Tariff History

2002-2007

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1. INTRODUCTION

This report reviews the development of large power user (LPU) and small power user (SPU) tariffs as the electricity industry evolved into its present form. The history of the electricity industry influenced the development of these tariffs. The report also looks at how Eskom (previously Escom) became the sole electricity supplier in South Africa. It examines the LPU and SPU tariff history in three periods, that is, prior to the nationalisation of the Victoria Falls and Transvaal Power Company in 1948, leading up to the De Villiers Commission, and since then.

In 1948, the nationalisation of the Victoria Falls and Transvaal Power Company (VFTPC) ended private ownership in the electricity industry and marked the beginning of a new era. From 1948 onwards, responsibility for the generation of electricity lay almost entirely with the Electricity Supply Commission (Escom). The distribution industry, however, did not mirror the centralisation of the generation industry, and in fact, it became more decentralised. This led to the appointment of the De Villiers Commission in 1986, which resulted in the nationalisation of tariffs in South Africa. From 1986 onwards, various tariff options were developed to meet the requirements of the diverse industry to date.

The bulk of the history will concentrate on Eskom Distribution's tariff history, for which the Electricity Pricing Department is accountable.

2. PRE DE VILLIERS COMMISSION

2.1. INDUSTRY STRUCTURE

The generating industry developed in a fragmented and decentralised fashion in response to the demand for electricity by communities, mines, and industries. The ownership of generation and distribution rested with the private and public sectors. The mines and industries generated their own electricity needs. As generating facilities rapidly expanded, centralisation of the generation industry progressed.

2.2. GOVERNANCE

In 1909, the Earl of Selborne, Governor General of South Africa, established a Power Companies Commission to "enquire into the desirability of the establishment of large electric power companies in the Transvaal" − Report of the Power Companies Commission, 1909 (*Mountain, 1994:64*). The commission recommended:

"Since the supply of electric power leads to the establishment of a virtual monopoly in a commodity which has become practically a necessity of modern civilisation, it should, while being left as far as possible to private enterprise, at the

same time be placed under government control and subjected to regulations which shall secure the equitable supply of power, the public safety and public interests generally."

The commission recommended that the electricity supply industry remain in private hands, mainly because of the need to attract foreign investment in the electricity industry in South Africa. Another reason was the need for the state to grow because it meant that the government was simply not in a position to finance the construction of a major power company − Report of the Power Companies Commission, 1909 (*Mountain, 1994:64*).

With regard to tariff regulation, the commission recommended that "it would suffice if the State has the right of supervising prices, such right to be only sparingly exercised". The recommendation was that "no maximum price should be fixed, but prices charged should be subject to revision by the government on the application of any 10 customers, or any number of customers taking not less than 5% of the power companies' output". The commission allowed the electric power companies "to earn a dividend of 10 to 12 percent of the capital invested in remunerative plants". Finally, Act 15 of 1910 prescribed that any undertaking applying for a licence was obliged to submit a schedule of standard prices that the applicant proposed to charge customers. Application was to be made to the Minister of Mines, who was obliged to refer the application to the Power Undertakings Board for eventual hearing of the application. The Board was entitled to modify or approve the schedule of standard prices charged by the undertaking.

The Transvaal Power Act of 1910 enabled the VFTPC and the Rand Mines Power Supply Company to obtain licences to construct new power systems. By 1915, the VFTPC had already erected four power stations (Brakpan, Simmerpan, Rosherville, and Vereeniging) with a total capacity of 160 MW. The considerable centralisation of the power supply led to the large-scale reduction of electricity tariffs, so that, by 1915, the price had been reduced to 0.525 shilling per kWh. At the same time, the VFTPC was able to report increasing profitability.

The Transvaal Power Act of 1910 regulated all undertakings supplying power to others, except the municipalities who were separately regulated by the Provincial Administrator, as had been established by provincial ordinances in 1905. The Act also stipulated that municipalities did not have the sole right to supply electricity in their area of jurisdiction. Nevertheless, undertakings applying for a licence to supply within a municipality's area of supply were subject to a veto from either the Governor or the Local Authority Council, unless it was a supply to mines, railways, or a government department. The Transvaal Power Act of 1910 ended the fragmented and uncontrolled development of the power supply industry, but not of the distribution industry.

Railways drove the next phase in the history of power utilities in South Africa. Electric locomotives had, at that stage, achieved a significant efficiency

advantage over steam locomotives. The railway needed to obtain a source of electricity to power its electric lines. The South African Railway (SAR) could purchase electric power either from the private industry set up specifically for the supply of SAR or from the municipalities. Financial limitations forced it to choose a state-owned power utility for its supply of electricity. This led to the government appointing Dr Charles Merz "to study the general question of the electric power" and to find a solution to the problem of the SAR − Electric Power Supply in the Union of South Africa, 1920 (*Mountain, 1994:65*)[1].

At the time that Dr Merz began his study, there were more than 58 electricity undertakings in the Union of South Africa. These included 40 municipalities and 18 private companies, of which the VFTPC and Rand Mines Power Supply Company were by far the largest. The conclusions and recommendation of the Merz Commission were that[1]:

- an Act be passed by Parliament providing for the regulation and unification of the supply of electricity and other forms of power throughout the Union;
- priority be given to the development of an electric power supply infrastructure to meet the needs of the industry and transport; and
- an Act be passed by Parliament to provide for the establishment of a small body of commissioners with a mandate to encourage new schemes for the development of electric supply and, generally, to administer the Act in accordance with the principles documented in his report.

After the Merz Report had been submitted to the government in April 1920, a committee was appointed under the chairmanship of mining engineer Sir Robert Kotze to investigate the implications of Dr Merz's report *(A Symphony of Power, 2000:70*). The Kotze Committee drew up a draft Electricity Bill and presented it to the Minister of Mines, FS Malan, on 4 March 1922; the final Bill was presented to Parliament in July 1922. The Bill was taken to the Select Committee, which took written and oral evidence from various parties. The Kotze Committee, the Select Committee, and Dr Merz considered several alternative forms of organisation in the electricity supply industry. The most important were the following[1]:

- Private-enterprise supply companies without state control
- Private enterprises, but subject to publicly administered licensing restraints to control prices and to control the means of financing activities
- Supply by municipalities, railway, or government department
- Supply by a state-owned corporation having its own equity capital, but subject to restrictions over the level of profits
- Supply by a state-appointed board or commission, financed by loans and subject to price and other restrictions

The Electricity Act of 1922 concluded the work done by Dr Merz, the Kotze Committee, and the Select Committee. It repealed the Transvaal Power Act of

[1] Electric Power Supply in the Union of South Africa, 1920 (*Mountain. 1994:66*)

1910 and was the first electricity Act to apply to the Union of South Africa as a whole. The first chapter of the Act provided for the establishment of a commission (to be known as the Electricity Supply Commission), consisting of no less than three and not more than five members.

On 6 March 1923, the birth of the Electricity Supply Commission (Escom) was announced with the following notice in the *Government Gazett*e:

"It is notified that His Royal Highness the Governor-General has been pleased, under the powers vested in him by Section One of the Electricity Act, 1922 (Act 42 of 1922), to establish the Electricity Supply Commission referred to in that section as from 1 March 1923 and appoint Dr Hendrik Johannes van der Bijl, MA, Ph.D., as Chairman and whole-time member, and James R Fulton and Robert Niven as part-time members of the Commission."[2]

The Electricity Supply Commission was established as a body corporate in law and had responsibility, *inter alia*, for the establishment, acquisition, maintenance, and working of undertakings for an efficient supply of electricity, the investigation of new or additional facilities to supply electricity within an area, and the coordination and cooperation of existing undertakings to stimulate the provision, whenever required, of a cheap and abundant supply of electricity. As a result, all the undertakings, with the exception of municipalities, SAR, and Harbour Administration, had to apply for a licence to a Control Board established for this purpose.

In deciding whether to issue a licence, the Electricity Supply Commission could undertake the supply itself or could permit private undertakings to supply electricity, the only significant proviso being that any action had to be in the "public interest" (*section 6(4) of the Electricity Act of 1922*). The Act stipulated that, as far as practicable, the Commission's operation should be carried out neither at a profit nor at a loss, and as such, it was subject to regulation.

With regard to electricity pricing, the Act of 1922 stipulated that prices charged were to cover the cost of production (including distribution, maintenance, and administration), amounts required for interest on money raised by way of loan, and a reserve fund for the replacement of obsolete plant and machinery. The Act provided for a schedule of standard prices as a condition of the licence granted by the Control Board. In addition, any surplus profit had to be shared between the licensee and its customers: the licensee was obliged, within six months of completion of each financial year of the undertaking, to distribute to the undertaking's customers, pro rata to their payments, 25% of the surplus profit for that year[3]. This share was increased gradually from 25% to 50% and, finally, to 70% before 1948.

[2] *A Symphony of Power, 2000:75*
[3] *Section 25(2) (a) and (b) of the Electricity Act of 1922*

The Act also allowed the licensee to charge prices above or below those in its schedule of standard prices if[4]:

(a) "the amount of electricity consumed" by a customer justified a discount/premium;
(b) a customer with "uniform or regular demand" was entitled, at the supplier's discretion, to a discount;
(c) supply could be discounted/surcharged for particular customers based on "the time when, or during which, the electricity is required";
(d) "the expenditure of the licensee in furnishing the supply" could be reason for a discount/surcharge; and
(e) any "special circumstances" not included above could be reason for discounts or surcharges.

Finally, the Electricity Act of 1922 also contained the provision that the Governor General, after obtaining reports from the Commission and the Board, could expropriate or seize private undertakings.

The Electricity Act of 1922 resulted in further centralisation of the electricity industry and greater government control and ownership. Private ownership was not rejected, but it became subject to more control, and further expansion of private industry was limited.

The Electricity Supply Commission (Escom, as it became known) took over Colenso Power Station from the SAR. This was followed by the construction of Congella Power Station near Durban and the Witbank, Klip, Vaal, and Salt River stations.

In 1923, Escom opposed an application by VFTPC to construct a power station in the Witbank area to meet the increase in demand of the gold mines after the Rand revolt. The matter was settled by Prime Minister Smuts, who allowed the VFTPC to build and operate the power station, the financing of which was to come from Escom[5].

In the 1930s, with the discovery of new goldfields, the electricity industry headed into a sales boom. Between 1935 and 1936, sales increased by 51%, and this was repeated again between 1936 and 1937[5]. The increasing efficiency achieved through more advanced generation technologies meant that, by 1940, the price of electricity was 0.1755d per unit[5].

On 1 July 1948, Escom negotiated a takeover of VFTPC for 14.5 million pounds. This provided Escom with a well-established power system able to meet the demands of the Rand undertaking. The year 1948 marked an end to any significant private ownership of the electricity industry and the beginning of public ownership and centralised control under Escom.

[4] *Section 26(1) of the Electricity Act of 1922*
[5] *Morgan, Escom 1973 (Mountain, 1994:70)*

In each province, legislation based on regulation was introduced by the Board of Trade Regulations to govern the provision of electricity for public purposes. The approval of the Administrator of each province had to be obtained for alterations or extensions to existing undertakings and for tariffs.

