Administration

(at 11 March 1988)

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Electricity Council

Dr 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
Prof. H. C. Viljoen
R. C. Webb
Prof. J. L. Weyers

Management board

I. C. McRae, Chief Executive and Chairman of the Management Board
J. L. Rothman, Senior General Manager
H. Edeling, General Manager (Commercial and Estates)
J. S. Els, General Manager (Strategic Planning)
R. A. Forbes, General Manager (Distribution and Marketing)
A. J. Ham, General Manager (Engineering)
L. C. Harper, General Manager (Finance and Data Processing)
Dr G. F. Lindeque, General Manager (Human Resources)
P. J. T. Oosthuizen, General Manager (Services)
E. H. Ralph, General Manager (Strategic Technology)
P. M. Semark, General Manager (Generation)

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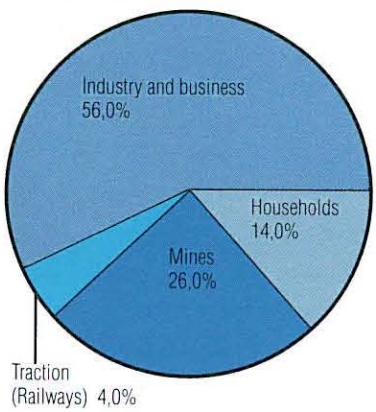
Copies of this report, as well as of Eskom's Statistical Yearbook, may be obtained from the Communication Manager at the address above. These publications are also available in Afrikaans.

Highlights of the year

	1987	1986*	1985	1984	1983	1982	Change 1986-87 %	Average yearly increase 1983-87 %
Financial								
Revenue (R million)	**7 046**	5 845	4 625	3 832	3 302	2 695	20,5	21,2
Charges against revenue (R million)	**6 344**	5 064	4 585	3 995	3 405	2 753	25,3	18,2
Net expenditure on fixed assets (R million)	**3 750**	3 770	4 757	3 719	2 757	2 741	0,5	6,5
Fixed assets at cost (R million)	**31 603**	28 140	23 969	19 261	15 591	12 858	12,3	19,7
Average price per kW.h sold (cents)	**5,75**	4,98	4,12	3,58	3,36	2,80	15,5	15,5
Average cost per kW.h sold (cents)	**5,18**	4,32	4,08	3,74	3,47	2,86	19,9	12,6
Average coal cost per ton (Rand)	**17,11**	14,87	13,25	12,55	12,44	11,75	15,1	7,8
Electricity sold by Eskom (mill. kW.h)	**122 524**	117 353	112 306	106 904	98 251	96 136	4,4	5,0
Operating statistics								
Total electricity sent out by Eskom (mill. kW.h)	**132 774**	126 766	122 494	117 086	108 321	104 920	4,7	4,8
Electricity available for distribution (mill. kW.h)	**129 545**	123 748	119 229	113 898	105 404	102 516	4,7	4,8
Coal burnt in Eskom power stations (Mt)	**65,8**	58,9	59,5	58,7	55,0	55,2	11,7	3,6
Water consumed in Eskom power stations (Ml)	**274 804**	262 372	275 716	269 868	255 654	265 933	4,7	0,7
Peak demand on integrated Eskom system (MW)	**20 001** (26/6/87)	18 278 (20/6/86)	17 852 (12/7/85)	17 296 (15/6/84)	15 639 (10/8/83)	15 532 (2/7/82)	9,4	5,2
Eskom plant in service at 31 December								
Installed capacity (MW)	**31 261**	28 086	25 716	24 514	22 949	21 749	11,3	7,5
Assigned sent-out rating (MW)	**29 618**	26 682	24 359	23 168	21 673	20 523	11,0	7,6
Transmission lines:								
765 kV (km)	**871**	434	–	–	–	–	100,6	0
533 kV (DC) (km)	**1 030**	1 030	1 030	1 030	1 030	1 030	0	0
400-220 kV (km)	**18 533**	17 981	17 488	16 842	16 017	15 251	5,3	4,5
165 kV and below (km)	**166 883**	151 056	142 528	130 425	121 343	111 535	10,5	8,4
Staff employed at 31 December	**56 830**	60 800	66 000	64 560	62 420	58 850	-6,5	-0,7

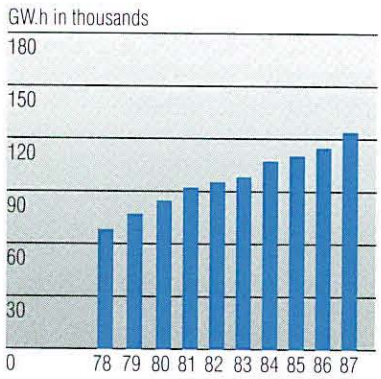
**The 1986 figures have been restated in terms of notes 8 and 9 to the financial statements, as prescribed by the Eskom Act of 1987. Figures prior to 1986 have not been restated and the effect on the average yearly increase (1983-1987) would be minimal.*

Electricity consumption in South Africa
(estimated usage in 1987)



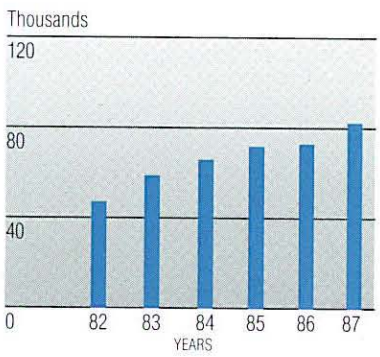
Greatest growth in electricity demand has in recent years come from the industry and business category and from households.

Growth in electricity sales
(from 1978 to 1987)



In 1987, electricity sales increased by 4,4% compared with the year before. The demand for electricity is expected to grow by between 4 and 5% in the foreseeable future.

Rural supplies
(Number of supply points at 31 December)



Rural supply points include supplies to agricultural and smallholdings which are primarily used for farming purposes. In 1987, some rural networks were sold. Despite this, the number of supply points rose by 12,2% to 82 244.

Profile of Eskom

Eskom supplies more than 96% of the electricity used in South Africa, which is as large as the combined areas of West Germany, the Netherlands, Belgium, France and Italy. Although this is only 4% of the surface area of Africa, Eskom's production represents about 60% of the electricity used on the entire African continent. It is the fifth largest electricity utility in the world.

Financial data

At the end of 1987, Eskom's fixed assets stood at R26 970 million and net expenditure on fixed assets during the year was R3 750 million. Revenue amounted to R7 046 million and operating expenditure, including depreciation, came to R4 207 million. Total interest and finance charges were R2 731 million before capitalisation.

Nearly R4 200 million will be spent on fixed assets in 1988. Revenue is expected to exceed R8 100 million, while operating expenditure is estimated at R4 900 million and total interest and finance charges at R3 300 million before capitalisation.

Capacity and transmission

Eskom's 28 power stations have an installed capacity of more than 31 000 MW. These include 21 coal-fired, two hydro-electric, one pumped-storage, one nuclear and three gas-turbine stations.

The distribution system has more than 187 000 km of high-voltage power lines.

Technical achievements

Eskom is a world leader in power station and transmission technology. It operates some of the world's largest coal-fired power stations, and recently commissioned the first sets of the world's largest direct dry-cooled power station. The first of the largest indirect dry-cooled sets will be taken into service in 1988.

It is also a recognised world authority on the use of extremely low-grade coal for power generation and leads research into the effects of lightning on power supply systems.

Eskom recently added a section of 765 kV line to its national transmission system, the first ultra-high-voltage line to operate successfully at the altitudes found in South Africa.

Electricity supply in South Africa

Electricity supply in South Africa is more than one hundred years old. In fact, this country was one of the first in the world to use electricity on a commercial basis.

Initially, various generating authorities were formed and some of the mines and municipalities generated their own power. The need for a central generating authority soon became evident and in 1923 a public utility, the Electricity Supply Commission – today known as Eskom – was established.

South Africa is sparsely populated by European standards. Of its 33,5 million people, nearly half live in urban areas.

The big distances between metropolitan areas and the relatively low population density present unique problems for electricity supply. As a result, Eskom operates one of the most sophisticated distribution networks in the world. Despite the distances, electricity can be distributed anywhere in South Africa and to neighbouring countries.

Growth in electricity demand

In the 30 years up to the early 1980s, the demand for electricity in South Africa grew by an average of about 7,5% per year. During the past few years, in line with conditions in many countries, economic development and, consequently, growth in electricity sales, have slowed down. It is now estimated that the increase in demand for electricity will average between 4 and 5% per year until the end of the century. This is still a very high growth rate compared with developed countries.

Manpower

Eskom employs some 57 000 people who are engaged in hundreds of job categories, from unskilled labourers to highly qualified engineers and financial specialists. They are employed all over South Africa and come from different cultural and educational backgrounds and speak many languages.

There is no restriction on advancement within the organisation. Eskom is an equal opportunities employer and merit is the determining factor in advancement and remuneration.

Eskom's main customers

About 63% of Eskom's electricity is sold directly to mines, heavy industry and the railway system. The rest is supplied to municipalities and neighbouring countries who resell the electricity to end-users in their areas.

It is estimated that industry and business use 56% of the electricity consumed in South Africa; the mines 26%; households 14%; and the railway system 4%.

Management and control

Eskom operates under two Acts of Parliament: the Electricity Act and the Eskom Act. It is not a state-owned corporation, but an independent, self-financing undertaking. It has no

shareholders and is funded entirely from loans and retained earnings. In February 1988 the State President announced that Eskom is to investigate the prospects of a listing on the Johannesburg Stock Exchange.

Two bodies plan and direct Eskom's activities: the Electricity Council and the Management Board.

The *Electricity Council* is a non-executive body appointed by the Minister of Economic Affairs and Technology. The Council, whose chairman is Dr John Maree, determines policy, planning and the objectives of Eskom, and generally controls its activities. It also appoints the Management Board.

The Council has 20 members consisting of representatives of major electricity customer groups and independent experts appointed for their specialist knowledge in, for example, finance, industrial relations and technology. The Chief Executive of Eskom and representatives of the Government Department of Mineral and Energy Affairs and Department of Finance are ex officio members of the Council.

The *Management Board* is responsible for the day-to-day running of Eskom within the parameters set by the Electricity Council and implements policy. Its chairman is the Chief Executive of Eskom, Ian McRae.

The organisation is divided into seven functional groups which are further divided into strategic business units. This ensures a high degree of decentralisation and closer contact with customers.

Eskom in Southern Africa

Eskom is aware that the key to stability and prosperity in South and Southern Africa is economic development. Electricity is a key factor spurring this development.

The basis of an electricity infrastructure linking the entire subcontinent exists and is, to some extent, already operational. Eskom exports electricity to SWA/Namibia, Botswana, Zimbabwe (a small quantity), Mozambique, Swaziland and Lesotho. It imports electricity from SWA/Namibia and, when available, from Cahora Bassa in Mozambique. Power from Cahora Bassa has not been forthcoming during the past few years because of unrest in that country and damage to transmission lines.

It is estimated that 13 million, or less than 40%, of South Africa's total population have electricity in their homes. Many more, of course, are exposed to the use of electricity in their workplace.

Eskom has taken the initiative to accelerate the provision of electricity to domestic users. In urban areas, the provision of electricity is mainly the responsibility of local authorities who buy electricity from Eskom and resell it to end-users in their areas. Rapid progress has been made during the past few years in the provision of electricity to non-electrified urban areas. Major cities like Soweto, with more than a million inhabitants, have been electrified.

Two of the major problems delaying the electrification process are the costs involved in bringing electricity to potential users and the manpower needed for the installation of facilities. Often local authorities have neither the money nor the manpower.

During 1987, Eskom's Chief Executive, Ian McRae, announced a scheme aimed at assisting local authorities to speed up the electrification of at least 60 townships, which will bring electricity to an additional 3 million people by 1992.

It is proposed to halve installation costs by simplifying the technical specifications which are too elaborate for the needs of the developing part of the country's population. Safety standards will not be compromised and the whole electrification process will be speeded up considerably.

The gap between the electricity haves and have-nots in Southern Africa is even greater than in South Africa. Out of a total population of nearly 80 million, it is doubtful whether 18 million, less than 25%, have access to electricity. This means that more than 60 million people in the subcontinent have to rely on alternative energy sources, such as coal, wood, paraffin and candles.

Eskom's broader vision for Southern Africa is that economic development will solve many of the problems facing the region. It believes that electricity has a key role to play in the transformation of the continent.

Eskom is already well on its way to making this vision a reality in South Africa. In a wider Southern African context it has also taken the initiative and is in consultation with most of the electricity utilities on the subcontinent to seek closer cooperation.

This is a non-political initiative born out of the fact that geographically the states of Southern Africa are energy-interdependent. Electricity supply is capital intensive and few countries have the funds or the expertise to upgrade their present, often inadequate, supply systems. Eskom has the expertise and the capacity to supply much of the electricity required for further economic development in these countries. Once they are able to expand their own electricity infrastructures, they can export electricity to South Africa by exploiting abundant and relatively inexpensive hydro resources, as at Cahora Bassa in Mozambique.

In this way cooperation between countries in Southern Africa on energy affairs, similar to that found in Europe, can be established.

Electricity council

(Members were all appointed in 1985, unless otherwise stated)

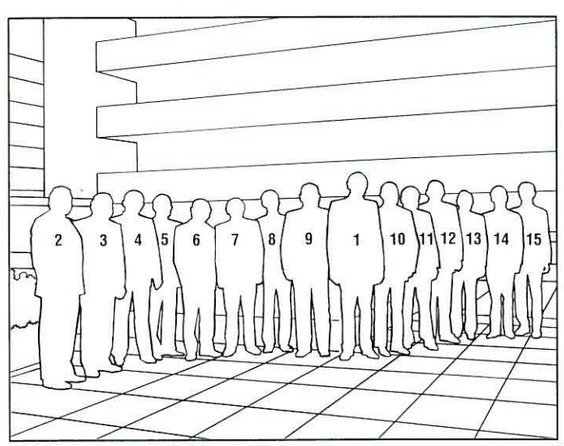
1. **Dr J. B. Maree**
   Chairman. Director of Companies.
2. **Dr R. A. P. Fockema**
   South African Federated Chamber of Industries. Executive Chairman, Gypsum Industries Limited.
3. **R.C. Webb**
   Independent Expert. Director of Companies.
4. **Prof. H. C. Viljoen**
   Independent Expert. Dean, Faculty of Engineering, University of Stellenbosch.
   (Appointed 1986)
5. **Dr D. C. Neethling**
   Chief Executive, National Energy Council.
6. **B. J. Groenewald**
   South African Transport Services. Deputy General Manager (Technical Services).
7. **F. J. Malan**
   South African Agricultural Union. Farmer.
8. **A. B. Dickman**
   Association of Chambers of Commerce of South Africa. Senior Economic Consultant, Anglo American Corporation of South Africa Limited.
9. **P. J. Botes**
   Association of Municipal Electricity Undertakings of South Africa.City Electrical and Mechanical Engineer, Roodepoort.
10. **I. C. McRae**
    Eskom. Senior General Manager and Chairman of Management Board.
11. **J. F. W. Haak**
    Independent Expert. Member of the President's Council. Attorney and Businessman.
12. **T. R. (Richard) Castle**
    Independent Expert. Stockbroker and Director of Companies.
13. **Prof. D. Konar**
    Independent Expert. Associate Professor of Accountancy, University of Durban-Westville.
14. **R. B. Savage**
    South African Federation of Steel and Engineering Industries. Chief Executive Officer, Electronics and Engineering Division, Barlow Rand Limited.
15. **G. Y. Nisbet**
    Chamber of Mines. Director of Companies. Director, Johannesburg Consolidated Investment Company Limited.

