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Review of administered prices in South Africa: The electricity tariff

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Abstract

The current electricity pricing regime ties prices to Eskom's costs, with decades of mismanagement and crisis spending passed along to consumers. Despite this, efforts to contain costs risk undermining the capacity for reform at Eskom, by cutting off funding needed for key interventions like buying diesel. There is limited scope for reforming the electricity pricing regime to resolve this impasse – the trade-off is real and has no obvious resolution. Implementing reforms to the electricity market is likely the only route to truly resolving this impasse, but this is a very complex process that will take a long time to complete. There is clear scope for Eskom to improve efficiencies, but given the governance inertia and active resistance to change at Eskom, it is unlikely that this will be realised quickly. Improving municipal financing regimes, and strengthening measures to protect vulnerable consumers, could be one route to increasing prices while cushioning the inflationary impact.

1. Introduction

Electricity plays a significant role in a nation's growth and prosperity. It is a primary factor in assisting economic activity and facilitating economic opportunities that contribute to job creation and household income (Ledger 2022). Individuals and corporations need access to an affordable and reliable supply of electricity.

South Africa's energy system faces a dual crisis of rising costs and declining performance. Household electrical costs have risen by 60% since 2017, and the recently announced price increases for the 2023/24 financial year of 18.7% will maintain the pressure on consumers. Despite this, price increases have been inadequate to cover Eskom's growing financing needs. With declining electricity demand, a costly and debt-fuelled build programme and expensive short-term diesel usage, Eskom's needs appear increasingly unaffordable for South Africans facing the steepest general inflation in recent history.

Despite this, reforms to the regulated price of electricity offer little scope to contain prices in the absence of broader reforms to the electricity market. While there is scope to improve the underlying price-setting methodology, particularly by settling debates on the valuation of Eskom's assets and improving the performance of municipal tariff-setting processes, interventions have limited capacity to rein in prices driven by an unavoidable crisis at Eskom. Price setters remain stuck between a more price-reflective tariff and one that is affordable for South African households and industry.

This paper explores opportunities to reform the electricity tariff and the limits thereof. It proceeds in three parts. Section 1 examines the current pricing methodology and recent price trends. Section 2 examines the five core drivers of electricity price inflation. And Section 3 examines options to reform the price-setting regime, including considering existing proposed reforms.

2. Pricing electricity

2.1 The Multi-Year Price Determination

The National Energy Regulator of South Africa (NERSA) regulates the electricity price per the Electricity Regulation Act 4 of 2006 and the National Energy Regulator Act 40 of 2004 (Department of Public Enterprises (DPE) 2019). Eskom makes a tariff application based on the Multi-Year Price Determination (MYPD) methodology, which bases prices on an allowable revenue (AR) that Eskom can earn to cover costs and expected energy sales for the period (DPE 2019). The following formula is used for the submission of the tariff application through the MYPD methodology:

$$AR = (RAB \times WACC) + E + PE + D + R\&D + IDM \pm SQI + L\&T \pm RCA$$

Investor return — Pass-through costs — Risk management

Where:

Input	Definition
AR	Allowable revenue
RAB	Regulated asset base
$WACC$	Weighted average cost of capital
E	Expenses (operating and maintenance costs)
PE	Primary energy costs (inclusive of non-Eskom generation)
D	Depreciation
$R\&D$	Research and development programmes/projects
IDM	Integrated demand management costs
SQI	Costs related to service quality incentives
$L\&T$	Government-imposed levies or taxes (not direct income taxes)
RCA	The balance in the Regulatory Clearing Account

Source: DPE (2019).

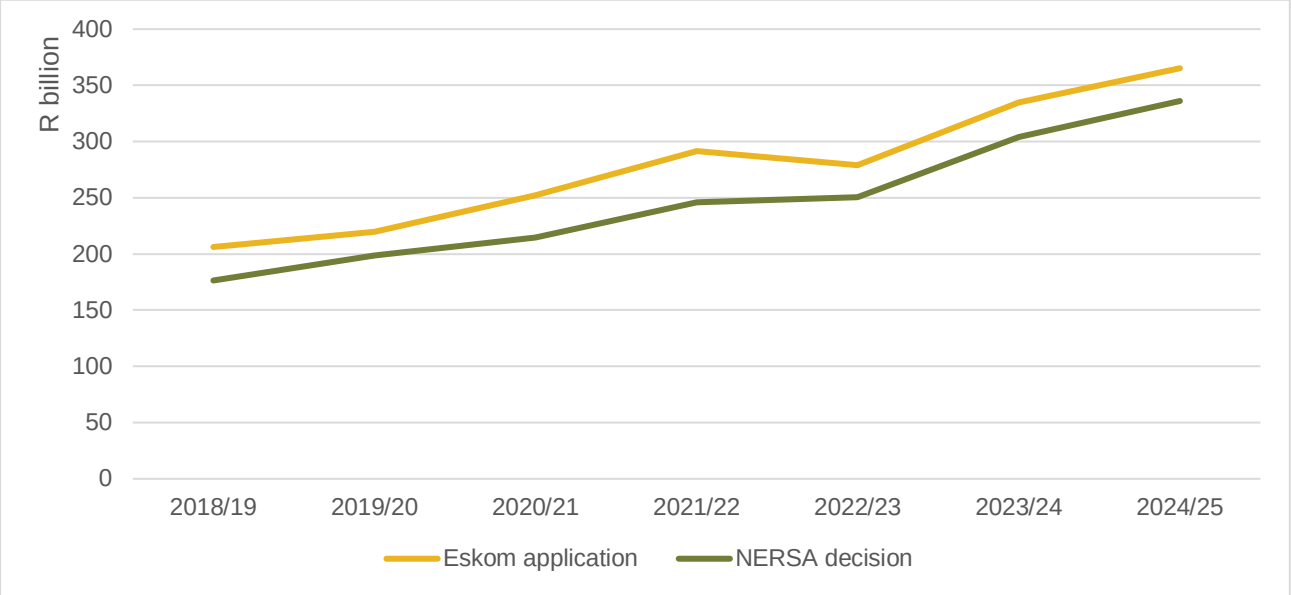
NERSA provides for Eskom's AR by forecasting its (efficiently and prudently) incurred costs plus a reasonable return. Select deviations from these forecasts, such as changing costs for energy generation or capital expenditure, are then captured in the Regulatory Clearing

Account (RCA). The RCA is effectively the difference between actual and forecast costs and is used to adjust the following year's tariff to account for these deviations.

Beyond the formula, NERSA must adhere to a range of additional requirements when deliberating over a tariff application (Eskom 2021). These include a range of considerations such as affordability, cross-subsidisation of different customer types and the impact of negotiated price agreements, which exempt certain users from the regulated tariff. While the MYPD methodology itself is relatively rigid, NERSA is not bound by its findings and can deviate from the methodology given "due consideration of what may be in the best interest of the overall South African economy and the public" (NERSA 2021).

A combination of these public good considerations and disagreements between Eskom and NERSA on key components of the AR, such as regulated asset base values, have generally led to price determinations that are substantially below those requested by Eskom.