3. ESKOM'S STRATEGIC PRICING DIRECTION FOR STANDARD TARIFFS

In terms of tariff undertakings, the Distribution Electricity Pricing Department is accountable for ensuring that Eskom recovers its revenue on an annual basis. Eskom Distribution is regulated by the National Energy Regulator of South Africa (NERSA), and therefore, the Electricity Pricing Department is mandated to make sure that, when designing tariffs, the overall impact of the changes on Eskom should be revenue neutral. The golden rule is that Eskom should not be put in any kind of revenue risk AND any profit made from tariff recovery has to be clawed back into the budget for the next financial year. In light of such regulations, the Electricity Pricing Department developed some pricing strategic intent to keep the stakeholders informed of the proposed tariff changes/updates.

Eskom's first strategic pricing direction, which was developed in 1999, set out to achieve the following:

- The introduction of network (or "wires") charges
- The retention for some tariffs of a demand charge to recover some of the energy costs
- The pooling of capital costs associated with making supplies available to customers
- The discontinuing of the consumption-based rebate on monthly rentals
- The discontinuing of the reactive energy charges (kvarh) for the time-of-use (TOU) tariffs
- Differentiating of basic charges (or monthly per-customer charges) on four customer size classes
- The alignment of the TOU time zones and seasons with the wholesale electricity tariff
- The merging of the Standardrate tariff with the Nightsave tariff

These goals were, however, achieved by 2005. This resulted in a new strategic pricing direction, which was aligned with Eskom's vision of "***Together building the power base for sustainable growth and development***".

Eskom's strategic objectives for tariffs are now formulated as[6]:

[6] *This new strategic direction has been the driver for changes to tariff restructuring since 2005.*

- **Economic efficiency and sustainability:** tariffs will contain cost-reflective signals that promote economic efficiency and sustainability.
- **Revenue recovery:** tariff structures will not expose Eskom to unacceptable revenue risk and will provide a means of recovering adequate revenue to ensure reliability of supply.
- **Fairness and equity:** tariffs will be designed to be as non-discriminatory as possible by taking into account the needs of all customers on a fair and equitable basis.

4. TARIFF PHILOSOPHY

4.1. HISTORICAL DEVELOPMENT OF TARIFFS IN SOUTH AFRICA

Kimberley Municipality commissioned its first large-scale electricity reticulation system in 1890. Johannesburg, Pretoria, Cape Town, and Durban Municipalities followed suit in 1891, 1892, 1895, and 1897, respectively.

At first, in Kimberley, electricity was used for little more than street lighting. The tariff during that period was simply derived from the simultaneous use of the known number of bulbs and the known power rating of these bulbs. The simplicity of the tariff was due to the absolute certainty that electric lighting was required only during the hours of darkness. The tariff income recovered the cost arising from ownership and operation of the electricity plant.

The first commercial tariff of electricity was derived by Thomas A Edison in 1882, that is, eight years before electricity was introduced in South Africa at Kimberley. The development of this tariff was highly influenced by the development of the filament lamp around that time. The filament was regarded as a source of light far superior to any other available at the time, and early suppliers became known as “electric light companies”. This flat-rate tariff persisted for many years. It is still, to some extent, used in South Africa today, especially for street lighting, where one may still find flat-rate tariffs based on the rating of street lamps.

The flat-rate tariff, when applied to lamps, represented a reasonable approximation of cost of supply, since the lamps were expensive and their life was far more limited than it is today and also since lighting would be used mainly in the evening. Electricity, during this time, was used for only part of the day; outside of this, the generating facilities were idle. It was not long, however, before industrial and motive power was found to take up some of the unused capacity during daytime.

The fact that the same plant was used for different consumers at different times of each day presented a cost-allocation problem; that is, the use of electricity became diverse. It became very difficult to devise a formula whereby customers’ monthly payment for electricity was based solely on a detailed knowledge of their individual pattern of use. There was a great need to design a tariff that recovered

from consumers the cost of supplying electricity, that is, to design a simple set of prices that the utility would charge for the provision of power to diverse customers.

The origin of a new costing philosophy for designing a tariff for time-of-the-day customers can be traced to 1882 when an electrical engineer, Dr John Hopkinson, expressed the view that[7]:

"*… the expenses of any undertaking could be divided into two classes, expenses which are quite independent of the extent to which the undertaking is used, and expenses which are absent unless an undertaking is used and which increase in proportion to its use.*"

Hopkinson proposed the division into two sets of costs of supplying the customer with electricity:

1. The "running costs", which he regarded as those incurred in the actual operation of the plant.
2. The "standing costs", which he called the cost relating to the readiness to supply electrical energy. This readiness consists of the generation, transmission, and distribution infrastructure that has been established in order to supply the customer.

The cost to the customer for the first (1) service is entirely dependent on the amount of energy (kWh) consumed (variable cost), while the cost to the customer for the second (2) service is fixed in the short term in that it is not dependent on whether that particular consumer purchases energy (a fixed cost).

By definition, the **variable cost** (1) is directly related to the number of kWh supplied. This *energy-related component* consists of the cost of fuel and water consumed by the generating stations in supplying the electrical energy used by the utility's consumers. Considering the simplified example of consumers using electricity for lighting only, the integrated time for which their light bulbs are switched on during the year will determine the energy-related costs incurred on their behalf.

The **fixed cost** (2) is largely dependent on the cost of the necessary generation, transmission, and distribution equipment. This *plant-capacity-related component* includes interest, redemption, and other financing charges on the plant installed to satisfy the summated power demand of the consumers. These costs are, in turn, influenced by the kW capacity of the plant equipment, and hence, it is reasonable to specify the fixed costs per unit of electrical capacity (kW). Maximum capacity during Hopkinson's era was estimated by the number of installed lights and heaters. It was only in 1896 when Arthur Wright successfully used the ammeter

7 Mountain, 1994:15

at his Brighton utility that he was able to meter each customer's maximum demand and, hence, implement the "Hopkinson two-part tariff".

The Hopkinson two-part tariff remains the basis of the maximum demand tariff, which is still extensively applied today to large power users (LPUs). Hopkinson justified the apportionment of fixed costs with the argument that the supplier of electricity had to install enough plant capacity to meet the peak requirements of the consumers. However, economists have since pointed out that it is not, in fact, the peak demand of the consumer that is of prime importance, but the demand of the consumer at the time of the demand peak on the facilities of the supplier.

Although *demand-related tariffs* increased in popularity, they were still used on what were predominantly lighting loads, which did not justify the additional complexity and costs, since the probable period of the load could be fairly estimated and allocation of the fixed cost calculated accordingly. As the same tariff was applied to industrial loads when these become available, the supplier now obtained a double return on his fixed charge, since the industrial user's peak was entirely outside the then dominant domestic lighting peak and the supplier did not need to install a further plant to meet the additional load demand. This led to the establishment of *different consumer classes*, that is, domestic and industrial consumers.

Gradually demand-related tariffs for domestic electricity consumers became less acceptable, and with the increasing number of consumers, there was a constant desire to simplify the metering equipment and tariff structures. This, in time, led to new domestic electricity tariffs such as the **one-part tariff** and the **two-block tariff**.

The cost of metering created obstacles for the Hopkinson two-part tariff, and for that matter, the two-part tariff became the three-part tariff when customer-related costs were introduced. The customer-related cost in South Africa was called the **basic charge**. This recovered the cost specific to the customer – generally regarded as comprising the cost of service connection, meters, meter reading, billing, and collection.

With the introduction of small power user tariffs, the three-part tariff in South Africa became known as **tariff A**, which is applied to large electricity users.

4.2. SMALL POWER USER TARIFFS

The tariffs for small power users (SPUs) (B, C, and D), which account for more than 96.6% of Eskom's total number of customers, but less than 8.8% of the total revenue, have been shaped by political and economic developments. If the prepaid customers are included in this figure, the number of SPU accounts will be 99.4% of total customers, which contributes 13% and 7% of the total revenue. The SPU tariffs do not offer the same opportunities as LPU tariffs. Of importance in LPU tariffs is that cost-reflectivity and practical considerations such as metering

and implementability are made for SPU tariffs, since the revenue generated from small users is much smaller in proportion to the cost of metering and administration. Eskom is, however, piloting the Homeflex tariff, which takes the time of usage into account. The Homeflex tariff will then allow customers to choose whether they would like to have a time-of-use or a non-time-of-use tariff.

4.3. TARIFF ADJUSTMENT

The electricity industry was faced with a history of frequent tariff (price) changes. This was influenced by a regulatory lag and the constant price increase of coal used in conventional power stations. To guard against the effect such increases may have had on the balance between revenue and expenditure, most electric utilities had fuel price clauses in their supply contracts.

5. POST DE VILLIERS COMMISSION

5.1. INDUSTRY STRUCTURE

The continuing high price increases motivated the De Villiers Commission to look at the supply of electricity in South Africa. The commission's mandate was to investigate the legislation pertaining to the structure, cost-effectiveness, pricing policy, and functions of existing institutions involved in supply. Its recommendations were as follows:

- The principle of operating at neither profit nor loss should be discarded in favour of a sound asset and income structure complying with certain requirements.
- The industry should be integrated, and production costs (excluding transmission and distribution costs) should be pooled.
- A permanent board of control, with a chairman appointed by the State President, should be responsible for the supervision of an independent Escom management board.
- The task of the management board should be to run Escom properly.

The recommended board of control made provision for a high degree of customer representation in the agriculture, mining, municipal, and commercial sectors. For the first time, customers were comprehensively represented in Escom.

5.2. GOVERNANCE

The Electricity Act of 1958 was replaced in its entirety by the new Electricity Act of 1987. Escom was renamed Eskom, and it was exempted from applying for a licence from the Electricity Control Board, which henceforth had only limited jurisdiction over Eskom's activities. Eskom had jurisdiction over tariff levels, while the Electricity Control Board had jurisdiction over tariff structure.

The price levels of the end-user tariffs are set by forecasting total kWh consumption and arriving at an average c/kWh price necessary to recover the forecast required revenue.

On 1 April 1995, a new regulatory authority, the National Electricity Regulator (NER), was established (in terms of the Electricity Act of 1987, as amended) as successor to the Electricity Control Board (*www.ner.org.za)*. The main objective of the NER was to control the electricity supply industry in terms of the Act. Its main regulatory areas were:

- pricing and tariffs;
- licensing;
- customer complaints and dispute resolution; and
- quality of service and supply.

5.3. TARIFF PHILOSOPHY

As recommended by the De Villiers Commission, tariffs were nationalised in January 1986. This meant that tariffs were uniformly applied countrywide. Extension charges were removed, and all costs were pooled and included as a single sum of capital expenditure in standard tariffs.

The “50/50” rule was altered in 1986 after an empirical derivation showed that, at an Eskom level, the rates of standard tariff A should be set in such a way that the energy rate was 40% and the demand rate was 60% of the tariff for a unity power and unity load factor customer.

