	45 236	3 988	10 777	1 495	14 698
1 909 097	Operating expenditure	2 143 520	33 807	1 738 065	371 648	84 345	26 052	59 926	56 964	144 361	39 850	1 558 603	310 644	70 790	22 031	54 445	49 344	114 034
1 059 581	Operations	1 073 175	1 757	1 064 014	7 404	1 077	309	999	1 041	3 978	1 368	1 052 551	5 662	818	238	687	800	3 119
306 746	Maintenance	387 817	627	290 281	96 909	16 463	5 790	15 603	16 808	42 245	1 021	229 811	75 914	13 452	4 026	13 063	15 322	30 031
4 201	Electricity purchased	4 240	—	4 240	—	—	—	—	—	—	—	4 201	—	—	—	—	—	—
538 569	Administration & general expenses	678 288	31 423	379 530	257 335	66 805	19 953	43 324	39 115	98 138	37 461	272 040	229 068	56 520	17 767	40 675	33 222	80 884
1 565 472	Loan charges	2 291 182	30 714	1 646 060	614 408	121 272	28 596	96 693	69 375	298 472	10 776	1 155 320	399 376	86 174	20 684	57 049	58 263	177 206
1 283 742	Interest and finance charges	1 922 053	29 304	1 311 960	580 769	114 736	26 630	91 668	63 691	284 064	9 245	912 225	362 272	78 375	18 641	51 648	51 841	161 767
237 018	Redemption of local loans	323 096	1 410	288 067	33 619	6 536	1 966	5 025	5 684	14 408	1 531	198 383	37 104	7 799	2 043	5 401	6 422	15 439
44 712	Repayment of foreign loans	46 033	—	46 033	—	—	—	—	—	—	—	44 712	—	—	—	—	—	—
70 000	Contribution to Reserve Fund	150 000	—	150 000	—	—	—	—	—	—	—	70 000	—	—	—	—	—	—
—	Distribution of costs	—	(64 521)	(3 534 125)	3 598 646	377 082	99 714	618 352	559 695	1 943 803	(50 626)	(2 783 923)	2 834 549	310 618	80 021	469 484	442 104	1 532 322
—	Corporate burden	—	(64 521)	50 546	13 975	2 794	961	1 981	2 142	6 097	(50 626)	37 732	12 894	2 764	780	1 837	2 010	5 503
—	Interconnectors	—	—	2 600	(2 600)	—	(1 165)	—	(36)	(1 399)	—	3 199	(3 199)	—	(1 717)	—	(135)	(1 347)
—	Use of circuits	—	—	—	—	36	—	189	(276)	51	—	—	—	(11)	—	189	(276)	98
—	Transmission costs	—	—	(28 675)	28 675	16 565	2 620	8 999	59	432	—	(23 910)	23 910	15 058	1 736	6 761	54	301
—	Pooled generation	—	—	(3 558 596)	3 558 596	357 687	97 298	607 183	557 806	1 938 622	—	(2 800 944)	2 800 944	292 807	79 222	460 697	440 451	1 527 767
3 544 569	Total charges against revenue	4 584 702	—	—	4 584 702	582 699	154 362	774 971	686 034	2 386 636	—	—	3 544 569	467 582	122 736	580 978	549 711	1 823 562
287 144	Operating surplus/(deficit) for year	39 970	—	—	39 970	(20 973)	7 906	(26 653)	67 474	12 216	—	—	287 144	7 969	18 782	36 077	71 839	152 477
450 000	Amount set aside to Capital Development Fund	—	—	—	—	—	—	—	—	—	—	—	450 000	44 668	12 345	73 586	75 383	244 018
(162 856)	Surplus/(deficit) for year	39 970	—	—	39 970	(20 973)	7 906	(26 653)	67 474	12 216	—	—	(162 856)	(36 699)	6 437	(37 509)	(3 544)	(91 541)
(256 652)	Accumulated surplus/(deficit) at beginning of year	(419 508)	—	—	(419 508)	(92 276)	7 988	(69 369)	(16 123)	(249 728)	—	—	(256 652)	(55 577)	1 551	(31 860)	(12 579)	(158 187)
(419 508)	Accumulated surplus/(deficit) at end of year	(379 538)	—	—	(379 538)	(113 249)	15 894	(96 022)	51 351	(237 512)	—	—	(419 508)	(92 276)	7 968	(69 369)	(16 123)	(249 728)

Borrowings as at 31 December 1985

Schedule 2 (All figures in Rand thousands)

