MYPD 5
Revenue Application
- *Addendum* -

MYPD 5 Revenue Application (FY2024 – FY2025)

Addendum: Updated Assumptions

Submission to NERSA

September 2022

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1 Executive Summary

1.1 Multi-Year Price Determination (MYPD) Methodology requires alerting on changes in environment during consultation

NERSA is in the process of consulting on Eskom's Multi-Year Price Determination (MYPD) 5 revenue application for FY2024 and FY2025. Eskom had submitted a three-year revenue application on 2 June 2021 for FY2023 to FY2025. In accordance with the MYPD methodology (2016), Eskom is required to provide any updates on changes in conditions and environments that impact various cost elements of the revenue requirements. However, the total allowable revenue does not change. Changes were mainly related to capacity availability from Eskom and Independent Power Producer (IPP) generators as well as a slight change in sales volume.

The Eskom allowable revenue updates are reflected in the table below.

Table 1: Updated allowable revenue for FY2024 and FY2025 (September 2022)

Allowable Revenue (R'm)	AR	Formula	Decision FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	**RAB**		550 509	1 241 499	1 227 311
Average Regulatory Assets Base (RAB)	**RAB**		702 932	896 004	1 234 405
WACC %	**ROA**	X	1.08%	1.70%	1.58%
Return			7 557	15 277	19 516
Primary energy	**PE**	+	80 495	101 943	104 159
International purchases	**PE**	+	4 589	8 925	9 334
IPPs	**PE**	+	43 131	67 521	85 618
Environmental levy	**L&T**	+	7 133	6 895	6 500
Carbon tax	**L&T**	+	2 714	-	-
Arrear debt	**E**	+	-	-	-
Operating costs	**E**	+	62 513	63 115	65 852
Research and Development	**R&D**	+	-	-	-
Depreciation	**D**	+	42 320	71 001	74 214
MYPD5 Allowable revenue			**250 452**	**334 676**	**365 195**
Add: RCA	Liquidation		13 926	1 700	1 700
Court order	Liquidation		-	15 000	15 000
MYPD5 Allowable revenue including RCA's			**264 378**	**351 376**	**381 895**
Note : 2022/23 Average RAB is calculated using decision closing RAB for 2021/22 of R855 355m					

Key updates in the revenue requirement are as in figure below.

Figure 1: Summary of key updates in allowable revenue

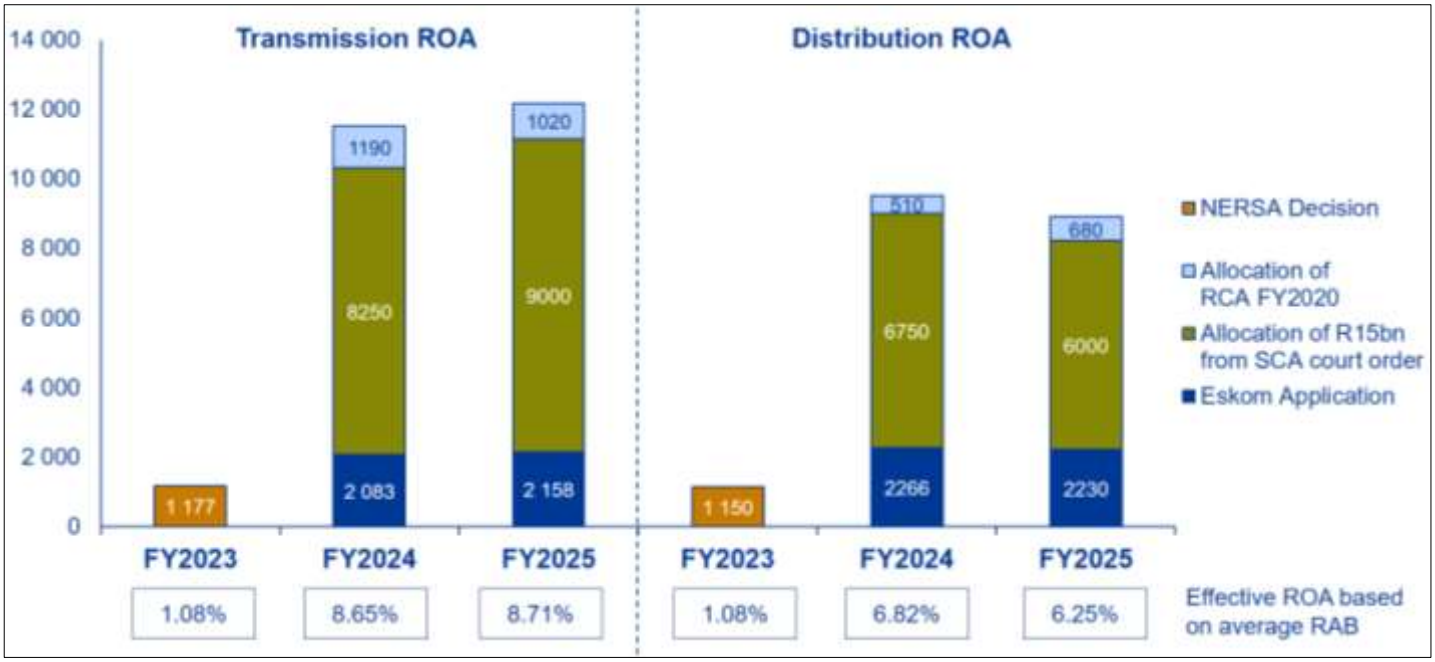
	FY2024	FY2025	
Total Sales Volume (Sep-22 – Jan-22)[1]	1 184 GWh (193 811 – 192 627) ↑	479 GWh (191 946 – 191 467) ↓	• Some customers have returned to new normal production post COVID-19 • conservative sales growth due to global recessionary climate
Primary Energy (Sep-22 – Jan-22)[1]	R 6 399m (185 283 – 178 884) ↑	R 10 751m (194 861 – 205 612) ↑	• Price of diesel and fuel oil have increased significantly • Inclusion of energy to assist with energy crisis programme
Expenditure	No change –	No change –	• No changes in operational expenditure
Arrear debt (Sep-22 – Jan-22)[1]	- R 6 511 (0 – 6 511) ↓	- R 7 110 (0 – 7 110) ↓	• Arrear debt has been removed as per the FY2023 NERSA decision
Carbon tax (Sep-22 – Jan-22)[1]	- R 10 121 (0 – 10 121) ↓	- R 10 099 (0 – 10 099) ↓	• Carbon tax has been removed as the legislation is pending changes
Depreciation	No change –	No change –	• No changes in depreciation

Note: 1. Comparisons are (Sep-22 update less (-) Jan-22 update)

1.2 Facilitating prioritised migration towards cost reflectivity for network businesses

The Supreme Court of Appeal issued a court order that requires the recovery by Eskom of the remaining R59bn over four years phased with R15bn in each of FY2024, FY2025 and FY2026 as well as the recovery of the remaining R14bn in FY2027. The R59bn relates to balance of R69bn incorrectly deducted equity support during MYPD 4, after R10bn was recovered in FY2022. NERSA has determined the FY2020 regulatory clearing account balance of R3.4bn. The total amount of R33.4bn (R15bn for 2 Years plus R3.4bn for RCA) has been allocated in a targeted manner towards the return on assets for the network businesses. The objective is to demonstrate that the electricity industry can almost start achieving cost reflective price levels for Transmission business in FY2024 and migrating closer to cost reflective price levels for the Distribution business in FY2024. This is important and aligns to the unbundling sequence of the industry commencing with Transmission, followed by Distribution and finally concluding with Generation business. It also demonstrates progress being made by NERSA in meeting its mandate of ensuring that licensees must recover prudent and efficient costs and a fair return which would place the network business on a revenue stream that will contribute to their financial sustainability. The implementation of the FY2021 RCA balance would allow for further migration. The proposals are summarised in the figure below.