Two new tariffs were introduced in January 1986 (tariff E) and July 1987 (tariff F) following the findings of the De Villiers Commission. Tariff E was based on A, but allowed for the maximum demand charge to be levied on the maximum demand measured during peak only. It benefited large power users whose demand pattern was such that peak demand could be moved to occur in Eskom’s off-peak periods.

Tariff F is very similar to the standard tariff A, except that it was designed specifically for rural variable supplies with a low load factor and high maximum demand, in particular irrigation farmers. Supply on this tariff is limited to customers with maximum demand greater than 25 kVA, but whose supply voltage is in the range 500 V to 22 kV.

Eskom’s first time-of-use (TOU) tariffs were developed during 1989 and 1990. From 1978 to that time, little progress had been made with these tariffs in spite of repeated efforts. They also met considerable resistance, but Eskom developed them for three reasons:

1 To contribute to the efficient allocation of national economic resources, not only among different sectors of the economy, but also within the electricity supply industry.
2 To adequately reflect the cost of supplying electricity in meeting any type of demand pattern so that decisions affecting the use of electricity could be based on the true cost of providing it.
3 To provide customers with incentives to adopt consumption patterns that led to a more effective use of electricity and, thus, to reduced supply costs.

The first two time-of-use tariffs introduced were T1 and T2. Tariff T1 is for supplies of 1 megavolt-ampere (MVA) or larger with a maximum demand charge and tariff T2 without maximum demand charge for supplies of 100 kilovolt-ampere up to 5 megavolt-ampere. The tariffs are suitable for customers who are able to manage their electricity consumption and maximum demand according to Eskom's specified time periods. The first time-of-use customer, Henry Ford, was taken onto the system on Friday 10 May 1991 (*Eskom Tariff History, 1973-1991:12*).

A third TOU tariff was introduced in January 1994. This was driven by underrecovery of costs from rural customers who were on tariff T2, since no allowance had been made on tariff T2 for higher losses associated with rural networks and higher support costs in rural areas − Ligoff and Hager, 1993 (*Mountain, 1994:110*).

This tariff was available in two pricing options: Ruraflex 1 and Ruraflex 2, the difference being based on the size of installed capacity (Ruraflex 1 =< 50 kVA and Ruraflex 2 > 50 kVA).

On 1 September 1989, another SPU tariff (S1) was introduced for low-usage customers at low cost to both Eskom and the customer. This was driven by Eskom's vision of electricity for all at prices they could afford. It was intended to break even with tariff C at a consumption level of 355 kWh per month. Tariffs S2 and S3 were subsequently developed: with S1, Eskom financed the capital cost of the bulk supply, reticulation network, and service connection; with S2, Eskom financed the capital cost of the service connection or any part of the reticulation up to R1 000 per stand; and with S3, the customer financed all of the bulk supply, reticulation network, and service connection costs − Barnard, 1992 (*Mountain, 1994:114*).

In 1994, there was a request from the Electricity Council (a policy formulation body) to investigate more appropriate names for the available tariffs that would reflect, for customers, what the tariff entailed and so aid customer choice. New tariff names would also assist the marketing of electricity as customer product or commodity. After internal lobbying and market research, the names were changed to Standardrate (tariff A/F), Nightsave (tariff E), Maxiflex (tariff T1), Miniflex (tariff T2), Ruraflex (no change), Businessrate (tariff B), Landrate (tariff D), Homepower (tariff C), and Homelight (tariff S). Maxiflex was changed to

Megaflex in 1995 because Maxiflex was already a registered brand name of another company.

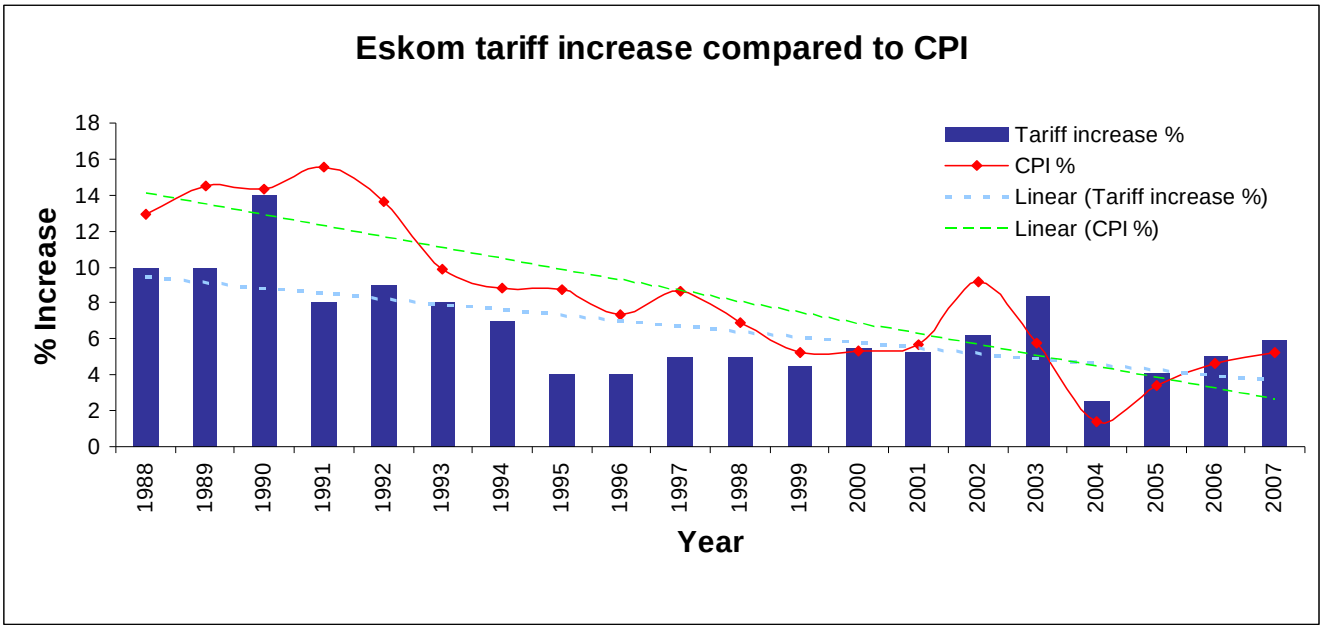
There was only one Standardrate tariff in 1995 and 1996 for rural and non-rural customers. In 1997, Standardrate was split for non-rural and rural customers, with the same voltage distinction as tariff A and tariff F of yesteryear. The energy and demand rates were almost identical, but with the rural standard rates slightly higher. Connection fees were introduced in 1996 to recover the portion of the project cost of installation for new supplies.

From 1 January 2000, Standardrate and Nightsave were merged into a single tariff called Nightsave.

Although a domestic time-of-use tariff has been used by other international utilities, Eskom only started experimenting with its Homeflex tariff in 1993. The intention was to provide domestic customers with choices of tariffs and also to extend the demand-side management programme. Homeflex is the longest piloted tariff in the history of Eskom.

5.4. AVERAGE PRICE LEVEL

Eskom's average tariff increases for the past 19 years were below inflation until 2003, but have risen to above inflation levels since 2003, as indicated in the graph below.



5.5. PRESSURE TO CHANGE

5.5.1. Government perspective

The electricity industry throughout the world is changing mainly, but not solely, because electricity utilities are coming under new pressures resulting from globalised markets and governments opening up their countries to foreign investors to help fund power sector expansion and development. South Africa is not exempt from these changes and will have to align itself with developments taking place in the rest of the world. The challenges of global competition have only recently begun to be addressed. The government believes that to ensure the success of the electricity supply industry (ESI) as a whole in South Africa, it will be necessary over time to[8]:

- give customers the right to choose their electricity supplier;
- introduce competition in the industry;
- permit open, non-discriminatory access to the transmission network systems; and
- encourage private sector participation in the industry.

Government's electricity pricing policy is to achieve a balance between equity, economic growth, and environmental goals. A balance has to be established between affordable electricity prices for households, low-cost electricity for industrial consumers, prices that provide efficient market signals by accurately reflecting the cost of supply, and a general price level that ensures the financial sustainability of electricity utilities[9].

5.5.2. Eskom perspective

Eskom is under internal pressure to:

- gear up for competition;
- retain an interest in the electricity distribution industry (EDI) drive;
- retain focus on electrification; and
- generate funding for the business in the interests of:
  - ✓ growth (capitalisation of Eskom enterprises); and
  - ✓ socio-economic objectives (rural development and urban renewal).

6. CHANGES AFFECTING ALL TARIFFS

6.1. THE TARIFFS (DETAILED YEAR BY YEAR)

This section covers all the tariffs from inception until the year 2007. The history of tariff rates is tabulated year by year to give an overall history of each tariff.

Table 1: Megaflex: time-of-use (TOU) tariff

[8] White Paper on Energy Policy

The connection fee (a contribution towards the cost of providing the supply) was introduced in 1993, two years after Megaflex was introduced as tariff T1. The basic charge was introduced in 1992. This basic charge was separated into three components in 2002. The three components consisted of a service charge, an administration charge, and a network charge. (The network charge was only applicable to Ruraflex and Nightsave (Rural) at the time.) The service and administration charges were separated into five categories of capacity.

The voltage differentiation methodology was changed from a discount to a surcharge.

Table 2: Miniflex: time-of use (TOU) tariff

This tariff has the same structure as Megaflex, except that it has no demand charge. The table shows tariff figures from 1991 when the tariff was introduced.

Table 3: Ruraflex: time-of-use tariff (TOU) for rural customers

The tariff is divided into Ruraflex 1 and 2. The table shows tariff figures from 2002.

Table 4: Nightsave: large power users

Table 4 shows demand rates voltage-differentiated from 500 V.

Table 4c shows the discontinuation of the voltage-differentiated demand charge and the introduction of the voltage discount.

In 2002, the demand rates for the Nightsave tariff were seasonally differentiated in order to strengthen the demand-side management (DSM) signal in these tariffs.

7. THE HISTORY OF MONTHLY CONNECTION CHARGES

Monthly connection charges are the payment towards the cost of connection and/or capacity where Eskom has provided financing for the cost and the customers pay this back monthly over a fixed period.

Monthly connection charges have been called a number of different names over the past 20 years or so and have been applied in slightly different ways. They were named monthly extension charges in the 1980s, monthly rentals in the 1990s, and monthly connection charges in the 2000s. This document sets out the history and application of monthly connection charges from 1982.

All electricity tariffs contain capital as part of their structure, which has to be subtracted up front from the cost of providing supply. The allowance for capital recovery is called the capital rebate. By not granting the rebate, a customer could end up being double-charged. In some cases, the tariff does not fully recover the

cost of making supply available. It is then expected of the customer to contribute towards the capital cost of supplying electricity. This cost is recovered from the customer, either as a cash contribution or as a monthly contribution over a period of up to 25 years.