Loan	Amount	%	Repayment date/s	1985	1984
Internal registered stock					
43	16 000	5,375	1979/85	—	16 000
44	16 000	5,375	1980/85	—	16 000
45	17 000	5,5	1980/86	17 000	17 000
46	18 000	5,875	1981/86	18 000	18 000
47	18 000	5,75	1981/86	18 000	18 000
49	18 000	5,125	1982/87	18 000	18 000
50	22 000	5,25	1982/87	22 000	22 000
51	23 000	5	1983/88	23 000	23 000
55	32 000	5,875	1983/85	—	32 000
56	33 000	6,5	1983/85	—	33 000
58	30 000	6,5	1983/91	30 000	30 000
60	35 000	6,75	1991	35 000	35 000
61	35 000	6,875	1992	35 000	35 000
64	12 000	6,5	1992	12 000	12 000
65	37 000	6,875	1992	37 000	37 000
70	10 000	6,5	1993	10 000	10 000
71	70 000	6,875	1990	70 000	70 000
76	29 000	6,5	1993	29 000	29 000
76	48 000	6,875	1993	48 000	48 000
78	20 000	6,5	1994	20 000	20 000
79	30 000	6,875	1994	30 000	30 000
81	10 000	6,5	1994	10 000	10 000
82	25 000	6,875	1994	25 000	25 000
83	18 000	7,5	1995	18 000	18 000
84	3 000	7	1995	3 000	3 000
85	35 000	6,75	1995	35 000	35 000
86	10 000	6,5	1995	10 000	10 000
87	45 000	9,25	1995	45 000	45 000
88	10 000	6,75	1995	10 000	10 000
89	20 000	9,25	1995	20 000	20 000
90	30 000	9,25	1995	30 000	30 000
91	10 000	6,75	1995	10 000	10 000
92	20 000	9,25	1997	20 000	20 000
93	22 000	9,125	1997	22 000	22 000
94	5 000	6,75	1997	5 000	5 000
95	25 000	8,5	1997	25 000	25 000
96	25 000	8,25	1997	25 000	25 000
97	7 000	8	1997	7 000	7 000
98	45 000	8,25	1997	45 000	45 000
99	30 000	6,25	1998	30 000	30 000
100	20 000	6,875	1998	20 000	20 000
101	5 000	8	1998	5 000	5 000
103	24 000	6	1998	24 000	24 000
104	6 000	7,625	1998	6 000	6 000
106	45 000	8	1998	45 000	45 000
107	27 000	9	1999	27 000	27 000
108	3 000	6,5	1999	3 000	3 000
110	30 000	9,5	1999	30 000	30 000
111	11 000	10,75	2000	6 527	6 527
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
118	55 000	11	2000	55 000	55 000
119	10 000	10,75	1980/98	6 205	6 614
120	4 000	11	1986	4 000	4 000
121	40 000	11,4	2001	40 000	40 000
122	6 000	11,1	1986/96	3 299	3 299
123	40 000	12,75	1995	40 000	40 000
124	10 000	12,65	1986	10 000	10 000
126	40 000	12,5	2001	40 000	40 000
127	150 000	12,6	1999	150 000	150 000
128	20 000	12,45	1987	20 000	20 000
130	50 000	11,5	1989	50 000	50 000
131	250 000	11,15	2002	250 000	250 000
132	250 000	11,75	2002	250 000	250 000
133	60 000	10,9	1988	60 000	60 000
134	170 000	10,75	2003	170 000	170 000
135	270 000	11,3	2003	270 000	270 000
136	7 800	7,25	1985/7	3 850	7 800
Carried forward				2 583 881	2 701 240

Loan	Amount	%	Repayment date/s	1985	1984
Brought forward					
137	60 000	9,7	1986	60 000	60 000
138	120 000	9,7	2003	120 000	120 000
139	340 000	10,55	2003	340 000	340 000
140	120 000	8	1986	120 000	120 000
141	130 000	8,55	2004	130 000	130 000
142	350 000	9,15	2004	350 000	350 000
143	30 000	7,55	1985	—	30 000
144	150 000	9,55	2005	150 000	150 000
145	270 000	9,55	2005	270 000	270 000
146	70 000	8,1	1987	70 000	70 000
147	100 000	9,06	1992	100 000	100 000
148	100 000	9,05	2005	100 000	100 000
149	230 000	9,55	2005	230 000	230 000
150	150 000	10,25	1980	150 000	150 000
151	275 000	10,95	2004	275 000	275 000
152	100 000	13,80	1993	100 000	100 000
153	400 000	12,96	2006	400 000	400 000
154a	250 000	10	2007	250 000	250 000
154b	250 000	10	2007	250 000	250 000
154c	595 000	10	2007	595 000	595 000
154d	505 000	10	2007	505 000	505 000
154e	400 000	10	2007	400 000	400 000
154f	700 000	13,2	2009	700 000	700 000
155b	900 000	13,2	2107	900 000	900 000
156	300 000	15,15	1987	300 000	300 000
157	650 000	11,25	2009	650 000	650 000
158a	250 000	9,25	1994	250 000	250 000
158b	410 000	9,25	1994	410 000	410 000
158c	45 000	9,25	1994	45 000	45 000
158d	200 000	9,25	1994	200 000	200 000
159a	800 000	12	2009	800 000	800 000
159b	800 000	12	2009	800 000	800 000
159c	1 300 000	12	2009	1 300 000	1 300 000
160a	995 000	11	2003	995 000	995 000
160b	1 800 000	11	2003	1 800 000	—
161	500 000	14	1989	500 000	500 000
162	600 000	14,25	1991	600 000	—
163	2 100 000	10,5	2004	2 100 000	—
164	700 000	14	1992	700 000	—
				20 713 881	16 876 240
Less payable by stockholders				—	107 976
(1) 169c Not later than 17 January 1985				—	64 442
(2) 161 Not later than 17 January 1985				—	23 536
Carried forward				20 713 881	16 468 264

Borrowings (continued)