* **Dr J. W. L. de Villiers**
Independent Expert. Chief Executive Officer, Atomic Energy Corporation.

* **Prof. I. J. Lambrechts**
Afrikaanse Handelsinstituut. Professor of Business Economics, University of Stellenbosch.

* **Dr C. L. Stals**
Department of Finance. Director-General.

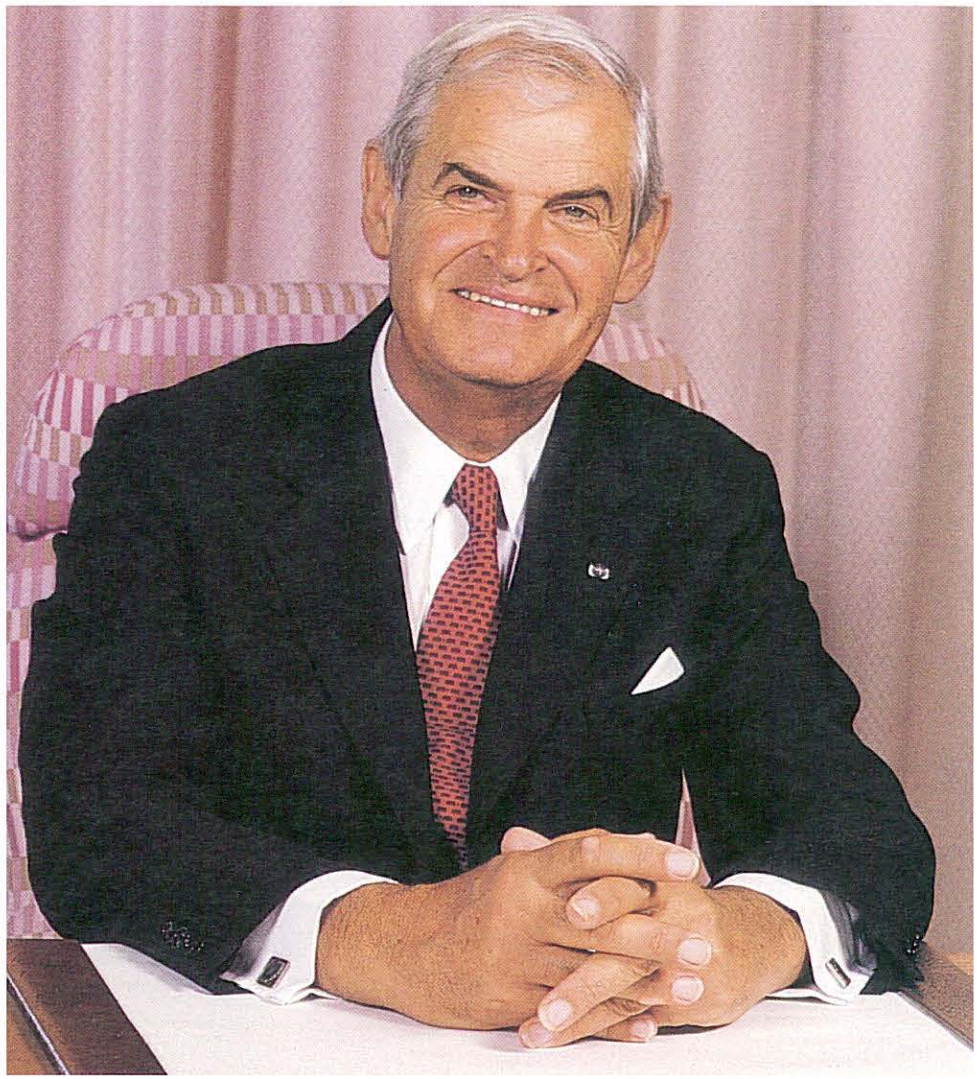
* **Prof. J. L. Weyers**
Coordinating Consumer Council. Dean, Faculty of Economic and Management Sciences, Unisa.
(Appointed 1986)



* Absent

Chairman's review

"Perhaps the clearest indication of the effect that change is having on the efficiency of Eskom is the declining trend of price increases in 1987 and 1988." – Dr John Maree, Chairman.



Eskom is a business in transition. Three years ago the organisation's top management committed itself to changing Eskom from a bureaucracy to a professionally managed business undertaking.

With its 57 000 people, assets exceeding R28 000 million and a generating capacity of over 31 000 MW, Eskom ranks among the largest electricity utilities in the world. We accepted that the task of changing the organisation would be formidable and that the process would have to take place in stages over a number of years.

The stages completed so far brought us considerably closer to our objective. We are, however, well aware that much still needs to be done.

During the past year, the first phase of the restructuring of Eskom, the largest ever undertaken by a major South African business, was successfully concluded. This was accompanied by initiatives in the areas of decentralisation, tighter financial control, better customer service, staff reduction, improved planning, open communication, equal opportunities and performance management.

The State President's announcement, in February 1988, that Eskom is to undertake the necessary investigations aimed at a listing on the Johannesburg Stock Exchange is encouraging us to further intensify our efforts to run our business more professionally.

Strategy for change

Much has already changed in the organisation. When Ian McRae and I assumed leadership of Eskom in mid-1985, we were faced with poor external perceptions of the business, internal problems, an increasingly complex industrial relations climate and a slowdown in sales growth. In addition, the effects of the debt standstill announced in the latter part of that year soon became evident. At the time, Eskom was South Africa's largest borrower on international capital

markets and the sudden disappearance of this source of funds forced us to completely revise our budgets.

Our strategy in dealing with these many and diverse issues was straightforward. If we were going to build an organisation that was not only technologically outstanding, but also professionally managed and effective, we needed to involve our people in establishing a mutually shared long-term vision and agreed short-term objectives.

To obtain the views of our people, we spoke to them often and at all levels. We listened to their views on the strengths and weaknesses of the organisation and their ideas on improvements. These were translated into priorities which, in turn, were widely and consistently communicated to the business.

At the outset we decided that merit would be the only criterion on which a person would be judged and that we should do everything possible to help all employees to achieve higher standards. Thus, barriers to the use of their skills and talents had to be removed.

We also decided that the highly centralised form of decision making had to be replaced with a decentralised organisation that was closer to its customers. Planning, budgeting and financial controls had to be improved and it was essential to encourage a free flow of communication and informal access to management.

Each year priorities aimed at reaching these goals have been clearly defined and communicated and each year we have seen an improvement in our performance. Indeed, the remarkable extent to which Eskom has transformed itself is a tribute to the resilience, enthusiasm and quality of its people.

Financial performance

Eskom's 1987 financial results are encouraging. The volume of electricity sold rose by a healthy 4,4%, producing R7 046 million in revenue and a net income of R702 million.

Following amendments to legislation as contained in the new Eskom Act of 1987, our financial statements are now presented in depreciation accounting terms, as opposed to the fund accounting convention previously used.

Operating and capital expenditure, on the reduced scale adopted two years ago, was well within budget. Because of strikes at some of the collieries supplying power stations and the higher cost of labour, increases in operating expenses were slightly more than the inflation rate.

Although lower interest rates and borrowings led to a considerable saving in interest and finance charges expected, the cost of finance also increased faster than the inflation rate, mainly because cheap financing raised years ago had to be replaced by more expensive loans.

Liability management techniques have successfully been used to reduce the effects of the higher cost of financing. Operations on the capital and foreign exchange markets led to significant savings. During the year we managed to extend the period of our borrowings against a short-term market trend. The ratio of own funds to loan funds continued to be sound.

For the next few years, because of its expansion programme, Eskom will have a negative cash flow. It is Eskom policy to fund up to one third of expansion from internally generated funds.

While there has been some progress with financial planning and budgeting, this remains an area where further improvement can result in the better performance of the business.

Price of electricity

Perhaps the clearest indication of the effect that change is having on the efficiency of Eskom is the declining trend of price increases in 1987 and 1988.

In 1986 the price of electricity increased twice: by 10% in January and a further 10% in July. Later that year Eskom committed itself to future price increases that would be kept at least 2% below the prevailing inflation rate.

In 1987 the price of electricity increased by 12% against an inflation rate of 16%. The price rise for 1988 is 10% while it appears that inflation this year will run at between 14 and 15%. We will obviously not be able to continue indefinitely with price increases so far below the inflation rate.

Human resources

From January 1986 to December 1987 staff numbers were reduced by nearly 14%. With a leaner organisation, better motivation and the need to work smarter, manpower productivity is increasing.

A key element of the culture change programme in Eskom is the performance management system. Supervisors and their subordinates are expected to agree to job objectives for the year and performance is reviewed three times a year. Annual pay increments are linked to performance. The system was successfully introduced at higher management levels during the year and is now being phased in for salaried staff throughout the organisation.

To further encourage a high-performance culture an award system was introduced in Eskom in 1987. Managers' Awards were presented in each business unit in recognition of excellent technical

and managerial contributions by individuals and teams. These were followed by the Chairman's Awards for the most outstanding contributions to Eskom as a whole.

The impact of this recognition system and the remarkable achievements which it highlighted created great enthusiasm and it has become an annual event.

In 1987 the principle of equal opportunities and equal pay for equal work was further entrenched in Eskom by the removal of wage and salary discrepancies affecting women and black employees. About 13 000 employees benefited from this parity exercise.

South Africa has a shortage of skills, so opportunities must be created to develop and utilise all our people to their full potential. This is an area on which we will continue to focus.

Positive relations were maintained with the 15 trade unions representing our employees.

Operational results

During the year 3 175 MW of generating plant at Matimba, Tutuka and Lethabo power stations was taken into service, bringing Eskom's total installed capacity to 31 261 MW. More than 16 000 km were added to the distribution networks.

The demand for electricity continues to grow at a rate of between 4 and 5% per year, which is much higher than in most industrial countries. This, however, is still lower than originally forecast and, as a result, Eskom has surplus generating capacity.

The power stations now under construction were ordered at a time when the growth rate was much higher. Cancellation of these projects is expensive and it was decided to complete or, where possible, defer some of them within the parameters of existing contracts.

The whole question of surplus generating capacity is one that requires careful management, but it has given us the opportunity to improve our efficiency. We are able to phase out or mothball some of the older and less efficient stations and carry out life extension studies on some of the newer plant. This, in the longer term, can lead to substantial savings.

During 1987 our efficiency in generating and distributing electricity continued to improve. The average availability of our large generating plant exceeded 82%, against a world standard of 76%.

A significant development was the further commissioning of a new 765 kV transmission line linking Tutuka power station near Standerton with the Orange Free State gold fields. This marks the first time in the world that an ultra-high-voltage power line has been successfully operated at high altitude. Further expansion of Eskom's transmission network throughout the country continued unabated and some 18 000 new supply points were connected, mainly in rural areas.

Better management of materials and stock inventories has been an important area of focus and while much still needs to be done, better utilisation of existing supplies reduced purchases by R32 million.

Natal floods

On the operational front, Eskom faced its greatest challenge during the floods which swept through Natal in October 1987 and large parts of the rest of the country in the early months of 1988. It was important to maintain power supplies to ensure that the infrastructure kept working so that rescue and recovery operations could continue unimpeded. Our staff mounted some of the biggest operations in our history and stories of selfless dedication abound.

Using four-wheel drive vehicles, helicopters, boats and even swimming when necessary, crews worked for long periods without respite. Testimony to our sound design and workmanship was also provided by the fact that all the major Eskom substations and transmission lines which form part of our national grid remained functioning.

I wish to convey the sincere thanks of the Council to all staff members for their outstanding and unselfish work during one of South Africa's worst series of national disasters.

Better customer service

Solid foundations have been laid in all the key areas of our business to ensure that Eskom can fulfil its future tasks more effectively. Our customers, too, are feeling the benefits of our decentralisation programme which saw the creation of more than 50 strategic business units. Improved service is being provided by our staff who now work closer to their customers and who have the authority to deal with problems on the spot.

Communication

A strong commitment to maintaining a free flow of communication and information throughout Eskom has contributed in no small measure to the positive manner in which the organisation has responded to many challenges and changes.

Internal surveys conducted each year by market research specialists have found that employees feel distinctly more positive about their work environment. They feel the management style is more participative, open and flexible. There is also more pride in working for a businesslike organisation. Open communication has become

a way of life in Eskom.

Research also shows that Eskom's external image has improved.

To ensure that we do not become introverted in our thinking and that we maintain close contact with our environment, we have involved prominent business consultants in management meetings. They also assist us on specific projects. We further talk constantly to business leaders, government, the media and individual customers.

How well we run our business, and what we do, affects everyone from the largest corporation to the man in the street. It is important to obtain their views on how well we are serving them. In turn, everyone has the right to know what we are doing and in which direction we are going.

Priorities for 1988

Our priorities for 1988 include investigating privatisation; performance management; staffing, people development and quality circles; planning, budgeting and performance indicators; and internal communication.

As far as privatisation is concerned, we have formed study groups who will prepare detailed reports and recommendations. These groups comprise Eskom executives and consultants from the private sector. Areas being covered include legal aspects, manpower issues, options regarding the structure of the privatised Eskom and the implications that privatisation could have on our financing and tariffs. Experience relating to privatisation gained in other parts of the world will also be considered.

Eskom has, for some time, been following the policy of divesting itself of activities which have no direct bearing on its main business. To this end, some Eskom townships have been proclaimed, its home-ownership scheme was ceded to the private sector and many distribution networks have been sold.

We plan to have our thoughts on privatisation finalised during the year.

Inflation and the dominant role of the public sector in the total economy are two factors which will influence the future economic growth of South Africa. The measures announced by the State President to deregulate the economy, privatise state and semi-state corporations, increase productivity and reduce the inflation rate address both of these issues squarely. It is a bold step by President Botha to confront South Africa's economic issues in the face of pressing political problems. It is a well-founded one, because a healthy economy is essential for successful political change.

Looking beyond our borders, Eskom is actively pursuing closer links with electricity utilities to the north. Electrical energy is the common factor that binds us in our quest for a better quality of life for all our peoples. By concentrating on the positives, on common development factors, we are building bridges for tomorrow. I believe that electricity could be a catalyst not only for illustrating the interdependence of all Southern African states, but also for stimulating a new development in our subcontinent.

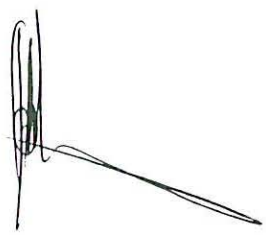
Acknowledgements

The foundation of Eskom's success has been the direction given to it by the Electricity Council. Consisting of representatives of all our major customers and key government departments and with weight added in the form of independent business and professional experts, it is in every respect an exceptional and strong controlling body. Its strong private sector influence has helped considerably in making us a more effective organisation.

Linked to the Council is Eskom's Management Board which is responsible for the day-to-day running of the organisation. Their flexibility in adapting to a volatile corporate scenario and the manner in which they have approached new demands and opportunities deserve high praise.

Eskom Chief Executive Ian McRae, Chairman of the Management Board, merits special acknowledgement for his dedication and very able leadership. In his concern for others, he has devoted a great deal of time in his already busy schedule to moving around the organisation and making contact with people at all levels. This example has had a decided impact on improving communication and raising morale.