Figure 1: Allowable revenue, Eskom application vs NERSA decision

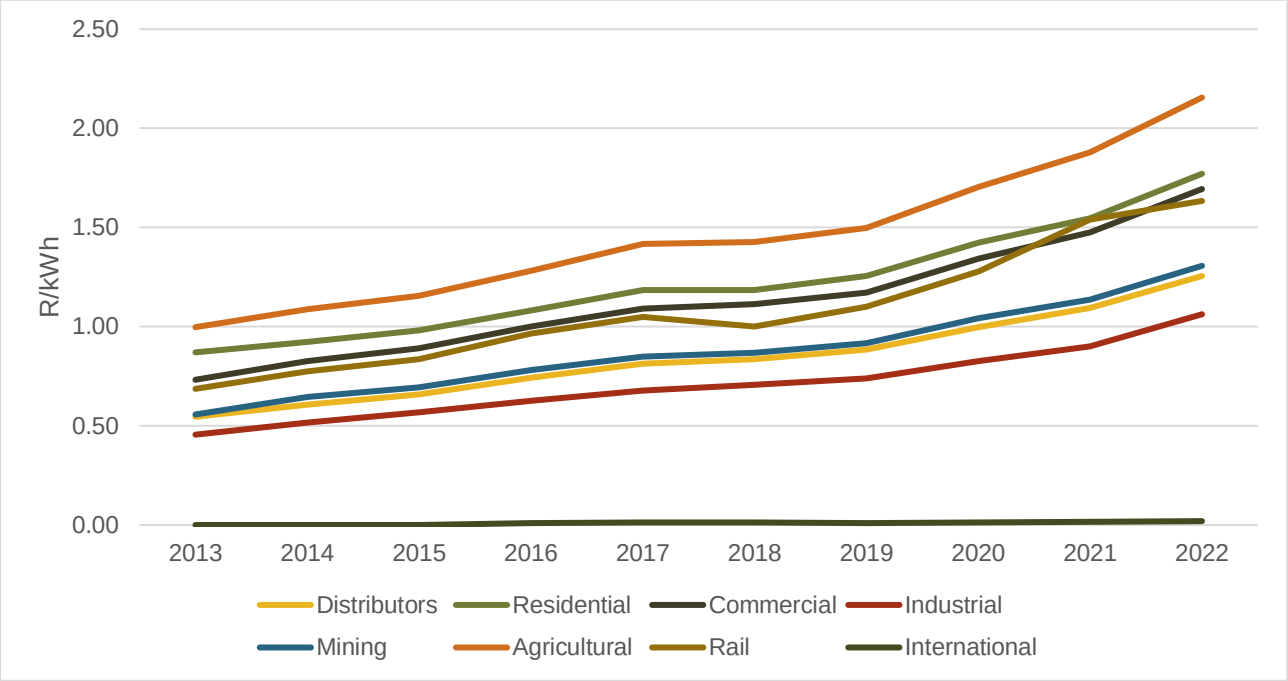


Source: NERSA tariff decision documents and Eskom MYPD applications.

2.2 Consumer pricing

While the price set by NERSA is the focus of this paper, it is not the final regulated price that most consumers will encounter. Final tariff rates will differ for residential, industrial and agricultural users; for usage at different times of the day and year; and for individual large consumers, like smelters, who are covered by an array of individual rate exemptions. The net result is that the real returns Eskom receives on the regulated tariff vary substantially between end users, as shown in Figure 2.

Figure 2: Eskom unit revenue per client type

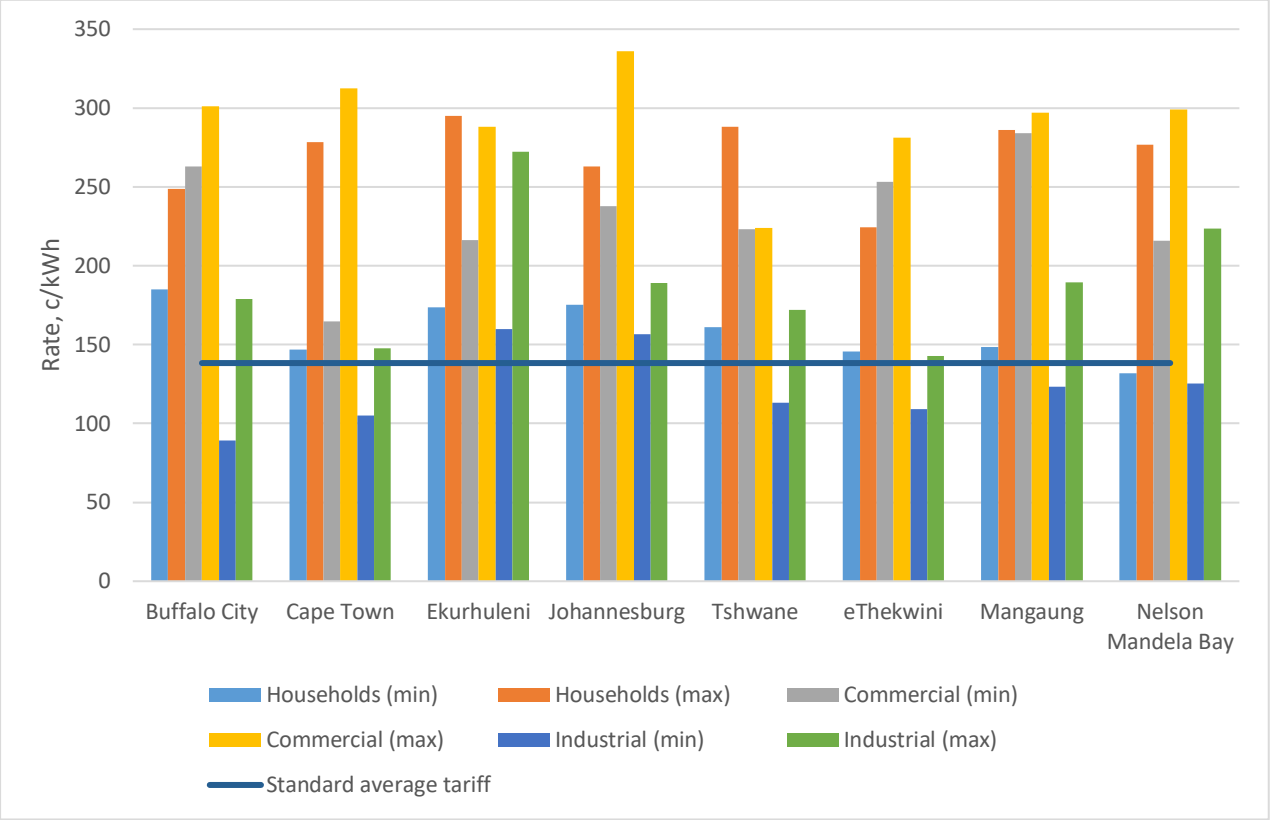


Source: Eskom annual reports.

Municipal rates, likely the most important for household inflation, are based on a similar assessment of the underlying costs facing distributors and must be approved by NERSA on an annual basis. NERSA publishes a guideline increase, but municipalities must still apply for their tariffs by providing justifications for their underlying costs.

However, there is substantial complexity in how final tariffs function; most utilities have complex schedules in which prices vary based on use, time, season, whether prepaid or conventional and the type of client. A wide range of fixed levies and demand charges supplement these basic usage tariffs. Figure 3 shows that standard (non-peak) tariffs for the major metros vary between tariffs that are 36% lower and tariffs that are 143% higher than the standard tariff set by NERSA.

Figure 3: Indicative metro electricity tariffs, 2022/23



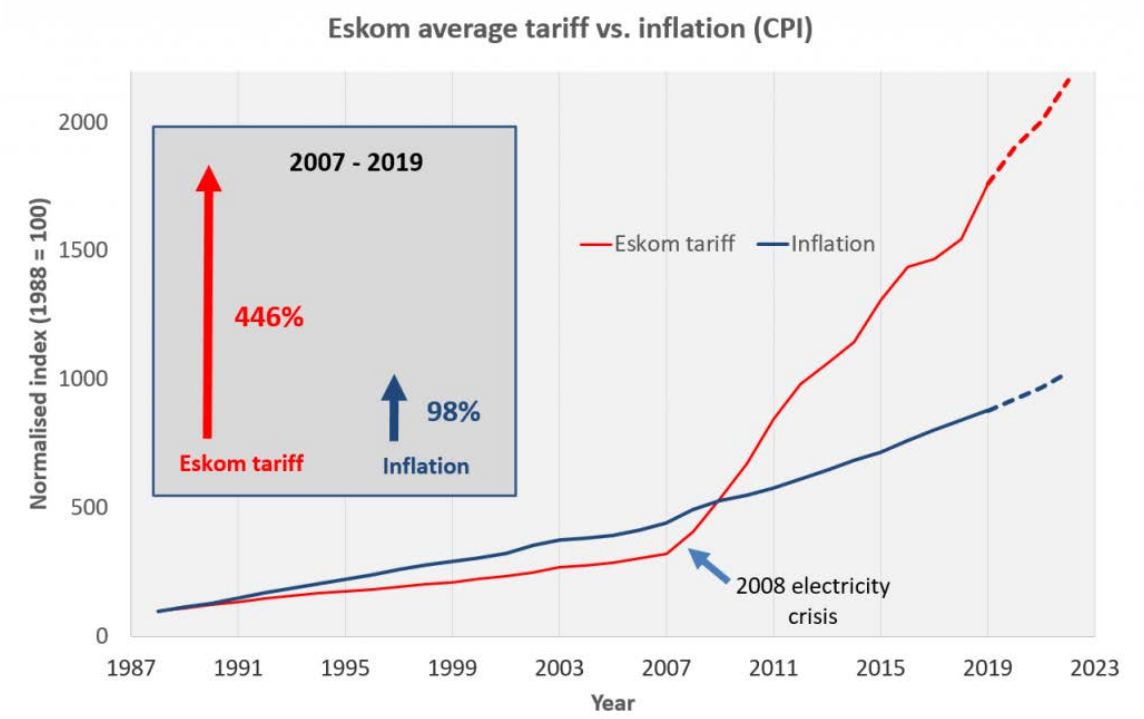
Source: NERSA, 'Approved municipal electrical tariffs 2022/22'. Minimum and maximum rates consider seasonal variation but do not account for time-use tariffs, with rates reflecting standard (rather than off- or peak) rates.