1982

In 1982, monthly extension charges for rural supplies were reduced by 40%, and the cost of this reduction was included in the tariff. The reason for this was to reduce the cost of connection for new customers and to share this cost over the customers' base. This decision came about due to a request from the agricultural sector. This resulted in a new tariff being introduced in January 1982, called tariff D or Landlight, as it currently known. This tariff catered for customers in rural areas whose NMD did not exceed 100 kVA.

Eskom, at this time, also had regional tariffs, with a R/kVA rebate being applied to the large power tariffs.

1986

In 1986, Eskom's tariffs were nationalised, and a 2 km rebate (first 2 km free) was introduced for the Landrate tariff. The reason for the rebate was a government-mandated subsidy to encourage rural electrification. It was really, at this stage, that the rural subsidies were introduced. All existing monthly connection charges on Landrate were recalculated and reduced.

There was no separate rural large power user tariff, and the R2/kVA rebate of the monthly connection charge was applied based on the chargeable demand to the two (tariff A and tariff E) tariffs applicable at the time (precursor tariffs to the current Nightsave tariff). No upfront rebates were given on connection charges for the large power tariffs.

1989

In 1989, a review of the 2 km rebate was done and a decision made to reduce the upfront capital allowance from 2 km to 200 m to reduce the high level of subsidies.

1992

In 1992, the TOU tariffs were introduced, and additional consumption rebates based on c/kWh were introduced as follows:

Tariff	**Monthly rental**	**Consumption rebate (RCC)**	**Upfront rebate**
Ruraflex	MR	01.81 c/kWh*	N/A
Nightsave Urban	MR	R2/kVA	N/A
Nightsave Rural	MR	R2/kVA	N/A

Megaflex	MR	R2/kVA	N/A
Miniflex	MR	01.81 c/kWh	N/A
Homepower	N/A	N/A	Cash
Homelight	N/A	N/A	Cash
Businessrate	N/A	N/A	Cash
Landrate	N/A	N/A	Cash

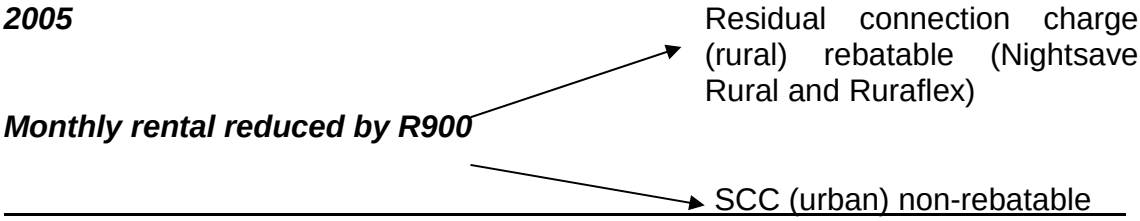
On retail energy

2002

Monthly rentals for rural customers (Landrate, Ruraflex, and Nightsave Rural) were reduced by R900 per month to reduce the number of sharing calculations required. When a new connection is made, each case should be evaluated to see whether the new customer does not share in a line that is being paid by an existing customer. The aim was to reduce the number of calculations to be made. Similar to 1982, the result is a slightly higher tariff (by about R25 per month) for all rural customers.

This resulted in the majority of rural customers no longer having an MCC (the monthly rental was now changed to be called a monthly connection charge). The MCCs for urban customers and PCC (premium connection charge) for all customers remained unchanged.

2005



Rural customers

After deducting the R900 from the monthly connection charges for customers on the rural tariffs, a number of customers remained that had monthly connection charges. The remaining number of customers for Ruraflex was 139 and for Nightsave rural 433. This remaining connection charge was called the residual connection charge (RCC). The RCC was then introduced and, for the large power rural tariffs, applied the same way it had formally been applied when it had been known as the rebatable monthly rentals.

The consumption rebate applied on the RRCC was:
Ruraflex: 1.81 c/kWh (on retail energy)
Nightsave Rural: R2.00

Urban customers

After deducting the R900 from the monthly connection charge for the customers on the urban tariffs, this remaining connection charge was called the standard connection charge. The R2/kVA consumption rebate for Megaflex and Nightsave Urban and the 1,81 c/kWh was removed. A once-off reduction based on the aforementioned values was implemented using the highest demand in all time periods over the 12-month period from 1 November 2003 to 31 October 2004. This was automatically done by CC&B.

Some of the terminology used

Capital rebate/capital allowance
The capital rebate became known as the capital allowance.

Monthly connection charge
The monthly connection charge is now the collective name for payment on a monthly basis of the standard, premium, and/or rebatable connection charges.

The **premium connection charge (PCC)**, previously known as the fixed capital charge, is a monthly repayment of the required capital contribution where Eskom provides a customer with financing for any above-standard supply. The calculation of the PCC is based on a maximum repayment period of 25 years at a given interest rate. No consumption or demand-based rebates are given on PCCs.

The **residual connection charge (RCC)**, previously known as the rebatable connection charge and before that known as the rebatable monthly rental, is a repayment of a capital contribution where Eskom provides a customer with financing. The calculation of the RCC is based on a maximum repayment period of 25 years at a given interest rate. Consumption or demand-based rebates are applicable on any residual RCCs, only applicable on Nightsave Rural. The residual connection charge for urban customers became an SCC, which has not been rebatable since 2005.

The **standard connection charge (SCC)** is a monthly repayment of a capital contribution where Eskom provides a customer with financing and is payable for a standard supply only. The calculation of the SCC is based on a repayment period of 25 years at a given interest rate. Consumption and demand-based rebates are not applicable on SCCs.

8. TARIFFS AFTER 2001

2002

Voltage discounts

The voltage discount was replaced by the voltage surcharge. Tariffs will, therefore, be published at the level of the main transmission stations (> 132 kV).

Basic charge

The basic charge was separated into three components, namely, a service charge, an administration charge, and a network charge. The network charge was only applicable to Ruraflex and Nightsave (Rural). The purpose of the network charge was to recover part of the fixed network costs associated with the provision of network capacity required by the customer. The introduction of network charges started with rural tariffs where extensive rural reticulation networks existed and the utilisation of capacity was poor. The service charge was to be levied at account level, while the administration charge was levied at point of delivery (POD) level. The service charge was differentiated into four size classes to more accurately reflect the cost of providing customer service and metering and billing services.

The basic charge will also be separated for Homepower, Landrate, and Businessrate into a network charge and a new basic charge. The bulk of the distribution network charge for Homepower, Landrate, and Businessrate will be included in the network charge.

Seasonally differentiated tariffs

In order to strengthen the demand-side management (DSM) pricing signal in the tariffs, the Nightsave energy and demand rates were seasonally differentiated based on the WEPS purchasing cost.

Nightsave off-peak during December

The period from 22:00 on 15 December to 06:00 on 2 January was regarded as totally off-peak. This off-peak period did not exist in WEPS, and because the tariffs have to be aligned with WEPS periods, this two-week period was withdrawn.

Monthly rental rebate

The monthly rentals for Ruraflex and Nightsave (Rural) were reduced by R900 per month. The number of customers with monthly rentals will be reduced by rebating the existing monthly rentals and introducing a network charge to recover the bulk of the cost of monthly rentals for Homepower, Landrate, and Businessrate.

Minimum accounts

Customers with low load factors or with erratic consumption do not contribute a fair share to Eskom's fixed costs. It was for this reason that Eskom introduced

minimum accounts to recover part of the fixed costs during months of low consumption relative to installed capacity.

2003

Network charges were introduced for the Homepower tariff, and the network charges were to be phased into the network charge to retain the DSM signal in the tariff.

2004

Nightsave (kW)

The Nightsave (kW) option was withdrawn. Conversions from Nightsave (kW) to Nightsave (kVA) were free of charge.

Homepower

This tariff will have an upper limit because it is currently possible to have a 1 MVA supply size on Homepower as a bulk supply to domestic sectional title developments. For supplies of 100 kVA or less, Homepower will have network charges based on the notified supply size. Homepower Standard will no longer be offered for new supplies larger than 100 kVA. Miniflex and Megaflex were offered for supplies greater than 100 kVA.

Inter-tariff subsidy charge

Previously, the subsidies paid or received were hidden. Customers were, therefore, not aware of the subsidy paid or received. To address both the fairness and the transparency of subsidies, this subsidy will be shown on customer bills as the “rate-rebalancing levy”. Energy rates will, therefore, be adjusted to exclude all levies, as this levy will now be shown separately.

Change to the Ruraflex tariff description

Up to now, Ruraflex was defined as Eskom’s tariff for three-phase supplies only. Due to customer demand, the description changed as follows:

For electricity supplied to a customer from a network specifically designated by Eskom as a rural reticulation network who has agreed to be charged for his supply on a time-of-use basis and if the supply is furnished at a declared three-phase voltage from 400 volts up to and including 33 000 volts, or dual-phase supply at a declared phase to neutral voltage of 230 volts where the phases are vectorially 180 degrees apart and cannot be paralleled, the following charges shall apply.

2005

Two-part network charge

In order to address the 2004 retail restructuring plan, network charges do not send a strong-enough DSM signal. Another concern was that the structure of the network charges was not flexible. Eskom has, therefore, introduced a two-part network charge that will recover network charges through two independent charges.

The first of the two is the network access charge (NAC). For Megaflex, Nightsave (Urban), and Miniflex, this NAC is a monthly R/kVA charged on the utilised capacity. Network charges were previously recovered in the energy charge.

The second is the network demand charge (NDC), which is a monthly R/kVA charge for the Megaflex and Nightsave (Urban) tariffs and is based on chargeable demand in peak and standard periods. For the Miniflex tariff, the NDC is a c/kWh rate to be added to the peak and standard energy charges.

The demand charge for Nightsave (Urban) is reduced, as network costs previously recovered in this charge are now recovered through network charges. The demand charge now recovers peak energy costs and will be referred to as the energy demand charge.

Removal of the reactive energy charge during low-demand season

The reactive energy signal to the Nightsave tariff during the high-demand season increases over that of the TOU tariffs and decreases in the low-demand season. In order to align the reactive energy signals between the TOU and the Nightsave tariff structures, Eskom proposed that reactive energy charged be retained for all TOU tariffs, but with reduced value and only applicable in the high-demand season.

Daily rates for service, administration, and fixed network charges

The rates for service and administration charges will be shown as a R/day charge instead of a R/month charge because the formula used to calculate the rate for customers with more or fewer than 30 days in a billing month was too complicated.

Rate rebalancing

No rate rebalancing to reduce cross-subsidies between tariffs was proposed for 2005.

2006/7

Rationalisation of Hometake

The Hometake tariff applies mainly to areas that Eskom was required to take over in the 1990s such as Soweto. Eskom then inherited their rates and tariff structures, which were much lower than the Eskom-approved tariff rates. A process of normalisation has since been applied, and tariffs are now at least equal to the approved Eskom tariffs.

It is proposed that the Hometake tariff be rationalised. Customers who are currently on the Hometake tariff will have a choice of either moving to the Homelight 1 20 A or 60 A tariff or the Homelight 2 20 A or 60 A tariff. This will result in an increase in the c/kWh rate from 35.33 c/kWh to 40.41 c/kWh.