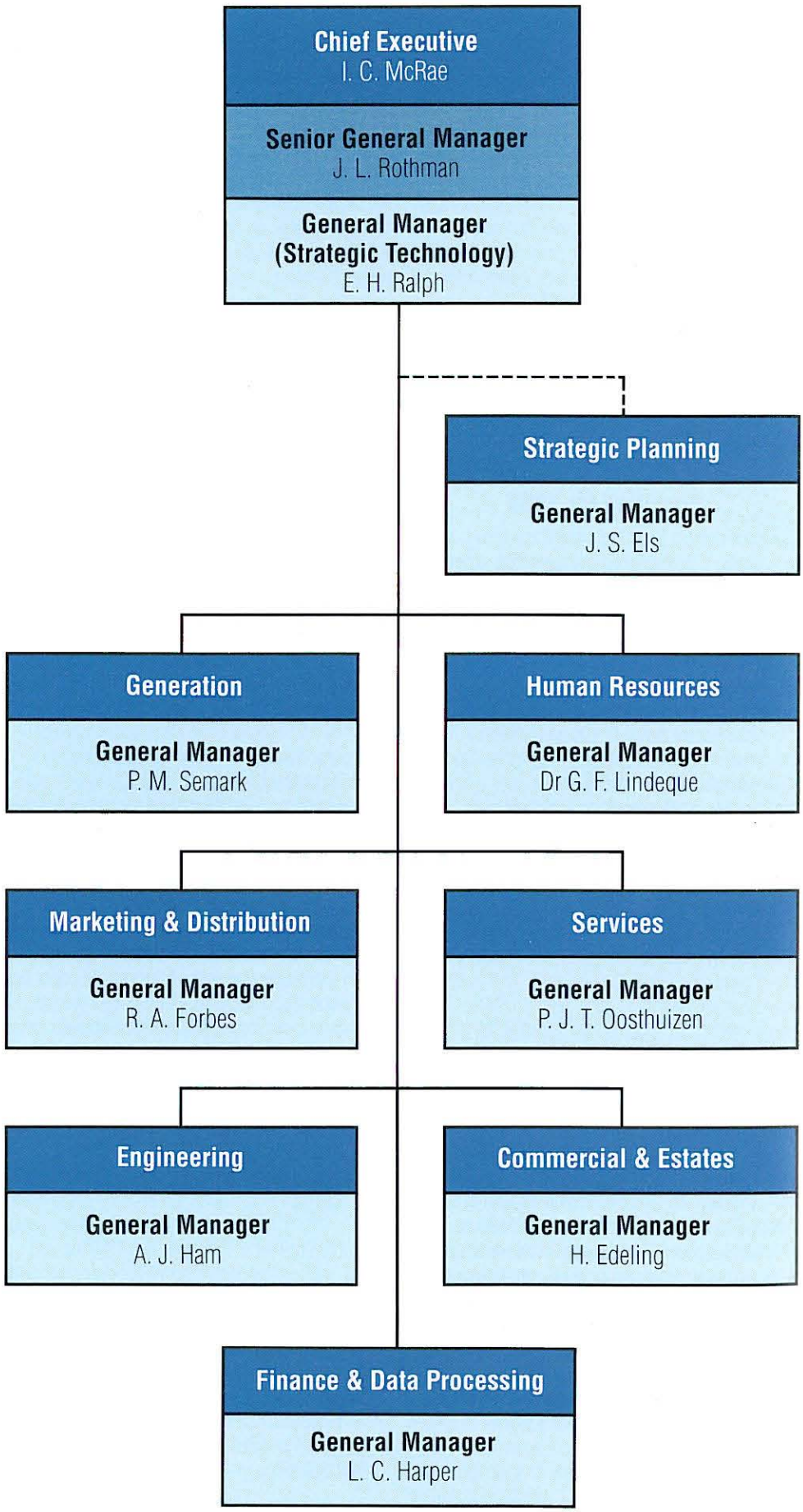
My thanks go also to the Minister of Economic Affairs and Technology, Mr Danie Steyn, for his continuing close interest in developments at Eskom and his sound advice and guidance. We also value the positive relations that exist between Eskom and his department.



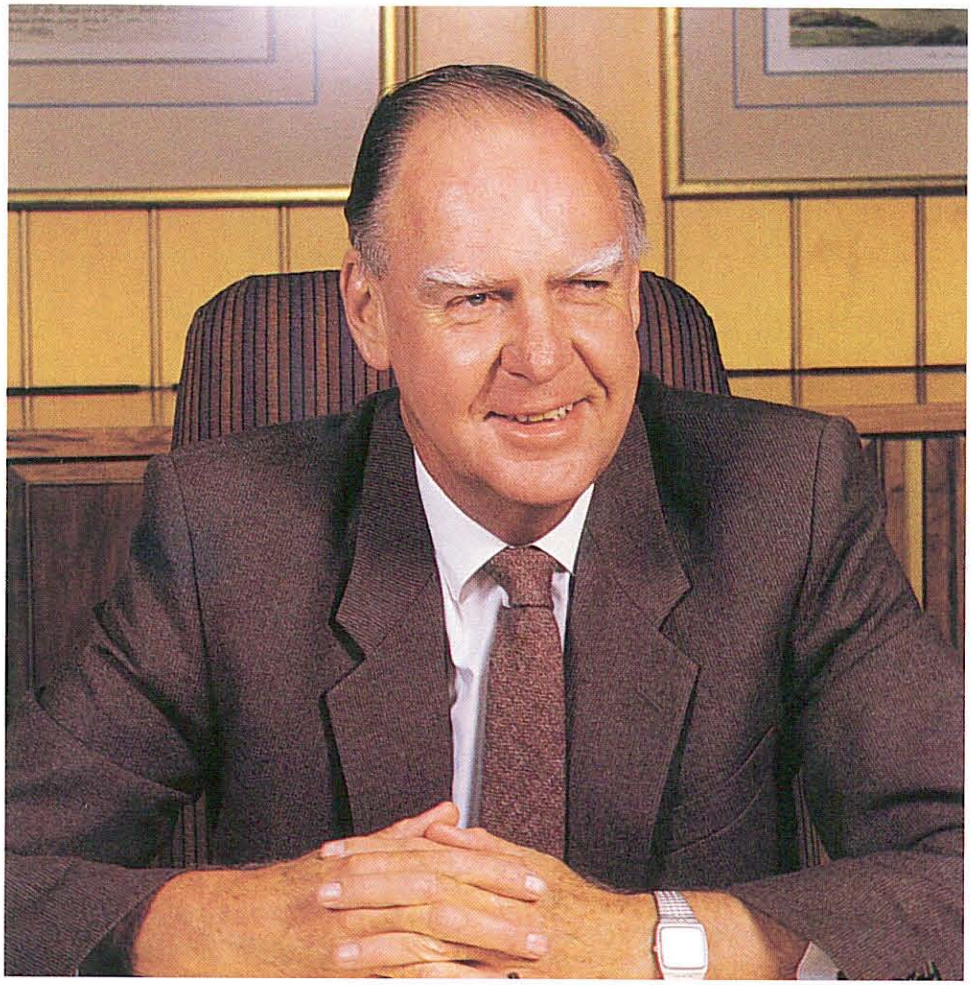
Dr John Maree
Chairman of the Electricity Council
11 March 1988

Organisation structure

as at 11 March 1988



Chief Executive's report



"The improvement in electricity sales in 1987 reflects the upswing in the South African economy, which gained momentum in the last quarter. A growth rate in electricity demand of between 4 and 5% may well be achieved in 1988." – Ian McRae, Chief Executive.

Financial results

Eskom's financial results for 1987 were most satisfactory and consistent with the self-imposed constraints and financial goals we set for 1987. These constraints included disciplining the organisation to manage with an increase in the price of electricity which was well below the average inflation rate for the year.

With the introduction of the Eskom Act of 1987, financial statements are now presented on a depreciation accounting basis, as opposed to the fund accounting convention of the past. For comparative purposes the 1986 figures have been restated.

Net income for the year was R702 million, compared with R781 million in 1986, as restated for comparison. Total sales of electricity were R7 046 million, R1 201 million or 20,5% more than in 1986.

Operating expenditure, excluding depreciation, was R3 244 million, an increase of R610 million or 23,1%. Interest and finance charges before capitalisation were R2 731 million in 1987, an increase of R452 million or 19,8%. A factor contributing to the increase was the repayment of R1 871 million of borrowings, compared with R491 million in 1986, and the consequent re-funding of borrowings at the current higher interest rate.

The conversion of the Statutory Funds and Reserves at 31 December 1985 to the Accumulated Reserve is explained in Note 9 to the financial statements. The ratio of the accumulated reserve to long-term liabilities has declined marginally from 34% to 32%. Fixed assets net of depreciation have increased by R2 607 million, or 10,7%. It is encouraging to report that short-term liabilities have decreased substantially and that net current liabilities have decreased by nearly R1 000 million. At times when lenders are lending short, the ratio of interest-bearing long-term liabilities (longer than five years) to total interest-bearing liabilities has increased from 55% to 58%.

Sales and customer growth

In 1987 electricity sales grew by 4,4% to 122 524 million kW.h. Although this growth rate is slightly lower than the 1986 figure of 4,5%, it is notable that the slow-down in electricity sales which started in the second half of 1986 was

Chief Executive's report (continued)

Sales of electricity to categories of customers

Million kW.h

Category	Number of Customers	1987	1986	1985	1984	1983	1982	Increase % 86 - 87	Average yearly Increase % 83 - 87	Average price c/kW.h sold 1986	1987
Bulk Sales	562	45 418	40 570	37 568	35 541	32 729	32 349	11,9	7,0	4,874	5,580
Domestic	142 050	1 279	1 252	1 203	1 144	1 078	1 020	2,2	4,6	9,172	10,954
Industrial	116 067	38 284*	39 170	38 123	36 118	32 286	30 959	–	–	5,028	5,862
Mining	544	32 849	31 860	30 825	29 506	28 021	27 372	3,1	3,7	4,716	5,540
Traction	50	4 049	4 501	4 587	4 595	4 137	4 436	-10,0	-1,8	6,236	7,612
Own Usage	90	645 *	–	–	–	–	–	–	–	–	–
TOTAL	259 363	122 524	117 353	112 306	106 904	98 251	96 136	4,4	5,0	4,981	5,782 **

*Basis of sales allocation to the industrial category changed in 1987, which distorts comparisons. Following the sale of some distribution networks to municipalities, a number of industries previously supplied direct by Eskom are now served by the municipalities concerned. Distribution losses and usage on Eskom distribution premises, previously included under industrial sales, are now also listed separately as "own use". **Adjusted to account for own usage.

reversed. From June 1987 onwards there was a gradual recovery which coincided with the signs of greater activity in the South African economy. This upward trend should continue.

During the year under review sales to municipalities and utilities in neighbouring states rose by 11,9%.

The five large municipalities which generate electricity themselves – Bloemfontein, Cape Town, Johannesburg, Port Elizabeth and Pretoria – increased their offtake from Eskom. Bloemfontein municipality decided to buy the city's entire electricity requirement from Eskom. Sales to Soweto increased by 29,1%.

Sales to neighbouring utilities rose by 13,7%, well above the average yearly growth in sales over the past five years.

While the cold winter of 1987 contributed to higher demand and sales, most of the growth came from greater activity in the industrial sector supplied by municipalities and neighbouring utilities, particularly in the manufacturing categories. Maximum demand on the integrated Eskom system was 20 001 MW, an increase of 9,4%.

Growth in sales to industries supplied directly by Eskom, which include some large electricity-intensive undertakings serving the export market, was slightly lower than in 1986 because some of them now receive municipal supplies. The fact that the 1986 sales level was maintained indicates that the slump in the export markets predicted for 1987 did not fully materialise.

Sales to the mining sector improved by 3,1%. The drop of 10% in traction sales is chiefly attributable to the lower volume of raw materials exported and the energy demand management and rationalisation programmes of South African Transport Services.

The number of customers served by Eskom increased by 4,8%, from 247 372 to 259 363. More than 10 000 rural supply points were provided, an increase of 19,1%. Industrial and commercial customers receiving direct supplies from Eskom rose by more than 8 000, an increase of 7,1%. Nearly 7 000 customer supply points were sold to local authorities and neighbouring self-governing states.

Sales to utilities in Southern Africa

Million kW.h

	1987	1986	% growth 86 - 87	Average yearly % growth 83 - 87
Becor (Bophuthatswana)	2 124,5	1 805,9	17,6	12,5
BPC (Botswana)	77,5	232,3	-66,6	-2,4
Ciskei	250,7	191,4	31,0	24,4
EDM (Mozambique)	329,2	303,8	8,4	2,3
LEC (Lesotho)	156,2	134,6	16,0	4,8
SEB (Swaziland)	253,5	277,1	-8,5	-3,9
Swawek (SWA/Namibia)	613,6	411,1	49,3	30,8
Teskor (Transkei)	110,6	84,9	30,3	-1,7
Vec (Venda)	59,8	54,0	10,7	19,9
Zesa (Zimbabwe)	16,4	15,6	5,3	4,4
	3 992,0	3 510,6	13,7	10,7

Customer service

Although Eskom provides more than 96% of the electricity used in South Africa, its contact with the vast majority of the estimated 13 million people who use electricity in this country is indirect.

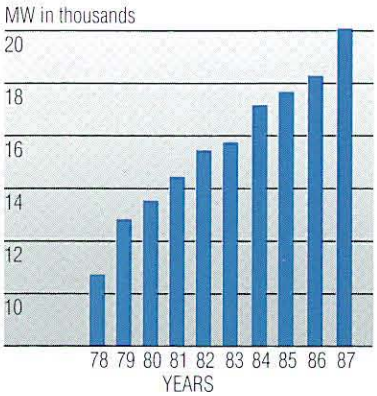
Our direct customers are the 116 000 industries and farms, 142 000 domestic users, the 544 mines and the 562 municipalities and neighbouring utilities. Municipalities and neighbouring utilities resell the electricity to the millions of households and industrial end-users in their areas. Just under 4% of our supplies are used by the electrified railway system.

Only 1% of Eskom's electricity is supplied directly to households although they form our largest customer base. This market segment is disappearing as more reticulation networks are sold off to municipalities.

Traditionally the main thrust of Eskom's customer service was directed at the electricity users we supply direct. More recently we have recognised that since Eskom is synonymous with electricity in the minds of most users, we should offer some specialised customer services to all end-users, working closely with municipalities.

Research indicates that, although electricity

Peak demand
(on integrated Eskom system)



In 1987, the peak demand on the integrated Eskom system was 20 001 MW, 9,4% higher than in 1986 and nearly twice as high as in 1978. Last year, the peak demand was on 26 June.

The management team of the Services Group: General Manager Ters Oosthuizen (centre), with Communication Manager Ewald Thal and Legal Manager Dries Loots.

users see a low electricity price as the main component of Eskom's customer service, different categories of users also have specific service needs. Domestic users, for example, feel they have little control over their electricity costs and are increasingly looking for ways to reduce consumption. New domestic users, particularly in the recently electrified black towns and cities, have the added need to know how to use electricity safely and efficiently.

To industrial users and the mining sector price remains important, but quality of supply is a priority because power failures can result in costly production delays and seriously affect the safety of personnel in some cases. Agricultural users, particularly those whose electricity requirements are seasonal, often have to instal expensive equipment which cannot be utilised continuously to make them more cost effective.

Finally, nobody likes delays in the provision of electricity supplies. And the users of electricity in an industrial or commercial application want to know how they can use the commodity in the most cost-effective way.

Eskom has developed customer services to meet these needs. Its marketing programme, started two years ago, is aimed at helping larger users to cut costs by using electricity more wisely and efficiently. A special tariff was introduced for customers such as irrigation farmers with seasonal or intermittent requirements. So far 127 customers have made use of our off-peak tariff, introduced in 1986.

More than 16 000 applications for supplies were received during 1987.

Price of electricity

The price of electricity rose by an average of 12% in January 1987. For 1988, again, one price increase of 10% was announced, effective from January. The average price of electricity in 1987 was 5,75 c/kW.h, compared with 4,98 c/kW.h the year before.