Municipal electricity utilities are envisaged as important players in managing energy affordability. They achieve this by cross-subsidising between households and large users, as well as by implementing social support such as the free basic electricity policy – although the performance and cost of these initiatives are very difficult to gauge because of a lack of transparent reporting. As discussed in Section 3.5, continuing pressure on municipal budgets has led to electricity sales increasingly being used as a source of basic revenue, potentially driving up prices.

2.3 Price trends

Figure 4 shows that most of the price increases in the tariff occurred after 2007, coinciding with the onset of the first wave of load-shedding. Between 2007 and 2017, the average Eskom tariff increased by 333%. By 2022, it had increased by 450% since 2007. Electricity price inflation has consistently exceeded headline inflation by a substantial margin, driving up the overall price level and impacting South Africa's price stability.

Figure 4: Evolution of average tariff in South Africa

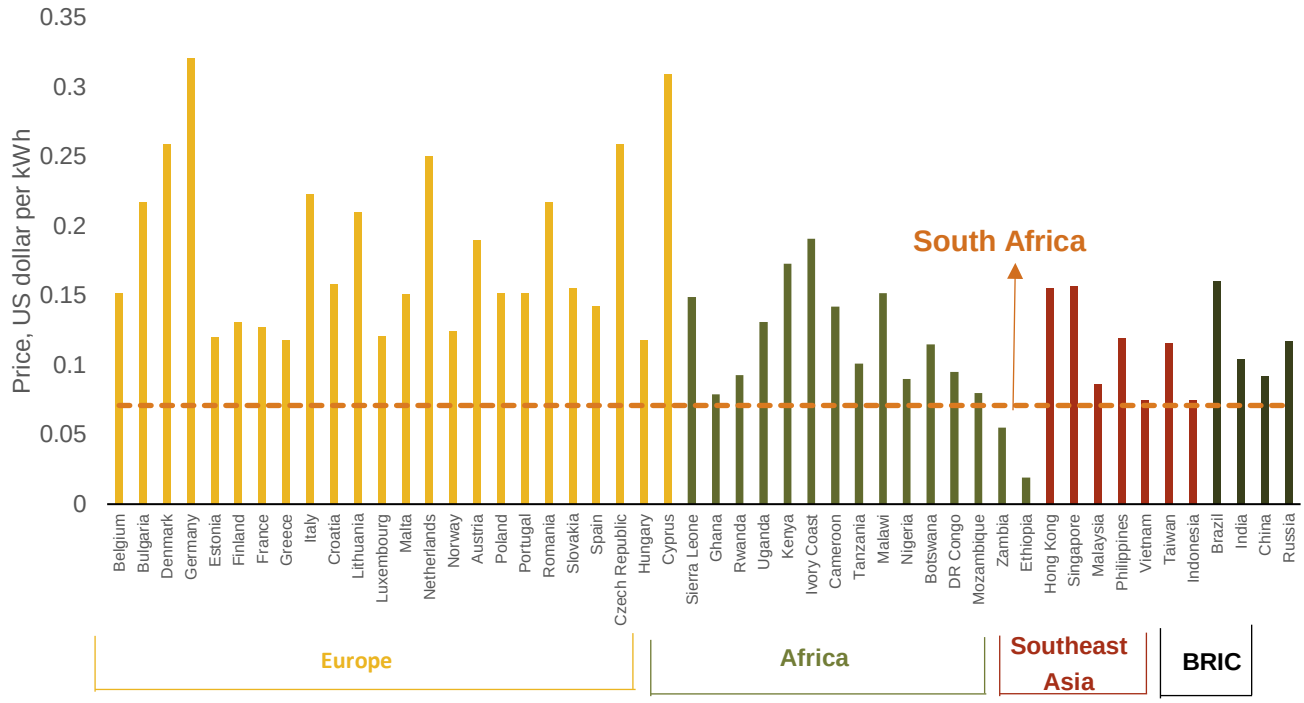


Source: Moolman (2021).

Despite the price escalation over the last 15 years, South African businesses still pay low tariffs compared to businesses in other countries (see Figure 5). The average price paid by South African businesses in 2021 was below all European, Southeast Asian and the BRIC[1] countries (Figure 5).

[1] Brazil, Russia, India and China.

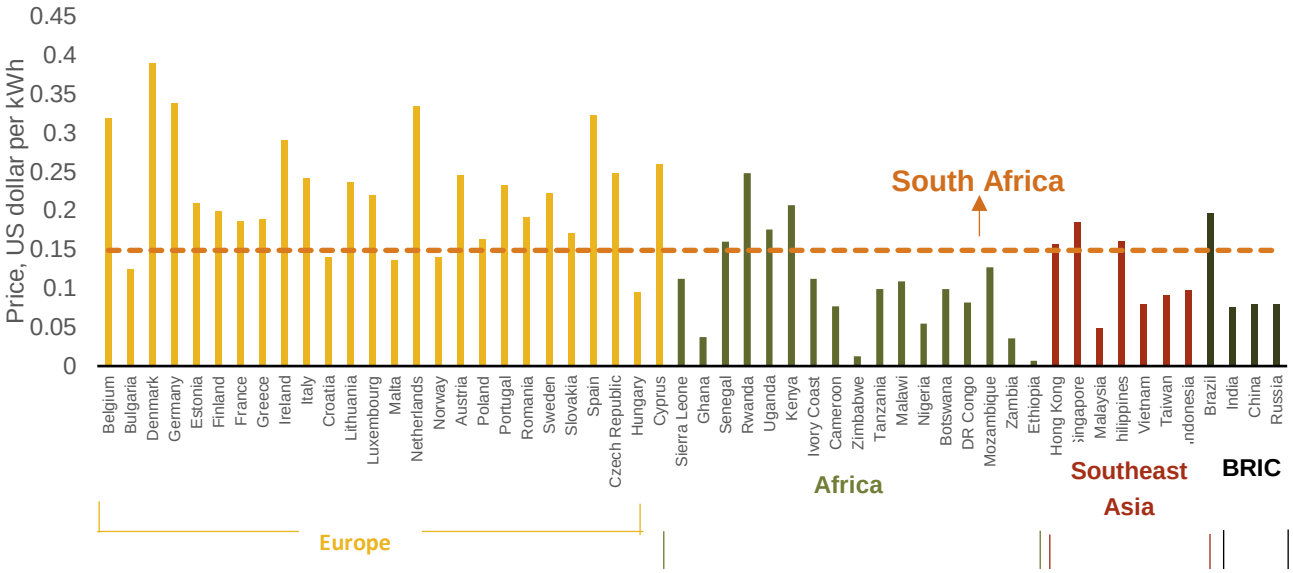
Figure 5: Electricity prices (businesses)



Source: GlobalPetrolPrices.com (2021).