2008/9

Renaming of the rate-rebalancing levy

The term "rate-rebalancing levy" (RRL) was changed to electrification and rural subsidy. This change was made because RRL was confusing and did not specify what it was for. The RRL is a subsidy paid by Miniflex, Megaflex, and Nightsave Rural customers to urban and electrification customers.

Homelight 1 20 A as the entry-level residential tariff

NERSA has approved the Homelight 1 20 A tariff as the entry-level residential tariff. There will be no connection fee applicable to this tariff. This was implemented from 1 December 2007. The Homelight 2.5 A and 10 A tariffs will, therefore, no longer be part of the suite of supply options.

POD size and POD category definitions

The POD and account sizes were previously defined as follows:

Small	<= 100 kVA	
Medium	> 100 kVA and ≤ 500 kVA	
Large	> 500 kVA and ≤ 1 MVA	
Very large	> 1 MVA	Except for Megaflex, which is ≥ 1 MVA
Key	Key	

The very large customer category for Megaflex was changed to > 1 MVA, which is in line with the rest of the very large customer categories.

Split Nightsave Urban into Nightsave Small and Nightsave Large

Nightsave Urban split into the following categories:

Nightsave Small	≤ 1 MVA	2 070 PODs

Nightsave Large	> 1 MVA	359 PODs

9. HISTORY OF VOLTAGE DIFFERENTIATION

The following table gives the history of how Eskom has increased the voltage differentiation over time. This has been done in order to reduce the intra-tariff cross-subsidies paid by the higher-voltage supplies.

Voltage price differentials	< 132 kV	≥ 66 kV and ≤ 132 kV	> 500 V and < 66 kV	< 500V
1996	0	1,9%	3,7%	5,6%
1997	0	2,3%	4,7%	7,0%
1998	0	2,9%	5,8%	9,3%
1999	0	3,3%	6,6%	10,8%
2000 - Jun 2002	0	5,3%	7,1%	12,8%
Jul 2003 - 2007	0	7,6%	10,1%	17,3%
2008 proposed	0	11,3%	14,6%	25,0%

10. ELECTRICITY TARIFFS TODAY

2007/8

Current tariffs and their components

	Tariff	Supply size	Service charge	Administration charge	Network charge	Energy demand charge	(Active) energy charge: non-TOU	(Active) energy charge: TOU	Reactive energy charge	Rate-rebalancing levy
Urban	NIGHTSAVE Urban	≥ 25 kVA	R/day	R/day	R/kVA 4, 5, V, T	R/kVA V, T	c/kWh V, T			c/kWh
	MEGAFLEX	≥ 1 MVA	R/day	R/day	R/kVA 4, 5, V, T			c/kWh V, T	c/kvarh T	c/kWh
	MINIFLEX	≥ 25 kVA and ≤ 5 MVA	R/day	R/day	R/kVA 4, V, T			c/kWh V, T	c/kvarh T	c/kWh
	BUSINESSRATE 1	≤ 25 kVA	R/day *		R/day		c/kWh			
	BUSINESSRATE 2	> 25 kVA and ≤ 50 kVA	R/day *		R/day		c/kWh			
	BUSINESSRATE 3	> 50 kVA and ≤ 100 kVA	R/day *		R/day		c/kWh			
	BUSINESSRATE 4	≤ 25 kVA					c/kWh			

Residential	HOMEPOWER Bulk+	No limit	R/day *		R/day V		c/kWh V			
	HOMEPOWER 1	25 kVA	R/day *		R/day		c/kWh			
	HOMEPOWER 2	50 kVA	R/day *		R/day		c/kWh			
	HOMEPOWER 3	> 50 kVA and ≤ 100 kVA	R/day *		R/day		c/kWh			
	HOMEPOWER 4	16 kVA[1]	R/day *		R/day		c/kWh			
	HOMELIGHT 1	60 A, 20 A, or 10 A					c/kWh			
	HOMELIGHT 2	60 A or 20 A					c/kWh			
Rural	NIGHTSAVE Rural	≥ 25 kVA	R/day	R/day	R/kVA 4, V, T	R/kVA V, T	c/kWh V, T			
	RURAFLEX	≥ 25 kVA[2/3]	R/day	R/day	R/kVA 4, V, T			c/kWh V, T	c/kvarh T	
	LANDRATE 1	16 kVA[1]/32 kVA[2]/25 kVA[3]	R/day *		R/day		c/kWh			
	LANDRATE 2	64 kVA[2]/50 kVA[3]	R/day *		R/day		c/kWh			
	LANDRATE 3	100 kVA[2/3]	R/day *		R/day		c/kWh			
	LANDRATE 4	16 kVA[1]			R/day		c/kWh			
	LANDRATE Dx	10 A	R/day **							

10.1 LANDLIGHT TARIFF

The Landlight tariff was proposed with the following motivation:

- To support the Government's drive for universal access.
- To provide a tariff solution to suit the needs of the target customers.
- To reduce non-payment and disconnections due to unaffordable tariffs.
- To provide a means for those customers not included in electrification projects to gain access to electricity.
- To create a new tariff that is more affordable without high fixed charges.
- To provide the appropriate supply size or capacity to ensure the effective use of resources.

TOU *Time-of-use (a tariff that has different energy rates for different time periods and seasons)*

+ *Not applicable to new supplies* *V* *Subject to voltage surcharge* *T* *Subject to Transmission surcharge*

1 *Single-phase* *2* *Dual-phase* *3* *Three-phase*

4 *Network access charge (NAC)* *5* *Network demand charge (NDC)*

* *The service charge for these tariffs includes the administration cost components, namely, meter reading, billing, and meter capital.*

** *The service charge for this tariff includes the administration, network, and energy cost components.*

Tariff description

Landlight is a tariff that will cater for all rural supplies, as defined by Eskom (for example, residential or small-scale farming), that require electricity connection at 20 A single-phase supply size and typically where there are shared transformers. The tariff will be targeted at customers in areas defined by Eskom as rural and who require a single-phase 20 A supply. The tariff structure will be a single energy rate with no fixed costs applicable; the tariff rate will be lower than any other rural tariff at 78 c/kWh. Note: customers only pay for the energy portion of the bill, not for networks.

Tariff criteria

- Supply size = 20 A.
- Tariff structure – single energy rate – no monthly fixed charges.
- Reduced capital allowance: based on current Landrate 4 allowance: R40 602/4 customers = R10 150 per customer.
- Projects partly funded by NEF, Eskom funds difference.
- Costs greater than subsidy and capital allowance funded by customer.
- Capital contribution – paid upfront payment; will be calculated based on NAP.
- Connection fees = same as Homelight 60 A (R1 100).
- Break even with Landrate customers at acceptable levels (< 500 kWh).
- Tariff rate = 78 c/kWh.
- No urban customers will be allowed to convert to Landlight tariff.

Current status

Landlight is still to be approved by the NERSA.

10.2. HOMEFLEX TARIFF

The Homeflex tariff would be suitable for medium- to high-usage residential suburban customers, consuming an average of 500 kWh per month, who have the ability to shift load from the expensive peak period to the less expensive off-peak periods. Mandatory load management of the customer's non-essential appliances by the utility is compulsory with the tariff.

The Homeflex tariff is made up of a range of tariffs, as follows:

Homeflex 1: for **25 kVA three-phase** supplies (40 A per phase)

Homeflex 2: for **50 kVA three-phase** supplies (80 A per phase)

Homeflex 3: for **> 50 kVA and ≤ 100 kVA three-phase** supplies (150 A per phase)

Homeflex 4: for **16 kVA single-phase** supplies (80 A per phase)

The Homeflex tariff consists of unbundled energy and wires charges, namely:

- A two-part peak and off-peak time-differentiated and seasonally differentiated energy rate.
    - A decision was made to go for a two-part TOU tariff for residential customers, as it is simpler than the current three-part off-peak, standard, and peak TOU tariffs used in Eskom.
    - This decision was based on customer understanding and on the finding from the tariff pilot test that there was an insignificant difference in customers' response to the three-part and the two-part tariffs.
    - The off-peak tariff energy rate is made up of a combination of the off-peak and standard energy rates, based on Generation's purchase tariff energy rates and some network costs.
    - Some network costs were included in the energy rates to strengthen the DSM signal and further maximise the efficiency of usage.
- Capacity-differentiated through the network charge, based on the Transmission and Distribution network costs, which is the same charge as the Homepower network charge.
- Service charge (including support costs, administration, metering and billing, marketing, and customer service), based on the costs related to customer service. The service charge is the same as the Homepower service charge.
- The Homeflex tariff is suitable for customers consuming an average of 500 kWh per month and more.
- The proposal that will be tabled to the NERSA is that the tariff will be initially offered to customers on a voluntary basis for Phase 1. The proposal for Phase 2 is to make it mandatory for all new customers to be on the Homeflex tariff. The tariff will be mandatory for all existing customers in a phased approach. This means that the Homepower tariff option will be removed over a period of time.
- Load management will be mandatory for the Homeflex tariff.
- The Homeflex tariff will be implemented with the approved technology, that is, the integrated load management and automated meter-reading device.

Current status

Homeflex is still to be submitted at IFC and approved by the NERSA.

10.3. 20 A SUPPLIES

- 20 A supply is suitable for the majority of Homelight customers because the majority of Homelight 10 A customers are upgrading their supplies within months of being connected.
- Because the connection fee is not applicable, this will simplify the application and connection process tremendously.
- It also means that all regions will do blanket connections for new electrification work, as no connection fees are required.
- The number of outstanding and unallocated payments for connections will also be reduced substantially. The change from Homelight 10 A to Homelight 20 A has many implications such as payment processing and updating in CC&B, additional visits to the customer, key changes for the meter, changing of the meter configuration on the CDU to vend, and also changes/upgrades on CC&B. There are, in addition, regular coordination problems that result in tokens not working in the meters. This is no longer the case.
- Only two prepayment tariffs now remain: 20 A and 60 A.

11. ESKOM DEVELOPMENTS

11.1. DEMAND-SIDE MANAGEMENT (DSM)

Another very interesting development in the South African electricity market was the implementation of demand-side management (DSM) in 1994. DSM is a process whereby an electricity supplier (Eskom) influences the way electricity is used by customers. The major reason for the implementation of DSM is that most people in South Africa with access to electricity use electricity in peak periods. This puts strains on the country's electricity resources. Eskom, therefore, has to generate more electricity for short peak periods. The result is that more power stations need to be built, which will stand idle for much of the day. If electricity is used more efficiently, it will limit the need for new power stations (*DSM Internet site*).

11.2. REGIONAL ELECTRICITY DISTRIBUTORS (REDS)

In South Africa, electricity is currently supplied to end-users by Eskom and a large number of municipalities. An urgent need to restructure the electricity distribution industry has been identified because of the following reasons:

- There are substantial differences in the financial viability of the various distributors.
- Inequitable treatment of consumers with respect to quality of supply, service, and costs.
- There is a big difference in the prices paid by the various customer segments.
- Inefficiencies because the electricity industry is fragmented.