Loan	Foreign currency	Rand value of original loan	%	Repayment date/s	1985	1984	
Brought forward					20 713 881	15 468 262	
Foreign Bond Issues							
005	DEM	100 000 000	(19 583)	8.5	1976/85	—	1 958
007	DEM	100 000 000	(19 556)	8	1977/86	1 956	3 911
009	UA	20 000 000	(14 210)	8.25	1972/86	7 033	8 469
013	USD	20 000 000	(14 304)	8.5	1974/86	1 430	2 503
017	DEM	100 000 000	(25 132)	6.25	1977/87	5 026	7 540
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	7 646	10 144
027	USD	15 000 000	(10 080)	9.25	1975/89	4 032	5 040
123	DEM	50 000 000	(24 102)	9	1984/87	18 497	44 224
129	DEM	100 000 000	(37 682)	9.25	1987	103 513	67 712
148	DEM	100 000 000	(47 330)	9.5	1990	46 461	37 920
156	DEM	150 000 000	(65 416)	8.5	1990	56 508	84 737
159	USD	75 000 000	(85 324)	11.5	1988	83 203	82 363
167	USD	75 000 000	(149 313)	12.25	1991	162 514	—
172	USD	57 692 307	(71 785)	9.05	1992	74 760	73 231
175	USD	32 178 138	(55 035)	9.455	1992	56 069	53 657
180	USD	100 000 000	(207 641)	11.5	1991	207 641	—
181	GBP	40 000 000	(143 282)	12.25	1990	143 282	—
182	DEM	200 000 000	(138 330)	8.25	1993	138 330	—
185	ZAR	50 000 000	(49 978)	16	1990	50 000	—
186	ECU	76 161 000	(113 999)	10.75	1990	131 947	—
Carried forward					22 021 013	15 958 955	
Direct Placings							
008	DEM	10 000 000	(2 054)	8	1977/86	205	411
010	DEM	20 000 000	(3 644)	8.5	1977/86	364	728
011	DEM	20 000 000	(4 016)	8.5	1977/86	402	803
097	DEM	60 000 000	(27 696)	7	1985	—	31 473
099	DEM	23 000 000	(11 087)	7.5625	1984/85	—	7 764
111B	USD	5 000 000	(4 648)	9.625	1983/86	5 041	5 017
119	USD	25 000 000	(16 716)	9.875	1984/85	5 549	11 270
120	USD	200 000 000	(188 045)	9.0625	1984/87	124 069	151 565
122	DEM	80 000 000	(34 312)	11	1985/87	18 747	23 569
125	USD	50 000 000	(34 648)	10.5625	1985	—	87 230
127	USD	150 000 000	(132 478)	9	1984/87	95 365	116 116
130	USD	35 000 000	(30 783)	9.1875	1984/87	25 970	31 663
131	USD	25 000 000	(21 779)	8.875	1986/87	22 383	22 906
132	USD	50 000 000	(33 463)	9.5625	1984/85	16 706	25 381
135	USD	30 000 000	(21 873)	9.25	1985/86	10 583	22 119
137	CHF	100 000 000	(48 092)	6.75	1985	—	48 092
138	USD	100 000 000	(69 232)	9.625	1987/88	72 202	73 855
139	DEM	100 000 000	(46 315)	6.125	1986/88	33 272	35 854
140	USD	100 000 000	(105 520)	9.1875	1986/88	106 506	107 295
141	USD	250 000 000	(263 951)	8.9375	1987/89	271 665	278 214
142	USD	120 000 000	(128 500)	9.3125	1987/89	130 534	131 504
143	USD	100 000 000	(103 050)	9.1875	1987/89	107 044	109 565
144	CHF	30 000 000	(17 259)	8.25	1985	—	25 399
145	DEM	26 185 583	(13 781)	8.5	1987/89	13 820	13 038
146	DEM	223 814 417	(99 835)	5.75	1987	86 007	85 217
147	DEM	250 000 000	(125 478)	5.5625	1987/89	121 528	118 272
149	DEM	30 000 000	(16 634)	9	1989/92	17 074	16 634
150	USD	40 000 000	(73 651)	9.75	1992	73 462	73 651
151	USD	200 000 000	(366 492)	9.1875	1991/93	370 186	366 492
152	CHF	60 000 000	(33 188)	7.625	1986	34 320	47 632
153A	USD	65 796 000	(76 179)	9.1	1989	170 235	131 382
153B	USD	34 204 000	(41 717)	9.1	1989	88 497	68 299
154	DEM	150 000 000	(108 038)	6	1990	108 981	—
155	CHF	50 000 000	(26 968)	6.5	1987	19 175	32 197
162	USD	100 000 000	(131 763)	10.75	1988	—	120 361
163	CHF	50 000 000	(26 945)	6.25	1988	26 871	26 044
164	USD	50 000 000	(68 027)	8.9375	1988/89	129 366	99 840
165	DEM	10 000 000	(6 036)	9.6875	1992/94	7 867	—
168	USD	50 000 000	(61 921)	8.8125	1987	129 366	99 840
169	USD	100 000 000	(160 671)	9.3125	1991	—	167 366
170	USD	41 059 331	(56 041)	8.4125	1989	53 637	52 272
171	USD	22 000 000	(29 932)	9.25	1986	56 921	43 930
174	DEM	68 500 000	(40 459)	6.125	1989	42 748	40 459
176	USD	40 168 708	(67 635)	9.525	1990	70 869	67 635
177	USD	40 000 000	(66 560)	8.8125	1989	103 493	79 872
179	USD	50 000 000	(97 752)	9.375	1991	103 178	97 752
183	JPY	7 581 000 000	(65 454)	8.35	1995	65 454	—
186	ECU	23 839 000	(35 592)	8.6875	1990	44 622	—
Total borrowings					25 005 597	19 154 933	