Figure 2: Network businesses migrate closer to cost reflectivity

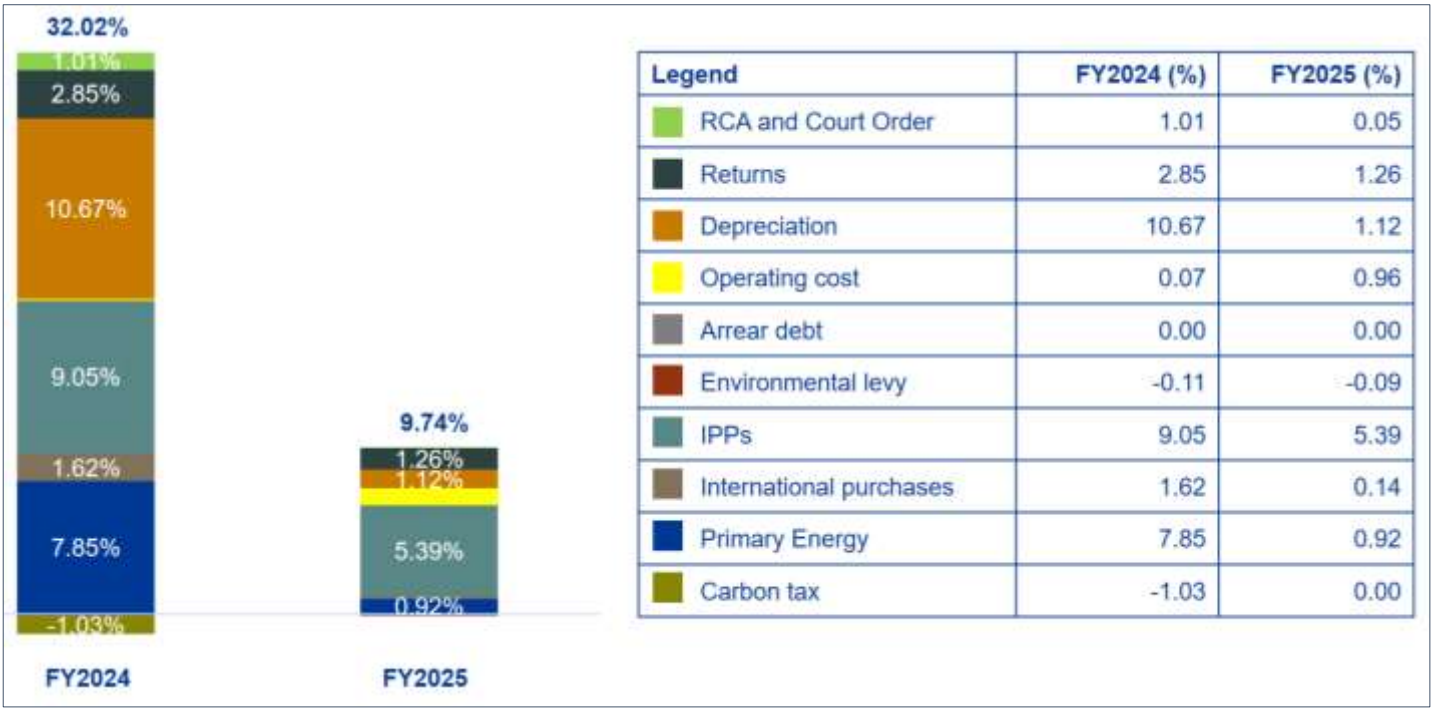


Prior to this allocation of the ROA, the NERSA decision for FY2023 allowed for a 1.08% ROA. However, with the allocation, the network businesses make significant progress towards the weighted average cost of capital of 10%, determined by NERSA. This a major step in the direction of addressing the required changes in the electricity sector and will be to the benefit of various stakeholders. It will provide comfort to potential investors, rating agencies and many stakeholders in the industry. This will contribute to restoring confidence in South Africa's journey towards strengthening and expanding the Transmission grid and Distribution networks over the next decade. It is understood that once progress has been made in further migration towards cost reflectivity for the network businesses, the focus should shift to the generation business. In order to reflect the transparency of the three businesses, NERSA would need to present its reasons for decision where the audience can clearly see the allowable revenue for Generation, Transmission and Distribution from FY2024.

1.3 Key contributors to price increase in FY2024 and FY2025

The key contributors to the proposed price increase in FY2024 and FY2025 are indicated in the figure below.

Figure 3: Key contributors to year-on year price increase in FY2024 and FY2025



Legend	FY2024 (%)	FY2025 (%)
RCA and Court Order	1.01	0.05
Returns	2.85	1.26
Depreciation	10.67	1.12
Operating cost	0.07	0.96
Arrear debt	0.00	0.00
Environmental levy	-0.11	-0.09
IPPs	9.05	5.39
International purchases	1.62	0.14
Primary Energy	7.85	0.92
Carbon tax	-1.03	0.00

For FY2024 the total year-on year price increase that will be experienced is 32.02%. The key contributors to this price increase are depreciation of 10.67% (due mainly to an incorrect RAB valuation by NERSA in FY2023 decision, substantially in the generation business), IPP cost increase of 9.05% (due further energy being sourced from IPPs including emergency procurement); Eskom primary energy of 7.85% (of which the majority, 6.09% is due only to increase in diesel and fuel oil prices as well as volume increase in OCGT fuel) and 2.85% increase in ROA (due to ROA being based on the correct RAB value). Negligible increases in operating costs are experienced.

For FY2025 the total year-on-year increase of 9.74% is experienced. The key contributors are IPPs. The reasons for these increases are similar to that for the previous year. Minimal nominal increases are observed for operating costs, return on assets, Eskom primary energy and international purchases in the FY2025.

1.4 Revenue and tariff migration towards cost reflectivity is essential

Once the allowable revenue is determined by NERSA (NERSA MYPD methodology), the revenue requirement is allocated among customer classes (NERSA Cost to supply (CTS) framework) and tariff levels determined (NERSA ERTSA methodology). Eskom has submitted a revised retail tariff plan (RTP) for implementation from 1 April 2023. It is acknowledged that the Eskom revenue is migrating towards cost reflectivity and the RTP allows for migrating

towards cost reflectivity from a tariff structural and level perspective. With the implementation of the proposals in the RTP, as submitted by Eskom to NERSA during August 2022, it is envisaged that the translation from the allowable revenue to tariffs that will better reflect the unbundled costs and fixed vs variable costs. This ensures that customers are more aligned to the actual costs they impose on the system. This also addresses the key aspect of certain customers using the electricity system as a battery and back-up. It is critical that in making strides to cost reflective revenue levels, we don't miss the opportunity to make similar step changes in FY2023 relating to the tariffs structures and unbundling.

1.5 Economic impact studies support further increases in electricity prices

An economic study undertaken recently indicates that the most viable option from a macroeconomic perspective is to allow for the migration of the price of electricity through increases in tariffs. This is to prioritise the recovery of revenue based on prudent and efficient costs and a fair return. The outcome of a study is summarised below.