While South Africa's current average electricity price ranks competitively across business segments, its residential consumers pay more than those in most African, Southeast Asian and BRIC countries. Compared to a list of 147 countries, South Africa's electricity price ranked 62nd highest, placing it above the midpoint of cheap and expensive markets (GlobalPetrolPrices.com 2021). South Africa's electricity prices are slightly above the emerging market average of US$0.11/kWh (Figure 6).

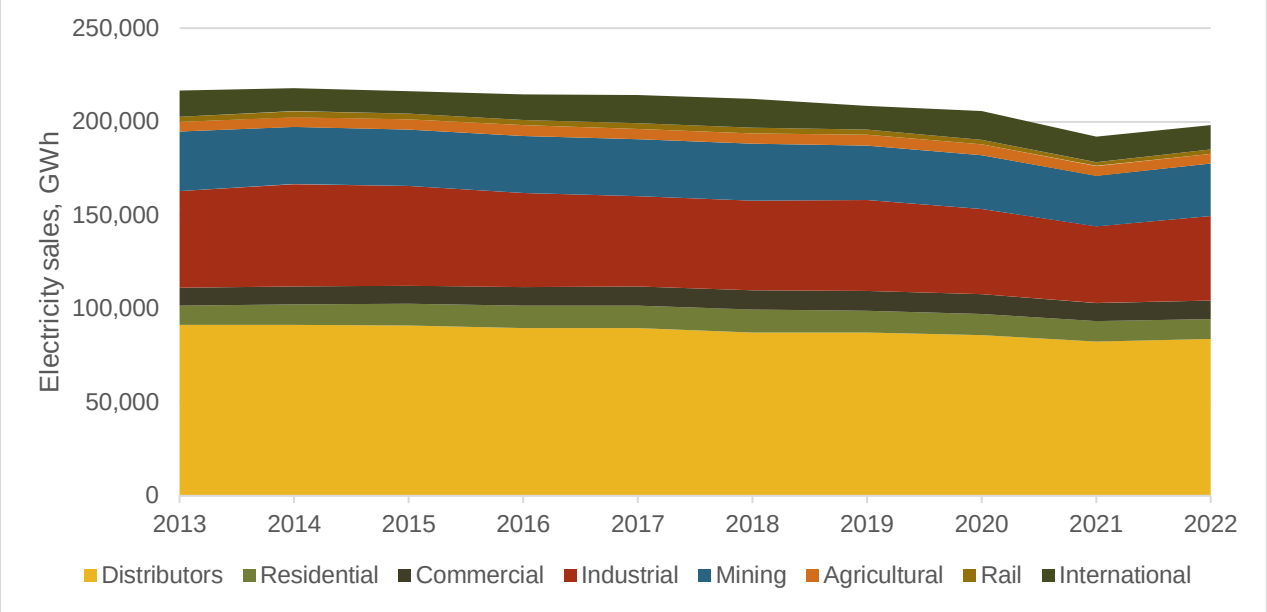
Figure 6: Electricity prices (households)



Source: GlobalPetrolPrices.com (2021).

Despite these higher prices, Eskom has not generated enough productive capacity to meet demand. With Eskom unable to supply sufficient electricity despite dwindling demand, a 'utility death spiral' is a real risk. This death spiral occurs when declining demand, and therefore, sales, means that tariffs need to increase to cover the costs of maintaining and expanding the grid, which in turn reduces demand even further as customers substitute alternative electricity sources or find themselves unable to pay. Over the past 10 years, Eskom's sales to distributors have fallen 8%, while industrial and mining sales have declined by 13% and 11%, respectively.

Figure 7: Eskom electricity sales, by client segment, GWh



Source: Eskom annual reports.

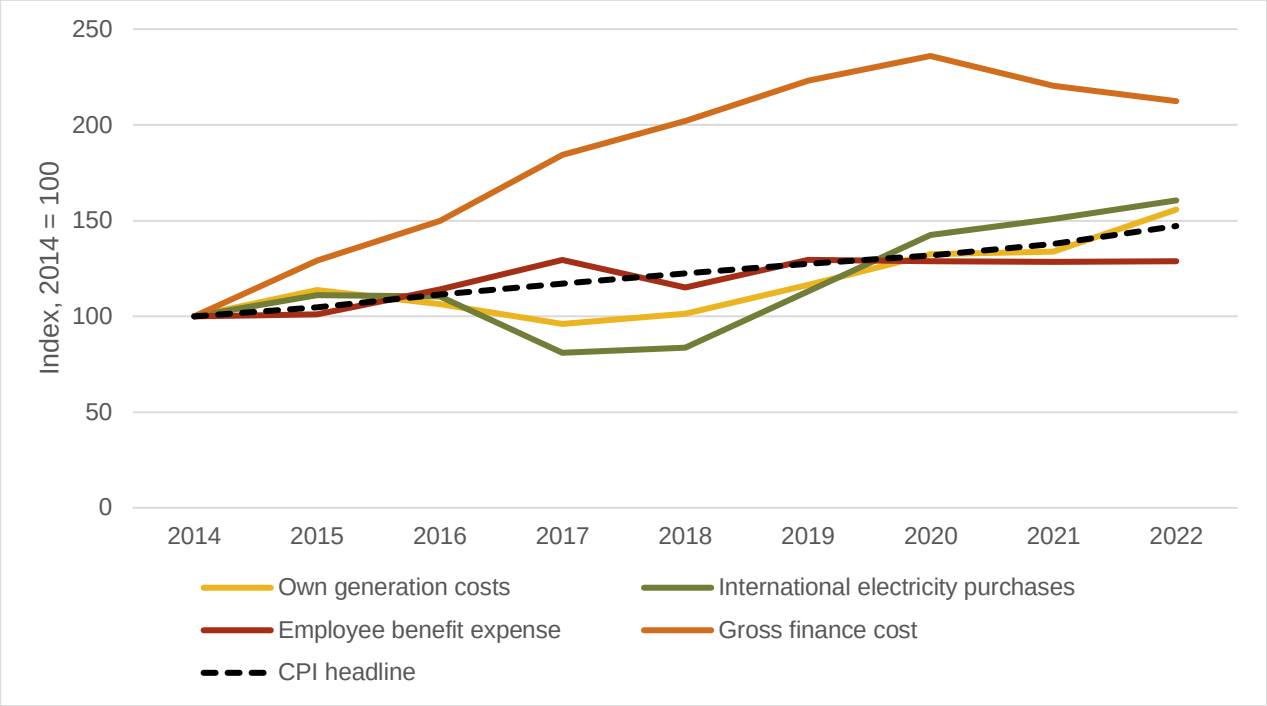
3. Key drivers of electricity prices

3.1 Capital expenditure

Between 2007 and 2021, Eskom spent R680 billion in capital expenditure, with generally poor results. Major projects during this time included the return to service of three end-of-life power stations, the development of two additional peaking plants and the construction of two very large new power stations, Medupi and Kusile. The latter two plants were particularly riddled with cost overruns and breakdowns and still require an additional R33 billion to complete.

Much of this new generation capacity was rolled out very quickly, with major governance challenges and a dearth of technical knowledge in a utility that had not built a new power station in 20 years. This resulted in very high costs and the development of a substantial debt burden for Eskom. By the end of 2022, Eskom's annual gross finance costs were R44 billion, exceeding employee costs (R33 billion) and equalling about half the value of the utility's own generation costs (R84 billion).

