A summary of the MYPD3 application and the proposed tariff restructuring plan

Brochure

November 2012
PART 1: ESKOM REVENUE REQUIREMENT

Introduction

Eskom applies for a price determination or revenue requirement (put simply, a budget) from the National Energy Regulator of South Africa (NERSA) in order to operate normal Eskom business, build new power stations, and diversify the country’s energy mix through the encouragement of renewable energy into the market via independent power producers (IPPs). The current Multi-year Price Determination (MYPD2) revenue cycle ends on 31 March 2013.

In contrast to MYPD1 and MYPD2, both of which spanned three years, Eskom is proposing a five-year determination for MYPD3, running from 1 April 2013 to 31 March 2018. This is to ensure a more gradual and predictable price path for households, businesses, investors, and the country as a whole.

Eskom’s MYPD3 application aims to strike a balance between the possible short-term negative effects of increasing electricity prices, the sustainability of the industry, and South Africa’s long-term economic and social needs.

The submission of this MYPD3 application is the beginning of a public process to address the issues raised in Eskom’s application – in particular, sustainability of the electricity industry and security of supply. NERSA is an independent regulator and will follow a process of public consultation prior to making its decision on Eskom’s MYPD3 application. Stakeholders are encouraged to participate in this process, give their views, and let them be heard before a decision can be made. Also refer to Eskom’s website for more information on Part 1 of the submission dealing with the Eskom revenue requirement application.

What are the building blocks of Eskom’s revenue requirement?

Eskom’s application for revenue over five years translates into an average price increase of 13% for Eskom needs, plus 3% to support the introduction of independent power producers (IPPs), giving a total of 16%. This is a nominal price increase of 67 cents per kilowatt-hour (c/kWh) from the current average of 61 c/kWh in 2012/13 to an estimated average price level of 128 c/kWh in 2017/18.

\[
\text{Average price increase for Eskom’s revenue application (own needs)} + \frac{3\%}{100} = \frac{16\%}{100}
\]

With regard to capacity expansion, Eskom’s application is based on building new generation capacity up to the significant completion of Kusile Power Station, the Department of Energy’s (DoE) peaker gas plant of 1 020 MW, and the renewable energy IPP bid programme, which caters for a total of 3 725 MW of renewable energy capacity.

Eskom’s application does not include all of the capacity requirements for South Africa into the future, beyond 2017/18, as set out in the Integrated Resource Plan 2010 (IRP2010), as these determinations have not been made as yet.

In keeping with the Electricity Regulation Act (2006), the revenue being requested in this MYPD3 application will be R1 trillion over five years, of which two thirds come from primary energy and operating costs, while the remaining third is related to assets, namely, depreciation and return on assets.
- **Primary energy**: the cost of basic natural resources used to produce electricity – including coal, water, biomass, and sorbent (excluding IPPs) – will increase by an average of 8.6% per year for Eskom requirements and by 10% per year with independent power producers incorporated.

- **Operating costs**: Eskom’s operating costs increase by an average of just over 8% per year. These costs include maintenance of existing plant and employee costs. Eskom currently has more than 44,000 people on its payroll, and this will increase to 45,500 over the five-year period. Most of Eskom’s power stations are in their midlife, and they require substantial spending on maintenance and refurbishment if their performance is to be sustained and improved. This means that maintenance costs will continue to increase by more than the inflation rate.

- **Depreciation**: it is set to rise at an annual average 10% over the MYPD3 period as we phase in the depreciated replacement valuation methodology as per government’s Electricity Pricing Policy.

- **Return on assets**: the return moves from 0.9% in Year 1 of the MYPD3 period to 7.8% at the end of the period. This is below the NERSA targeted return of 8.16%.

The cost components of Eskom’s revenue requirement application to NERSA are shown below:

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**The engagement process**

Eskom is committed to open and ongoing communication throughout the process prior to NERSA’s determination. Customers are encouraged to participate in NERSA’s consultation process.