Figure 4: Macroeconomic indicators' impact due to various pricing scenarios

Scenarios	Macroeconomic indicators (cumulative % deviation from Baseline from 2022 to 2026)					Financing indicators (cumulative deviation from Baseline from 2022 to 2026)		
	GDP	Employment	Inflation	Investment	Household consumption	Public sector deficit (R bn)	Current account balance (R bn)	Tax revenue (% change)
High-price	0.29%	0.03%	0.80%	4.06%	0.33%	-R110.48 bn	-R137.00 bn	4.56%
MYPD 5 Application	0.64%	0.25%	0.85%	6.95%	0.82%	-R110.25 bn	-R255.47 bn	5.10%
Low-price	-0.14%	-0.16%	0.14%	-0.54%	-0.23%	-R29.39 bn	R28.39 bn	0.91%
Inflation-linked	-0.81%	-0.43%	-0.15%	-6.84%	-1.13%	R81.71 bn	R274.84	-3.96%

Legend for ordinal ranking of scenarios

1st 3rd
2nd 4th

2 Background

The National Energy Regulator of South Africa (NERSA) is in the process of consulting on Eskom's Multi-Year Price Determination (MYPD) 5 revenue application related to FY2024 and FY2025. This is in accordance with a court order. Public hearings are scheduled to be held in the week of 19th September 2022. NERSA is scheduled to make revenue determinations by 7 November 2022.

Eskom had submitted a three-year revenue application on 2 June 2021 related to financial years 2023 to 2025. In accordance with the MYPD methodology (2016), Eskom is required to provide any updates on changes in conditions and environments that impact various revenue elements. These updates were provided to NERSA during January 2022, prior to NERSA making the court-ordered decision for FY2023. Similarly, this addendum clarifies subsequent changes in the environment and conditions related to FY2024 and FY2025. Changes were mainly related to generation capacity availability from Eskom and IPP generators and a slight change in sales volume. These changes result in changes in particular cost items being applied for. The total allowable revenue for FY2024 and FY2025 did not change from what was applied for on 2 June 2021.

The changes in costs include those related to Eskom primary energy, international purchases and independent power producers. Carbon tax (due to legislative changes) and arrear debts (implementing NERSA decision of FY2023) have been removed. No changes in operating costs and depreciation have been made. Capital expenditure assumptions remain as per the original submission. The return on equity is adjusted to accommodate other revenue requirement increases.

A court order that addresses the recovery of the remaining misappropriated equity support of R59bn has been granted since the revenue application was made. Proposals on the allocation of the R15bn (FY2024) and R15bn (FY2025) are made. Similarly, proposals on allocation of the FY2020 regulatory clearing account (RCA) balance of R3.4bn are made. It is envisaged that if NERSA makes a decision on the FY2021 RCA balance timeously, this can also be allocated in a similar manner.

Figure 5: Summary of key updates in allowable revenue

	FY2024	FY2025	
Total Sales Volume *(Sep-22 – Jan-22)[1]*	**1 184 GWh** *(193 811 – 192 627)* ↑	**479 GWh** *(191 946 – 191 467)* ↓	• Some customers have returned to new normal production post COVID-19 • conservative sales growth due to global recessionary climate
Primary Energy *(Sep-22 – Jan-22)[1]*	**R 6 399m** *(185 283 – 178 884)* ↑	**R 10 751m** *(194 861 – 205 612)* ↑	• Price of diesel and fuel oil have increased significantly • Inclusion of energy to assist with energy crisis programme
Expenditure	**No change** –	**No change** –	• No changes in operational expenditure
Arrear debt *(Sep-22 – Jan-22)[1]*	**- R 6 511** *(0 – 6 511)* ↓	**- R 7 110** *(0 – 7 110)* ↓	• Arrear debt has been removed as per the FY2023 NERSA decision
Carbon tax *(Sep-22 – Jan-22)[1]*	**- R 10 121** *(0 – 10 121)* ↓	**- R 10 099** *(0 – 10 099)* ↓	• Carbon tax has been removed as the legislation is pending changes
Depreciation	**No change** –	**No change** –	• No changes in depreciation

Note: 1. Comparisons are (Sep-22 update less (-) Jan-22 update)

3 Updated Revenue Requirement

The updated revenue requirement in accordance with the changes in the environment are reflected in the tables below. The total Eskom allowable revenue for FY2024 and FY2025, prior to any adjustments due to regualtory clearing account (RCA) or court outcomes is maintained, as applied for in June 2021.

Table 2: MYPD 5 Revenue application as updated in January 2022

Allowable Revenue (R'm)	AR	Application FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	RAB	1 258 217	1 243 124	1 229 014
WACC %	ROA	-1.20%	1.22%	1.88%
Returns		(15 060)	15 175	23 166
Primary energy	PE	86 486	87 191	92 904
International purchases	PE	4 589	4 878	5 157
IPPs	PE	52 664	69 495	79 991
Environmental levy	L&T	7 012	6 594	6 243
Carbon tax	L&T	2 717	10 715	10 557
Arrear debt	E	5 666	6 511	7 110
Operating costs	E	66 690	63 115	65 852
Research and Development	R&D	-	-	-
Depreciation	D	68 254	71 001	74 214
MYPD5 Allowable revenue		**279 018**	**334 676**	**365 195**
Add: Approved RCA	Liquidation	14 412	-	-
MYPD5 Allowable revenue including RCAs	R'm	**293 430**	**334 676**	**365 195**

Table 3: Updated Eskom revenue requirement for FY2024 and FY2025 (September 2022)

Allowable Revenue (R'm)	AR	Formula	Decision FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	RAB		550 509	1 241 499	1 227 311
Average Regulatory Assets Base (RAB)	RAB		702 932	896 004	1 234 405
WACC %	ROA	X	1.08%	1.70%	1.58%
Return			7 557	15 277	19 516
Primary energy	PE	+	80 495	101 943	104 159
International purchases	PE	+	4 589	8 925	9 334
IPPs	PE	+	43 131	67 521	85 618
Environmental levy	L&T	+	7 133	6 895	6 500
Carbon tax	L&T	+	2 714	-	-
Arrear debt	E	+	-	-	-
Operating costs	E	+	62 513	63 115	65 852
Research and Development	R&D	+	-	-	-
Depreciation	D	+	42 320	71 001	74 214
MYPD5 Allowable revenue			**250 452**	**334 676**	**365 195**
Add: RCA	Liquidation		13 926	1 700	1 700
Court order	Liquidation		-	15 000	15 000
MYPD5 Allowable revenue including RCA's			**264 378**	**351 376**	**381 895**
Note : 2022/23 Average RAB is calculated using decision closing RAB for 2021/22 of R855 355m					

The total allowable revenue for FY2024 and FY2025, as applied for in June 2021, is maintained. The RAB is maintained, as applied for in June 2021. A thorough regulatory asset base (RAB) valuation exercise was undertaken to determine this valuation, as required by the MYPD methodology. The primary energy costs were adjusted to address the changes in the environment. Carbon tax changes due to legislative changes. Arrear debt have not been included, as determined by NERSA for FY2023. The operating costs have remained the same. Depreciation is dependent on RAB and due to the RAB being maintained it has remained the same. A portion of the recovered misappropriated equity and the FY2020 RCA balance is recovered in these two financial years. In the event that the FY2021 RCA balance is determined timeously, it could also be allocated for recovery in the two financial years. This allows for recovery of efficient and prudent costs already incurred three to four years prior to being recovered.

With the implementation of the proposals in the retail tariff plan, as submitted by Eskom to NERSA during August 2022, it is envisaged that the translation of the allowable revenue to tariffs that more truly reflect the unbundled costs and fixed vs variable costs will be achieved. This ensures that customers are more aligned to the actual costs they impose on the system. This also addresses the key aspect of certain customers using the electricity system as a battery and back-up.

3.1 Ring-fenced revenue requirements for Generation, Transmission and Distribution

As has been the case previously, ring-fenced revenue applications have been made for generation, transmission and distribution. These ring-fenced revenue requirements total to the overall Eskom revenue requirement. NERSA is required to make the allowable revenue decisions per licensee.