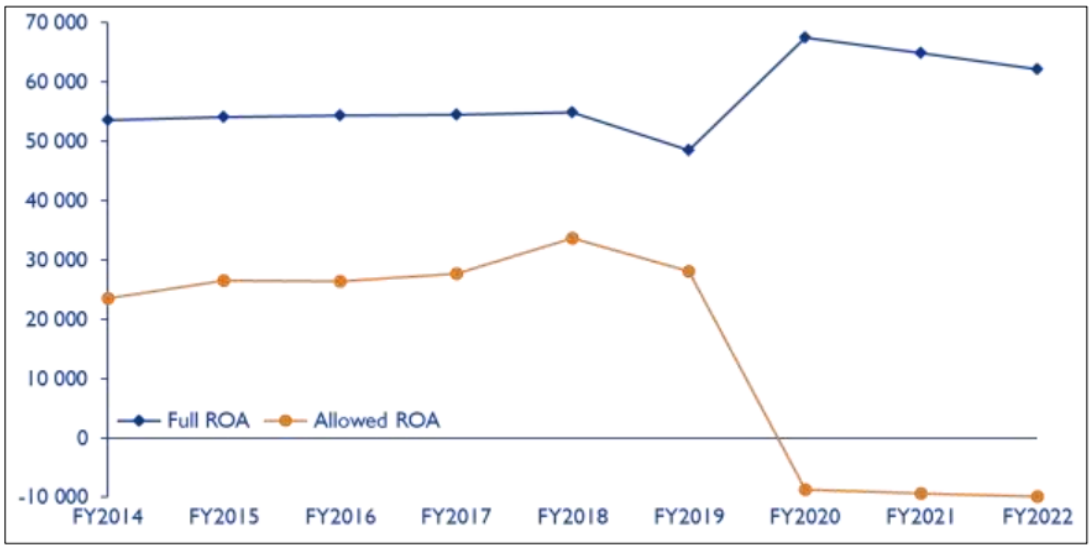
Figure 8: Index of Eskom's major cost drivers



Source: Eskom annual reports.

Eskom's capital expenditure and debt burden significantly impact the costs underlying the electricity tariff, and the methodology has limited scope to stop these costs from affecting consumers. Despite this, NERSA has consistently granted tariff increases that Eskom argues are below the level needed to make a suitable return on assets (ROA) (Eskom 2021).

Figure 9: Extent of under-recovery for the ROA



Source: Eskom (2021).

While a portion of this under-recovery results from NERSA exercising deliberate restraint in passing through the MYPD formula to strained consumers, Eskom has also argued that there is a major discrepancy between the asset values used by NERSA for regulatory tariff-setting

and newly acquired asset values, creating a funding shortfall when new assets are introduced (Eskom 2021).

Eskom reports that NERSA has determined a weighted average cost of capital of 7.1%, whereas Eskom's own determination of this metric is 11.5%, representing a shortfall of around R29 billion to meet Eskom's debt commitments (Eskom 2021). Much of this difference results from differences in valuations for Eskom's regulated asset base. In MYPD4, this largely resulted from three decisions by NERSA: write-downs of Eskom generation units that do not meet energy-availability factor targets, valued at R85.6 billion; the exclusion of the value of units that are not currently operational, which impacts units of Duvha, Hendrina, Komati and Grootvlei, valued at R16 billion; and a refusal to include additional spending on Medupi and Kusile, pending a full review of spending on the project.

Eskom's problem is compounded by a deterioration in its credit ratings. Worsening credit ratings since 2018 have affected Eskom's ability to borrow and to pay mounting debt-service costs (Eskom 2021). Despite promised support from National Treasury, in the absence of meaningful cost-saving measures, Eskom will have to continue increasing prices to cover its debt costs.

3.2 Declining sales

Eskom's ability to generate sufficient revenue plays an important role in the AR formula. Eskom must be able to generate sufficient revenues through sales to cover costs and reduce its reliance on debt (NERSA 2021). When NERSA considers Eskom's tariff application, it is based on a sales forecast. This forecast is crucial as NERSA guarantees a tariff based on it. When sales are lower than expected, Eskom's 'promised' revenue is also not recovered (NERSA 2021).

Table 1 shows that Eskom's largest sales losses have come from critical economic sectors. Since 2006, Eskom's sales have declined by an estimated 0.5% per year (NERSA 2021). Phalatse (2020) explains that total electricity sales declined after 2008 due to load-shedding and declining economic growth, exacerbated by economic shocks like the global financial crisis and the COVID-19 pandemic. This slowdown intensifies already declining demand for energy, which hit its peak in Q2 of 2007 due to (among other factors) a wide-ranging shift to energy-efficient technologies in response to the first wave of load-shedding.

Table 1: Eskom sales by sector (2013–2022)

Electricity sales per customer, '000 GWh	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Change in GWh sales, %
Distributors	91.4	91.3	91.1	89.6	89.7	87.1	87.2	86	82.4	83.9	-10.5%
Residential	10.4	11	11.6	11.9	11.9	12.3	11.7	11.3	10.9	10.5	4.10%
Commercial	9.5	9.6	9.6	10.2	10.3	10.5	10.6	10.5	9.7	9.9	4.6%
Industrial	51.7	54.7	53.5	50.2	48.3	47.9	48.7	45.6	40.9	45.1	-30.3%
Mining	31.6	30.7	30	30.6	30.6	30.2	29	28.7	27	28	-17.2%
Agricultural	5.2	5.2	5.4	5.7	5.4	5.7	5.8	5.8	5.5	5.4	6.3%
Rail	3	3.1	3.1	2.9	2.8	3.1	2.8	2.6	1.9	2.1	-40.9%
International	13.8	12.4	12	13.5	15.1	15.3	12.5	15.2	13.5	13.3	2.3%
Total	216.6	217.9	216.3	214.5	214.1	212.2	208.3	205.6	191.8	198.3	-14.7%

Source: NERSA (2021).

Declining sales volumes present a sustainability risk for Eskom and compounds the reliance on price increases as a source of revenue growth (NERSA 2021). National Treasury has urged Eskom to find effective ways to increase actual sales in its latest MYPD application (Eskom 2021). Despite this, Eskom's existing monopoly on energy supply means there is limited scope to restore sales volumes in the absence of greater underlying economic growth, particularly in the type of energy-intensive industries that are unlikely to invest in the face of steep electricity tariffs.

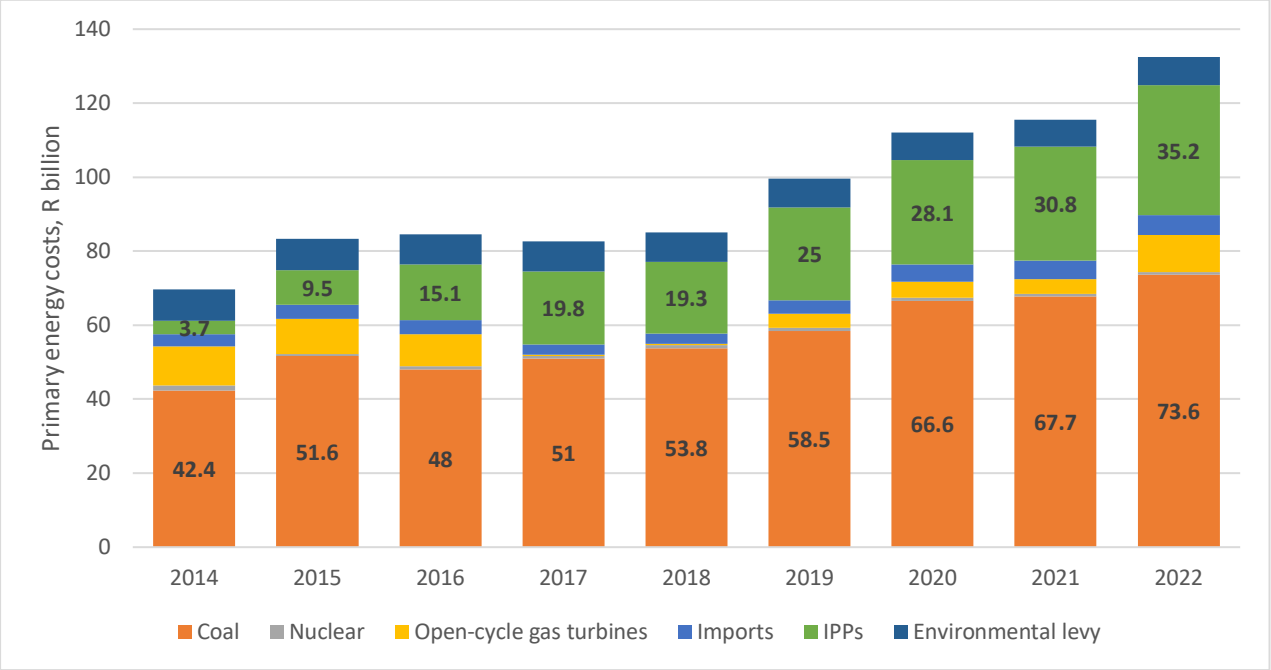
Variance in the rates charged to different categories of clients is also an underlying driver of declining sales (in rand terms), but a more complex one. For example, a set of special rates offered to major industrial users through negotiated pricing agreements means that, on average, earnings per unit of energy sold to industrial users are only 60% of that of a residential client. Despite this, these industrial clients traditionally play an important role in creating stable baseload demand for Eskom, and some would arguably be rendered uncompetitive by higher rates. A lack of transparency in these negotiated agreements, in which rates are typically redacted, makes it difficult to understand their impact on overall electricity prices.