The following is the high-level schedule:

<table>
<thead>
<tr>
<th>Tentative timelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission to NERSA</td>
</tr>
<tr>
<td>17 October 2012</td>
</tr>
</tbody>
</table>
PART 2: PROPOSAL TO RESTRUCTURE ESKOM’S RETAIL TARIFFS 2013/14

Tariffs are the mechanism used to recover the revenue required by Eskom. The revenue requirement is divided into tariffs based on sales, customer numbers, and customer categories.

Eskom’s revenue requirement results in a single average price increase that is translated into specific tariff increases for each tariff category. Eskom proposes, in addition to the price increase, to make changes to Eskom’s tariff structures for the following reasons:

The following structural changes are proposed:

- Improved cost-reflectivity of tariff structures by updating all the tariff rates and structures using the latest cost-to-serve study
- Changes to the residential tariffs
- Changes to the time-of-use (TOU) peak to off-peak ratios
- Inclusion of the environmental levy costs in the energy charges
- Charging the reactive energy charge in all periods for TOU tariffs
- Use-of-system charges
The impact on customers in 2013/14 is as a result of a combination of the following:

- Tariff restructuring
- Updating tariffs to be more cost-reflective, that is, with the latest cost-to-serve study
  - Different increases applied to different rates (Distribution, Transmission, Generation costs)
- Capping of the residential tariff increases, that is, to the Homelight tariffs to protect the poor
  - Increases to the subsidy contribution by urban non-municipal customers
- Timing of municipal increase

These changes are based on the revenue requirement and the cost per Eskom division. The following shows the revenue per tariff for the MYPD3 period, including the price increase and the structural changes.

<table>
<thead>
<tr>
<th>Tariff Type</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
<th>2017/18</th>
<th>5 year Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>R 53,155</td>
<td>R 61,814</td>
<td>R 74,156</td>
<td>R 90,352</td>
<td>R 109,205</td>
<td>R 132,524</td>
<td>Rm 468,051</td>
</tr>
<tr>
<td></td>
<td>R 52,123</td>
<td>R 60,480</td>
<td>R 72,520</td>
<td>R 88,297</td>
<td>R 106,686</td>
<td>R 129,474</td>
<td>Rm 457,456</td>
</tr>
<tr>
<td>Rural</td>
<td>R 1,018</td>
<td>R 1,319</td>
<td>R 1,618</td>
<td>R 2,033</td>
<td>R 2,492</td>
<td>R 3,019</td>
<td>Rm 10,482</td>
</tr>
<tr>
<td>Homepower</td>
<td>R 14</td>
<td>R 14</td>
<td>R 18</td>
<td>R 22</td>
<td>R 27</td>
<td>R 32</td>
<td>Rm 113</td>
</tr>
<tr>
<td>Non-Municipal</td>
<td>R 69,334</td>
<td>R 83,875</td>
<td>R 96,432</td>
<td>R 112,694</td>
<td>R 131,231</td>
<td>R 152,893</td>
<td>Rm 577,125</td>
</tr>
<tr>
<td>Urban</td>
<td>R 51,595</td>
<td>R 63,450</td>
<td>R 73,002</td>
<td>R 85,244</td>
<td>R 99,745</td>
<td>R 116,771</td>
<td>Rm 438,212</td>
</tr>
<tr>
<td>Rural</td>
<td>R 10,105</td>
<td>R 12,217</td>
<td>R 14,060</td>
<td>R 16,631</td>
<td>R 19,140</td>
<td>R 22,010</td>
<td>Rm 84,058</td>
</tr>
<tr>
<td>Homelight 20A</td>
<td>R 2,567</td>
<td>R 2,506</td>
<td>R 2,835</td>
<td>R 3,220</td>
<td>R 3,644</td>
<td>R 4,135</td>
<td>Rm 16,341</td>
</tr>
<tr>
<td>Homelight 60A</td>
<td>R 2,998</td>
<td>R 3,255</td>
<td>R 3,734</td>
<td>R 4,298</td>
<td>R 4,940</td>
<td>R 5,700</td>
<td>Rm 21,927</td>
</tr>
<tr>
<td>Homepower</td>
<td>R 2,069</td>
<td>R 2,447</td>
<td>R 2,801</td>
<td>R 3,300</td>
<td>R 3,761</td>
<td>R 4,277</td>
<td>Rm 16,587</td>
</tr>
</tbody>
</table>