The liquidation of the misappropriated equity and FY2020 RCA is proposed to be allocated to the network businesses. If the FY2021 RCA determination submitted in November 2021) is made timeously, the recovery over the two years should be included.

Table 4: Updated Generation Revenue requirement FY2024 and FY2025 (September 2022)

Allowable Revenue (R'm)	AR	Formula	Decision FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	RAB		313 250	968 685	945 000
Average Regulatory Assets Base	RAB		486 457	640 968	956 843
WACC %	ROA	X	1.08%	1.70%	1.58%
Return			5 230	10 928	15 128
Primary energy	PE	+	80 495	101 930	104 146
International purchases	PE	+	4 589	8 925	9 334
IPPs	PE	+	43 131	67 521	85 618
Environmental levy	L&T	+	7 133	6 895	6 500
Carbon tax	L&T	+	2 714	-	-
Arrear debt	E	+	-	-	-
Operating costs	E	+	34 527	32 673	34 399
Research and Development	R&D	+	-	-	-
Depreciation	D	+	28 589	56 502	59 537
MYPD5 Allowable revenue			**206 407**	**285 373**	**314 663**
Add: RCA	Liquidation		10 362	-	-
Court order	Liquidation		-	-	-
MYPD5 Allowable revenue including RCAs	R'm		**216 769**	**285 373**	**314 663**

Note : 2022/23 Average RAB is calculated using decision closing RAB for 2021/22 of R659 664m

Table 5: Updated Transmission revenue requirement FY2024 and FY2025 (September 2022)

Allowable Revenue (R'm)	AR	Formula	Decision FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	RAB		111 076	133 217	139 777
Average Regulatory Assets Base	RAB		109 475	122 147	136 497
WACC %	ROA	X	1.08%	1.70%	1.58%
Return			1 177	2 083	2 158
Primary energy	PE	+	-	-	-
International purchases	PE	+	-	-	-
IPPs	PE	+	-	-	-
Environmental levy	L&T	+	-	-	-
Carbon tax	L&T	+	-	-	-
Arrear debt	E	+	-	-	-
Operating costs	E	+	5 023	5 678	5 741
Research and Development	R&D	+	-	-	-
Depreciation	D	+	6 334	6 634	6 919
MYPD5 Allowable revenue			**12 534**	**14 395**	**14 818**
Add: RCA	Liquidation		609	1 190	1 020
Court order	Liquidation		-	8 250	9 000
MYPD5 Allowable revenue including RCAs			**13 143**	**23 835**	**24 838**
Note : 2022/23 Average RAB is calculated using decision closing RAB for 2021/22 of R107 873m					

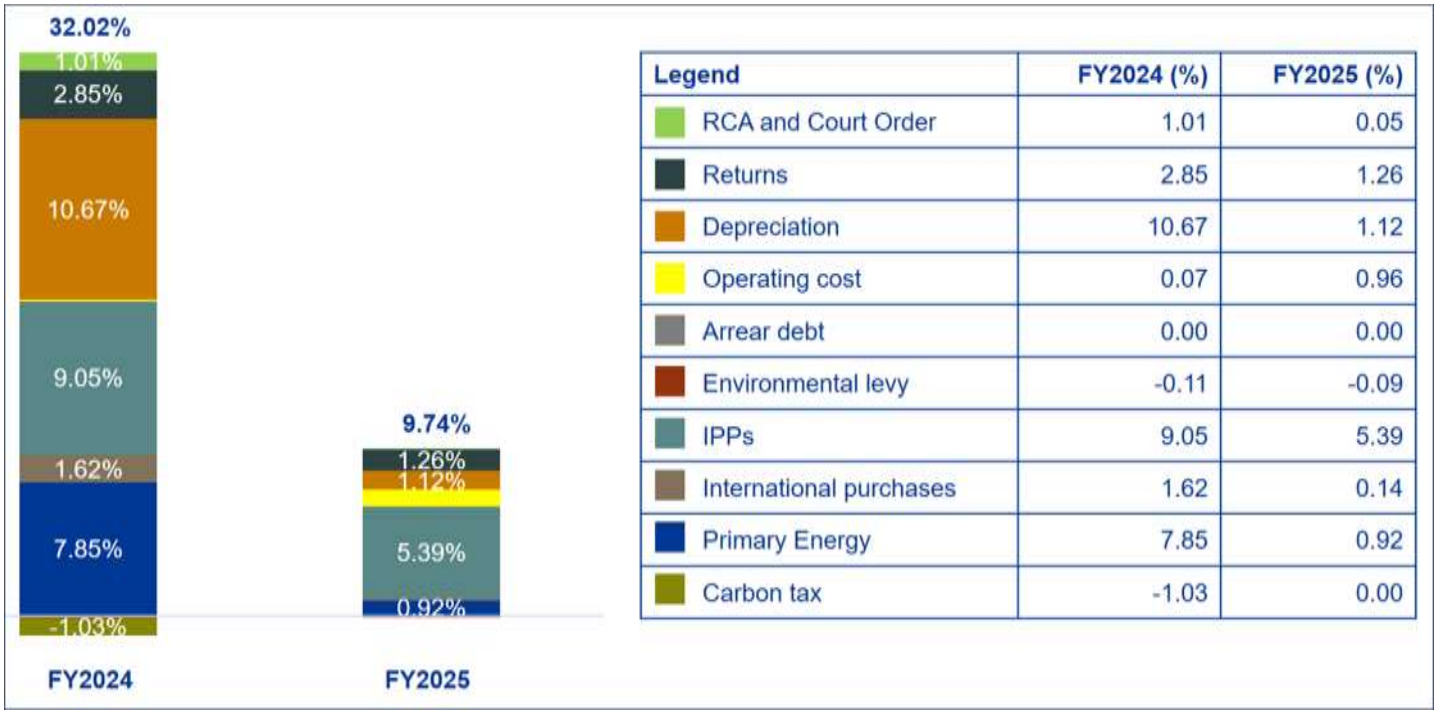
Table 6: Updated Distribution revenue requirement- FY2024 and FY2025 (September 2022)

Allowable Revenue (R'm)	AR	Formula	Decision FY2023	Application FY2024	Application FY2025
Closing Regulated Asset Base (RAB)	RAB		126 182	139 596	142 534
Average Regulatory Assets Base	RAB		107 000	132 889	141 065
WACC %	ROA	X	1.08%	1.70%	1.58%
Return			1 150	2 266	2 230
Primary energy	PE	+	-	13	14
International purchases	PE	+	-	-	-
IPPs	PE	+	-	-	-
Environmental levy	L&T	+	-	-	-
Carbon tax	L&T	+	-	-	-
Arrear debt	E	+	-	-	-
Operating costs	E	+	22 964	25 090	26 044
Research and Development	R&D	+	-	-	-
Depreciation	D	+	7 397	7 539	7 426
MYPD5 Allowable revenue			**31 512**	**34 908**	**35 714**
Add: RCA	Liquidation		2 955	510	680
Court order	Liquidation		-	6 750	6 000
MYPD5 Allowable revenue including RCAs			**34 467**	**42 168**	**42 394**
Note : 2022/23 Average RAB is calculated using decision closing RAB for 2021/22 of R87 818m					

3.2 Key contributors to price increase in FY2024 and FY2025

The key contributors to the proposed price increase in FY2024 and FY2025 are indicated in the figure below.