3.3 Primary energy costs

While growing capital spending costs in the context of declining energy demand are the central driver of higher electricity tariffs, growing primary energy costs and operating expenses likely would have maintained pressure on the price even without the build programme. Eskom's recent tariff application showed primary energy costs of about R243 billion, levies and taxes of about R42 billion and operating expenditure of R105 billion (Eskom 2021).

Figure 10 shows an overview of growth in primary energy costs, which is primarily driven by three factors: declining efficiencies in coal production, increased use of diesel and the high prices associated with early-phase independent power producers.

Figure 10: Primary energy costs, by energy source



Source: Eskom annual reports.

Rising coal costs have been driven by the declining coal supply near Eskom's power stations, which means that coal must now be transported over a longer distance, thereby increasing costs. Nonetheless, volumes purchased have declined and may continue to do so over the medium term. Governance issues in coal procurement are also being addressed through the Eskom commercial process to reduce the risk of irregular expenditure.

Costs associated with open-cycle gas turbines tend to fluctuate along with failures in other generating capacity, as peaking infrastructure is repurposed to run near-constantly to make up for shortfalls. High diesel costs and exceptionally high downtime figures have contributed to costs in 2022, reaching a high last seen in 2014.

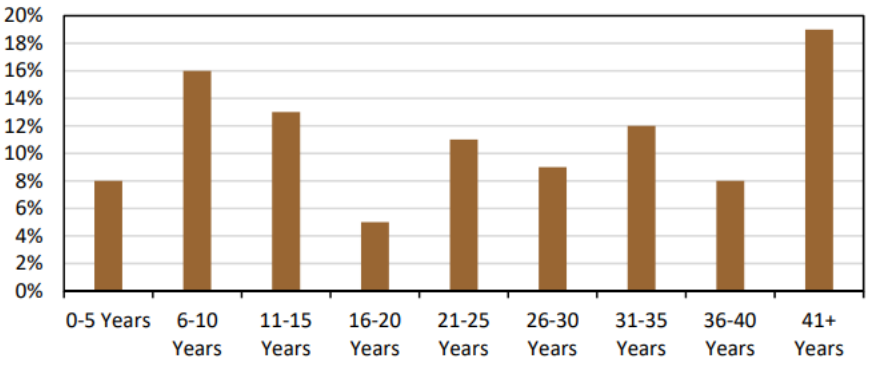
Despite the decrease in the cost of renewable technologies, the total cost of independent power production to the consumer has increased significantly due to higher prices being locked in during the first bid windows when the technology costs were still high. Prices were expected to decline after the incentive of these initial high prices and likely will decrease over the long term as new bid windows are awarded. However, shortages in key inputs to renewable energy (particularly semiconductors) and disruptions to the procurement programme have stunted these improvements and are expected to complicate the price path for renewable energy in the short term.

3.4 Operating costs

While operating costs have been a less important contributor to overall price pressures over the last 10 years – contributing 23% of Eskom's overall spending in 2022 – they may add price pressure in the future, as Eskom's operations shift to account for underlying failures in core infrastructure. Two operating expenses are particularly important: employment compensation and maintenance spending.

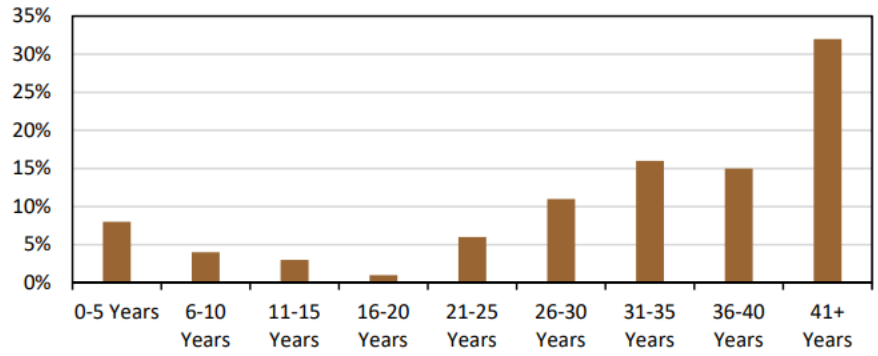
Maintenance costs reached an all-time high of R32.5 billion in 2022, driven by the increasing needs of an ageing fleet, the need to address serious design flaws in new build stations and an explicit policy by Eskom to increase maintenance hours in an attempt to reduce breakdowns. While much of the attention has been on maintaining generation infrastructure, Eskom notes that additional maintenance will be required for ageing distribution, transmission and generation infrastructure over the medium term and foresees costs going up gradually as part of a 10-year transmission refurbishment plan (Eskom 2021).

Figure 11: Age profile of transmission substation assets



Source: DPE (2019).

Figure 12: Age profile of transmission line assets



Source: DPE (2019).

Employment spending has consistently been identified as a potential cost-saving point for Eskom, driven in part by criticism of the cost and scale of employment by Eskom at a time of widespread failures in performance. A widely cited 2016 World Bank study found that South Africa's staff costs were higher than the norm in Africa, at 20% of operating expenditure against an average of 14%, and argued that Eskom was 66% overstaffed relative to a baseline of employee per client, mainly built on experiences in other energy markets.

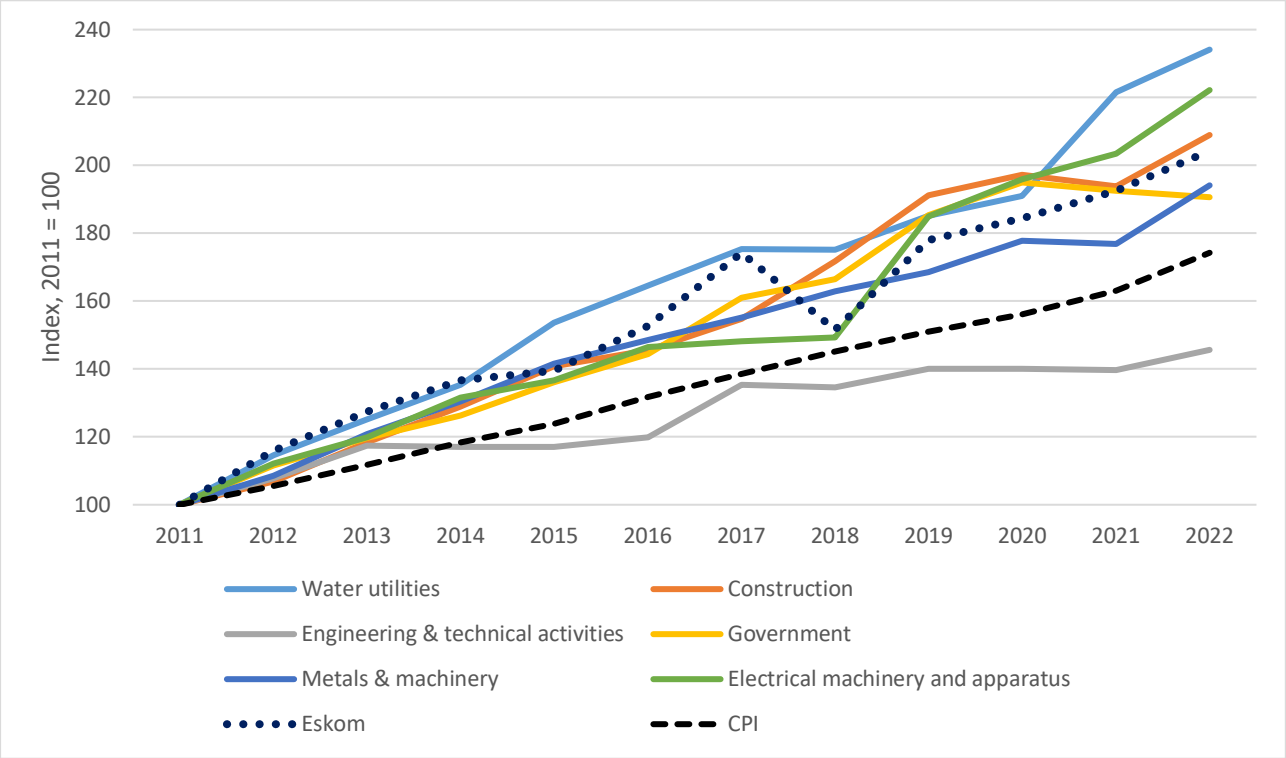
Eskom had 40 421 employees as of 2022 and has acknowledged its headcount is high and contributes to the need for a higher AR. However, in its recent tariff application, Eskom reports substantial progress in reducing its headcount since 2016/17, when the utility employed 47 987. The loss of employees during a period of large expansion is highly unusual but has relieved price pressure, with compensation costs increasing below inflation rates since 2014.