This results in the following price increases per tariff category (including the impact of the restructuring for 2013/14):
The above figure compares the current year’s (2012/13) average price in c/kWh to the proposed 2013/14 additional c/kWh payable due to the proposed average increase of the different customer categories (key industrial customers fall predominately in the Urban tariff category).

It is important to note that all rates, impacts, and changes provided in Part 2 of the Eskom submission document are indicative and will depend on what NERSA determines for the tariff restructuring and the revenue requirement.

**Price increase per customer category, including proposed restructuring of tariffs**

The year-on-year increases in the figure below compare the average price paid in the current year (2012/13) against the average proposed price paid in the following years.

<table>
<thead>
<tr>
<th></th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
<th>2017/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Munic</td>
<td>13.26%</td>
<td>18.65%</td>
<td>18.70%</td>
<td>18.85%</td>
<td>19.01%</td>
</tr>
<tr>
<td>Urban</td>
<td>20.53%</td>
<td>14.23%</td>
<td>14.13%</td>
<td>13.85%</td>
<td>14.01%</td>
</tr>
<tr>
<td>Rural</td>
<td>14.59%</td>
<td>13.46%</td>
<td>16.07%</td>
<td>13.45%</td>
<td>12.79%</td>
</tr>
<tr>
<td>HomeLight 20A</td>
<td>-0.74%</td>
<td>9.00%</td>
<td>8.99%</td>
<td>9.00%</td>
<td>9.00%</td>
</tr>
<tr>
<td>HomeLight 60A</td>
<td>4.95%</td>
<td>13.96%</td>
<td>13.95%</td>
<td>13.94%</td>
<td>13.92%</td>
</tr>
<tr>
<td>HomePower</td>
<td>14.37%</td>
<td>13.88%</td>
<td>16.43%</td>
<td>13.11%</td>
<td>12.37%</td>
</tr>
<tr>
<td>Total tariffs</td>
<td>16.07%</td>
<td>15.95%</td>
<td>16.18%</td>
<td>15.89%</td>
<td>16.04%</td>
</tr>
</tbody>
</table>

Indicative year-on-year (YOY) tariff increases per tariff category

The tariff changes proposed in this submission aim to protect the poor by applying increases below the average increase mainly for low- to medium-usage residential customers, and this will be funded through above-average increases for larger industrial customers.

The Eskom Urban (industrial, mining, and commercial) customers will, therefore, see a higher increase than the average as a result of the increase in the cross-subsidies.

**TARIFF STRUCTURAL CHANGES UNPACKED**

For more information on the tariff structures and the rates proposed, please refer to the Eskom website (www.eskom.co.za), and link to Part 2 of the MYPD3 submission.

The following changes to Eskom’s tariffs are proposed.

1. **Improved cost-reflectivity of tariff structures**

The first step in designing cost-reflective tariffs is to conduct a cost-to-serve study.

Eskom has completed an updated cost-to-serve study that has allowed for up-to-date cost-reflective rates to be calculated, which serves as the basis for the proposed design and changes to the retail
tariffs contained in Eskom’s revenue requirement (MYPD3) application. The cost-to-serve study has allocated the allowed cost into rational cost categories. The main cost categories are energy (Generation), network (Transmission and Distribution), and customer service costs (retail).