Figure 6: Key contributors to year-on year price increase in FY2024 and FY2025



Legend	FY2024 (%)	FY2025 (%)
RCA and Court Order	1.01	0.05
Returns	2.85	1.26
Depreciation	10.67	1.12
Operating cost	0.07	0.96
Arrear debt	0.00	0.00
Environmental levy	-0.11	-0.09
IPPs	9.05	5.39
International purchases	1.62	0.14
Primary Energy	7.85	0.92
Carbon tax	-1.03	0.00

For FY2024 the total year-on year price increase that will be experienced is 32.02%. The key contributors to this price increase are depreciation of 10.67% (due mainly to an incorrect RAB valuation by NERSA in FY2023 decision, substantially in the generation business), IPP cost increase of 9.05% (due further energy being sourced from IPPs including emergency procurement); Eskom primary energy of 7.85% (of which the majority, 6.09%, is due only to increase in diesel and fuel oil prices as well as volume increase in OCGT fuel) and 2.85% increase in ROA (due to ROA being based on the correct RAB value). Negligible increases in operating costs are experienced.

For FY2025 the total year-on-year increase of 9.74% is experienced. The key contributors are IPPs. The reasons for these increases are similar to that for the previous year. Minimal nominal increases are observed for operating costs, return on assets, Eskom primary energy and international purchases in the FY2025.

4 Sales forecast – Update

Slight increase of approximately 1.8TWh of projected sales in FY2024 are estimated when compared to the NERSA decision for FY 2023. A similar decrease is estimated for FY2025. These are reflected in the table below. After the effect of Covid 19 and the resultant impact on the economy, it is assumed that during FY2023 and FY2024 a marked impact on electricity utilization has been seen due to relatively strong commodity prices. Most customers have returned to new normal production or activities by the end of FY2023. However, the conservative sales growth for FY2024 onwards are due to global recessionary climate which is estimated to last +/- 3 years this will impact local sales severely. South Africa is in a deep recession and the assumption is that it will take +/- 5 years to recover. The impact of small scale embedded generation (SSEG), license reprieve now on uncapped capacity sized generators and the introduction of IPP's supplying Municipalities have been considered. The effect of the SSEGs will not be significant during the application period. The World Bank has reduced its forecast for global economic growth down to just 2.9%. The rise in global inflation to the highest levels seen in 40 years together with the unease of the persisting war in Ukraine, the uncertainty of another COVID flare and dwindling benefits accruing from higher commodity prices are all informing an expected local economic slowdown. From an electricity sales perspective the Mining and Industrial sectors have coped well, recovering faster than previously anticipated, and still showing strong consumption despite current loadshedding challenges. Redistributors, Residential, Commercial and Traction are sectors that have struggled to recover post covid. Major assumptions of a continuation of perceived high electricity price increases, a greater impact from green energy, furnaces to shut down in winter, co-generation customers to run at optimal levels, average weather patterns were used across the board.

Table 7: Updated sales volumes for FY2024 and FY2025

Sales volumes (GWh)	Decision FY2023	Application FY2024	Application FY2025
Standard tariff sales	170 485	172 722	170 947
Year-on-year growth (%)		*1,3%*	*-1,0%*
Negotiated pricing agreement	9 528	10 440	10 412
Year-on-year growth (%)		*9,6%*	*-0.3%*
Total local sales	**180 013**	**183 163**	**181 359**
International Sales (SAE)	11 982	10 648	10 587
Year-on-year growth (%)		*11,1%*	*-0.6%*
Total Sales (including Internal sales)	**191 995**	**193 811**	**191 946**
Year-on-year growth (%)		*0.9%*	*-1.0%*

5 Contribution to energy requirements

5.1 Key changes in environment

Eskom is required to develop a production plan that allows for the projected demand for electricity to be met. Due to various changes in the environment, the production planning process was undertaken prior to this submission. Some of the key changes that needed to be included in this process include:

- The shortfall in energy due to the Independent Power Producer (IPP) risk mitigation plan not being available as originally updated in January 2022
- Significant shortfall in renewable energy from IPPs not being available as updated in January 2022.
- Eskom Generation Energy Availability Factor (EAF) of approximately 59% being experienced and used as the basis for projections for FY2024 and FY2025.
- Medupi Unit 4 return to service assumed in August 2024
- Kusile Unit 5 and 6 commercial operational dates of 30 June 2023 and 31 May 2024 respectively.
- Shut down dates for various Eskom generation units as depicted below

Table 8: Shut down dates for various Eskom generation

Komati	Shutdown date	Hendrina	Shutdown date	Camdem	Shutdown date	Grootvlei	Shutdown date
Unit 9	30-Sep-22	Unit 10	21-Mar-23	Unit 4	31-Jan-23	Unit 2	21-Mar-26
		Unit 7	19-Mar-24	Unit 6	31-Jul-23	Unit 1	16-Aug-26
		Unit 2	10-Feb-25	Unit 7	31-Jan-24	Unit 3	04-Sep-27
		Unit 4	31-Mar-25	Unit 1	30-Aug-24		
				Unit 3	30-Nov-24		

5.2 The updated responses

Despite the lower energy availability factor, approximately 10 TWh further energy is planned to be produced by Eskom generators than originally envisaged. A significant increase in the energy utilization factor and certain load factors is needed. This has a knock-on effect on the primary energy costs. Concomitant increased use in OCGTs in accordance with the scheduling and dispatch rules. In response to the Presidential announcements, Eskom will undertake further emergency procurement processes to secure any further available generating capacity. This energy will provide further risk mitigation in the event that various assumptions in the production plan do not realize. It is hoped that these initiatives will further assist in minimizing load shedding.

6 Primary Energy Updates

Significant changes have been experienced in primary energy.

Table 9: Changes in primary energy for FY2024 and FY2025 (September 22)

Primary energy costs (R'm)	Decision FY2023	Revised January 2022		Revised September 2022	
		Application FY2024	Application FY2025	Application FY2024	Application FY2025
Coal usage	65 151	70 581	75 138	69 992	71 054
Water usage	3 138	3 341	3 681	3 185	3 312
Fuel and water procurement service	288	313	335	313	335
Coal handling	2 408	2 399	2 564	2 524	2 608
Water treatment	610	656	680	640	706
Sorbent usage	279	372	508	298	311
Gas and oil (coal fired start-up)	3 686	3 104	3 209	6 844	6 561
Total coal	**75 560**	**80 767**	**86 116**	**83 796**	**84 888**
Nuclear	751	900	967	794	1 031
Coal and gas (Gas-fired)	10	10	10	10	10
OCGT fuel cost	3 753	5 033	5 312	16 852	17 723
Demand reponse	381	399	416	399	416
Demand response - power alert	40	78	78	78	78
International purchases (Dx)	-	13	14	13	14
Total Eskom generation	**80 495**	**87 201**	**92 913**	**101 943**	**104 159**
Environmental levy	7 133	6 595	6 243	6 895	6 500
Carbon tax	2 714	10 715	10 557	-	-
Independent Power Producers (IPPs)	43 131	69 495	79 991	67 521	85 618
International Purchases (SAE)	4 589	4 878	5 157	8 925	9 334
Total primary energy	**138 062**	**178 884**	**194 861**	**185 283**	**205 612**

6.1 Key changes include;

- **Coal usage** – despite additional energy being secured from coal fired power stations, the costs of coal have decreased from the previous update. This is mainly due to ensuring optimal utilisation of coal contracts.
- **Coal fired start-up fuel** – increase in costs are mainly due to the increase in fuel cost assumptions. The start-up fuel costs are dependent on the diesel price which fluctuates on a monthly basis. It should be noted that a significant increase in diesel price has been experienced when compared to assumptions in January 2022.
- **OCGT** – The open cycle gas turbine (OCGT) fuel costs are related to changes in both volumes and price. As with the start-up fuel costs, a significant increase in the assumption on diesel costs have been experienced, costs have more than doubled. The increase in volumes is due to the production planning process requiring further dependence on OCGT to meet the demand requirements.