The steady downward trend in the level of price increases during the past two years is the result of increased productivity in certain areas, strong financial controls and a substantial reduction in operating costs and capital expenditure.

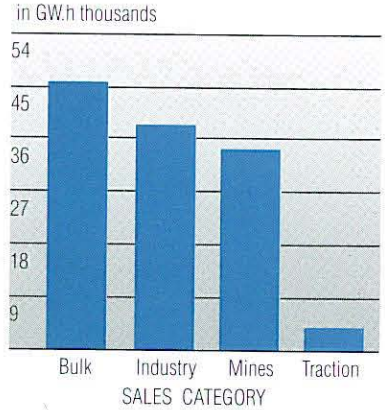
The Chairman, Dr John Maree, announced towards the end of 1986 that Eskom had committed itself to keeping electricity price increases 2% below the prevailing rate of inflation. The 12% price increase in 1987 must be seen against an inflation rate of 18,6% in 1986 and the 1988 increase of 10% against an inflation rate of 16,1% for 1987. Although Eskom kept the 1988 increase at the 10% level, it is unlikely that it will be able to continue indefinitely absorbing the effects of an inflation rate consistently well above increases in the price of electricity.

The strong economic reforms to curb the rate of inflation announced by the State President on 5 February 1988, should also make a stable electricity price more readily attainable. The effect that increases in the price of electricity have on the economy are well known and Eskom will continue to keep such increases as low as possible.

Employees

A programme to reduce staff numbers in work

Electricity sales, 1987
(Eskom categories)



About 37% of Eskom's electricity is supplied in bulk to municipalities and neighbouring utilities, 31% direct to industry, 27% to mines, and 4% to traction. Households are mainly supplied by municipalities, and thus account for only 1% of Eskom sales.

Chief Executive's report (continued)

The Distribution and Marketing management team: Sydie du Toit (Distribution Division Manager II), Edgar Wohlberg, (Distribution Division Manager I), Randolph Forbes (General Manager), Jaap van Deventer (Power Marketing Manager), John Bradbury (Distribution Division Manager III) and Alan Morgan (Distribution Division Manager IV).

categories that were overstaffed following reorganisation and the reduced growth rate in electricity demand, was completed in January 1987. In all, the number of employees declined from 66 000 at the end of 1985 to about 58 000 at the end of January 1987. The programme was completed with the full cooperation of the trade unions concerned and included a favourable separation package for the staff involved.

At the end of 1987, there were 56 830 employees. The present staff level is well on target, even though a number of new production units at Majuba, Kendal, Matimba, Tutuka and Lethabo power stations had to be staffed. Staff turnover for the year, excluding effects of the reduction programme, was 3,0%, which is below the annual average for the last five years.

The net result of the reduction programme is that Eskom now has a manpower complement that is better targeted to the changed requirements of the organisation. In certain skilled categories shortages still exist which, in some cases, are serious and recruitment in these areas is ongoing.

About 22 000 Eskom employees work at its 28 power stations and about 2 900 are involved in the design and construction of new power stations. The design, specification and project management are undertaken by Eskom's Engineering Group.

Eskom is committed to being an equal opportunity employer and a meritocracy. Advancement and remuneration are based on merit performance, without prejudice to race, creed or sex.

By the same token, Eskom is committed to encouraging all employees, even at the lowest levels, to develop to their fullest potential through education, training and participative management. The increase in the number of quality circles, problem solving groups, management "walk-abouts" and the introduction of a performance management system during the year is a clear indication of Eskom's commitment to participative management.

Equal opportunity

The two major components of Eskom's equal opportunity programme are parity, which seeks to provide equal pay and benefits for equal work throughout the organisation, and the acceptance of the concept that a job may be filled by any person able to do it.

On both counts, considerable progress was made during the year. The parity exercise, which started in 1986, was just about completed by the end of 1987. In all, more than 13 000 employees benefited.

Albeit slowly, the number of women and black persons in senior positions is increasing. There has been no significant resistance from staff in this regard and it would appear that an employee's ability and performance are the main criteria for acceptance by his or her peers and colleagues.

Acceptance of a meritocracy

The concept of Eskom as a meritocracy striving to reward employees for performance rather than in the traditional ways associated with bureaucracy, is gaining momentum. Senior management have

The Human Resources management team: General Manager George Lindeque (front, centre), with Louis van der Merwe (Management Performance and Development Manager) and Johan du Plessis (Personnel Manager). Back row: Fritz van Vuuren (Safety Risk Manager), Gerrit Jansen van Vuuren (Industrial Relations Manager) and Ryno Verster (Training Manager).

adopted a pay-for-performance system. In 1988 the system will be introduced to middle management and the other levels of salaried employees.

The system identifies exceptional, commendable, competent and unsatisfactory performance, and rewards employees accordingly. Reaction, in general, has been favourable and at least part of the productivity increases during 1987 can be attributed to executives setting clearer goals and achieving them sooner and more effectively.

Development and training

People-productivity in Eskom increased in 1987, in physical terms. Eskom recognises that development and training are key factors in improving the calibre of employees and helping them cope with rapid technological and other changes. In addition, it has recognised that the manpower shortages in certain skilled areas will not be overcome by recruitment only and that staff with the required potential will have to be trained and developed to fill these positions.

Employees are therefore encouraged to further their education and training both at external educational institutions and at the internal facilities provided by the organisation. Eskom also shares training expertise and development research with a number of universities. Training capacity is also made available to neighbouring states, technikon students and private companies.

Most of Eskom's training is undertaken at the various SBUs. In addition, 13 556 employees received training at Eskom College in Midrand in 1987.

Training provided by the training department at Eskom College, 1987

	Number of students
Simulator	445
Project management	230
Mechanical	1 143
Electrical	1 547
Control and instrumentation	670
Emergency services	2 033
Task skills, including financial, secretarial, language, customer relations and computer literacy	7 488
Total	13 556

Industrial relations

Eskom's industrial relations system is based on recognition agreements which govern relations with 15 trade unions, including the National Union of Mineworkers and the Metal and Allied Workers' Union which were formally recognised early in 1987.

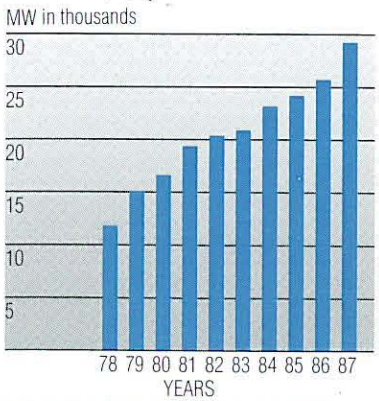
Trade union membership rose by 9% in 1987 and 66% of Eskom's employees now belong to trade unions.

Relations with the trade unions were sound in 1987 and a wide variety of matters was negotiated. Negotiations on remuneration and conditions of service were also successfully concluded. Eskom's parity programme was finalised with the cooperation of the 15 trade unions.

While labour unrest increased in 1987, Eskom's operations were not disrupted. Work stoppages and strikes were short and settled through negotiation.

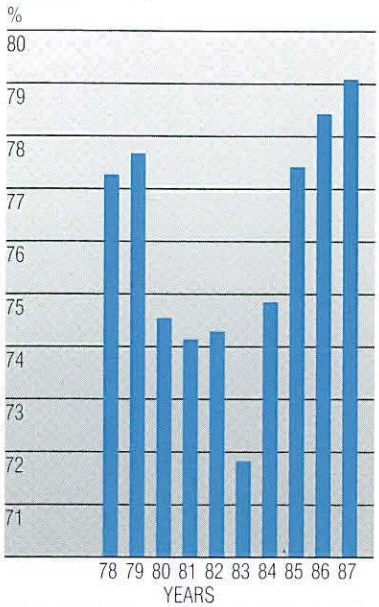
Chief Executive's report (continued)

Sent-out capacity



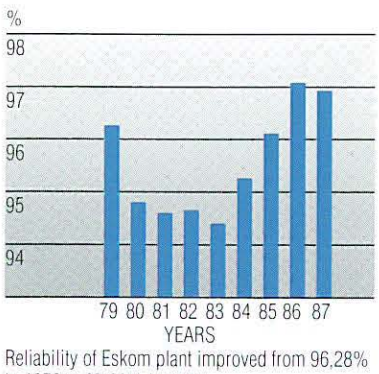
At the end of 1987, Eskom's sent-out capacity stood at 29 618 MW and its installed capacity at 31 261 MW.

Plant availability



Plant availability improved from 77,4% in 1978 to 79,2% in 1987. The average availability of Eskom's 400 to 600 MW coal-fired generating units in 1987 was 82,3%, compared with the World Energy Conference average of 75,5%.

Reliability



Reliability of Eskom plant improved from 96,28% in 1978 to 97,00% in 1987.

There was also a considerable increase in the number of applications for the establishment of conciliation boards and status quo orders by individual employees. These applications failed without exception, which can be attributed to sophisticated procedures and fair labour practices.

Employee wellbeing

While Eskom's home ownership scheme allows each employee to own his or her own home, the shortage of houses, stands and land for the development of new residential areas for Blacks and Coloureds has created a backlog. Nevertheless, Eskom has vigorously pursued the development of approximately 6 000 houses for Black employees, on a basis of being the facilitator rather than the owner of such property. Permission was obtained for the building of houses in Kimberley, Kendal and Alexandra and Eskom is negotiating for more stands on behalf of employees.

With the cooperation of the mining groups and the Transvaal Education Department, Eskom is instrumental in establishing a high school at Kriel, a township serving the Kriel and Matla power stations and associated coal mines in the eastern Transvaal. Building started early in 1988.

During the year an additional 15 employee wellbeing officers were appointed, mainly to serve power stations in the Eastern Transvaal. Eight of them are fully qualified professional Black social workers. These officers help employees with domestic and personal problems and contribute to employee wellbeing and the reduction of stress.

All of Eskom's sport and recreational clubs are now autonomous and are open to all races.

Safety risk

In line with international concepts, Eskom adopted a broader vision of safety performance in 1987. In addition to the humanitarian motivation, the concept now includes image, statutory, financial and industrial relations risk.

Since 1975 the Eskom rate of disabling injuries per million man-hours worked has been well below the industrial average; since 1981 it has been about 25% of the national average. By contrast, the number of fatal accidents per five million man-hours worked, although declining from a high of 1,5 in 1969 to 0,7 in 1987, has increased marginally from the all-time low rate of 0,34 in 1983.

Four Eskom SBUs achieved Nosa's five-star gradings for safety excellence in 1987: Western Cape Distribution and Matla, Duvha and Tutuka power stations. Matla has recently exceeded 9,3 million man-hours without a disabling injury. Eleven SBUs received Nosa's four-star grading: Eastern Cape Distribution, Central Transvaal Distribution and Arnot, Kriel, Hendrina, Grootvlei, Komati, Ingagane, Westbank and Port Rex and the Orange River power stations. This was also achieved by Eskom's construction sites at Kendal, Lethabo and Matimba.

The safety achievements on the construction sites were better than national norms and less than two disabling injuries per one million man-hours worked were experienced on construction sites.

Supply and assets management

A total of 132 774 million kW.h of electricity was sent out on the Eskom system in 1987, 4,7% more than in 1986, and 129 545 million kW.h was available for distribution, up 4,7% on the previous year.

Eskom now has a generating installed capacity of 31 261 MW with an assigned sent-out rating of 29 618 MW. During the year, 3 175 MW of generating plant and 16 756 km of high-voltage (22 kV to 765 kV) lines were taken into service.

Plant performance

The average availability of the 400 to 600 MW coal-fired generating units during 1987 was 82,3%, compared with a World Energy Conference (WEC) average of 75,5%. Eskom's average availability for these units over the past seven years, since the first 600 MW units were commissioned, has been 1% better than the WEC average. Unit 6 of Matla power station achieved 368 days continuous service.

The availability of our 200 MW unit power stations was 12% lower in 1987 than the WEC average for 1985 and 6% lower than the WEC average over seven years. The lower availability at these stations is the result of surplus capacity and a high number of forced outages at those power stations whose units are on average older than the WEC units. Our 200 MW units also run at a considerably higher load factor than their overseas counterparts. The stations with 200 MW units are used for life-cycle extension studies.

The thermal efficiency of our reheat units also compares favourably with that of other utilities. The overall thermal efficiency of Tutuka power station was 37,1%, on a net calorific basis.

The overall thermal efficiency of Eskom power stations dropped marginally compared with 1986. The commissioning of five new reheat units and a drop in efficiency at some of the mid-merit and peaking stations, with units put in reserve storage, have contributed to the increased specific coal consumption.

Generation Group: Assistant General Manager Jacques Messerschmidt and General Manager Paul Semark. The full Generation management team consists of eight members.

Coal supplies

Eskom used 65,8 million tons of coal in 1987, 11,7% more than in 1986. The average cost of coal burnt increased by 15,1% from R14,87 to R17,11 per ton. During this period, the Producers Price Index rose by 13,7%. Wage increases averaged about 17% and these, together with the loss of output at some mines during strikes, contributed to this increase.

Strikes called during August 1987 were the longest ever on tied collieries supplying power stations. Of the 15 collieries supplying Eskom at the time, 60% were affected.

In general, the supply of coal and the maintenance of coal stock levels were well managed and the contingency plans of both Eskom and the collieries were efficient and adequate.

During the year, the five large new collieries which are serving Eskom's power stations now under construction were further developed. At the same time, we also had to prepare for the termination of three collieries or existing supply points of power stations being put in reserve storage.

Eskom's involvement in the optimum use of the country's resources, despite difficult economic conditions, continued in the promotion of maximum extraction and the use of lower grade coal, middlings and discarded duff. Eskom is actively pursuing the disposal of ash in colliery workings to limit environmental pollution. The open-cast collieries tied to Eskom are doing valuable work in the setting of attainable standards for the rehabilitation of open-cast mines.

Water resources

Rainfall in the 1986/1987 wet season was well below average for the ninth year in succession. Consequently, the Vaal, Usutu and Komati systems started the year under stress.

Only Grootdraai Dam on the Usutu-Vaal system and the Witbank Dam on the Olifants River contained adequate volumes of water in the early part of the year. These sources of water are of poor quality, especially Witbank Dam, which has increasingly been affected by industrial pollution.

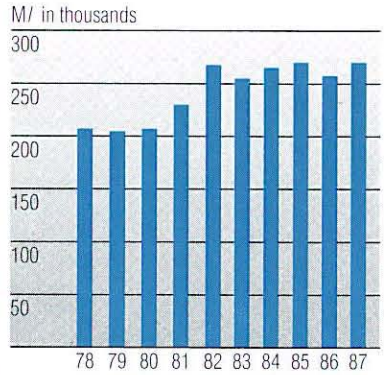
The Usutu system failed during the year and, at Eskom's request, the Department of Water Affairs constructed a link pipeline which allows Heyshoop water to be transferred to Morgenstond Dam. In this way, quality water supplies to both Camden and Kriel were maintained.

Generally, there was no improvement in the overall water consumption, in litres per unit sent out, at coal-fired power stations, compared to last year. This was because strikes at some collieries necessitated the use of less efficient power stations and also because the use of the lower quality water supplies by the Eastern Transvaal stations caused an increase in specific consumption.

Late in the year, rainfall improved dramatically. The Usutu, Komati and Vaal/Grootdraai Dams are all spilling or likely to spill during 1988.