Rates will be updated based on their respective cost and increases per licensee, resulting in changes to the current energy, network, and service-related charges. In order to ensure that the respective rates see different increases going forward, Eskom has unbundled most of the tariffs to reflect the respective costs of energy (Eskom Generation plus IPP purchases), networks (Transmission and Distribution), and retail. The table below shows the cost increases per Eskom division over the MYPD3 period.

| Illustration of average cost increases per division over the MYD3 period |
|-----------------|-------|-------|-------|-------|-------|
|                  | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 |
| **Eskom total**  | 16.2%     | 15.9%     | 16.0%     | 16.0%     | 16.0%     |
| **Energy**       | 15.1%     | 16.3%     | 16.0%     | 15.7%     | 15.7%     |
| **Transmission (R/kVA basis)** | 69.5%     | 11.2%     | 22.2%     | 26.9%     | 34.8%     |
| **Distribution wires (R/kVA basis)** | 19.9%     | 15.1%     | 15.8%     | 17.1%     | 15.1%     |
| **Distribution retail** | -4.5%     | 16.0%     | 12.4%     | 8.3%      | 5.4%      |

The increases to Transmission are as a result of a correction of the MYPD2 cost allocation during MYPD2 per division and the significant investment to be done in Transmission during the MYPD3 period. Even though Transmission will see larger percentage increases than the other divisions, their cost is relatively small. The figure below shows the relativity of costs per division.

As a result of updating the tariffs with the cost of supply, all tariff cross-subsidies (received and paid) have been calculated and are to be shown transparently. These subsidies are:

- the subsidy related to affordability due to lower increases to the residential tariffs;
- the historic electrification and rural network subsidies; and
- the low-voltage subsidies found in the large power urban tariffs.
The figure below depicts the impact per tariff due to the proposed tariff restructuring.

2. Changes to time-of-use (TOU) ratios

Time-of-use (TOU) tariffs were introduced during the early 1990s to reflect the increased production cost of electricity generation during daily peak hours and the high demand of the winter season. As a result, customers on TOU tariffs currently pay more for electricity during winter and peak times of the day.

The TOU tariffs have different charges during different periods of the day (peak, standard, and off-peak) and between seasons (high and low demand).

The rapid increase in the price of electricity in recent years has resulted in the peak winter price increasing significantly – exceeding R2.00/kWh in 2012/13. The current generation ratio of the summer off-peak to winter peak is 1:9 and has fallen out of line with the actual cost signal.

As a result of NERSA and customer concerns about the high winter peak price, Eskom has proposed a change to the TOU ratios. However, caution is required that the change does not cause additional demand in periods that could impact Eskom. An appropriate balance is required between customer needs and system impact, as there is uncertainty in terms of how customers would respond to changes in the TOU ratios and what the impact on the system and Eskom Generation would be; for example, customers could consume more in winter if prices do not provide the appropriate signal.

The proposal is, therefore, to reduce the ratio of the current summer-off-peak-to-winter-peak ratio to 1:8 and slowly close the gap over time (until the new power stations come into service). In order to do this, the winter peak rates will decrease and the summer standard period rates will increase slightly.

The table below is an illustration of the proposed changes to the TOU ratios. The table also compares the current TOU ratios with the proposed TOU ratios. The active energy rates are the WEPS/Megaflex energy rates, excluding losses, the environmental levy, and reliability service charges.
3. **Inclusion of the environmental levy costs in the energy charges**

The environmental levy is a tax on non-renewable generators based on the energy produced from non-renewable resources. This tax is paid by the Generation licensee and is included as a cost in Eskom’s revenue requirement.

When the tax was introduced, Eskom decided that the cost of the levy would be shown at the customer level as an explicit tariff charge. This charge does not increase at the same level as the tariff increase and is not representative of the actual cost of the levy to Eskom.

While showing the rate explicitly allows for greater transparency, having a separate charge that does not increase at the same rates as other costs has complicated the tariff increases. It is, therefore, proposed that, from MYPD3, this cost be included in the retail energy rates and not be recovered through an explicit charge from 2013/14. Where required by customers, information on the environmental levy included in the energy charge will be provided.