- **Carbon tax** – The carbon tax has been excluded in this update. The Minister of Finance, in his budget speech has indicated that the carbon tax liability will be delayed to after the MYPD 5 period. The related change in legislation has been drafted and is envisaged to be finalised by the end of the calendar year.
- **Independent Power Producer purchases –** Significant changes are seen in FY2025. This is due mainly to the emergency procurement that is planned to be undertaken. A drop in total IPP costs are seen in FY2024 due to certain projects not materializing as envisaged.
- **International purchases** – The increase in international purchases is due to changes in contractual conditions.

7 Carbon Tax – Change in legislation

The National Treasury has introduced an additional tax that impacts the electricity price. This is the carbon tax with effect from 1 June 2019. Phase 1 of the implementation of the carbon tax act is from 1 June 2019 to 31 December 2022. During phase 1, Eskom (as a "generator of electricity from fossil-fuels") is allowed to make two further deductions from the carbon tax liability. The first deduction is equivalent to the renewable energy premium and the second deduction is equivalent to the amount equal to the environmental levy. These two deductions in essence are sufficient to nullify the carbon tax liability until December 2022. From 1 January 2023, Eskom becomes liable to pay the carbon tax, where the deductions from the tax liability falls away. In terms of the MYPD methodology, Eskom is required to recover these costs from the consumer. As it stands now, with effect from 1 January 2023, when the carbon tax liability is introduced by National Treasury, an equivalent of approximately 5c/kWh will be due to carbon tax. The costs associated with this, were included in the original application (June 2021) as well as in the upated January 2022 assumptions.

However, during the Budget Speech 2022, Minister Godongwana announced that the deductions would be extended to 31 December 2025. In order to give effect to proposals made during the budget speech, National Treasury must amend the relevant legislation.

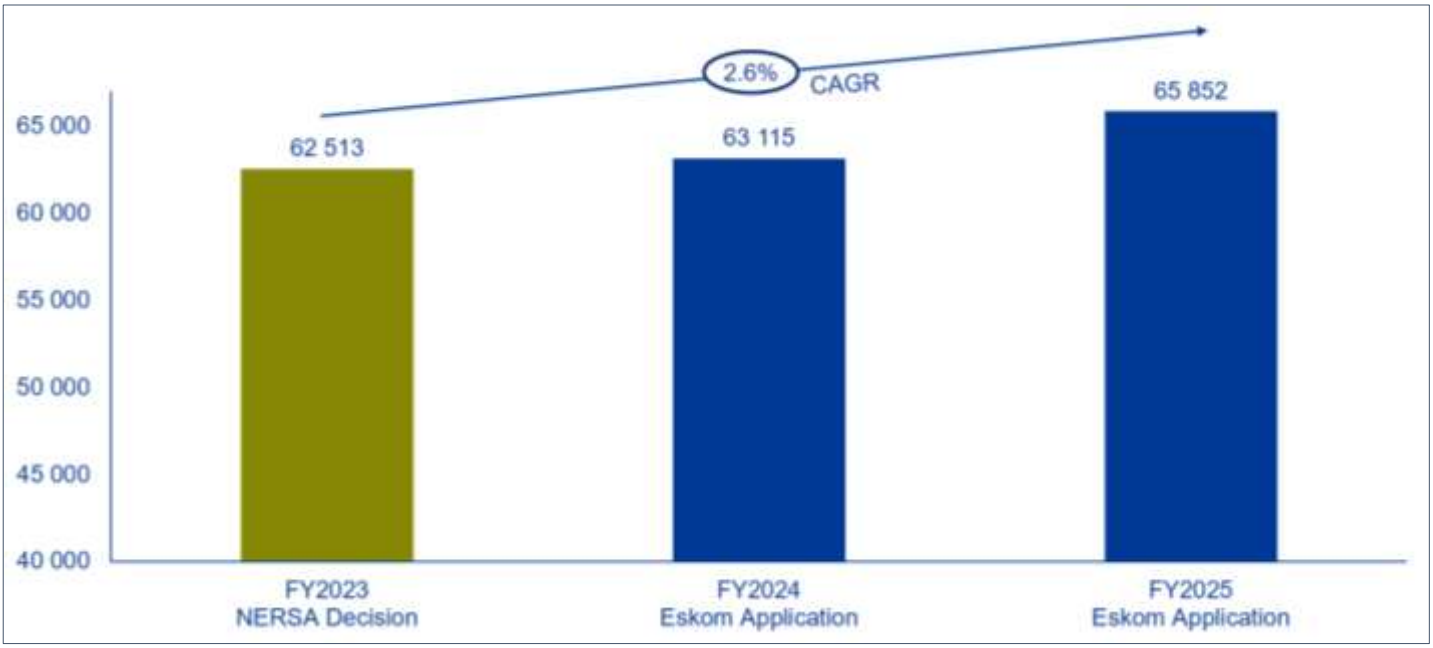
On 29 July, National Treasury published the 2022 Draft Taxation Laws Amendment Bill for public comment by the 29 August. A series of public workshops with National Treasury and the South African Revenue Service were further scheduled for 8,9 and 12 September and the Standing Committee on Finance (National Assembly) had scheduled a public meeting on the 2022 Draft Taxation Laws Amendment Bill for 13th September. At present Money Bills (such as this one) may only be debated and not amended as, according to the Constitution, Parliament must still devise legislation for a procedure to amend Money Bills. Once it has been passed by the National Assembly, it must be sent to the National Council of Provinces (NCOP). However, the NCOP's role in Bills that do not affect the provinces is a limited one. The bill is enacted once the President declares the Act's commencement date in the Government Gazette.

Given these recent developments, the assumption is made for the purposes of this update that the implementation of the carbon tax will be in accordance with the extension for deductions to 31st December 2025 and in accordance with the draft taxation laws. As a result, Eskom would not be liable for carbon tax in FY2024 and FY2025.

8 Operating Costs

No changes are made to the original application for operating costs. Eskom will continue to manage its operating costs within the application made in 2021. The operating costs include employee benefit, maintenance and other operating costs. The compounded average growth rate of 2.6% results for the three-year period when the NERSA decision (FY2023) and Eskom's application for FY2024 and FY2025 are compared. This is illustrated in the figure below.

Figure 7: Operating costs increase minimally



This trend illustrates that the Eskom operating costs have been maintained below inflation.