Investments of the Capital Development Fund

at 31 December 1985

Schedule 3 (All figures in Rand thousands)

Description	Loan No.	Nominal Value	Book Value
Escom internal registered stock			
%			
5,5 1980/86	45	822	815
5,875 1981/86	46	994	968
6,25 1981/86	47	2 582	2 483
6,125 1982/87	49	598	559
5,25 1982/87	50	3 886	3 436
5 1983/88	51	113	92
6,5 1989/91	58	812	589
6,75 1991	60	469	330
6,875 1992	61	1 838	1 290
6,5 1992	64	24	15
6,875 1992	65	308	207
6,5 1993	70	1 385	890
6,875 1993	71	218	143
6,5 1993	75	117	75
6,875 1993	76	7 310	5 034
6,5 1994	78	539	329
6,875 1994	79	3 092	2 034
6,5 1994	81	853	509
6,875 1994	82	541	374
7,5 1995	83	931	682
7 1995	84	5	3
8,75 1995	85	9 761	6 957
8,5 1995	86	887	693
9,25 1996	87	5 243	3 893
8,75 1996	88	688	503
9,25 1996	89	1 285	963
9,25 1996	90	10 710	7 330
8,75 1996	91	2 513	1 917
9,25 1997	92	3 188	2 447
9,125 1997	93	2 584	1 647
8,75 1997	94	279	234
8,5 1997	95	8 834	6 109
8,25 1997	96	5 032	3 567
8 1997	97	607	338
8,25 1997	98	3 608	2 329
8,25 1998	99	2 933	1 679
8,375 1998	100	3 371	2 614
8 1998	101	173	99
8 1998	103	2 432	1 591
7,625 1998	104	956	469
8 1998	106	301	185
9 1999	107	1 965	1 425
8,5 1999	108	604	493
9,5 1999	110	9 566	7 070
10,75 2000	111	3 149	3 030
10,75 2000	112	1 855	1 297
10,75 2000	113	3 038	2 350
10,75 2000	114	4 951	3 084
10,25 2000	115	595	412
10,75 2000	116	6 487	5 268
11 2000	118	2 582	2 051
10,75 1995	119	3 164	3 121
11 1986	120	158	158
Carried forward		130 916	96 180

Description	Loan No.	Nominal Value	Book Value
Brought forward		130 916	96 180
%			
11,4 2001	121	10 987	10 206
11,1 1986/96	122	79	78
12,75 1996	123	914	854
12,65 1986	124	507	498
12,5 2001	126	14 400	13 441
12,6 1999	127	18 004	15 382
12,45 1987	128	1 238	1 193
11,5 1989	130	2 931	2 626
11,15 2002	131	196 756	181 098
11,75 2002	132	141 845	134 399
10,9 1988	133	8 310	7 637
10,75 2003	134	101 430	86 740
11,3 2003	135	212 384	203 645
9,7 1986	137	12 972	12 659
9,7 2003	138	108 907	93 969
10,25 2003	139	233 703	193 640
8 1986	140	27 940	27 762
8,65 2004	141	98 851	80 579
9,15 2004	142	205 921	159 690
9,05 2005	144	61 258	47 662
9,55 2005	145	145 245	116 625
8,1 1987	146	5 611	5 261
9,05 1992	147	1 470	1 072
9,05 2005	148	39 513	35 564
9,55 2005	149	104 559	82 621
10,25 1990	150	9 707	7 895
10,95 2004	151	244 893	241 087
12,8 1993	152	3 359	2 872
12,95 2006	153	294 205	279 999
10 2007	154	135 551	83 035
13,2 2007	155	1 387 742	1 279 631
15,15 1987	156	49 186	48 924
14,25 2008	157	360 618	357 611
9,25 1994	158	52 404	34 024
12 2008	159	1 538 716	1 155 680
11 2009	160	1 497 642	1 051 481
14 1989	161	10 852	10 112
14,25 1991	162	6 160	7 006
10,5 2004	163	43	26
14 1992	164	39	34
Total (Note 6)		7 477 768	6 170 498
Interest accrued			191 114
Market value	4 798 815		6 361 612

Investments of the Reserve Fund at 31 December 1985

Schedule 4 (All figures in Rand thousands)

Description	Loan No.	Nominal Value	Book Value
Escom internal registered stock			
%			
5,875 1981/86	46	362	354
6,25 1981/86	47	112	108
6,125 1982/87	49	127	119
5,25 1982/87	50	488	443
6,5 1989/91	58	149	134
6,75 1991	60	13	12
6,5 1992	64	17	13
6,875 1992	65	512	494
6,5 1993	70	21	15
6,875 1993	71	561	532
6,5 1993	75	46	32
6,875 1993	76	99	85
6,875 1994	79	31	23
6,5 1994	81	42	32
6,875 1994	82	37	27
7,5 1995	83	515	510
7 1995	84	28	23
8,75 1995	85	960	938
8,75 1996	88	4	3
8,75 1996	91	9	7
9,125 1997	93	65	52
8,75 1997	94	35	34
8,5 1997	95	49	38
8,25 1997	96	33	24
8 1998	103	11	8
9,5 1999	110	14	11
10,25 2000	115	13	11
10,75 2000	116	16	14
11 2000	118	2	2
10,75 1995	119	2	2
11 1986	120	378	378
11,1 1996	122	174	174
11,5 1989	130	347	335
Carried forward		5 272	4 987