This environmental levy amount recovered in the energy rates will be dependent on the rural, urban, voltage, and transmission zones.

4. **Charging the reactive energy charge in all periods for TOU tariffs**

The reactive energy charge is a price signal on the TOU tariffs for low power factor (LPF) and is currently only applied during peak and standard periods in the high-demand winter season. This has resulted in customers not managing their power factor in the low-demand summer season.

A low power factor contributes to additional cost for the electricity system. The reactive energy charge is based on the power factor. The lower the power factor, the more reactive energy is supplied, and the more the customer is charged. This charge encourages customers to manage their power factors, resulting in savings for both the customer and Eskom. This charge is applied to the amount of reactive energy that has to be supplied to the customer for power factors below 96%.

The reactive energy charge signal on TOU tariffs is raised as a c/kVArh; it is currently applied as follows:

- Recovered only during the high-demand season (June to August)
- On kilovar-hours (kVArh) registered in excess of 30% of kWh used during peak and standard periods (Eskom’s defined time periods)

Eskom proposes introducing the current reactive energy charge throughout the year to encourage customers to manage their power factor in all time periods. The mechanisms in which the charge is applied will not change.

In the longer term, Eskom proposes replacing the current reactive energy charge in all large power use tariffs with a low power factor (LPF) charge.
5. Use-of-system charges

Use-of-system charges (UoS) are all network-related charges, that is, the charges to be raised for the use of the network. Use-of-system charges are as follows:

- Reliability service charges – to be shown separately
- Contribution to network-related subsidies – to be shown transparently and payable by all loads (or consumers)
- Losses – based on loss factors updated in the cost to serve
- Network charges

There are Distribution use-of-system charges (DUoS) for Distribution-connected customers and Transmission use-of-system charges (TUoS) for Transmission-connected customers. Use-of-system charges may differ depending on whether the customer is a load or a generator.

<table>
<thead>
<tr>
<th>Loads</th>
<th>Generators</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Connection charges</td>
<td>+ Connection charges</td>
</tr>
<tr>
<td>+ Network charges</td>
<td>+ Network charges</td>
</tr>
<tr>
<td>+ Losses</td>
<td>+/- Losses</td>
</tr>
<tr>
<td>+ Reliability services</td>
<td>System ops</td>
</tr>
<tr>
<td>+ NERSA approved subsidy</td>
<td>System ops</td>
</tr>
<tr>
<td>+ Service and admin charges</td>
<td>+ Service and admin charges</td>
</tr>
</tbody>
</table>

Use-of-system charges for loads

Higher-voltage customers will see reduced Distribution network charges, while lower-voltage customers will see a slight increase in their network charges. Transmission-connected and higher-voltage-connected customers will still pay a contribution to low-voltage subsidies. The low-voltage subsidy will be transparent and will be payable by all supplies connected at ≥ 66 kV.

Customers connected at the Transmission level will no longer pay Distribution-related network access charges, only the low-voltage subsidy. Previously, only customers connected at greater than 132 kV were considered direct Transmission customers. This has been changed to include all customers connected directly to the Transmission network, irrespective of voltage. This will include customers connected at 132 kV or below who impose no cost on Distribution.

SUBSIDY CONTRIBUTION PAYABLE BY LOADS

Eskom’s retail tariffs include a subsidy to fund the shortfall between the cost of supply versus the tariff. All loads connected to the Eskom Distribution and Transmission network will be required to pay the residential (previously related to electrification) and rural subsidy (ERS) charge.
The subsidy provides for the following:

- **Electrification programme**: the amount of funding provided by the government does not cover the full cost of electrification.
- **Rural networks**: capital subsidies are provided to facilitate rural connections and affordability.