9 Arrear debt

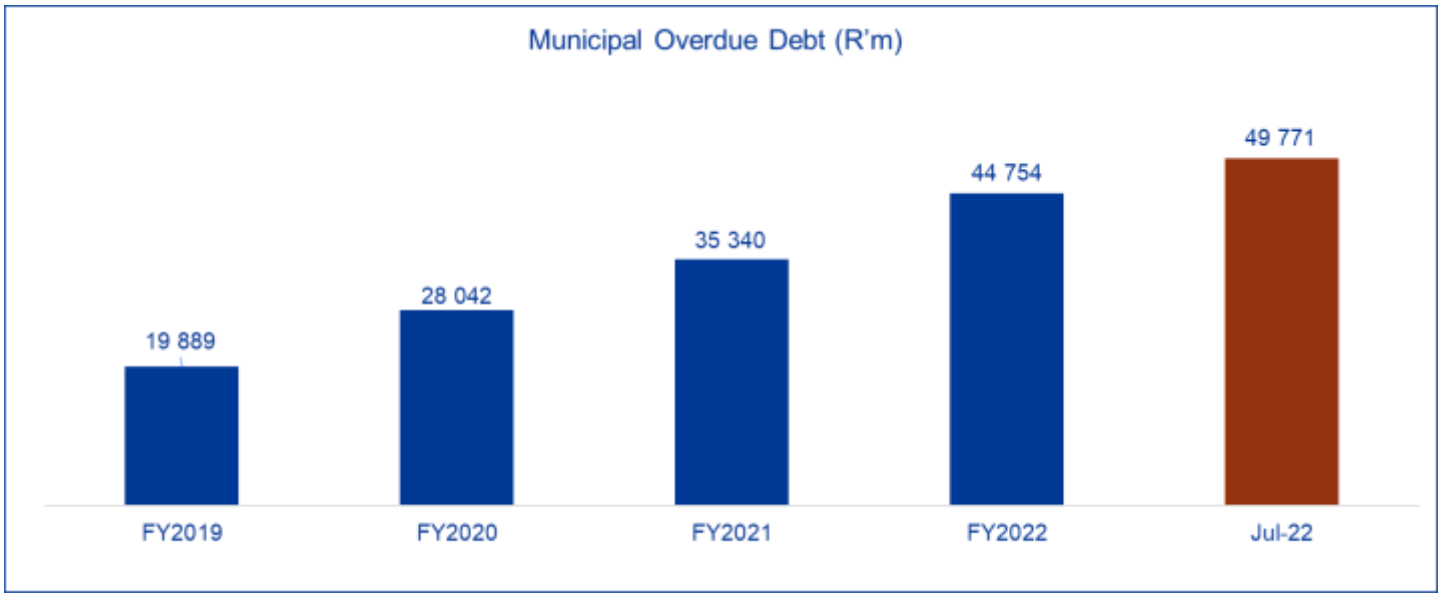
Most retail industries face the challenge of non-payment as part of their efforts in collecting the billed revenue from their customers. In the current economic climate, customers will experience a continued difficult environment as a result of business closures; increased unemployment and other factors resulting in them not paying their accounts; leaving Eskom with the credit risk. Very few retail businesses are immune against such credit default. This is evident from the financial reports and statements issued by retailers including banks that their impairment provisions are significantly increasing given the macroeconomic challenges. Eskom is no exception; and despite the rigorous credit management processes we employ; credit risk will remain part of our operational cost.

In its original MYPD 5 revenue application, Eskom had limited its impairment application to 2% of revenue; despite its current actuals being higher than 4%; and despite the fact of an increase in risk due to the tougher economic conditions on the customer. This limitation of 2% will result in more than R4.7bn of projected impairment costs not being included in our submission in order not to burden the customer with Eskom's debt collection challenges especially in the Municipality sector.

Eskom is managing the payments from small power users (SPU), large power users (LPU) and Top Customer sector reasonably well, with payment levels greater than 99% for most of the financial years. Only a small portion of Eskom's customer base is contributing to the increase in the overdue debt. During the last few years the overdue debt increased significantly for mainly municipalities and Soweto debtors.

As of June 2022, total invoiced municipal arrear debt increased to R49.1bn (March 2022: R44.8bn), while the percentage arrear debt stood at 73.3% (March 2022: 80.6%). Eskom continues to execute its municipal debt management strategy to ensure maximum collections from non-paying municipalities.

Figure 8: Increase in overdue Municipal debt owed to Eskom since 2019



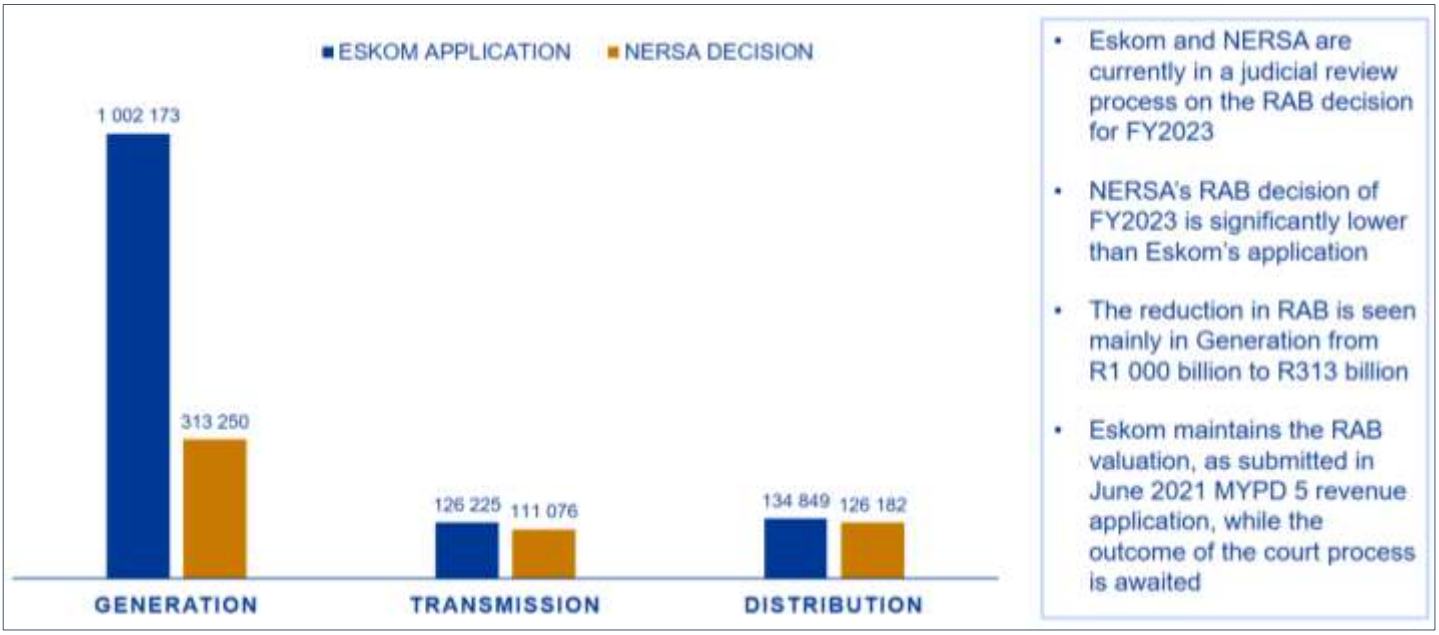
In the NERSA revenue decision for FY2023, no allowance was made for arrear debt. It is understood that the basis of this decision was not to burden other customers for debt not recovered by Eskom. This burden has moved to the fiscus. The change in assumption is to not include any arrear debts in the updated submission.

10 Regulatory Asset base

For Eskom's MYPD 5 application, the regulatory asset base (RAB) valuation was undertaken by an independent entity that has international experience in the realm of asset valuation for large infrastructure companies. As required by the MYPD methodology, the determination of the regulatory asset base value is based on the costs to replace these assets (i.e. Modern Equivalent Assets Valuation (MEAV)) and adjusted for the remaining life and any relevant forms of obsolescence. This valuation has been undertaken in accordance with the guidelines and requirements of the International Valuation Standards. The basis of the valuation was the Eskom fixed asset registers and comparisons were made with market data for actual construction cost of similar assets. This valuation exercise included site visits where samples of the physical assets were performed.

NERSA, in its determination of the valuation of Eskom's RAB is required to review and approve Eskom's RAB valuation. However, NERSA undertook various steps to determine the Eskom RAB valuation for FY2023. Many of these steps were not in accordance with the MYPD methodology, financial principles, or asset valuation processes. Eskom has reviewed this aspect of the FY2023 decision in the High Court. The legal process is still underway.