12. THE WAY FORWARD

Proposed retail tariff restructuring plan for 2008/9 to be implemented in 2009/10

The introduction of network charges for most tariffs by 2005 laid the foundation for introducing the changes proposed in this plan.

The proposed changes are in line with Eskom's strategic pricing objectives of economic efficiency and sustainability, fairness and equity, and revenue recovery.

The tariff structural changes proposed from April 2008/9 are as follows:

1. Base all tariff rates on the latest cost-of-supply study.
2. Unbundle the transmission and distribution network charges for Megaflex, Nightsave Urban, Miniflex, Nightsave Rural, and Ruraflex tariffs.
3. In order to make the voltage differentials more cost-reflective, increase the price differential of network charges between high-voltage and low-voltage customers from 0% and 17% to 0% and 25%.
4. Split the current Nightsave Urban tariff into Nightsave Urban (Small) for supply sizes $\leq$ 1 MVA and Nightsave Urban (Large) for supply sizes > 1 MVA.
5. Align the contribution made through the rate-rebalancing levy to socio-economic subsidies in a phased approach for Megaflex, Miniflex, and Nightsave Urban tariffs.
6. Remove the time-of-use (TOU) conversion surcharge for existing and new supplies.
7. Simplify the bill by introducing a rate matrix for Megaflex, Nightsave Urban (Small), Nightsave Urban (Large), Miniflex, Nightsave (Rural), and Ruraflex tariffs.
8. Remove the dusk to midnight public lighting tariff option, and only offer two options: the All Night and 24 Hours tariffs.

No structural changes are proposed to the Homepower, Homelight, Businessrate, and Landrate tariffs. Due to the updated cost-of-supply study, however, there are small changes to the rates of individual tariff components for Businessrate and Homepower Bulk tariffs.

APPENDICES

Appendix 1: Policies, directives, and documentation

The following policies, directives, and documents are available:

1 Businessrate Directive SCS ADABJ2

The application of the Businessrate tariff has not been uniformly applied across all regions. This directive serves as guidance to provide direction on the correct implementation of the Businessrate tariff. This directive is useful in the calculation and the recovery of capital costs as well as the types and application parameters of Businessrate supplies.

2 Commercial and Contractual Relationship with Customers in terms of Power Quality – ESK AOAAS9

Customer power-quality requirements have changed because new technologies have increased the economic impact of using poor-quality power. Eskom is striving to meet customer power-quality needs by implementing the least-cost option in broader economic terms. This policy describes how the contractual and commercial relationship with customers will be structured and is in support of the Eskom Policy for Major Customer Power Quality. Annexed to this document are the directives "The Supply Voltage to be applied to All Eskom Customers" (reference ESK PBAAE0) and "Maximum Voltage Distortion in Electrical Networks" (reference ESK ASAAI8).

3 Conversion Surcharge – ESK ADAAV1

With the introduction of time-of-use experimental tariffs, Eskom decided to introduce a conversion surcharge for existing customers converting to these tariffs. This was to protect Eskom's revenue base in cases where large financial savings could be made by the customer without shifting any load by which Eskom's load profile could be improved. In this document, it is explained how the conversion surcharge is calculated and phased out and how the conversion surcharge values are entered into the billing system. Conditions are also stipulated for when a conversion surcharge will not be levied or waived, either fully or partially.

4 Core Business Developer Projects – 34-147

There has been an increase in business developer projects, and this document provides clarity to Eskom personnel regarding the administration of these projects. It sets out the process that is to be adhered to as well as the financial obligations of both Eskom and the developer. This document will also give employees a better understanding of Eskom's requirements with respect to the town planning process.

5 Developer Projects – Electrification – DISADABX5

This policy deals with the relationship between Eskom and developers who desire to electrify mainly RDP residential property developments in Eskom areas of supply. It sets out the financial obligations of each party to the development project concerned and describes all issues that are related to the administration of electrification of developer projects.

6 Disaster Relief Policy and Guidelines – SCS PBAAV7

Customers may experience plant or production stoppages due to damages caused by *force majeure* incidents. With a prolonged loss of production, the customer may have no income for a number of months. This may result in a loss of cash flow. Relief is offered with the objective of retaining Eskom sales. This policy provides for the deferral of the monthly rental and, in some cases, the deferral/cancellation of the basic charge (service and administration charge) based on the following criteria:

- Customers experience cash flow problems due to loss of production caused by *force majeure* incidents.
- Supply is not available from Eskom for a period of more than one month caused by *force majeure* incidents.

7 Customer-built Power Supply Options – 34-2

This document provides non-technical implementation guidelines in terms of Eskom's strategy of supporting customers who wish to build their own power supply in order to reduce their capital payments.

8 Day-ahead Pricing Product – DISADABU4

In hours when there is a large generation margin over forecast load, prices are generally low. Conversely, when the system is constrained, prices tend to be high. Day-ahead pricing (DAP) is the successor to real-time pricing (RTP) products. RTP consisted of two primary products, viz. one-part RTP, where all consumption was exposed to the volatility of the real-time price, and a two-part RTP, which provided risk mitigation features to customers. DAP provides a one-part structure, and separate risk mitigation products will be offered to customers who cannot tolerate full exposure to the day-ahead price.

9 Demand Market Participation − DISADABU7

Demand market participation is a product that allows customers to participate in the Eskom Power Pool by bidding load and price responsiveness into the pool similar to, and at the same time as, generators. This allows customers to

participate in the process of balancing demand and supply and setting of the system marginal price (SMP).

10 Distribution Division Risk Mitigation Products – DISADABU5

Dynamic pricing products, including day-ahead pricing, expose the customer's consumption decisions to the shorter-term value of electricity and, therefore, volatile prices. Due to the risk that may be present in these products, it became necessary to develop risk mitigation products that would enable both Distribution and the customer to mitigate risks when these products are chosen.

11 Distribution Security Directive – SCSADABG0

It is Eskom's policy that its customers must provide suitable security for the due fulfilment of their contractual liabilities, which includes the payment of electricity accounts.

12 Distribution Use of System Charges – 34-142

Distribution use of system charges are unbundled regulated tariffs charged by the Distribution Division for making capacity available to, and for the use of the Distribution system by, embedded Distribution-connected customers. Retail tariffs are applicable to Eskom's retail customers, but DUoS charges are raised between the KSACS Division and the Distribution Division for KSACS customers.

13 Decision-Making relating to Eskom's Contractual Terms and Conditions for the Supply of Electricity

This directive outlines the Electricity Council's delegation of authority for Eskom's setting of contractual terms and conditions for the supply of electricity.

14 The granting of Demand Exemptions and Plant Commissioning – ESKPBAAM6

Customers frequently ask for their demand to be waived for one of the following three reasons:

1) An interruption of the supply to the customer that results in a "cold start" load in excess of what the customer's normal demand would have been.
2) Failure of the customer's load management or power factor correction equipment, including the failure of metering pulses, resulting in excess demand.
3) Operational considerations of the customer, resulting in excess demand for short periods of time, for example, commissioning tests of new or

refurbished plant, for example, testing of motors, decisions to do (or not to do) maintenance, failure of large items of customers' plant, including their co-generation, customers shifting loads between non-diversified points of delivery, ripple control tests by municipalities, and closure of customers' plant for part of December.

15 Electricity Pricing Audit Guidelines – SCS AGAAL3

Eskom has various electricity pricing directives and guidelines. Although internal auditors audit various tariff- and customer-related issues, this would, in certain cases, not be detailed enough to ensure the correct interpretation and implementation of directives or guidelines.

Audits on electricity pricing issues are currently being done by some regions on an ad hoc basis as and when it is deemed necessary. The aim of this document is to ensure that there is consistency in the interpretation and implementation of directives and that all audits within the regions are standardised and do not duplicate audits currently being performed by Eskom's internal auditors.

16 Electricity Pricing Definitions − 34-359

All definitions of various electricity pricing terms.

17 Electricity Pricing for Plant Commissioning – ESK ADAAZ0

Commissioning tests of new or refurbished plant entail costly demand charges for customers who, therefore, frequently request Eskom to reduce their maximum demand charge while conducting commissioning tests. This directive provides principles and guidelines pertaining to the pricing of electricity during commissioning.

18 Electricity Pricing Guideline for the Treatment of Outliers and Grant-funded Projects – SCS AGAAL2

Eskom's electrification programme is now largely aimed at rural electrification. Bad terrain and haphazardly arranged villages that are sparsely populated contribute to the high cost of supplying electricity to these areas.

This guideline sets out a standard approach for the treatment of customers who are prepared to make a contribution to their cost of supply in excess of the standard charges applicable to the tariff.

19 Electricity Pricing Primer

This document provides some useful information on the supply and demand of electricity and on factors influencing these. It has been derived from a variety

of sources and would be useful to newcomers, including graduates in training and enthusiastic customer services staff in Eskom.

20 Electricity Supply Contract Guideline – ESK ADAAX6

Electricity supply contracts form the basis of the relationship between Eskom and its customers and are being concluded almost daily. This directive provides policy and detailed directives for Eskom personnel.

21 Electrification of Workers' Houses – ESK PBAAN2

This document sets out Eskom's strategy for the electrification of workers' houses in South Africa.

22 Eskom's Market Protection Strategy in Drought-stricken Areas

Droughts make it difficult for farmers to continue buying electricity. To ensure that farmers do not discontinue taking supply and to encourage increased usage, special drought relief is offered. This document details policies and guidelines for Eskom's market protection strategy in drought-stricken areas.

23 Eskom's Retail Pricing Plan

Plans are presented for structural changes to existing tariffs and the introduction of new tariff structures.

24 Eskom's Tariffs and Charges

This document sets out the charges applicable to Eskom's standard tariffs.

25 Eskom's Tariffs and Charges – Supplementary Pricing Information 2000

This internal document contains additional information such as national average costs, rebates, tariff codes, and standard charges.

26 Eskom's Tariff History 1973-1991

A comprehensive history of Eskom's tariffs from 1973 to 1991.

27 Explanation of How Tariff Rates (Standardrate) are derived

In the run-up to the Electricity Control Board's hearing on tariffs T1 and T2 (Megaflex and Miniflex), the shortcomings of tariff A and, to a lesser extent, tariff E (Nightsave − the then tariff F) were widely publicised. However, with the passage of time and the resignation and retirement of past pricing gurus, the basis for deriving the energy and demand rates in tariff A had been lost and forgotten. This paper describes how the revised rate levels of R6.29 per

kVA and 1.4461 c/kWh (1983 prices) were derived and is intended to complete the education of all enthusiastic and ambitious tariff practitioners and customer services staff in Eskom.

28 Granting of Demand Charge Exemptions – 34-140

Customers frequently request Eskom to waive their demand charges (or part thereof) for a variety of reasons, be it power interruptions, failure of load control equipment, or operational requirements. Requests for demand charge exemptions have previously been handled in an ad hoc and inconsistent way. This policy was compiled with the aim of providing direction on how to handle demand charge exemption requests and ensure consistency in the approval of these requests with a view to striking a balance between fair decisions and Eskom's interest. A policy of this nature cannot take into consideration all possible scenarios, but it provides a framework within which sound judgements can be made.