Over the next three years, overall operating costs are forecast to grow by around 5% per year (Eskom 2021).

However, there are risks to this forecast, as strike action and wage increases substantially above inflation could lead to significant deviations. In its latest wage negotiations, Eskom and union leaders reached a wage increase agreement of 7%, implemented across the board (Mkentane 2022). Unions argue that their demands are affordable as Eskom's wage bill has remained constant since 2017/18, and workers are struggling amid high living costs (Koka 2022). The settlement will add more than R1 billion to the overall wage bill between 2022 and 2023 (Mkentane 2022).

Despite this, Eskom's compensation has largely tracked industries with similar skill sets, such as electrical machinery manufacturing and construction, as shown in Figure 13.

Figure 13: Growth in Eskom staff costs per employee, against select industry averages



Source: Eskom annual reports; Stats SA Quarterly Employment Survey and CPI series.

While operating costs will remain a cause of price pressure, the net impact of these operational expenses on the electricity price will likely depend on whether they improve overall performance. Effective maintenance spending and strategic employment could help improve performance and reduce costs in areas like diesel spending. Ultimately, the quality of operations may prove more important than the extent of operating expenditure.

3.5 Municipal pricing

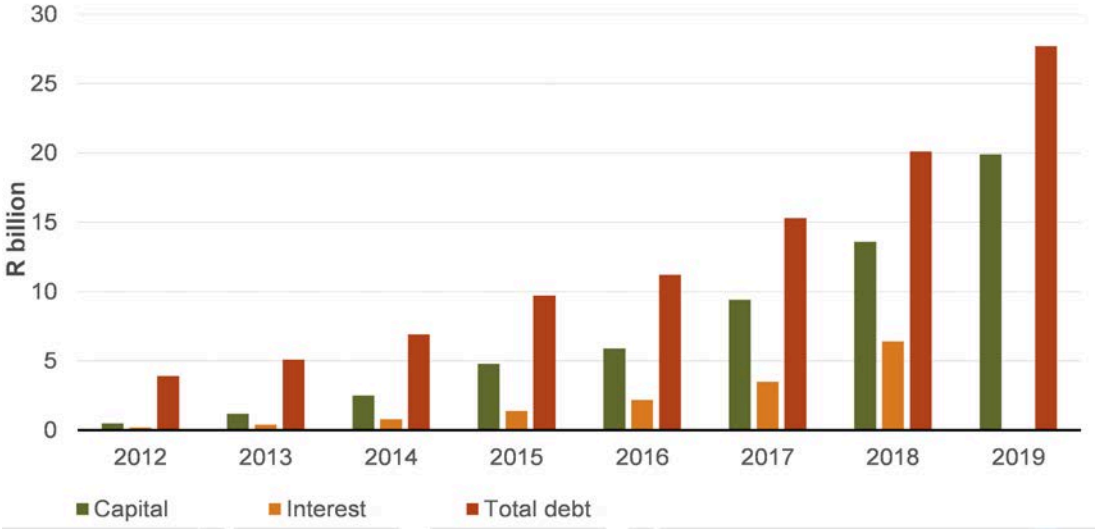
The margin received by distributors is an essential and complex component of electricity pricing, given that municipalities typically receive 25% to 30% of their revenue from electricity distribution (Ledger 2021). Given the extreme strain on municipal revenue, there may be

pressure for reductions in the regulated tariff from NERSA to be transferred to distributors, blunting potential price decreases if the regulated tariff is reformed without matching reform among distributors.

Higher electricity prices have also been attributed to municipalities' pricing policies and municipalities have been accused of 'profiting' unduly from electricity surcharges. Because the revenue is not ringfenced, revenues from electricity tariffs can be used by municipalities to subsidise other services (Stats SA 2022). Research done by PrimaResearch (2019) shows that between 2008 and 2018, the Eskom tariff increased by 14.4% as a compound annual growth rate. The research shows that due to the markup charged by municipalities on top of Eskom's increase, estimated excess profits to municipalities amounted to around R46 billion between 2008 and 2018. The excess was not evident for all municipalities, as there are signs that some municipalities partially absorbed the Eskom tariff increases.

From Eskom's perspective, municipalities pose a risk to its financial position, as shown by their growing debt to Eskom (total debt estimated at just below R30 billion, Figure 14). The top 20 defaulting municipalities constitute 82% of the total invoiced municipal arrear debt (Department of Mineral Resources and Energy 2019). Forty-seven municipalities owe more than R100 million each (Department of Mineral Resources and Energy 2019).

Figure 14: Rise in municipal debt



Source: Department of Mineral Resources and Energy (2019).

Addressing the issues related to municipalities is essential, given that they distribute electricity to key customer groups. So far, Eskom has exercised leniency towards defaulting municipalities. But the poor collection rate means that Eskom cannot service its debt load and will be forced to ask the government for more bailouts, increasing pressure on the fiscus. Eskom is currently enhancing measures to collect outstanding debt from municipalities while still providing electricity to them (Eskom 2021). If Eskom withholds electricity from defaulting municipalities, this will unduly affect consumers and disrupt productive activities.

On the other hand, the South African Local Government Association claims that Eskom's continuous tariff increases directly impact municipalities' financial performance (Eskom 2021),

as municipalities find themselves squeezed between rising bulk supply costs and consumers that are unable to afford higher tariffs. Between 2014 and 2021, the number of municipalities in financial distress more than doubled (Eskom 2021).

The risk is that municipalities may look towards cheaper alternative electricity sources to reduce operating costs (Eskom 2021). Furthermore, load-shedding has seen a growing number of high-income customers moving off the grid, compromising municipalities' ability to cross-subsidise to benefit low-income households (Eskom 2021). Ultimately, this dynamic could also feed into a utility death spiral, as defined in Section 2.3.

4. Scope for reform

4.1 Energy sector reform

In contrast to many administered prices in South Africa, there is very little scope to meaningfully reduce electricity prices through reforms to the price-setting regime without deeper restructuring in the energy sector. Price inflation stems from the fundamentals of the sector, including significantly rising costs at Eskom and the underlying limitations of an energy system dominated by a deeply troubled monopoly.

Meaningful changes in electricity pricing will likely only result from the broader reform currently under way in the sector – in which Eskom's generation, transmission and distribution components will be split into separate entities ahead of introducing competitive markets in each of these areas. This is, however, an enormous change that will likely take a long time to implement and will likely result in a market in which Eskom is still the largest player in the near term and retains the debt and governance challenges currently plaguing performance.

Therefore, reforms to the current pricing regime have a relatively narrow window of relevance and very limited conditions under which they can be introduced. Despite this, both NERSA and Eskom have proposed improvements to existing pricing regimes.