Description	Loan No.	Nominal Value	Book Value
Brought forward		5 272	4 987
%			
9,7 1986	137	634	630
8 1986	140	1 592	1 581
8,1 1987	146	3 056	2 749
10 2007	154	59 800	43 621
9,25 1994	158	1 521	1 030
14 1989	161	1 844	1 640
14,25 1991	162	66 288	60 957
14 1992	164	303 581	266 171
Total (Note 6)		443 588	383 366
Municipal stock			
%			
Cape Town:			
5,5 1981/86	208	850	845
5,5 1983/88	219	610	579
External investments		1 460	1 424
		445 048	384 790
Interest accrued			5 564
			390 354
Market value	365 758		

Investments of the Redemption Fund

at 31 December 1985

Schedule 5 (All figures in Rand thousands)

Description	Loan No.	Nominal Value	Book Value
Escrow internal registered stock			
%			
5,5 1980/86	45	10 999	10 891
5,875 1981/86	46	4 959	4 824
6,25 1981/86	47	7 888	7 494
6,125 1982/87	49	3 676	3 339
5,25 1982/87	50	1 709	1 459
5 1983/88	51	160	132
6,5 1989/91	58	2 113	1 526
6,75 1991	60	6 891	5 338
6,875 1992	61	13 626	9 944
6,5 1992	64	2 485	1 787
6,875 1992	65	4 080	2 614
6,5 1993	70	2 725	1 829
6,875 1993	71	3 716	2 614
6,5 1993	75	3 681	2 520
6,875 1993	76	885	488
6,5 1994	78	3 086	2 082
6,875 1994	79	9 130	6 174
6,5 1994	81	2 294	1 578
6,875 1994	82	4 414	2 751
7,5 1995	83	2 078	1 482
7 1995	84	1 567	1 071
8,75 1995	85	4 898	4 165
8,5 1995	86	7 183	5 705
9,25 1996	87	8 766	6 178
8,75 1996	88	5 316	4 028
9,25 1996	89	5 714	4 630
9,25 1996	90	3 189	2 536
8,75 1996	91	5 168	4 270
9,25 1997	92	940	703
9,125 1997	93	9 058	6 993
8,75 1997	94	3 275	2 285
8,5 1997	95	6 791	4 897
8,25 1997	96	3 906	2 832
8 1997	97	2 528	1 667
8,25 1997	98	6 115	4 461
8,25 1998	99	5 966	4 087
8,375 1998	100	5 246	3 952
8 1998	101	2 058	1 428
8 1998	103	135	87
7,625 1998	104	3 297	2 244
8 1998	106	3 640	2 268
9 1999	107	5 282	4 048
8,5 1999	108	1 383	1 124
9,5 1999	110	7 395	5 634
10,75 2000	111	2 821	2 684
10,75 2000	112	159	119
10,75 2000	113	9 914	8 282
10,75 2000	114	210	145
10,25 2000	115	1 309	1 027
10,75 2000	116	7 198	6 040
11 2000	118	16 684	13 648
10,75 1995	119	2 591	2 559
11 1986	120	1 424	1 416
Carried forward		241 721	188 079

Description	Loan No.	Nominal Value	Book Value
Brought forward		241 721	188 079
%			
11,4 2001	121	13 738	12 136
11,1 1996	122	1 188	1 183
12,75 1996	123	349	284
12,65 1986	124	2 793	2 768
12,5 2001	126	752	590
12,6 1999	127	24 827	22 138
12,45 1987	128	1 598	1 513
11,5 1989	130	7 915	7 128
11,15 2002	131	34 930	33 683
11,75 2002	132	21 373	18 076
10,9 1988	133	699	652
10,75 2003	134	36 034	27 732
11,3 2003	135	32 635	25 777
9,7 1986	137	11 949	11 581
9,7 2003	138	32 929	23 949
10,25 2003	139	43 433	29 857
8 1986	140	40 872	40 476
8,65 2004	141	502	273
9,15 2004	142	54 326	33 281
9,05 2005	144	24 697	16 638
9,55 2005	145	48 829	30 796
8,1 1987	146	17 282	15 873
9,05 1992	147	8 780	7 149
9,05 2005	148	10 086	7 339
9,55 2005	149	53 740	34 297
10,25 1990	150	7 518	5 950
10,95 2004	151	22 366	20 333
12,8 1993	152	4 794	4 012
12,95 2006	153	7 417	6 110
10 2007	154	185 164	114 426
15,15 1987	156	7 155	7 140
9,25 1994	158	4 535	2 868
12 2008	159	116 647	109 793
11 2009	160	1 000	635
14 1989	161	2 206	2 056
14,25 1991	162	10 418	9 685
10,5 2004	163	848 127	506 950
14 1992	164	344 477	302 182
Total (Note 6)		2 329 801	1 685 388
Interest accrued			36 852
			1 722 240
Market value	1 496 312		

Investments in Escom foreign bond issues

as at 31 December 1985

Schedule 6 (All figures in Rand thousands)