**Note that the affordability subsidy is not a use-of-system charge**: the residential affordability-related subsidies are payable for all Eskom purchases of energy. Customers that wheel energy will be exempted from this charge as per the NERSA Regulatory Rules for the Third-party Transportation of Energy (not a use-of-system charge).

**Use-of-system charges for generators**

Eskom proposes to introduce use-of-system charges for generators. For Transmission-connection generators the charges will be based on six Transmission zones, and for Distribution-connected generators, the charges will be based on voltage.

6. **Changes to residential tariffs**

The following principles were used when restructuring residential tariffs:

- Simplifying the tariffs
- Optimising the protection of the poor (limiting the price increase to the poor)
- Ensuring that high-usage residential customers pay more cost-reflective prices

All Eskom residential tariffs currently have the inclining block tariff (IBT) structure. Eskom is proposing that we have different tariff structures for the different tariff categories discussed above:

- **Homelight 20A**: to be a single energy rate lifeline tariff to cater for the poor. This tariff, on average, will see a 1% decrease, ensuring that the poor are protected against high price increases.
- **Homelight 60A**: a revised IBT with only two blocks – Block 1 for consumption up to 600 kWh and Block 2 for any consumption above 600 kWh per month. This tariff will see, on average, a 5% increase – indicating that, at lower consumption levels, Eskom has limited the increase.
- **Homepower suite of tariffs**: Homepower 1, 2, 3, and 4: a single energy rate plus a fixed network charge based on supply size for higher-consumption supplies. This tariff will see, on average, a 14% increase.

The structural changes proposed and price increases to residential tariffs will have an impact on the subsidies provided by large customer tariffs.

**Tariff subsidies and the protection of the poor**

Although small customers (and rural customers) pay a higher price per unit, the cost to supply them is much higher than it is for large customers. Hence, large customers pay a price that is more than it costs to supply them, thereby subsidising the rest. See the cross-subsidies table below.
Eskom recognises that, even in the absence of a national subsidy framework, the poor need to be protected against the impact of high price increases. The proposals contained in the tariff restructuring plan, therefore, include recommendations to manage the price increase to the poor.

The Eskom proposal provides protection for the poor, but significantly increases the level of subsidies for the non-local-authority urban tariffs. The following figure shows the level of subsidies before and after the price increase and tariff restructuring.

**Tariff subsidy contributions**

<table>
<thead>
<tr>
<th></th>
<th>All tariffs</th>
<th>Municipal tariffs</th>
<th>Urban - industrial and commercial</th>
<th>Rural - agricultural</th>
<th>Homelight 2D - residential low consumption</th>
<th>Homelight 60A - residential low to medium consumption</th>
<th>Homepower - residential high consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14 average price c/kWh</td>
<td>70.58</td>
<td>64.92</td>
<td>68.96</td>
<td>119.61</td>
<td>75.58</td>
<td>89.27</td>
<td>121.94</td>
</tr>
<tr>
<td>2013/14 cost reflective c/kWh</td>
<td>70.58</td>
<td>60.76</td>
<td>61.38</td>
<td>170.30</td>
<td>188.46</td>
<td>144.10</td>
<td>134.13</td>
</tr>
</tbody>
</table>

NERSA has also requested that Eskom should unbundle the subsidy into electrification, rural, and residential (affordability)-related subsidies as part of the tariff restructuring process.
CONCLUSION

Eskom has set out the proposed changes to the retail tariff structures, bearing in mind national imperatives, customer requirements, business needs, and best practice. The impact on the tariff has been shown based on these proposals being accepted and the projected MYPD3 costs. The rationale behind these proposals has been explained as comprehensively and transparently as possible to inform debate on the proposed tariff structures.

Customers are encouraged to participate in the NERSA public participation sessions that will be taking place around the country as published by NERSA. The information on the 2012/13 rates per tariff is available on the Eskom website.

For additional information on the Eskom MYPD3 submission, please visit www.eskom.co.za.