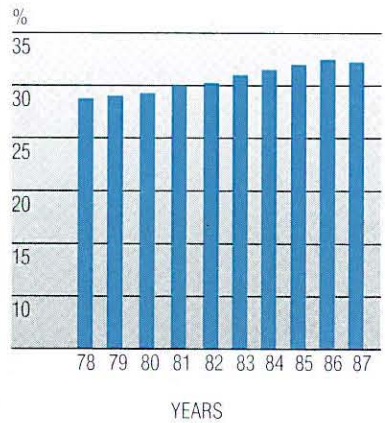
The past year has highlighted the importance of maintaining a consistent quality of raw water supply to power stations. Efforts will be concentrated on this field while availability of water is not of concern in the short term.

Water consumption



Water consumption at Eskom's coal-fired stations has decreased from 2,72 in 1978 to 2,23 litres/kW.h in 1987. This is an improvement of 18,01%.

Thermal efficiency



Thermal efficiency at Eskom stations increased from 28,9% in 1978 to 32,7% in 1987, an improvement of 13,2%.

Chief Executive's report (continued)

Other members of the Generation management team: In front, Bruce Crookes (Generation Technical Services Manager), Ian Tudhope (Fuel and Water Manager), Ben de Klerk (Generation Financial and Services Manager) and Francois Conradie (Interconnected System Manager). Back row: Deon Fleischer (Generation Division Manager I), Ross Hatton (Generation Division Manager II), Peter Faling (Generation Division Manager III) and John Henderson (Generation Division Manager IV).

Property

The book value of Eskom's property portfolio at the end of 1987 was about R2 500 million, excluding production facilities such as power stations.

During 1987, Eskom put in place certain organisational changes affecting the management of its property portfolio. In this step, it took guidance from the practice of several large private sector business corporations. Accordingly, several strategic business units representing a substantial amount of property have been created with the express purpose of better managing that property. As part of this exercise, approximately R42 million worth of housing has been and is being disposed of in a satisfactory manner, taking into account the depressed state of the market at that time. This disposal is being conducted in such a manner as to avoid further depressing the market in the areas where the sales are taking place.

Materials management

Materials management, embracing better control of purchasing and enhanced control of stores management received a great deal of attention. A revised computer system was made available, which has already greatly facilitated the management of these activities. During 1988 an even better system will be brought into service on a pilot site basis.

Purchasing activity during 1987 took place at a lower tempo than has been the case in previous years, mainly due to cut-backs in Eskom's construction activities and better management of inventories.

Treasury

The local financial markets during 1987 were characterised by relatively low interest rates and excess liquidity. Short-term interest rates remained at between 8 and 9% (90-day BA rate) for most of the year, only showing some upward movement during the last two months. Long-term rates fluctuated mildly during the year. After reaching a low of 14,7% in the second quarter rates moved up steadily to reach 15,9 by year-end.

Eskom was successful in raising loans and facilities totalling R3 518 million from local and foreign sources. Local market activities brought in R1 761 million while foreign sources produced R1 757 million which includes swap cash flows resulting from dealings on foreign exchange markets of R366 million. Repayments amounted to R1 276 million on local and R595 million on foreign funds. The 1986 comparative figures are given in the cash-flow statement.

Local market

Using the relatively easy conditions prevailing on the local financial market a substantial portion of short-term debt was repaid. Several facilities perceived to be expensive in terms of placement and commitment fees were cancelled.

Eskom continued to be a major participant on the local capital market and through its secondary market activities a turnover of R40 billion was achieved. The main reason for the significant increase in turnover was the successful consolidation of certain unmarketable stock into one large loan, Loan 168. The consolidation was

Commercial and Estates Group management team: Herman Edeling (General Manager) and Alastair de Reuck (Commercial Manager).

well received by the market and contributed largely to Eskom's improved rating on the capital market. A further factor contributing to the rerating of Eskom stock was the entry into the gilt option market. Options on Eskom stock proved to be very popular with market participants such that, when standardised options were introduced, Eskom stock 168 was being used as the underlying debt investment.

As a result, Eskom's turnover on the secondary market as a percentage of the total gilt trading on the Johannesburg Stock Exchange increased to over 50%.

Foreign market

In the foreign market efforts were mainly directed at maintaining contact and preserving business relationships with overseas bankers and investors. Several overseas visits were undertaken by Eskom executives to foster better relations and to create a clearer understanding of the South African financial position.

Encouraging successes were obtained in renegotiating loans in terms of the second interim debt arrangement. Maturities on existing loans were extended and additional funds were obtained from foreign lenders in accordance with the "substitution of debtors" clause as provided for in the second debt accord.

Utilisation of export credit facilities continued to be an important source of finance and was used with great effect to fund the importation of foreign equipment.

During the year foreign loans totalling R485 million which fell outside the ambit of the debt standstill were repaid.

Liability management

As part of the drive to improve the management of existing debt a liability management policy was formulated during 1987. Guidelines in respect of debt maturity, fixed rate versus floating rate, and long-term versus short-term loans were set and will be closely monitored to ensure effective debt management.

Making use of an integrated treasury management approach it was possible to identify the different categories of risk exposure inherent in Eskom's dealings on the financial markets. The latest debt management instruments including swaps, options and caps are being used as a hedge against unfavourable movements in interest rates and currency exchange rates.

Foreign exchange

Eskom's record in foreign exchange management during 1987 was satisfactory. The declining dollar provided an opportunity to save costs in having small open positions during weakness periods.

Internal control measures were implemented which greatly reduced risks and "Nostro" foreign currency accounts were opened to streamline and simplify foreign payment procedures.
1987 also saw the formation of Eskom's foreign exchange hedging committee. This body was given the responsibility of assessing Eskom's foreign exchange risk on an ongoing basis and, within delegated limits of authority, of identifying opportunities and implementing strategies aimed

Chief Executive's report (continued)

at reducing interest and finance charges. To this end, use of many of the new risk-hedging instruments are currently under investigation whilst direct dealing with overseas banks and use of currency options and futures were implemented during the year.

Cash management

With the introduction of electronic banking Eskom was able to tighten up considerably on the control of cash resources; surplus funds were managed actively resulting in significant savings.

Further development of the cash management systems will continue especially as far as the inclusion of revenue collection is concerned.

Insurance and risk management

Eskom's practice regarding insurance includes an annual assessment of the risk exposure relative to assets and possible liabilities. At year end all risks are considered to be adequately covered. With regard to political riot insurance, as much cover as is reasonably available has been arranged. Separate cover is taken out in respect of contract works and public liability for all major projects. Self insurance programmes have been instituted in situations where the cost-benefit relationship is considered to exceed the risk. Where possible, all assets are insured at current replacement values.

New projects

Five generating units, with a total rating of 3 175 MW, were put into commercial service during 1987 at a total capitalised cost of R4 000 million. Generating plant with a total rating of 13 722 MW is under construction.

Power station projects

Kendal power station. The first of this station's six units, each with a rating of 686 MW, will be put into commercial service at the end of June 1988. Kendal, near Witbank, is the world's largest indirect dry-cooled power station and coordination of information flow between numerous international contractors was the most critical activity in 1987. Many of these contractors have not previously supplied Eskom with plant of this size, nor have they worked together on similar projects.

At the end of 1987 the project was 45% complete and R2 108 million has been spent since it was started in 1982. Total estimated cost of the project, when complete in 1993, is R6 497 million.

Lethabo power station. This station, about 8 km south of Vereeniging in the Orange Free State, was about 75% complete at the end of 1987. The third and fourth of its 618 MW sets were taken into commercial service during the year. The fifth and sixth units will go into service in 1989 and 1990.

Lethabo is a breakthrough for Eskom. The boiler specification called for a design that would successfully burn a grade of coal so low (14 to 16 MJ/kg) that it was previously rejected as a viable fuel. A successful boiler design, a blending plant which ensured a reasonably constant coal quality and fine tuning of the boiler operating process have resulted in a notable success story. A whole new fuel source for power generation has been created, not only in South Africa, but world-wide. Several aspects of the combustion process in the Lethabo boilers are being investigated and this work will continue in 1988.

About R503 million was spent on the project in 1987, making a total of R3 600 million since the project was begun in 1980. A further R1 175 million will be spent before the power station is completed in 1990.

Staffing by Eskom and the contractors at the site is now reducing from its peak of some 5 000 during 1985/1986 to a level of about 3 000 during 1987.

Majuba power station. This coal-fired station near Volksrust in the South Eastern Transvaal is Eskom's latest power station project. Six sets, each with a rating of 657 MW, are planned. The first will be commissioned in September 1991 and the last in 1999, four years later than previously planned following the decision to reduce the excess plant margin in the early 1990s.

The main civil works began in April 1987 and contracts worth R1 700 million, 67% of the total, have already been placed. At the moment nearly 2 000 people are employed at the site and the accompanying colliery. This figure will gradually increase to more than 5 000 during the next few years when all the other contractors and sub-contractors have established themselves at the site.

The station was originally planned to be entirely dry-cooled, but late in 1987 it was decided to convert units 4, 5 and 6 to wet cooling, a considerably cheaper system. This decision followed the re-assessment of water supplies, including the effect of the new Lesotho Highlands Water Scheme, by the Department of Water Affairs.

Technical and economic studies by Eskom's Generation and Engineering groups, in collaboration with the Department of Water Affairs, indicate that an additional 150 MW, 50 MW from each of Majuba's three wet-cooled units, can be gained from the conversion, without burning extra coal. This represents a present-value saving of R235 million over the life of the station. The

Management team of the Finance and Data Processing Group: Francois Botha (Treasury Manager), Brian Murray (Accounting Manager), Larry Harper (General Manager) and Gerrie Almon (Data Processing Manager).

150 MW generating capacity gained in this way will be obtained at 10% of what it would cost at a new power station.

The switch from dry to wet cooling at Majuba is an example of how rapidly Eskom can respond to new circumstances to improve productivity and provide electricity in the most cost-effective manner.

Matimba power station. The first two units of Matimba, near Ellisras in the North Western Transvaal, were taken into commercial operation in December 1987. The last of the station's six sets of 665 MW will be commissioned in 1991. Nearly 60% of the R5 000 million project is now complete and about 4 600 people are employed at the site.

Matimba is the world's largest direct dry-cooled power station. Its total installed rating of 3 990 MW is eleven times that of the 360 MW Wyodak power station in the United States, previously the largest direct dry-cooled station.

Units 1 and 2 are performing exceptionally well and are a credit to the bold decision to exploit this cost-effective and relatively new technology on an unprecedented scale. Dry cooling is essential at Matimba because of the scarcity of water in the far Northern Transvaal. The siting of the station was influenced by the availability of large quantities of discard coal from Iscor's nearby coking coal production mine. The use of this otherwise waste product is of great economic benefit to the country and has placed Eskom in the forefront of dry-cooling technology.

Palmiet pumped-storage scheme. This pumped-storage scheme near Grabouw in the Western Cape consists of two units with a rating of 200 MW each.

The first set will be commissioned in April 1988 and the second one a few months later. The project began in 1982 and its total cost is R471 million.

The dual-function scheme will add 400 MW of peaking power to Eskom's national grid. It will also act as a water-transfer pump station, transferring water from Palmiet River into Steenbras Dam and eventually augmenting water supplies to the Cape Town metropolitan area by 140 million cubic metres a year.

Tutuka power station. Unit 4 of Tutuka's six sets of 609 MW each was commissioned in June 1987. Unit 5 will be commissioned in December 1988 and unit 6 in 1990. Tutuka, near Standerton, is now 85% complete and so far R3 361 million has been spent on the project since construction started in 1980. The total cost of the station is estimated at R4 161 million.

Nearly 4 000 people are employed at the site and at the tied colliery. About 16 contractors are associated with the project and most of them have offices on site.

Site investigation

During 1987 Eskom continued work on the identification of sites for potential future power stations, including nuclear stations. This work is necessary because of the development pressure being experienced, particularly on the coast line which is well suited for the siting of nuclear stations. There is a need to secure sites timeously. There is close liaison with interested parties and

Chief Executive's report (continued)

environmentally sensitive pressure groups. This work will be completed by the end of 1989.

Transmission

Some 1 450 km of high-voltage lines, from 132 kV to 765 kV, were added to Eskom's transmission network in 1987. This brings the total length of line in the high-voltage network to 35 984 km. Total overhead lines stood at 187 317 km at the end of 1987.

During the year under review, the first 434 km of the new 765 kV system was commissioned. The project cost R160 million. Few countries operate such an ultra-high-voltage system and South Africa is the first to use it successfully at high altitudes, ranging between 1 350 and 1 750 metres above sea-level. Unique technical problems had to be overcome and Eskom can claim to be in the forefront of world technology in this field. The second line, operating at present at 400 kV, will be uprated to 765 kV operation in 1988.

A sophisticated transmission system, capable of carrying substantial amounts of energy, is a vital link in electricity supply in South Africa. Because of the size of the country and the fact that coal reserves are mainly in the northern and north eastern parts, it is cheaper to transport electricity than coal. Eskom's national grid, which links power stations with load centres throughout the country, includes more than 10 500 km of 400 kV lines. The new 765 kV lines have four times the carrying capacity of the 400 kV system, but cost only twice as much. Terminal substations are however more expensive and so 765 kV operation is more attractive over longer distances.

The 765 kV system will be extended gradually. In 1990, 280 km will be brought into service, initially at 400 kV between Dealesville and De Aar. The system will reach Cape Town after the turn of the century.

The 400 kV system was extended by 380 km during the year, at a cost of just over R100 million. About 600 km is under construction. The system will grow at an estimated average annual rate of 4% for the foreseeable future.

Management issues

Each year, Eskom's top management identifies a number of priorities which become the focus of their activities during a particular year and which, ultimately, will bring it to its goal of establishing a professionally managed and customer-oriented business undertaking.

In 1986 the priorities included the establishment of a new organisation and the limiting of capital and operating expenditure. These were most successful exercises. As a result, Eskom now has a new and decentralised structure aimed at maximum customer contact and staff performance. Capital expenditure was cut by over R1 000 million and expected operating costs have been reduced by R1 400 million for the period 1985 to 1989. This, in no small way, made it possible to keep the 1987 and 1988 increases in the price of electricity at the lowest level in years.

Priorities for 1987

The main areas on which top management concentrated in 1987, apart from the entrenchment of previous priorities, were training, assets management, management information and the optimisation of generating capacity. Concurrently, there was a strong focus on our people in terms of performance management, employee morale, equal opportunities, parity and internal communication.

Again, these efforts met with considerable success. A survey undertaken late in 1987 by an outside company to determine the awareness of and attitudes towards Eskom's new culture and its implementation shows that employees, even at the lower levels, are generally aware of the changes introduced and are in favour of them. In particular, they appreciate the improved communication and cooperation among employees and the open-door approach to communication adopted by management.

Certain aspects, though, such as participation in decision making and improved customer services, need reinforcement at the lower levels. Of Eskom's top 150 managers, 85% have fully adopted the new culture. This is a very high figure considering the fact that these managers are stationed all over the country and represent widely diverse fields.

Communication

There was an on-going campaign in 1987 to communicate Eskom's new culture and its performance as a customer-oriented business undertaking both to external audiences and employees. Change in an organisation can only be lasting if employees understand, accept and support it. Similarly, Eskom has a responsibility to keep the public informed of internal developments.

Surveys undertaken by independent companies indicate that Eskom's image continued to improve markedly during 1987. There is growing awareness and support in the business community for what Eskom is doing. Its environmental programmes are highly regarded and recognised by professionals in the field. Black customers see electricity as a means to improve their quality of life and want Eskom to accelerate the electrification process.

Various members of the top management team

Management team of the Engineering Group: Alex Ham (General Manager) and Johan van den Bergh (Assistant General Manager).

continued to meet with business leaders, bankers, investors and suppliers both in South Africa and overseas. Various customer groups were addressed throughout the country.