Description	%		Loan	Foreign Currency	Nominal value	Book value
German	8	1971/86	FF 007	DEM 890 000	174	153
German	6,25	1972/87	FF 017	DEM 2 003 000	503	438
German	7	1973/88	FF 023	DEM 2 507 000	626	537
Euro-Dollar	9,25	1974/89	FF 027	USD 450 000	303	1 083
German	9,25	1980/87	FF 129	DEM 2 750 000	2 845	1 716
German	8,5	1983/90	FF 156	DEM 625 000	235	511
German	8,25	1984/92	FF 175	DEM 647 000	363	529
Sterling	12,25	1985/90	FF 181	GBP 3 830 000	13 734	12 580
Total (Note 6)					18 783	17 547
Accrued interest						731

Capital Development Fund account

for the year ended 31 December 1985

Schedule 7 (All figures in Rand thousands)

	1985	1984
Amounts contributed	—	450 000
Interest earned	744 866	599 187
Balance at beginning of year	5 328 861	4 279 674
Balance at end of year	6 073 727	5 328 861

Reserve Fund account for the year ended 31 December 1985

Schedule 8 *(All figures in Rand thousands)*

	1985	1984
Amounts contributed	150 000	70 000
Interest earned	32 415	26 554
	182 415	96 554
Expenditure	52 720	121 802
Northern and Western Cape Undertaking	1 171	4 196
Eastern Cape Undertaking	146	124
Natal Undertaking	(55)	1 104
Eastern Transvaal Undertaking	606	1 704
Rand and Orange Free State Undertaking	2 763	2 575
Central Generating Undertaking	48 089	112 099
	129 695	(25 248)
Balance at beginning of year	214 429	239 677
Balance at end of year	344 124	214 429

Redemption Fund account for the year ended 31 December 1985

Schedule 9 (All figures in Rand thousands)

	1985	1984
Amounts contributed	321 686	235 487
Northern and Western Cape Undertaking	6 536	7 799
Eastern Cape Undertaking	1 966	2 043
Natal Undertaking	5 025	5 401
Eastern Transvaal Undertaking	5 684	6 422
Rand and O.F.S. Undertaking	14 408	15 439
Central Generating Undertaking	<u>288 067</u>	<u>198 383</u>
Other contributions	1 410	1 531
Proceeds of sales of fixed property	12 476	16 703
Interest earned	233 596	158 013
	<u>569 168</u>	<u>411 734</u>
Repayment of internal registered stock	162 359	82 000
%		
5,625 1979/84 (Loan 40)	—	22 000
5,375 1979/84 (Loan 42)	—	20 000
5,375 1979/85 (Loan 43)	16 000	—
5,375 1980/85 (Loan 44)	16 000	—
5 1982/84 (Loan 53)	—	20 000
5,5 1982/84 (Loan 54)	—	20 000
5,875 1983/85 (Loan 55)	32 000	—
6,5 1983/85 (Loan 56)	38 000	—
10,875 1985 (Loan 117)	5 000	—
10,75 1980/95 (Part Loan 119)	3 409	—
7,25 1985/87 (Part Loan 136)	1 950	—
7,55 1985 (Loan 143)	<u>50 000</u>	<u>—</u>
	406 809	329 734
Balance at beginning of year	1 330 190	1 000 456
Balance at end of year (Notes 7.2)	1 736 999	1 330 190

Tables

1. Power stations in service as at 31 December 1985

Name of station	Type	Location	No. and rating of generator sets MW	Total installed rating MW ¹	Total sent-out rating MW ¹
Acacia	Gas-turbine	Cape Town	3 × 57	171	171
Arnot	Coal-fired	Middelburg, Tvl	6 × 350	2 100	1 980
Camden	Coal-fired	Ermelo	8 × 200	1 600	1 520
Drakensberg	Pumped-storage	Bergville	4 × 250	1 000	1 000
Duvha	Coal-fired	Witbank	6 × 600	3 600	3 450
Grootvlei	Coal-fired	Balfour	6 × 200	1 200	1 130
Hendrik Verwoerd	Hydro-electric	Norvalspont	4 × 80	320	320
Hendrina	Coal-fired	Hendrina	10 × 200	2 000	1 900
Hex River	Coal-fired	Worcester	3 × 20; 2 × 30	120	111
Highveld	Coal-fired	Sasolburg	8 × 60	480	412
Ingagane	Coal-fired	Newcastle	5 × 100	500	465
Klip ²	Coal-fired	Vereeniging	4 × 33	132	81
Koeberg	Nuclear	Cape Town	2 × 965	1 930	1 840
Komati	Coal-fired	Middelburg	5 × 100; 4 × 125	1 000	906
Kriel	Coal-fired	Bethal	6 × 500	3 000	2 850
Matla	Coal-fired	Bethal	6 × 600	3 600	3 450
Port Rex	Gas-turbine	East London	3 × 57	171	171
Salt River	Coal-fired	Cape Town	4 × 30; 2 × 60	240	228
Taalbos	Coal-fired	Sasolburg	8 × 60	480	440
Tutuka	Coal-fired	Standerton	1 × 609	609	585
Umgeni	Coal-fired	Pinetown	4 × 30; 2 × 60	240	222
Vaal ³	Coal-fired	Viljoensdrif	9 × 33	318	270
Vanderkloof	Hydro-electric	Petrusville	2 × 110	220	220
Vierfontein	Coal-fired	Viljoenskroon	12 × 30	360	336
West Bank	Coal-fired	East London	3 × 15; 2 × 20	85	80
Wilge	Coal-fired	Witbank	2 × 30; 3 × 60	240	221
Total in service, 26 Eskom stations⁴				25 716	24 359
Sub-total, coal-fired (20 stations) ⁵				21 904	20 637
Sub-total, gas-turbine (2 stations) ⁶				342	342
Sub-total, hydro-electric (2 stations) ⁷				540	540
Sub-total, pumped-storage (1 station) ⁸				1 000	1 000
Sub-total, nuclear (1 station) ⁵				1 930	1 840
Total in service, 26 Eskom stations				25 716	24 359