29 Granting the Benefit of Diversity – 34-325

Eskom's tariffs are based on the customer's own maximum demand, unlike those tariffs that charge for maximum demand according to the customer's contribution to, or coincidence with, the system peak. Where a customer has more than one point of delivery, the sum of the individual maximum demands may be more than the sum of the customer's simultaneous maximum demand, that is, the demand for the customer's system if it were regarded as a single point of delivery. This implies that there will be a difference in revenue to Eskom between the two methods of measuring the maximum demand, and the issue arises of how, when, and to whom this benefit may be granted. The same policy must be applied to all customers, and the criteria for eligibility must ensure that it is not prejudicial to grant diversity benefits to some customers and not others.

30 Large LV Supplies in Rural Areas – ESK ADAAX0

With the introduction of Ruraflex, many requests are being received from customers for large LV supplies, in excess of 500 kVA, in rural areas. This presents various problems for both the customer and Eskom, such as the following:

- The customer does not have the necessary skills and does not want to take supply at a high voltage.
- Eskom's cheapest, most practical option is to install multiple supply transformers, since it is very difficult to transport and install larger transformers in the difficult terrain often encountered.
- Excessive LV fault levels will be experienced if multiple transformers are operated in parallel on the LV side.

This directive sets out the supply methodology for meeting customers' and Eskom's requirements if one high-voltage connection is to be avoided.

31 Meter Pulse Information for Customers – 34-518

Eskom is sometimes requested to provide meter pulses to customers in order for them to manage their load to limit chargeable demand, their notified demand, their maximum demand, and the time-of-use usage of energy. This policy is about the installation, responsibilities of the customer and Eskom, and charges payable.

32 Monthly Rental Deferral Policy – ESK ADAAU2

Customers may experience plant stoppages due to damage caused by *force majeure* incidents. With a prolonged loss of production, the customer may have no income for a number of months, which could result in cash flow problems. This document stipulates the relief in deferral of monthly rental that may be granted to such customers.

33 Negotiation Guidelines for Third-party Wheeling Agreements – SCS AGAAN6

This document sets out policy, implementation guidelines, and pricing-related issues pertaining to the wheeling of energy through the networks of a third party.

34 NETRENT

NETRENT is a user-friendly software package for determining the fair share of the reticulation network costs to be allocated to each customer in rural areas.

NETRENT aims to assist the person doing customer quotes and revision of existing monthly rentals by making the whole process less error-prone and more efficient.

The underlying basis of this program is the policy document "Recovery of Capital Costs in Rural Areas" (January 1994) and the revised rebate policy (September 1994).

35 Non-standard Small Power User Tariffs Directive – SCSN PBAAS5

All non-standard small customer tariffs must be formally approved as per the delegation of authority process and, as far as possible, be phased-in to be equal to the Eskom standard tariff rates and, therefore, become standard promulgated tariffs.

36 Policies on Negotiated Pricing – ESK PBAAR3

This document deals with all non-tariff special pricing agreements for the sale of electrical energy by Eskom inside Eskom's areas of supply and also cross-border.

37 Policy on Power Quality and Customer Claims – ESK PBAAM3

Customers are presently claiming for damages allegedly caused by poor power quality. It is recognised that all customer claims must be treated fairly and consistently. Claims paid to customers by Eskom have to be recovered from all Eskom's customers through tariff increases. A customer claim can, therefore, be seen as a claim by one customer against all Eskom's other customers, with Eskom representing the customer base at large. It is, therefore, imperative that all claims be dealt with responsibly and consistently. This policy specifies under what conditions Eskom will settle claims for damages due to poor quality and sets out the process to be followed to ensure that claims are processed within two months.

38 Pricing for Schools and Clinics – 34-430

The electrification of schools and clinics involves more than just the construction of electrical networks. Tariffs and charges applicable to each supply point also have to be considered. This document sets out the policy and guidelines for these supplies in order to standardise Eskom's approach to the electrification of schools and clinics.

39 Pricing of Distributed Generation – 34-192

Local distribution or reticulation networks may become overloaded by load growth over time. To maintain the quality of supply to customers, it would then be necessary to strengthen these networks. The cost of strengthening may be very high compared to the additional revenue to be derived from increased sales. Where the local network has a low load factor, the network strengthening can often not be economically justified.

An alternative integrated electricity planning solution to the problem may be the use of small local generation to reduce the peak loading of the lines to within their design capacity. For lines with low load factors, the local generation would only be required to operate during the highest peak loading periods (typically daily and also seasonal). The peaks on the local networks will be determined by the requirements of the customers served and will not necessarily coincide with the Eskom system peak. The purpose of such generators is, therefore, clearly not to provide generating capacity, but to relieve local constraints, which may even occur during system off-peak periods.

Distributed generation as contemplated in this directive would, therefore, typically be relatively small plant – diesel generators, micro-hydro, microturbines, and other suitable technologies.

40 Provision of Customer Information to Energy Consultants – SCS ADABB1

With the introduction of time-of-use tariffs, Eskom customers appointed energy consultants to investigate their load profiles. The consultants obtained the relevant information free of charge from Eskom, but charged the customers for advice.

Eskom interacts with customers in a relationship of trust and sharing of information. Any unauthorised sharing of this information with consultants can lead to a breach of trust and a serious breach of confidentiality. This directive sets out the protocol for providing customer information to energy consultants.

41 Purchasing of Energy from Embedded Distribution Generations – 34-192

Although Eskom generates 96% of the electricity consumed in South Africa, there are a number of smaller generators embedded in distribution networks that could sell energy back to Eskom Distribution. This procedure sets out the purchasing methodology that must be applied to embedded generators.

42 Quality of Supplies – SCS PBAAS9

This directive describes the contractual and commercial relationship with distribution customers regarding quality of supply.

43 Quotations for Electricity Supplies – SCS PBAAT0

Customers applying for, or negotiating about, new electricity supplies or changes to the terms and conditions of existing supplies may require a written quotation for purposes of evaluating Eskom's terms and conditions of such new or modified supplies. This directive provides general policy and guidelines for preparing quotations. More sophisticated quotations will be done by a different process.

44 One-part Real-time Pricing (RTP) of Electricity Supplies – SCS ADABG1

RTP, as a two-part product (an access charge plus a real-time energy charge), has been in operation for some time. From practical experience gained and feedback from customers, it is clear that the loads of some customers are too variable to allow the determination of a reasonable customer base load (CBL). It is believed that the one-part version of RTP (without a CBL and, hence, an access charge) will be more suitable for certain customers. This product will be available as a choice between the original two-part product and this new

one-part product to all Eskom customers who meet the qualification criteria for RTP.

45 Two-part Real-time Pricing (RTP) of Electricity Supplies – ESK ADAAV2

RTP has been used successfully by world utilities as a demand-side management tool enabling them to shift load out of peak periods, while customers have been able to profit from increased production at times of low prices. Eskom has also clearly demonstrated that customers who embrace this product (a) use significantly more electricity during system-unconstrained periods and (b) shift significant amounts of load out of peak periods, as signalled by the real-time price. This directive sets out the methodology of real-time pricing of electricity supplies.

46 Recovery of Capital Cost in Rural Areas

Owing to the absence of developers in rural areas, distributors finance rural networks and recover the cost from the customer through tariffs, capital charges, and contributions. Rural networks are often shared by a number of customers, and the cost of these networks must be shared between these customers. This document details the policies and guidelines for recovery of capital costs in rural areas.

47 Recovery of Capital Cost, Excluding Rural Reticulation Areas – ESK ADAAY7

Capital charges are those levied outside of the tariff to recover capital costs not covered in the tariff. The purpose of capital charges is to ensure that all customers pay their fair share of the total network capital and, more specifically, the actual costs involved in making their supplies available.

Eskom's tariffs recover almost all costs, but there is a need to apply capital charges to ensure that there are no losses on individual supplies and that all customers are treated fairly. The objectives of this directive are:

- to stipulate a standard method of calculating and applying capital charges; and
- to explain the logic and rationale of the calculation.

48 Remedial Action against the Non-payment of Electricity

It is Eskom's policy to detect and recover all revenues lost as a result of non-payment, theft, malicious damage to property, and tampering with installations.

49 Remote Area Power Supplies (RAPS) in Eskom

This forms part of the policy document on RAPS. It sets out Eskom's tariff policy and provides various recommendations and procedures. RAPS covers solar, wind, and other stand-alone power systems.

50 Residential Tariffs Directive – ESK ADAAS3

With the electrification programme and the increasing number of residential customers in South Africa, it has become necessary for Eskom to review its policies on tariffs and charges to residential customers. Subsidies for residential electrification in South Africa are extremely high. Strategies need to be put in place that will enable Eskom to lower the cost to the minimum so as to meet customers' essential electricity instead of their desired electricity needs at a much higher cost.

This directive addresses all issues relating to residential supplies and refers to issues to be addressed in other documents. This directive is in line with the approach proposed by the National Electrification Forum for the national domestic tariff system and now being finalised by the National Electricity Regulator.

51 Tariffs and Prices Applicable to Eskom Supplies – ADAAW7

Eskom has many supply points throughout the country that are for own use. There have been inconsistencies in the tariffs and charges applied to these supplies; in some areas, they have been standard, but in others (mainly for historical reasons) non-standard. This directive sets out the tariffs and pricing applicable to Eskom points of supply.

52 The Application of Public Lighting Services in Eskom – DISADABX8

This document sets out Eskom's policy and guidelines for the provision of public lighting services, including capital financing, installation of lighting networks, electricity supply, and maintenance. Transitional local councils (TLCs), local communities, and other bodies require Eskom to provide more comprehensive public lighting services in developing areas where Eskom is the supplier of electricity to end-users.

53 Updated Ruraflex Implementation Policy and Guidelines – ESK PBAAP3

This document sets out the implementation policy and guidelines for Ruraflex supplies and must be read in conjunction with Ruraflex directive ESK PBAAMO.

54 Wholesale Electricity Pricing System (WEPS) Customer Information Brochure 2007/8

Eskom, in conjunction with the National Energy Regulator of South Africa (NERSA), developed a wholesale electricity pricing system (WEPS). This will be available to the Regional Electricity Distributors (REDs) as well as to large industrial customers (LICs). The qualifying criterion is a minimum electricity consumption of 100 GWh in any 12 consecutive months, situated on contiguous sites and managed under a common management structure.