Many foreign business leaders, academics and industrialists visited Eskom during the year, individually or in groups. Two highly successful international conferences were held under the auspices of Eskom, which is seen as having much to offer both the business and technical communities overseas.The response indicates that Eskom should continue to seek opportunities to maintain overseas links.

Three seminars were held for investors during 1987, two in Johannesburg and one in Cape Town. They were all well attended. There was also a seminar for financial journalists to explain new financing instruments to them. Delegates welcomed Eskom's initiative to keep the media abreast of developments.

The internal communication programme gained momentum during 1987. In addition to the fortnightly staff newspaper, Eskom News, which has a circulation of 59 000, information about developments in the organisation was conveyed to employees by way of a monthly video news programme, taped commentary and a news bulletin to senior and middle management. In addition, the Chairman, Chief Executive and top management met regularly with Eskom's senior managers in all regions.

Changes to Management Board

Early in 1987 the Management Board was changed to allow Eskom to interact more rapidly with the dynamic environment in which it operates. Three new positions were created, each with the status of a general manager, to deal with specific strategic issues. Herman Edeling, previously General Manager (Generation), was appointed General Manager (Strategic Projects), which includes the equal opportunity programme; Bussie Els, previously General Manager (Operations), was appointed General Manager (Strategic Planning) and Ed Ralph, formerly General Manager (Engineering), was appointed General Manager (Strategic Technology). Paul Semark was appointed General Manager (Generation), which now includes Operations and Alex Ham was appointed General Manager (Engineering). Both have been with Eskom for many years.

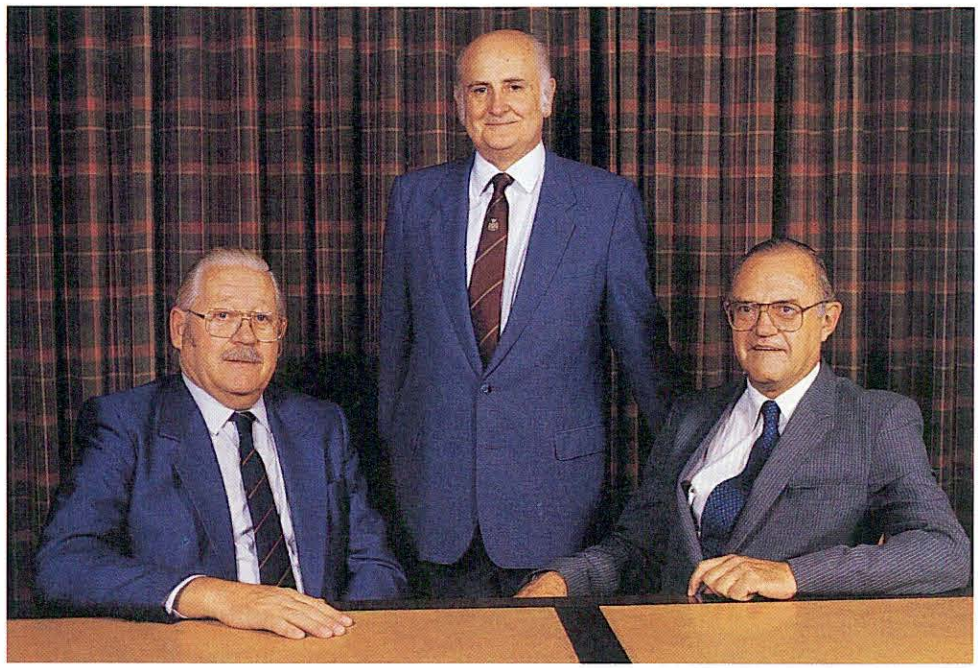
From February 1988, Mr Edeling also assumed the Commercial and Estates portfolios.

My thanks to the members of the Management Board and our staff for their excellent work and cooperation during 1987. I also wish to thank the members of the Electricity Council for their continued guidance, support and understanding. The Chairman of the Council, Dr John Maree, is untiring in his efforts to turn Eskom into a high-performance business undertaking that will enable us to meet the challenges of the 21st century. On behalf of the Management Board and staff I thank him for his unique contribution to electricity supply in this country.

Outlook

The top priority for 1988 will obviously be investigations into privatisation. The emphasis will further be on performance management; staffing,

Chief Executive's report (continued)



Strategic issues: Senior General Manager Lood Rothman, General Manager Bussie Els (Strategic Planning) and General Manager Ed Ralph (Strategic Technology). Herman Edeling, General Manager (Commercial and Estates) is also in charge of strategic projects.

manpower development and quality circles; performance indicators and internal communication.

Privatisation

The numerous issues associated with privatisation are being identified and various study groups have been established. Some of the aspects being investigated are whether Eskom should be privatised as one or several smaller undertakings, the structure of the organisation, the question of control systems and if competition can be introduced.

Excess capacity

Another priority is the cost-effective management of Eskom's surplus capacity. Historically, the growth rate of electricity consumption in South Africa has been very high. Between 1950 and 1982 the average annual growth in electricity sent out by Eskom was 7,5%. But since the beginning of the 1980s this growth rate has been declining, a phenomenon that is also occurring at many utilities in the United States and Europe. We now estimate that the annual average growth in electricity demand in South Africa will be between 4 and 5% in the foreseeable future.

A large power station requires a planning lead time of about eight years from conception to the commissioning of the first set, and it takes as long as 13 years to complete the station. Projections made in the late 1970s and the early 1980s assumed that the historical growth rates would continue and five large power stations, each with six 600 MW units, were planned to meet the expected demand.

Construction of Tutuka, Lethabo, Matimba, Kendal and Majuba power stations began at various times. As new forecasts of growth were made, the construction programme was adjusted, but long lead times made it impractical and expensive to slow the construction programme down enough to match the revised growth estimates.

For the next ten years, should the present growth estimates prove correct, Eskom will have capacity available over and above the reserves required to ensure an adequate quality of supply. We estimate that the excess capacity will rise from about 2 500 MW in 1987 to 7 000 MW in 1992. Thereafter it will be absorbed gradually until it is eliminated by the end of the 1990s.

Should demand grow at a higher rate than predicted, excess capacity will be eliminated much sooner. In the meantime, however, spare capacity has given Eskom the opportunity to phase out the older power stations which are less efficient and more expensive to run.

These old stations are now either in reserve storage or being mothballed. A few will be decommissioned. At the same time, Eskom is in a unique position to optimise the power system by not having to run the more expensive power stations, resulting in significant savings in direct operating costs.

Local manufacture

Because of excess capacity it will be some years before orders for further power stations need to be

placed. This gives Eskom the time to pursue the question of local manufacture and to discuss the matter with major suppliers, both local and overseas.

Eskom is fully committed to local manufacture and is actively encouraging this trend. To support this objective, the function of strategic technology was created in the Office of the Chief Executive. It will coordinate the technology Eskom requires, both inside the organisation and in the external manufacturing environment.

Growth

The improvement in electricity sales late in 1987 reflects the upswing in the South African economy, which gained momentum in the last quarter. A growth rate in electricity demand of between 4 and 5% may well be achieved in 1988.

In the longer term, an average annual growth rate closer to 4% is forecast. This is a much higher growth rate than prevails in the developed economies of the world and reflects the extent to which South Africa still has to be electrified. It is estimated that more than 20 million people in South Africa and the independent states within its borders have no electricity in their homes.

If South Africa and the Southern African region are to develop to their fullest potential, ways must be found of bringing electricity as cheaply as possible to as many of these people as possible.

The main stumbling blocks are often a fear of the sheer magnitude of the task and the entrenched perception that only First World standards should be applied to electricity supply.

Regional prospects

Eskom can play an important role in bringing the various authorities involved in electricity supply in the region together so that the electrification of the subcontinent can gain momentum. During the past few years we have created and built valuable relationships. We have, on a number of occasions, also been in touch with utilities outside our borders whose governments are not well disposed towards South Africa. They share our enthusiasm and drive for development, and in that electricity is a key factor.

We have, for example, a very sound relationship with Mozambique and we supply about 60% of that country's electricity needs. Initially this arrangement was part of the Cahora Bassa agreement whereby Eskom would buy power from this source. When supplies were interrupted by sabotage in that country, we did not stop providing power to them even though there were times when our own reserve margins were low. At the moment we are participating in multi-national efforts to bring Cahora Bassa and its power lines to South Africa back into operation.

The challenge in Southern Africa is to bring electricity to the people and trigger industrial development. To achieve this, we have to create technology that is more appropriate for the developing world and, more specifically, will make electricity affordable. Suppliers of electrical equipment, both in South Africa and overseas, can play a vital role in this respect. We at Eskom are willing to share our expertise and skills. And financiers have already expressed an interest in joining us.

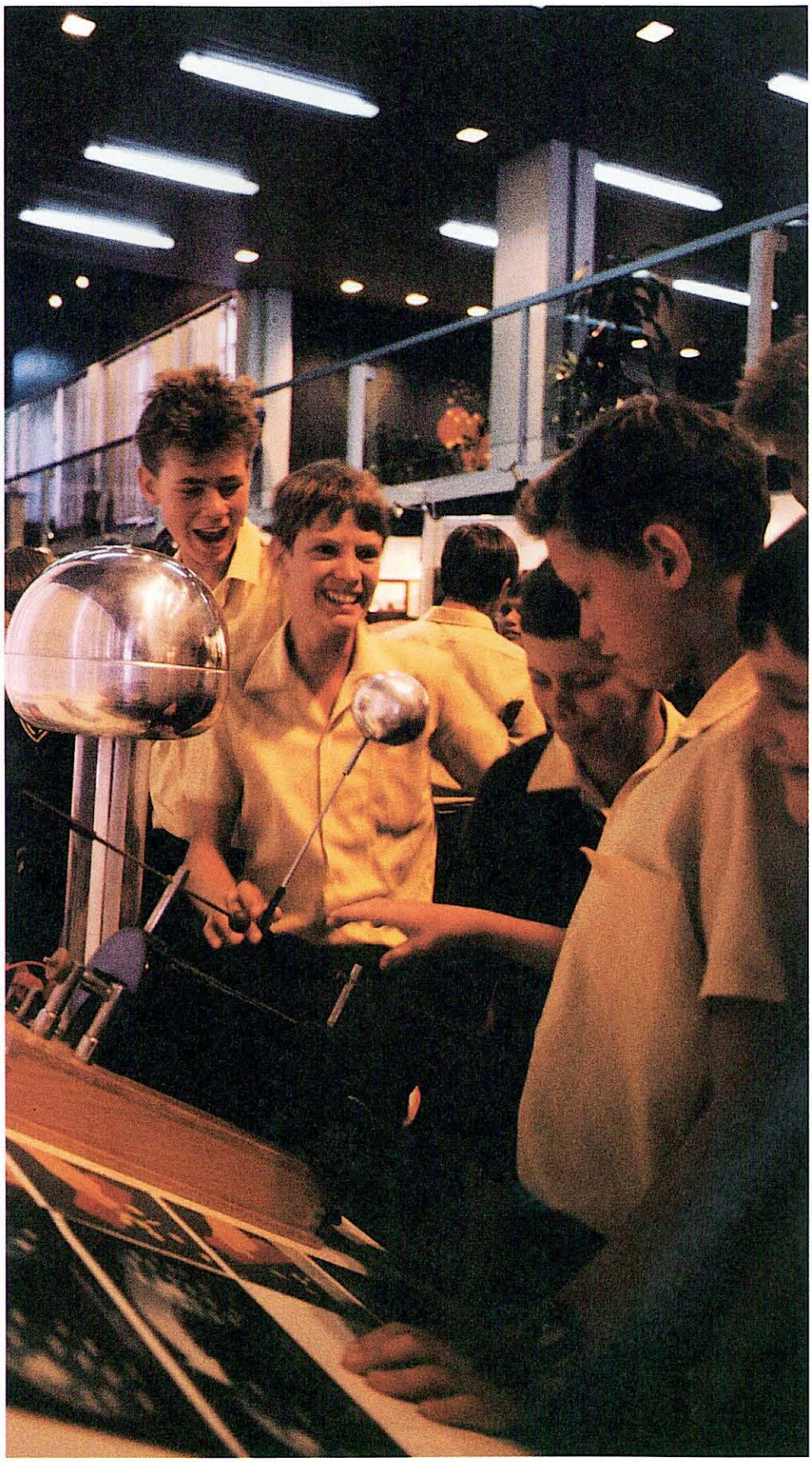
Real economic development in Southern Africa is not an idle dream, and I believe we are closer to it than ever before. Eskom is more than ready to make its contribution in this regard.

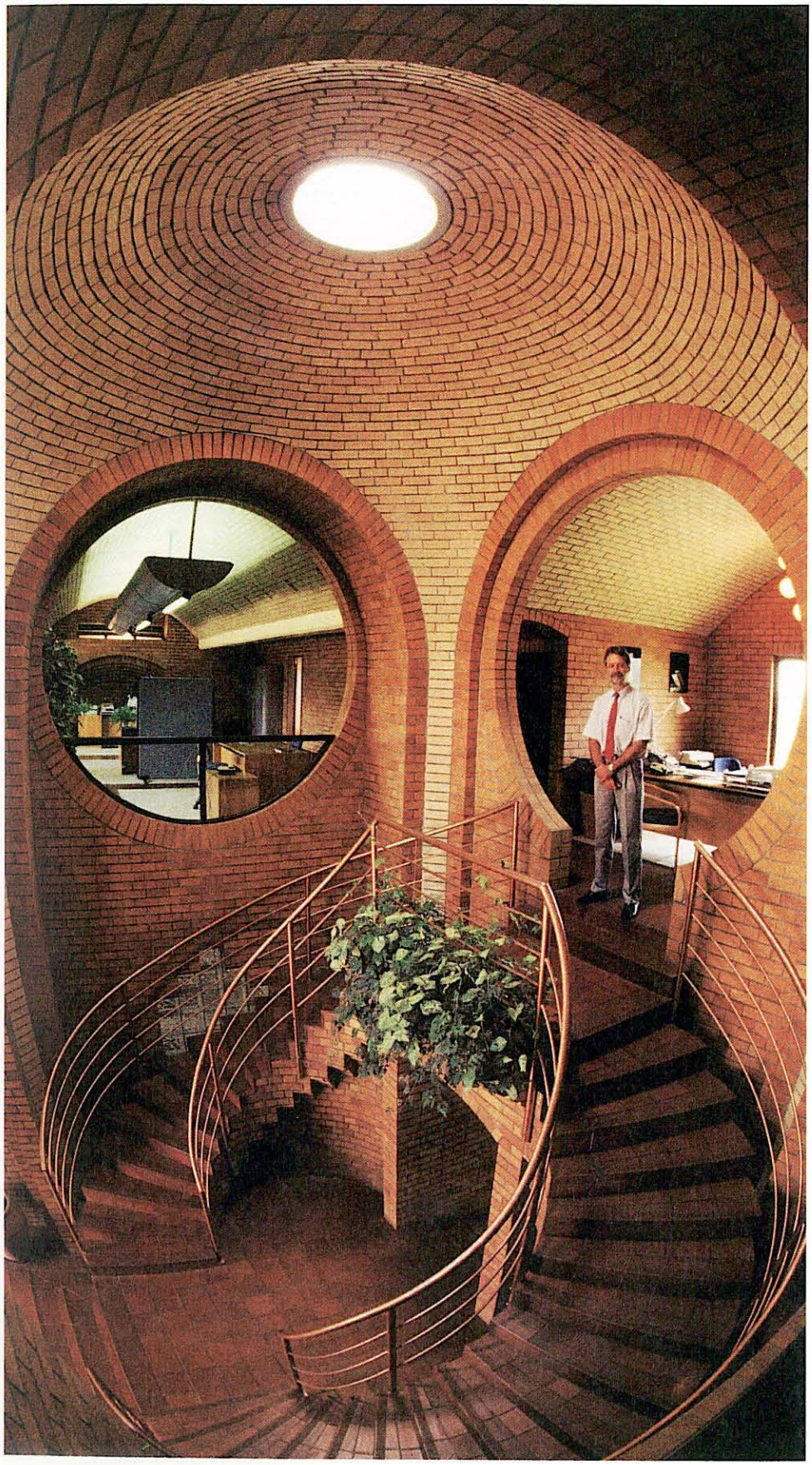
I.C. McRae
Chief Executive
11 March 1988

In 1987, Eskom was successful in raising more than R3 000 million on the local and foreign financial markets. At the same time, Eskom's turnover on the local secondary market reached R40 billion, which is more than 50% of the total gilt trading on the Johannesburg Stock Exchange. The dealing desk in Eskom's Treasury Department handles transactions worth millions of rands every day.