¹Differences between generator rating and total station rating, and installed and sent-out rating reflect auxiliary power consumption and reduced capacity caused by age of the plant and/or low coal quality.

²Includes four 7 MW house sets. The power station was decommissioned in March 1986.

³Includes three 7 MW house sets.

⁴In addition to its own installed capacity, Eskom also has a firm contractual capacity of 1 355 MW from Cahora Bassa, which was not available during 1985. It also has agreements to purchase electricity from Swawek and some municipalities.

Colenso power station, with a sent-out rating of 70 MW, was decommissioned in September 1985.

⁵Base-load stations, except in the case of older, uneconomical plant, which are used only for peak demands or in emergencies.

⁶Used only for peaking or in emergencies.

⁷Use restricted to peaking and emergencies and availability of water in Hendrik Verwoerd and P.K. le Roux dams.

⁸Pumped-storage facilities are net users of electricity and are used for peaking. Water is pumped during off-peak periods to generate electricity during peak periods.

Tables (continued)

2. Power stations on order as at 31 December 1985

Name of station	Type	Location	No. and rating of generator sets MW	Total installed rating MW	Total sent-out rating MW	Year of completion	
						first set	last set
Kendal	Coal-fired	Kendal	6 × 686	4 116	3 780	1988	1993
Lethabo	Coal-fired	Vereeniging	6 × 618	3 708	3 558	1986	1990
Majuba	Coal-fired	Volkstrust	6 × 657	3 942	3 690	1991	1995
Matimba	Coal-fired	Ellisras	6 × 665	3 990	3 690	1986	1991
Palmiet	Pumped-storage	Grabouw	2 × 200	400	400	1987	1988
Tutuka	Coal-fired	Standerton	6 × 609	3 654	3 510	1985	1990
Power stations under construction¹				19 810	18 628		
Plant on order at 31 December 1984				19 810	18 628		
Less plant taken into commercial service during 1985 ²				1 574	1 505		
Plus plant placed on order in 1985				—	—		
Total, plant on order at 31 December 1985				18 236	17 123		

¹Dates on which sets on order will be taken into commercial service may change, depending on growth in electricity demand. See report of the General Manager, Engineering on page 21.

²During 1985, the following plant was taken into commercial service:

Koeberg, set 2:	965 MW	(installed rating)	920 MW	(sent-out rating)
Tutuka, set 1:	609 MW	(installed rating)	585 MW	(sent-out rating)
Total for 1985	1 574 MW	(installed rating)	1 505 MW	(sent-out rating)

3. Transmission and distribution equipment in service as at 31 December 1985

	Total 1984	Additions 1985	Total 1985
Overhead lines, in circuit km			
533 kV DC (monopolar)	1 030	—	1 030
400 kV	9 299	615	9 914
275 kV	6 304	30	6 334
220 kV	1 239	1	1 240
165 kV to 132 kV	13 603	640	14 243
88 kV to 33 kV	20 987	14	21 001
22 kV and below	95 835	11 449	107 284
Total	148 297	12 749	161 046
Underground cables, in circuit km			
165 kV to 132 kV	82	—2	80
88 kV to 33 kV	372	6	378
22 kV and below	7 570	350	7 920
Total	8 024	354	8 378
Transformers			
Capacity MVA	156 198	12 914	169 112
Number in service	89 545	7 753	97 298

Tables (continued)