Appendix 2: Tariff tables

Table 1: Megaflex history 2002-2007

	Megaflex						
	2002 Jan-Jun	**2002 Jul-Dec**	**2003**	**2004**	**2005**	**2006**	**2007**
Basic charges/month/POD	65.34						
Service charge/month/account							
> 1 MVA		1 270.27	1 455.07	1 491.45	55.9	58.75	62.22
Key customers		6 645.36	8 588	8 802.7	437.57	459.89	487.02
Administration charge/month or /day							
> 1 MVA		845.84	1 099.96	1 122.41	32.25	33.89	35.89
Key customers		888.21	1 125.99	1 148.97	33.42	35.12	37.19
Demand charge							
High demand	13.67						
Low demand	13.31	8.17	10.13	10.33			
Network demand charge					6.37	6.69	7.08
Network access charge					5.62	5.91	6.26
Active energy charge							
High demand							
Peak	32.98	45.49	49.43	50.44	49.69	52.22	55.3
Standard	13.84	13.11	14.26	14.56	13.14	13.81	14.62
Off-peak	7.93	7.76	8.46	8.63	7.15	7.51	7.95
Low demand							
Peak	22.2	13.92	15.14	15.45	14.1	14.82	15.69
Standard	12.41	9.21	10.02	10.23	8.75	9.2	9.74
Off-peak	7.14	6.94	7.56	7.72	6.2	6.52	6.9

Voltage discount/surcharge							
< 500 V	0	17.3	17.3	17.3	17.3	17.3	17.3
> 500 V and ≤ 66 kV	5.33	10.07	10.07	10.07	10.07	10.07	10.07
> 66 kV and ≤ 132 kV	7.13	7.63	7.63	7.63	7.63	7.63	7.63
> 132 kV	12.75	0	0	0	0	0	0
Reactive energy charge	2.85	2.85	3.09	3.17	2.50	2.63	2.79
Transmission surcharge							
Distance from Johannesburg							
≤ 300 km	0%	0%	0%	0%	0%	0%	0%
> 300 and ≤ 600 km	1%	1%	1%	1%	1%	1%	1%
> 600 km and ≤ 900 km	2%	2%	2%	2%	2%	2%	2%
> 900 km	3%	3%	3%	3%	3%	3%	3%
Electrification and rural subsidy					1.45%	1.73%	1.61%

Table 2: Miniflex history 2002-2007

		Miniflex					
	2002 Jan-Jun	**2002 Jul-Dec**	**2003**	**2004**	**2005**	**2006**	**2007**
Basic charges/ month/POD	65.34						
Service charge/ month/account							
≥ 100 kVA		76.47	90.20	92.46	2.08	2.19	2.32
> 100 kVA and ≤ 500 kVA		419.63	477.88	489.83	11.39	11.97	12.68
> 500 kVA and ≤ 1 MVA		1 267.62	1 454.95	1 491.32	55.90	58.75	62.22
> 1 MVA		1 270.27	1 455.07	1 491.45	55.90	58.75	62.22
Key customers		6 645.36	8 588.00	8 802.70	437.57	459.89	487.02
Administration charge/month or /day							
≥ 100 kVA		59.72	80.77	82.79	2.34	2.46	2.61
> 100 kVA and ≤ 500 kVA		107.11	121.31	124.34	3.82	4.01	4.25
> 500 kVA and ≤ 1 MVA		822.45	1 059.23	1 085.71	31.19	32.78	34.71
> 1 MVA		822.45	1 059.23	1 085.71	31.19	32.78	34.71
Key customers		821.03	1 059.23	1 085.71	31.19	32.78	34.71
Demand charge							
High demand							

Low demand							
Network demand charge							
Network access charge							
Active energy charge							
High demand							
Peak	45.84	45.47	50.56	51.82	50.81	53.40	56.55
Standard	13.84	14.30	15.79	16.18	14.71	15.46	16.37
Off-peak	7.93	9.16	10.07	10.32	7.07	7.43	7.87
Low demand							
Peak	33.87	15.08	16.67	17.09	15.67	16.47	17.44
Standard	12.41	10.54	11.60	11.89	10.38	10.91	11.55
Off-peak	7.14	8.37	9.18	9.41	6.13	6.44	6.82
Voltage discount/ surcharge							
< 500 V	0.00	17.30	17.30	17.30	17.30	17.30	17.30
> 500 V and ≤ 66 kV	5.33	10.07	10.07	10.07	10.07	10.07	10.07
> 66 kV and ≤ 132 kV	7.13	7.63	7.63	7.63	7.63	7.63	7.63
> 132 kV	12.75	0.00	0.00	0.00	0.00	0.00	0.00
Reactive energy charge	1.43	1.43	1.55	1.59	1.09	1.15	1.22
Transmission surcharge							

Distance from Johannesburg							
≤ 300 km	0%	0%	0%	0%	0%	0%	0%
> 300 and ≤ 600 km	1%	1%	1%	1%	1%	1%	1%
> 600 km and ≤ 900 km	2%	2%	2%	2%	2%	2%	2%
> 900 km	3%	3%	3%	3%	3%	3%	3%
Electrification and rural subsidy					1.32%	1.39%	1.47%

Table 3: Ruraflex history 2002-2007

	Ruraflex						
	2002 Jan-Jun	**2002 Jul-Dec**	**2003**	**2004**	**2005**	**2006**	**2007**
Basic charges/month/POD							
Ruraflex 1 (≤ 50 kVA)	353.41						
Ruraflex 2 (> 50 kVA)	392.69						
Service charge/month/ account							
≥ 100 kVA		119.13	90.20	139.52	3.25	3.42	3.62
> 100 kVA and ≤ 500 kVA		419.63	477.88	489.83	11.39	11.97	12.68
> 500 kVA and ≤ 1 MVA		1 267.62	1 545.95	1 491.32	55.90	58.75	62.22
> 1 MVA		1 270.27	1 455.07	1 491.45	55.90	58.75	62.22
Key customers		6 645.36	8 588.00	8 802.70	437.57	459.89	487.02

Administration charge/month or /day							
≥ 100 kVA		83.89	80.77	167.28	4.76	5.00	5.30
> 100 kVA and ≤ 500 kVA		127.11	121.31	206.79	6.24	6.56	6.95
> 500 kVA and ≤ 1 MVA		808.32	1 059.23	1 166.57	33.26	34.96	37.02
> 1 MVA		808.32	1 059.23	1 166.57	33.26	34.96	37.02
Key customers		808.32	1 059.23	1 166.57	33.26	34.96	37.02
Demand charge							
High demand							
Low demand							
Network demand charge							
Network access charge							
Active energy charge							
High demand							
Peak	54.77	62.69	71.11	75.80	82.13	86.32	91.41
Standard	16.50	16.41	18.49	19.71	21.24	22.32	23.64
Off-peak	9.60	8.78	9.85	10.50	11.28	11.86	12.56
Low demand							
Peak	39.23	17.54	19.76	21.06	22.75	23.91	25.32
Standard	14.80	10.80	12.10	12.89	13.88	14.59	15.45
Off-peak	8.59	7.58	8.47	9.03	9.66	10.15	10.75
Voltage discount/surcharge							
< 500 V	0.00	17.30	17.30	17.30	17.30	17.30	17.30
> 22 kV		7.63	0.00	0.00	0.00	0.00	0.00
> 500 V and ≤ 66 kV	5.33	10.07	10.07	10.07	10.07	10.07	10.07
> 66 kV and ≤ 132 kV	0.00		0.00	0.00	0.00	0.00	0.00
> 132 kV	0.00		0.00	0.00	0.00	0.00	0.00

Reactive energy charge	1.43	1.43	1.55	1.59	1.66	1.74	1.84
Transmission surcharge							
Distance from Johannesburg							
≤ 300 km	0%	0%	0%	0%	0%	0%	0%
> 300 and ≤ 600 km	1%	1%	1%	1%	1%	1%	1%
> 600 km and ≤ 900 km	2%	2%	2%	2%	2%	2%	2%
> 900 km	3%	3%	3%	3%	3%	3%	3%

Table 4: Nightsave (Urban) 2002-2007

	Nightsave (Urban)

	2002 Jan-Jun	2002 Jul-Dec	2003	2004	2005	2006	2007
Basic charge	185.64						
Demand charge (R/kVA)	42.72						
Service charge/ month/account							
≥ 100 kVA		30.09	34.27	35.13	0.90	0.95	1.01
> 100 kVA and ≤ 500 kVA		419.63	477.88	489.83	11.39	11.97	12.68
> 500 kVA and ≤ 1 MVA		1 267.62	1 454.95	1 491.32	55.90	58.75	62.22
> 1 MVA		1 270.27	1 455.07	1 419.45	55.90	58.75	62.22
Key customers		6 645.36	8 588.00	8 802.70	437.57	459.89	487.02
Administration charge/month or /day							
≥ 100 kVA		66.83	81.64	82.93	2.24	2.35	2.49
> 100 kVA and ≤ 500 kVA		117.26	121.84	123.77	3.61	3.79	4.01
> 500 kVA and ≤ 1 MVA		918.86	1 068.68	1 085.63	29.91	31.44	33.29
> 1 MVA		923.02	1 077.90	1 095.00	30.00	31.53	33.39
Key customers		960.57	1 104.83	1 122.35	31.62	33.23	35.19
Demand charges (R/kVA)							
High demand		26.15	41.72	42.38		30.57	32.37
Low demand		10.66	14.17	14.39		4.33	4.59

Network charges					5.62		
Network demand charge						6.69	7.08
Network access charge						5.91	6.26
Demand rates (R/kVA)							
< 500 V							
> 500 V and ≤ 66 kV							
> 66 kV and ≤ 132 kV							
> 132 kV							
Demand charge (R/kW)	49.03						
High demand		30.77	49.10		29.09		
Low demand		12.54	16.68		4.12		
Demand rates (R/kW)							
< 500 V							
> 500 V and ≤ 66 kV							
> 66 kV and ≤ 132 kV							
> 132 kV							
Energy rate	7.71						
Minimum rate							
Maximum rate	45.84						

Active energy							
High demand		12.42	12.45	12.65	10.13	10.65	11.28
Low demand		9.16	9.35	9.50	7.20	7.57	8.02
Transmission surcharge							
≤ 300 km	0%	0%	0%	0%	0%	0%	0%
> 300 and ≤ 600 km	1%	1%	1%	1%	1%	1%	1%
> 600 km and ≤ 900 km	2%	2%	2%	2%	2%	2%	2%
> 900 km	3%	3%	3%	3%	3%	3%	3%
Voltage discount/ surcharge							
< 500 V	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
> 500 V and ≤ 66 kV	5.33	7.63%	7.63%	7.63%	7.63%	7.63%	7.63%
> 66 kV and ≤ 132 kV	7.13	10.07%	10.07%	10.07%	10.07%	10.07%	10.07%
> 132 kV	12.75	17.30%	17.30%	17.30%	17.30%	17.30%	17.30%
Electrification and rural subsidy					2.66	2.80%	2.97%

BIBLIOGRAPHY

Mountain, B. April 1994. *Towards a Pricing Strategy for the South African Electricity Supply and Distribution industry, MSc Dissertation, University of Cape Town.*

Conradie, S.R. & Messerschmidt, L.J.M. 2000. *A Symphony of Power. The Eskom Story*. Originator Allen J Morgan (Chief Executive).

Ferrando, L.J., Barnard, H.B. & Mcdougall, S.D. *Eskom Tariff History − 1973 to 1991*.

www.dme.gov.za/publication/wp_ene/whitepaper1998.htm: *White Paper on the Energy Policy.*

www.nersa.org.za/about_us.htm.