The floods which swept through large parts of South Africa late in 1987 and again in 1988 put Eskom's facilities and manpower severely to the test. Although there was damage to some smaller installations, the main infrastructure kept functioning and recovery and rescue operations could continue uninterruptedly. This team replaced the water pumps for the Umgeni Water Board in four days.

During 1987, more than 50 000 people visited Eskom's four visitor centres at Koeberg, Drakensberg, Cape Town and Braamfontein. They were shown displays about electricity, Eskom, its projects and its services. New centres will be opened shortly in Durban and Witbank, and at Matimba, Kendal and Lethabo power stations.





This building won a competition for energy-efficient design, a programme Eskom actively supports as part of a long-term strategy to reduce waste and encourage the wise and efficient use of electricity. Eskom's customer services are increasingly being directed towards end-users of electricity, and not only to customers we serve directly. Nearly 25 000 people attended presentations on the safe and economic use of electricity during 1987.

Eskom has five thermal power stations under construction, of which Majuba is the newest. The first of its six sets will be commissioned in 1991 and the last one in 1999. Originally, all its sets were to be dry cooled, but improved water resources allowed Eskom to change the last three sets to conventional wet cooling, thereby saving R235 million over the life of the station.

Palmiet pumped-storage station near Grabouw in the Western Cape demonstrates how Eskom blends its interests and activities with those of others. Palmiet will add 400 MW of peaking power to the Eskom grid, but at the same time the scheme also transfers water into the Steenbras Dam. This will increase water supplies to the Cape Town metropolitan area by 140 million cubic metres a year. The Drakensberg pumped-storage scheme has a similar function: it provides 1 000 MW of peaking power and, at the same time, pumps water into the Sterkfontein Dam which augments supplies to the Witwatersrand/Pretoria/Vereeniging area.

More than 20 million people in South Africa do not have electricity in their homes. Eskom has developed a scheme aimed at assisting local authorities to speed up the electrification of at least 60 townships, which will bring electricity to the homes of an additional three million people by 1992. It is proposed to halve installation costs by simplifying technical specifications, without compromising safety standards.

Eskom's financial and operational results for 1987 were most satisfactory. Electricity sales grew by 4,4%, producing revenue of R7 046 million. Bulk sales to municipalities and neighbouring utilities rose by 11,9%. More than 10 000 rural supply points were provided, while industrial and commercial customers increased by 8 000.

At Lethabo power station, the coal burnt is of a grade so low that it was previously rejected as a viable fuel. Thus a whole new source of fuel for power generation has been created, and the technology not only benefits South Africa, but the rest of the world.

A total of 132 774 million kW.h of electricity was sent out on the Eskom system in 1987, 4,7% more than in 1986. Nearly 66 million tons of coal was burnt. Eskom now has 28 power stations with an installed capacity of 31 261 MW.

Financial statements

for the year ended 31 December 1987

The annual financial statements set out on pages 35 to 44 have been approved by the Electricity Council and were signed on its behalf on 11 March 1988 by

Dr. J. B. Maree,	**I. C. McRae,**	**B. M. Murray,**
Chairman of the Electricity Council	Chief Executive of Eskom	Accounting Manager of Eskom

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Report of the Auditors

The members of the Electricity Council

We have examined the financial statements set out on pages 35 to 44. Our examination included such auditing procedures as we considered necessary.

In our opinion these statements fairly present the financial position of Eskom at 31 December 1987 and the results of its operations for the year then ended, in conformity with generally accepted accounting practice and in the manner required by the Eskom Act of 1987.

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

Aiken & Peat

Sandton
11 March 1988

Accounting policies

Basis of preparation
The financial statements are prepared on the historical cost basis and incorporate the following principal accounting policies, which are, except as detailed in note 9, consistent in all material aspects with those applied during the previous year.

Loan discount
Discount on local registered stock is amortised on a straight line basis over the period of each loan.

Foreign currencies
Assets, liabilities and commitments in foreign currencies are translated to South African Rands at rates of exchange ruling at 31 December or at cover rates where applicable.

Transactions in foreign currencies are recorded at the spot or cover rates ruling at transaction date.

Gains and losses on foreign exchange are included under interest and finance charges in the income statement.

Forward cover costs for specific foreign currency commitments are recognised over the periods of the forward cover contracts and are accounted for as interest and finance charges.

Fixed assets and depreciation
Fixed assets in commission are stated at cost of acquisition or construction.

Land is not depreciated.

Rights are fully depreciated on purchase.

Other fixed assets in commission, equipment and vehicles are depreciated on a straight line basis at rates considered appropriate to depreciate them fully over their estimated useful lives.

Works under construction are stated at cost. Cost of finance and related overheads are capitalised during the period of construction.

Construction materials are stated at weighted average cost.

Decommissioning costs
Provision is made towards the estimated costs of running down and decommissioning of the nuclear plant. Provision is not made for the costs of decommissioning other plant as it is expected that the costs of decommissioning will not exceed the proceeds of sale of associated land and the salvage value of the plant.

Future fuel supplies
Expenditure to secure future fuel supplies is amortised over appropriate periods. Amortisation commences once related power stations are commissioned.

Stores and fuel
Nuclear fuel is valued at cost on the first-in-first-out basis.

Stores and other fuel are valued at weighted average cost. A provision for obsolescence is made where appropriate.

Electricity revenue
Revenues are recognised at the time customers are billed. Revenue related to supplies between the date of the last bill and 31 December is not accrued whereas operating expenditure is recognised as incurred.

Leased assets
Leasing charges are recognised in the income statement when due. Leased assets are not capitalised.

Interest capitalisation
Interest and finance charges incurred to finance works under construction and the expenditure to secure future fuel supplies are capitalised.

Retirement benefits
Contributions to the Eskom Pension and Providend Fund are based on a percentage of salaries and are expensed in the period in which they are incurred.

Gratuities paid to retiring employees are expensed in the period in which they are paid.

Cash flow statement

for the year ended 31 December 1987

(Figures in R million)	**1987**	1986
Cash generated from operations		
Net operating income	**2 839**	2 400
Non-cash items	**1 000**	1 016
	3 839	3 416
Cash released from working capital	**251**	(88)
	4 090	3 328
Net financing costs	**(2 379)**	(2 125)
Net cash flow from operations	**1 711**	1 203
Cash effect of investment activities	**(3 301)**	(3 095)
Financing requirements	**(1 590)**	(1 892)
Increase in cash	**(57)**	(42)
	(1 647)	(1 934)
Cash effect of financing activities		
Loans and facilities raised		
Local	**1 761**	1 282
Foreign	**1 391**	375
Foreign currency swaps	**366**	768
	3 518	2 425
Loans and facilities repaid		
Local	**(1 276)**	(117)
Foreign	**(595)**	(374)
	(1 871)	(491)
Finance raised	**1 647**	1 934

Notes to the cash flow statement

for the year ended 31 December 1987

(Figures in R million)	**1987**	1986
Non-cash items		
Depreciation	**963**	811
Other	**37**	205
	1 000	1 016
Cash released from working capital		
Stores and fuel	**25**	(34)
Debtors	**(109)**	(122)
Creditors	**335**	68
	251	(88)
Net financing costs		
Interest and finance charges	**(2 137)**	(1 619)
Interest capitalised	**(594)**	(660)
Gross interest	**(2 731)**	(2 279)
Decrease in interest payable	**(14)**	26
Loan discount amortised	**139**	202
Other non-cash items	**227**	(74)
	(2 379)	(2 125)
Cash effect of investment activities		
Net expenditure on equipment and vehicles	**(97)**	(82)
Housing loans to employees	**(105)**	(60)
Net expenditure on land, buildings and plant	**(2 939)**	(2 753)
Expenditure on future fuel supplies	**(160)**	(200)
	(3 301)	(3 095)

Balance sheet

at 31 December 1987

(Figures in R million)	Notes	**1987**	1986
Capital employed			
Accumulated reserve	1	**7 311**	6 609
Loans and other debt	2	**20 802**	17 696
Local registered stock		**13 384**	11 416
Loan discount		**(2 038)**	(1 652)
		11 346	9 764
Foreign loans and other debt		**9 456**	7 932
		28 113	24 305
Employment of capital			
Fixed assets	3	**26 970**	24 363
Non-current assets	4	**2 068**	1 780
Current assets		**1 605**	1 464
Stores and fuel	5	**705**	730
Debtors		**729**	620
Cash		**171**	114
Total assets		**30 643**	27 607
Current liabilities		**2 530**	3 302
Creditors		**1 440**	1 105
Interest payable		**417**	431
Short-term debt	2	**673**	1 766
		28 113	24 305

Income statement

for the year ended 31 December 1987

(Figures in R million)	Notes	**1987**	1986
Electricity revenue		**7 046**	5 845
Industrial		**2 243**	1 968
Bulk		**2 535**	1 976
Mining		**1 820**	1 504
Traction		**308**	281
Domestic and lighting		**140**	116
Operating expenditure	6	**4 207**	3 445
Operating income		**2 839**	2 400
Interest and finance charges	7	**2 137**	1 619
Net income	1 & 8	**702**	781

Notes to the financial statements

for the year ended 31 December 1987

(Figures in R million)	Notes	**1987**	1986
1. Accumulated reserve			
Balance at beginning of year		**6 609**	(487)
Net income		**702**	781
Restatement of 1986 results	8		450
Prior year adjustments	9		5 865
Balance at end of year		**7 311**	6 609
2. Loans and other debt			
2.1 Authorised local registered stock. Nominal value of stock available for issue (Schedule 1)		**24 532**	23 964

2.2 Borrowings	Local registered stock	Foreign and other debt	Total
1987			
Long term	**12 335**	**1 324**	**13 659**
Medium term (2-5 years)	**1 049**	**8 132**	**9 181**
	13 384	**9 456**	**22 840**
Short term	**51**	**622**	**673**
Total	**13 435**	**10 078**	**23 513**
1986			
Long term	10 391	1 295	11 686
Medium term (2-5 years)	1 025	6 637	7 662
	11 416	7 932	19 348
Short term	288	1 478	1 766
Total	11 704	9 410	21 114

2.3 Average interest rate on foreign and other debt amounts to 9,83% per annum.

2.4 The short term portion of borrowings excludes credits and short term advances amounting to R1 732 million (1986 R2 750 million) which are of a revolving nature.

2.5 Options have been granted to certain investors to hold their investment of R822 million in either capital project bills or Eskom local registered stock 164 and 168. These options are available until 1992, at which time the investors are obliged to convert remaining capital project bills into local registered stock.

Eskom has undertaken, at the option of the investors, to repurchase on 1 May 1989 Eskom local registered stock 165 of R180 million which was issued at a rate yielding 15,5% and to sell such stock back to these investors on that date at a yield rate equal to the Public Investment Commissioners' valuation as at 31 March 1989.

2.6 In accordance with the provisions of the Eskom Act of 1987 borrowings and any interest or cost in respect thereof shall be a first charge on all the revenue and assets of Eskom.

Notes to the financial statements (continued)

for the year ended 31 December 1987

3. Fixed assets

	Cost	Accumulated depreciation	Book value
1987			
Land and rights	**268**	**68**	**200**
Buildings and facilities	**2 317**	**431**	**1 886**
Plant – Generation	**16 832**	**2 487**	**14 345**
– Transmission	**2 406**	**470**	**1 936**
– Distribution	**3 014**	**790**	**2 224**
Test and telecommunication equipment	**149**	**91**	**58**
Assets in commission	**24 986**	**4 337**	**20 649**
Works under construction	**5 889**		**5 889**
Construction materials	**186**		**186**
Equipment and vehicles	**542**	**296**	**246**
	31 603	**4 633**	**26 970**
1986			
Assets in commission	19 907	3 509	16 398
Works under construction	7 514		7 514
Construction materials	239		239
Equipment and vehicles	480	268	212
	28 140	3 777	24 363

	1987	1986
4. Non-current assets		
Housing loans to employees	**401**	296
Future fuel supplies	**1 667**	1 484
	2 068	1 780
Housing loans to employees are secured by first mortgage. First mortgages have been ceded to financial institutions as security for loans of the same amount.	**222**	–
5. Stores and fuel		
Maintenance and consumable stores	**347**	333
Fuel	**358**	397
	705	730
6. Operating expenditure		
Operating expenditure includes		
Depreciation	**963**	811
Leasing charges on equipment		
Operating leases	**15**	18
Finance leases	**14**	2
7. Interest and finance charges		
Interest and finance charges	**2 731**	2 279
Amounts capitalised	**(594)**	(660)
	2 137	1 619

Notes to the financial statements (continued)

for the year ended 31 December 1987

8. Restatement of 1986 results

Effective 1 January 1987 Eskom discontinued the capitalisation of corporate overheads to capital works under construction. Following the change from fund accounting to depreciation accounting and the subsequent increase of interest-free internal funding, cognisance was taken of this, internal funding, in calculating the interest capitalised. In order to present the 1986 income statement on a comparable basis operating expenditure and interest and finance charges were increased by R175 million and R275 million respectively, which had the effect of reducing net income by R450 million.

9. Prior year adjustments

In accordance with the Eskom Act of 1987, Eskom has, with effect from 1 January 1987, changed its accounting basis from fund accounting to depreciation accounting.
Due to this change comparative figures for 1986 have been restated and the statutory and other reserves at 31 December 1985, net of accumulated depreciation to 31 December 1985, have been classified as accumulated reserve.
Deferred costs related to delays in commissioning of plant have been written off as at 31 December 1985.
The net effect of these changes is as follows:

Capital Development Fund	6 074
Reserve Fund	344
Redemption Fund	1 530
Capital reserve	1 053
Provision for repayment of foreign loans	138
Deferred proceeds of reticulation system sold	5
Total statutory and other reserves	9 144
Transfer to accumulated depreciation on fixed assets in commission	(2 759)
	6 385
Deferred costs written off	(520)
	5 865

The change in the basis of accounting has resulted in an increase in net income of R1 031 million in respect of the year ended 31 December 1986.

	1987	1986
10. Commitments		
10.1 Capital expenditure contracted for, excluding contract price adjustments and general sales tax, amounts to approximately	**4 625**	7 053
This expenditure will be financed from external borrowings and funds generated internally and is expected to be incurred as follows:		
1988	1 258	
1989	968	
1990	826	
1991	598	
1992	459	
thereafter	516	
10.2 Payments in respect of housing loans granted to employees of approximately	**47**	35
10.3 Lease commitments		
Finance lease in respect of computer equipment		
Payable in 1988	**19**	14
Payable in 1989 – 1992	**66**	62

Notes to the financial statements (continued)

for the year ended 31 December 1987

11. Contingent liabilities

11.1 Eskom has indemnified the Eskom Pension and Provident Fund against any loss resulting from the negligence, dishonesty or fraud of the Fund's officers or of the Trustees.