4. Operating statistics

	1985	1984	1983	1982	1981
Plant performance					
Total power station capacity, installed rating, MW	25 716	25 514	22 949	21 749	20 049
Total power station capacity, assigned sent-out rating, MW	24 359	23 168	21 673	20 523	18 989
Peak demand on integrated Escom system, MW	17 852	17 296	15 639	15 532	14 674
Average station availability ¹	77,5	74,9	71,9	74,3	74,2
Station load factor, per cent ²	58,0	58,1	55,6	59,3	62,2
Integrated Escom system load factor, per cent	76,2	75,0	76,9	75,3	77,6
Coal burnt, thousands of tons	59 488,6	58 703,6	55 010,2	55 198,4	53 903,7
Coal burnt, kg/kWh sent out	0,522	0,533	0,546	0,551	0,563
Average heat rate of coal-fired station, MJ/kWh sent out	11,26	11,45	11,57	11,82	12,01
Average heat content of coal (as received), MJ/kg	21,52	21,38	21,11	21,39	21,25
Overall thermal efficiency, sent-out basis	32,0	31,4	31,1	30,5	30,0
Average coal cost, R/ton	13,25	12,55	12,44	11,75	9,71
Average coal cost, c/kWh sent out	0,691 6	0,669 2	0,679 3	0,647 1	0,547 3
Electricity output					
Total electricity sent out in South Africa, million kWh ³	125 962	120 835	112 366	109 536	106 135
Escom electricity sent out as percentage of South African total	94,7	94,3	93,8	93,6	93,9
Total electricity sent out on Escom system (Escom stations and purchased), million kWh ⁴	122 494	117 086	108 321	104 920	100 425
Total sent out from Escom stations, million kWh	121 987	116 581	103 295	102 769	97 824
Sub-total, from coal-fired stations, million kWh	113 941	110 094	100 738	100 217	95 675
Sub-total, from hydro-electric stations, million kWh	624	560	595	1 016	1 653
Sub-total, from pumped-storage station, million kWh	2 107	1 994	1 957	1 519	415
Sub-total, from diesel and gas-turbine stations, million kWh	0	8	5	17	81
Sub-total, nuclear power station, million kWh	5 315	3 925	—	—	—
Total purchased by Escom and sent out on Escom system, million kWh	507	505	5 026	2 151	2 601
Total consumed by Escom, million kWh ⁵	3 265	3 188	2 917	2 404	712
Total available for distribution, million kWh	119 229	113 898	105 404	102 516	99 713
Total sold, million kWh ⁶	112 305,9	106 904,1	98 251,1	96 135,9	93 844,0
Growth in kWh sales, per cent	5,1	8,8	2,2	2,4	7,2
Employees					
Total number at 31 December	66 000	64 560	62 420	58 850	52 080
Ratio number/million kWh sold	0,588	0,604	0,635	0,612	0,555
Assets					
In commission at 31 December, Rand thousands	15 496 953	12 058 241	9 218 946	7 689 399	6 323 048
Ratio Rand thousands/million kWh sold	137,99	112,79	93,83	79,98	67,38

¹Capacity hours available × 100/total capacity hours in year.

²kWh sent out × 100/(assigned sent-out rating × hours in year).

³Electricity sent out by Escom and municipalities which generate all or part of their electricity requirement.

⁴Includes Escom electricity sent out to neighbouring countries.

⁵In respect of pumped-storage facilities and synchronous condenser mode of operation. See Table 1, Note 8.

⁶Difference between electricity available for distribution and electricity sold is due to transmission losses.

	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971
18 349	15 974	14 434	13 556	12 444	11 242	10 692	10 142	9 551	9 013	
17 339	15 056	13 595	12 756	11 688	10 522	10 002	9 482	8 849	8 373	
13 668	12 855	11 490	10 735	10 085	9 185	8 552	7 350	6 630	6 115	
74,7	78,8	77,4	78,5	82,3	85,0	83,7	82,5			
57,8	60,9	60,7	61,9	66,8	68,6	66,3	62,6	59,6	61,3	
77,5	76,4	77,3	75,8	76,1	76,5	75,1	77,3	76,4	76,1	
46 755,0	43 264,9	39 589,5	37 505,6	37 257,4	34 231,7	30 891,4	27 907,9	24 952,8	23 416,2	
0,568	0,580	0,574	0,576	0,579	0,567	0,560	0,563	0,571	0,576	
12,16	12,33	12,44	12,55	12,66	12,59	12,56	12,65	13,07	13,42	
21,34	21,22	21,61	21,78	21,87	22,21	22,42	22,47	22,89	22,30	
29,6	29,2	28,9	28,7	28,4	28,6	28,7	28,5	27,5	26,8	
8,12	6,96	6,67	6,22	5,39	4,05	2,92	2,39	2,25	2,25	
0,461 4	0,404 5	0,382 4	0,358 2	0,312 2	0,229 5	0,163 7	0,134 8	0,128 5	0,129 7	
99 905	92 615	84 812	79 352	75 381	70 111	66 412	60 700	55 332	51 081	
93,0	92,8	91,7	89,8	89,4	87,8	84,7	82,0	80,4	79,8	
93 021	86 037	77 826	71 291	67 414	61 533	56 259	49 770	44 485	40 747	
83 362	75 643	70 902	67 050	66 188	61 498	56 251	49 759	44 475	40 739	
82 342	74 485	69 004	65 114	64 309	60 400	55 141	49 570	43 662	40 645	
992	1 144	1 887	1 924	1 853	1 098	1 110	189	813	94	
—	—	—	—	—	—	—	—	—	—	
28	14	11	12	26	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	
9 659	10 394	6 924	4 241	1 226	35	8	11	10	8	
71	58	52	27	—	—	—	—	—	—	
92 950	85 979	77 774	71 264	67 414	61 533	56 259	49 770	44 485	40 747	
87 539,3	80 582,8	72 780,4	67 125,4	63 355,7	57 869,2	52 585,1	46 578,4	41 648,9	38 040,0	
8,6	10,7	8,4	5,9	9,5	10,0	12,9	11,8	9,5	9,0	
47 490	43 690	41 040	39 112	36 915	33 999	29 891	28 559	26 937	25 050	
0,542	0,542	0,564	0,583	0,583	0,588	0,568	0,613	0,647	0,659	
604 038	4 255 502	3 564 600	2 851 103	2 311 725	2 008 917	1 847 484	1 699 279	1 526 697	1 390 095	
64,02	52,81	48,98	42,47	36,49	34,71	35,13	36,48	36,66	36,54	