NERSA contends that the current methodology's key flaw is that it misprices costs based on averages (NERSA 2021). Across the electricity value chain, costs are averaged to determine the total revenue required by Eskom, which is used to set an average price (NERSA 2021). NERSA's proposed reform would provide separate tariffs for different activities (such as generation, transmission and distribution) and different technologies (such as renewable and coal energy). This effectively means that each generation facility would have its own rate and the final tariffs paid by consumers would depend on the specific mix of technologies that comprise supply to a given consumer and on the nature of the consumer's demand (for example, off-peak versus baseload).

This reform explicitly targets a post-reform energy sector in which individual generation capacity competes to be contracted. This is most evident in the margin pricing system, in which tariffs are also adjusted based on how much total energy is demanded – in effect, simulating a grid operator purchasing first from the most efficient supplier and then moving on to more costly options. The appropriateness of the entire system for the reformed market is difficult to judge, given uncertainties over what that new market will look like.

However, the proposal is a strange fit for Eskom in its current form. With Eskom's entire fleet operating at maximum available capacity more-or-less constantly, the new approach would likely result in an outcome similar to the current MYPD system, in which the tariff reflects total costs. The new system may introduce a more explicit logic to variance in tariffs between different types of consumers, based on the type of technology used to provide power, but this would appear in conflict with the existing objective of keeping prices affordable for customers.

The proposal may be appropriate once energy reform begins in earnest and may offer more complex changes once it moves beyond the initial concept phase, but as it stands, it appears to be a more complex means to return to the same cost basis as the current methodology.

4.2 Eskom's proposal

Eskom is also undergoing an approval process for restructuring tariffs motivated by the cost of supply, also known as the cost to serve. The following changes are proposed:

- **Increase municipal lighting tariffs:** The costs of generating electricity for public lighting are R62 million more than the revenue they collect. A new tariff of 30.28% is proposed.

- **Discard the inclining block tariffs structure:** Prices currently increase depending on blocks of total usage values for the month (analogous to marginal taxation brackets). The assumption on which this is based – that low-income or multi-family dwellings consume less electricity – is not necessarily true. In addition, there are more affluent customers, for example, with holiday homes, that unfairly benefit from this tariff structure.

- **Continue to subsidise low-income consumers through a new Homelight tariff:** Eskom would continue to subsidise costs for low-income users, who will pay roughly the same rates for lower energy usage, while consumption at or above 700kWh will be cheaper than under the current tariff structure. Conversely, high-income consumers will be charged more through a Homepower tariff.

- **Bill small-scale embedded generation:** Eskom proposes a new time-of-use tariff called Homeflex that could benefit photovoltaic users. It includes a net billing rate compensating for excess energy exported into the grid. Eskom says this tariff will be mandatory for customers with small-scale embedded generation and with the approved postpaid smart meter device and voluntary for residential customers without self-generation.

Electricity tariffs should reflect cost to serve and tariffs should be cost-reflective. The new proposed tariff structure aims to stay true to these principles. It is also expected to simplify tariff options by removing inclining block tariffs and rationalising municipal tariffs. If Eskom's new proposed tariff structure is implemented, consumers could see electricity price increases of more than 30% in 2023. However, the longer-term consequences of not charging cost-reflective tariffs are likely to be worse.

4.3 Affordability

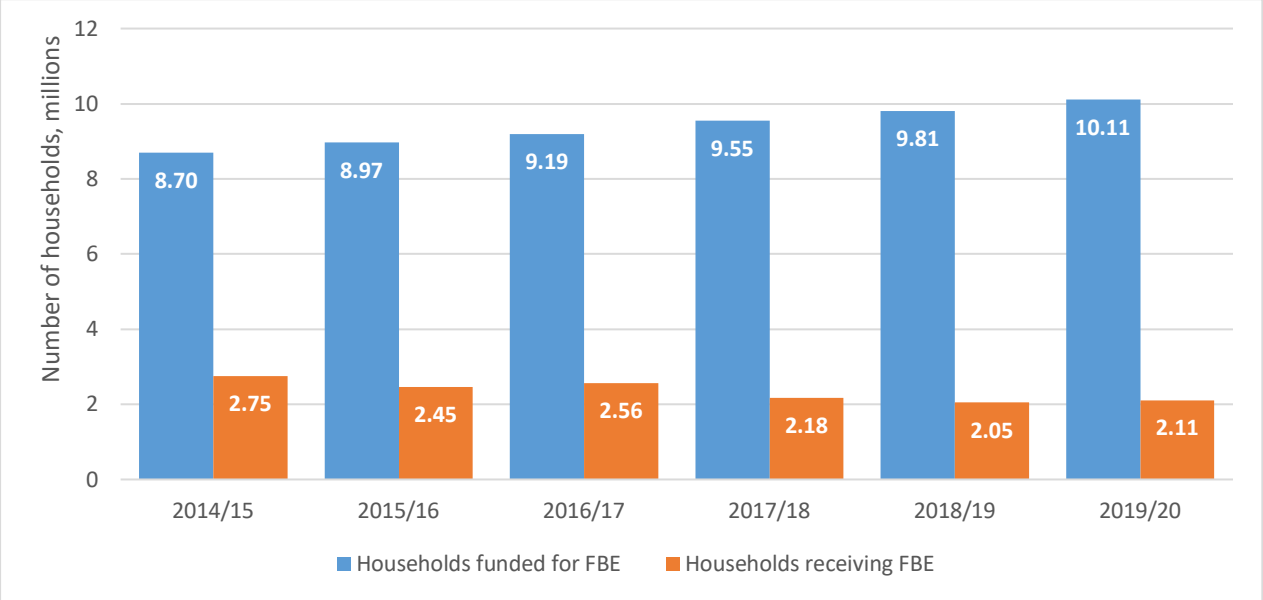
While there may be value in tweaking the methodology to calculate underlying costs better, the deeper problem of the current approach appears to be that it prioritises affordability with no explicit mechanism to do so or to account for the resultant cost gaps.

A World Bank study estimated that electricity prices are up to 81% under-priced (Eskom 2021). Artificially low electricity prices can have detrimental effects, including discouraging investment and, in the case of state-underwritten entities like Eskom, eventually burdening the fiscus. However, the regulated price is designed to be in tension with a monopoly demanding price increases that are detrimental to consumers. Given the trade-off between a failing utility and a struggling populace, the electricity price will almost certainly remain a compromise between the specifics of the MYPD and the test of affordability.

Despite this, affordability is not properly accounted for in any systematic way in the MYPD. Eskom claims that the most significant reason for the under-pricing is the absence of necessary benchmarking by NERSA. Addressing the economic impact parameters used by NERSA in determining price increases, Eskom commissioned independent research that argued that NERSA's approach to economic impact evaluations is methodologically flawed and fails to account for the counterfactual negative impact of inadequate tariff increases.

One approach that may offer a meaningful way forward is to improve the performance of affordability measures in municipal tariff rates. Cross-subsidisation strategies among distributors are meant to protect energy-intensive industries, while social support measures like free basic electricity (FBE) are meant to protect vulnerable households. However, performance is reportedly poor, with municipalities vastly underspending money allocated through the equitable share for free basic electricity, as shown in Figure 15.

Figure 15: Underspending in free basic electricity



Source: Ledger (2021).

While a full review of the performance of municipalities' price-setting strategies is beyond the scope of this paper, strengthening these existing affordability protections could offer scope for NERSA to raise national electricity tariffs with less severe social and economic trade-offs. However, with municipal finances heavily dependent on electricity revenues, the trade-offs in this process are almost as difficult as those for the core electricity tariff.

5. Conclusion

On balance, the current electricity environment is undergoing many changes, and substantial investment is required to ensure the stability of the electricity supply. These changes require price increases to ensure cost reflectivity and strong investor sentiment. Unfortunately, when it comes to electricity in South Africa, the choice is between short-term price stability with large-scale medium- to long-term price escalation and more contained (but significant and consistent) inflation over the short, medium and long term. Improving the efficiency and accuracy of the current price-setting mechanism will inevitably increase tariffs. Although improvements in municipal price setting may help cushion the impact of these increases, significant annual electricity price increases will be necessary for the foreseeable future unless direct support is provided to Eskom or broader reforms in the industry are fast-tracked.

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