11.2 An Appeal Court hearing is pending regarding the raising of assessments for general sales tax on certain capital expenditure contracts. Provision has not been made as Management is of the opinion that the General Sales Tax Act has been complied with and has objected to the assessments raised.

12. Retirement benefits

Eskom employees are members of the Eskom Pension and Provident Fund which is a defined contribution plan governed by the Pension Funds Act. The last actuarial valuation was done as at 30 June 1984 at which date the actuaries reported that the Fund was in a sound financial position. The next valuation is as at 31 December 1987. The Trustees of the Fund are of the opinion that the Fund is still in a sound financial position.

Local registered stock

at 31 December 1987

(Figures in R million)

Schedule 1

Loan	Authorised Nominal Value 1987	%	Repayment Date/s	Issued Nominal value **1987**	1986
49	–	6,125	1982/87	**–**	11
50	–	5,25	1982/87	**–**	15
51	29	5	1983/88	**6**	27
58	30	6,5	1989/91	**21**	25
60	35	6,75	1991	**22**	25
61	35	6,875	1992	**16**	17
64	12	6,5	1992	**8**	9
65	37	6,875	1992	**20**	23
70	10	6,5	1993	**5**	6
71	70	6,875	1993	**31**	30
75	22	6,5	1993	**15**	16
76	48	6,875	1993	**25**	32
78	20	6,5	1994	**12**	15
79	30	6,875	1994	**12**	17
81	10	6,5	1994	**8**	6
82	25	6,875	1994	**9**	20
83	18	7,5	1995	**13**	13
84	3	7	1995	**1**	2
85	35	8,75	1995	**10**	13
86	10	8,5	1995	**1**	2
87	45	9,25	1996	**26**	28
88	10	8,75	1996	**5**	3
89	20	9,25	1996	**9**	11
90	30	9,25	1996	**14**	13
91	10	8,75	1996	**3**	4
92	20	9,25	1997	**15**	15
93	22	9,125	1997	**5**	8
94	5	8,75	1997	**2**	1
95	25	8,5	1997	**6**	6
96	28	8,25	1997	**16**	16
97	7	8	1997	**3**	4
98	45	8,25	1997	**32**	33
99	30	8,25	1998	**15**	21
100	20	8,375	1998	**8**	9
101	5	8	1998	**2**	2
103	24	8	1998	**19**	19
104	6	7,625	1998	**2**	2
106	45	8	1998	**7**	15
107	27	9	1999	**15**	18
108	3	8,5	1999	**–**	–
110	30	9,5	1999	**10**	13
111	9	10,75	2000	**2**	2
112	29	10,75	2000	**21**	26
113	40	10,75	2000	**26**	27
114	25	10,75	2000	**19**	19
115	5	10,25	2000	**3**	3
Carried forward	1 044			**520**	642

Loan	Authorised Nominal Value 1987	%	Repayment Date/s	Issued Nominal value **1987**	1986
Brought forward	1 044			**520**	642
116	30	10,75	2000	**11**	15
118	55	11	2000	**26**	32
119	6	10,75	1995	**1**	–
121	40	11,4	2001	**11**	10
122	2	11.1	1986/96	**–**	–
123	40	12,75	1996	**39**	35
126	40	12,5	2001	**33**	29
127	150	12,6	1999	**104**	119
128	–	12,45	1987	**–**	16
130	50	11.5	1989	**30**	34
131	250	11,15	2002	**12**	13
132	250	11,75	2002	**73**	73
133	60	10,9	1988	**45**	39
134	170	10,75	2003	**13**	15
135	270	11,3	2003	**13**	13
136	–	7,25	1985/87	**–**	2
138	150	9,7	2003	**4**	4
139	340	10.25	2003	**39**	39
141	130	8,65	2004	**18**	17
142	350	9,15	2004	**66**	67
144	130	9.05	2005	**10**	10
145	270	9,55	2005	**22**	31
146	–	8,1	1987	**–**	30
147	100	9,05	1992	**48**	58
148	100	9,05	2005	**50**	52
149	230	9,55	2005	**47**	55
150	150	10,25	1990	**106**	101
151	275	10,95	2004	**3**	4
152	100	12,8	1993	**94**	77
153	400	12,95	2006	**91**	60
154	220	10	2007	**214**	1 065
155	170	13,2	2007	**166**	230
156	–	15,15	1987	**–**	214
157	415	14,25	2008	**410**	601
158	905	9,25	1994	**542**	716
159	325	12	2008	**322**	888
160	350	11	2009	**337**	3 081
161	500	14	1989	**317**	311
162	600	14,25	1991	**236**	463
163	125	10,5	2004	**124**	1 534
164	700	14	1992	**226**	269
165	1 000	11	1995	**464**	475
166	1 000	11	1993	**514**	165
167	1 000	12	1996	**513**	–
168	12 040	11	2008	**7 521**	–
	24 532			**13 435**	11 704

Tables

1. **Power stations in service** at 31 December 1987

Name of Station	Type	Location	No. and rating of generator sets MW	Total installed rating MW	Total sent-out rating MW [1]
Acacia	Gas turbine	Cape Town	3 x 57	171	171
Arnot	Coal fired	Middelburg, Tvl	6 x 350	2 100	1 955
Camden	Coal fired	Ermelo	8 x 200	1 600	1 520
Drakensberg	Pumped storage	Bergville	4 x 250	1 000	1 000
Duvha	Coal fired	Witbank	6 x 600	3 600	3 450
Grootvlei	Coal fired	Balfour	6 x 200	1 200	1 130
Hendrik Verwoerd	Hydro-electric	Norvalspont	4 x 80	320	320
Hendrina	Coal fired	Hendrina	10 x 200	2 000	1 900
Hex River	Coal fired	Worcester	3 x 20; 2 x 30	120	103
Highveld	Coal fired	Sasolburg	8 x 60	480	412
Ingagane	Coal fired	Newcastle	5 x 100	500	465
Koeberg	Nuclear	Cape Town	2 x 965	1 930	1 840
Komati	Coal fired	Middelburg, Tvl	5 x 100; 4 x 125	1 000	891
Kriel	Coal fired	Bethal	6 x 500	3 000	2 850
Lethabo	Coal fired	Sasolburg	4 x 618	2 472	2 372
Matimba	Coal fired	Ellisras	2 x 665	1 330 [8]	1 230 [8]
Matla	Coal fired	Bethal	6 x 600	3 600	3 450
Paratus	Gas turbine/diesel	Walvis Bay	1 x 22,4; 4 x 6,4	48	48
Port Rex	Gas turbine	East London	3 x 57	171	171
Salt River	Coal fired	Cape Town	4 x 30; 2 x 60	240	228
Taaibos	Coal fired	Sasolburg	8 x 60	480	440
Tutuka	Coal fired	Standerton	4 x 609	2 436	2 340
Umgeni	Coal fired	Pinetown	4 x 30; 2 x 60	240	216
Vaal	Coal fired	Viljoensdrif	9 x 33	318 [2]	270
Vanderkloof	Hydro-electric	Petrusville	2 x 110	220	220
Vierfontein	Coal fired	Viljoenskroon	12 x 30	360	336
West Bank	Coal fired	East London	3 x 15; 2 x 20	85	74
Wilge	Coal fired	Witbank	2 x 30; 3 x 60	240	216
Total in service, 28 Eskom stations [3]				31 261	29 618
Subtotal, coal fired (21 stations) [4]				27 401	25 848
Subtotal, gas turbine (3 stations) [5]				390	390
Subtotal, hydro electric (2 stations) [6]				540	540
Subtotal, pumped storage (1 station) [7]				1 000	1 000
Subtotal, nuclear (1 station)				1 930	1 840
Total in service, 28 Eskom stations				31 261	29 618

1. Differences 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.

2. Includes three 7 MW house sets.

3. In addition to its own installed capacity, Eskom also has a firm contractual capacity of 1 355MW from Cahora Bassa, which was not available during 1987. It also has agreements to purchase electricity from Swawek, Tescor and some municipalities.

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

5. Used only for peaking or in emergencies.

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

7. Pumped-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.

8. Dry cooled units specifications are based on design back-pressure and ambient air temperature.

Tables

continued

2. Power stations on order at 31 December 1987

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	Year of completion last set
Kendal	Coal fired	Kendal	6 x 686	4 116	3 780	1988	1993
Lethabo	Coal fired	Vereeniging	2 x 618	1 236	1 186	1985	1990
Majuba	Coal fired	Volksrust	3 x 707	4 092	3 840	1991	1999
Matimba	Coal fired	Ellisras	4 x 665	2 660	2 460	1987	1991
Palmiet	Pumped storage	Grabouw	2 x 200	400	400	1988	1988
Tutuka	Coal fired	Standerton	2 x 609	1 218	1 170	1985	1990
Power stations under construction				16 897	15 836		
Plant on order at 31 December 1986				16 897	15 837		
Less plant taken into commercial service during 1987				3 175	3 001		
Plus plant placed on order in 1987				–	–		
Total plant on order at 31 December 1987				13 722	12 836		

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

During 1987 the following plant was taken into commercial service:

	Installed rating	Sent-out rating
Lethabo, Set 3:	618 MW	593 MW
Lethabo, Set 4:	618 MW	593 MW
Tutuka, Set 4:	609 MW	585 MW
Matimba, Set 1:	665 MW	615 MW
Matimba, Set 2:	665 MW	615 MW
Total for 1987	3 175 MW	3 001 MW

3. Transmission and distribution equipment in service at 31 December 1987

	Total 1986	Additions 1987	**Total 1987**
Overhead lines, in circuit km			
765 kV	434*	437	**871**
533 kV DC (monopolar)	1 030	–	**1 030**
400 kV	10 315**	381	**10 696**
275 kV	6 487	111	**6 598**
220 kV	1 239	–	**1 239**
165 kV to 132 kV	15 028**	522	**15 550**
88 kV to 33 kV	20 493	43	**20 536**
22 kV and below	115 535	15 262	**130 797**
Total	170 561**	16 756	**187 317**
Underground cables, in circuit km			
165 kV to 132 kV	67**	–	**67**
88 kV to 33 kV	378*	12	**390**
22 kV and below	3 885	9	**3 894**
Total	4 330**	21	**4 351**
Transformers			
Capacity MVA	109 395	27 278	**136 673**
Number in service	98 133	10 037	**108 170**

**Although two lines are constructed at 765 kV, one runs at this voltage at present and the other at 400 kV.*

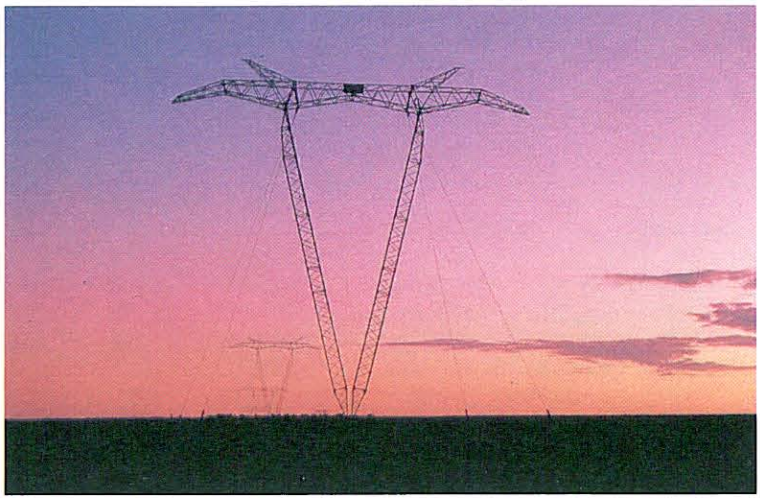
***Figure has been adjusted. Following the reorganisation of Eskom into 12 regions, statistics are recorded from zero base. Some incorrect counting, however, occurred before the regional boundaries were finalised and the necessary adjustments have now been made.*

Tables
continued

4. Operating statistics

	1987	1986	1985	1984	1983
Plant performance					
Total power station capacity, installed rating, MW	**31 261**	28 086	25 716	24 514	22 949
Total power station capacity, assigned sent-out rating, MW	**29 618**	26 682	24 359	23 168	21 673
Peak demand on integrated Eskom system, MW	**20 001**	18 278	17 852	17 296	15 639
Average station availability[1]	**79,2**	78,5	77,5	74,9	71,9
Station load factor, per cent[2]	**54,3**	55,5	58,0	58,1	55,6
Integrated Eskom system load factor, per cent	**73,9**	77,3	76,2	75,0	76,9
Coal burnt, thousands of tons	**65 787,0**	58 915,9	59 488,6	58 703,6	55 010,2
Coal burnt, kg/kW.h sent out	**0,535**	0,515	0,522	0,533	0,546
Average heat rate of coal-fired stations, MJ/kW.h sent out	**11,00**	10,95	11,26	11,45	11,57
Average heat content of coal (as received), MJ/kg	**20,48**	21,19	21,52	21,38	21,11
Overall thermal efficiency, sent-out basis	**32,7**	32,9	32,0	31,4	31,1
Average coal cost, R/ton	**17,11**	14,87	13,25	12,55	12,44
Average coal cost, c/kW.h sent out	**0,9155**	0,7665	0,6916	0,6692	0,6793
Electricity output					
Total electricity sent out in South Africa, million kW.h[3]	**134 751**	130 083	125 962	120 835	112 366
Eskom electricity sent out as percentage of South African total	**96,1**	95,1	94,7	94,3	93,8
Total electricity sent out on Eskom system (Eskom stations and purchased), million kW.h[4]	**132 774**	126 766	122 494	117 086	108 321
Total sent out from Eskom stations, milion kW.h	**132 507**	126 511	121 987	116 581	103 295
Subtotal, from coal-fired stations, million kW.h	**122 947**	114 298	113 941	110 094	100 738
Subtotal, from hydro-electric stations, million kW.h	**1 617**	1 623	624	560	595
Subtotal from pumped-storage station, million kW.h	**1 774**	1 785	2 107	1 994	1 957
Subtotal, from diesel and gas-turbine stations, million kW.h	**2**	2	0	8	5
Subtotal, nuclear power station, million kW.h	**6 167**	8 803	5 315	3 925	–
Total purchased by Eskom and sent out on Eskom system, million kW.h	**267**	255	507	505	5 026
Total consumed by Eskom, million kW.h[5]	**3 229**	3 018	3 265	3 188	2 917
Total available for distribution, million kW.h	**129 545**	123 748	119 229	113 898	105 404
Total sold, million kW.h[6]	**122 524**	117 353,0	112 305,9	106 904,1	98 251,1
Growth in kW.h sales, per cent	**4,4**	4,5	5,1	8,8	2,2
Employees					
Total number at 31 December	**56 830**	60 800	66 000	64 560	62 420
Ratio number/million kW.h sold	**0,464**	0,518	0,588	0,604	0,635
Fixed assets					
In commission at 31 December, Rand millions	**24 986**	19 907	15 497	12 058	9 219
Ratio Rand thousands/million kW.h sold	**203,93**	169,64	137,99	112,79	93,83

[1] *Capacity hours available x 100/total capacity hours in year.*
[2] *kW.h sent out x 100/(assigned sent-out rating x hours in year).*
[3] *Electricity sent out by Eskom and municipalities which generate all or part of their electricity requirement.*
[4] *Includes Eskom electricity sent out to neighbouring countries*
[5] *In respect of pumped-storage facilities and synchronous condenser mode of operation. See Table 1, Note 8*
[6] *Difference between electricity available for distribution and electricity sold is due to transmission losses.*



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