Figure 9: NERSA RAB value determination for FY2023



As reflected in the figure above, the RAB values, as determined by NERSA for FY2023 is relatively similar for Eskom Distribution and Transmission. However, the NERSA determination for Eskom Generation RAB is much lower than Eskom's application and

significantly lower than the NERSA determination for FY2022. It is envisaged that the corrections to be made by NERSA will rectify the situation. Eskom maintains the RAB valuation, as submitted in the June 2021 MYPD 5 revenue application, while the outcome of the court process is awaited. When the court process orders the change in the RAB for FY2023, the updated RAB value will form the basis for the average RAB value for FY2024. It is thus clarified that the NERSA decision not supported, since it is being reviewed. The outcome of the court process will be respected. Eskom is not requesting a revenue adjustment for FY2023 but supports that the corrections be implemented from year 2 of the MYPD5 in FY2024 to avoid a repetition.

11 Addressing recovery of incorrectly deducted Return on Assets (ROA)

11.1 Incorrect deduction of return on assets in MYPD 4 revenue determination

It has been established through court processes that during the MYPD 4 period for FY2020 to FY2022, amounts of R23bn per annum were incorrectly deducted from the return on assets (ROA). This amounts to a total of R69bn. A High Court decision required the recovery of the R69bn over a three-year period from FY2022 to FY2024. This was not implemented due to the High Court decision being appealed by NERSA. An amount of R10bn was implemented in FY2022 as a result of a court order allowing recovery while awaiting the appeal process. This resulted on a balance of R59bn yet to be implemented. The appeal process was not heard in the Supreme Court of Appeal and resulted in an order being issued.

11.2 Court Order to recover incorrectly deducted ROA will be implemented

The Supreme Court of Appeal issued a court order that requires the recovery by Eskom of R15bn in each of FY2024, FY2025 and FY2026 as well as the recovery of the remaining R14bn in FY2027. This recovery allows for a phased process that minimises the impact on the electricity consumer. These recovery amounts are to be added to the Eskom allowable revenue that NERSA will determine for each of the financial years. Thus, NERSA will determine the efficient costs and fair return for each of the financial years and then add the court determined amounts to the allowable revenue. The migration towards cost reflectivity for Eskom tariffs, where the return on assets is phased towards the weighted average cost of capital is acknowledged. Cognisance needs to be given to regulatory clearing account (RCA) balances for previous years that NERSA may decide to liquidate. It needs to be noted that NERSA has made a RCA balance decision for FY2020 of R3 461m. The timing of the recovery of these efficient costs from customers, is yet to be determined by NERSA. It is hereby proposed that NERSA allows the recovery of approximately R1 700m each in FY2024 and FY2025. It should be noted that this recovery will be 4 and 5 years after they were efficiently incurred in FY2020, as determined by NERSA.

11.3 Focused recovery of ROA allows for sustainability of network businesses

The focused recovery is in relation to the MYPD 5 consultation for FY2024 and FY2025. Once NERSA has determined the allowable revenue for FY2024 and FY2025 in accordance with the MYPD methodology (2016), the R15bn (in terms of the SCA order) and the R1 700m

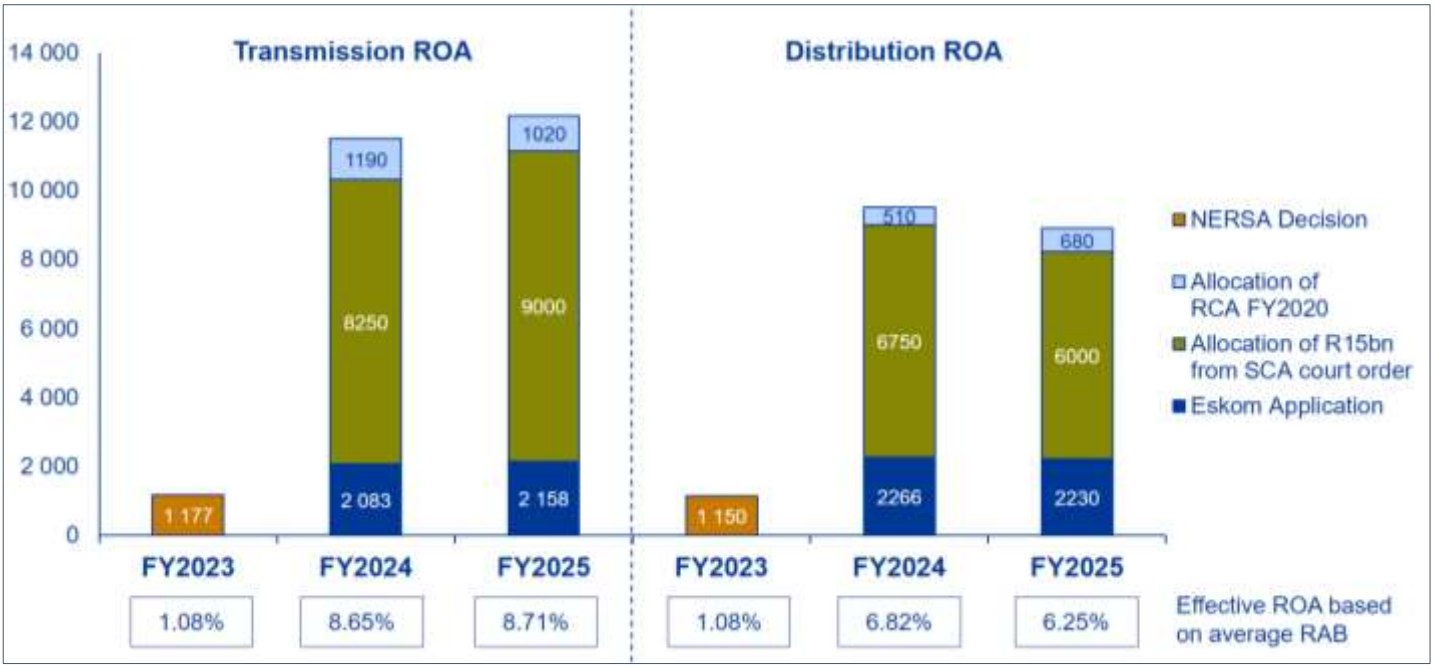
(approximately 50% of FY2020 RCA balance) is added to the allowable revenue for each of the financial years. This totals R16.7bn additional amounts to be recovered. In the event that the FY2021 RCA balance has been determined timeously, it is proposed that 50% of this balance be recovered in FY2024 and FY2025 respectively.

This approach requires that NERSA determines the allowable revenue for Generation, Transmission and Distribution in accordance with the MYPD methodology (2016). The purpose is to prioritise the financial sustainability of the network businesses within Eskom – Transmission and Distribution and to be allowed to migrate closer to a level of cost reflectivity. The comparison to the weighted average cost of capital of approximately 10%, as determined by NERSA during 2023, was used as a target. It is understood that Eskom is still migrating towards a state where all its efficient costs and fair return are recovered through the allowable revenue. From a stakeholder and investor point of view, it would be advantageous to illustrate that as Eskom migrates towards cost reflectivity, it does so in an orderly manner. The purpose is thus to allow for the two network businesses – Transmission and Distribution be allowed to migrate closer to a level of cost reflectivity. It is common knowledge that Eskom's generating assets have a significantly higher replacement value than the Transmission and Distribution network asset values combined. This is when a correct approach to valuing the assets is undertaken. Furthermore, resolving Transmission and Distribution first, aligns with the unbundling priorities.

The objective is to demonstrate the electricity industry can start achieving cost reflective price levels for Transmission business in FY2023 and migrating closer to cost reflective price levels for the Distribution business in FY2023. This is important and aligns to the unbundling sequence of the industry commencing with Transmission, followed by Distribution and finally concluding with Generation business. It also demonstrates progress being made by NERSA in meeting its mandate of ensuring that licensees must recover prudent and efficient costs and a fair return which would place the network business on a revenue stream that will contribute to their financial sustainability. The implementation of the FY2021 RCA balance would allow for further migration.

This is the first time that NERSA has allowed a substantial amount of recovery of ROA. It is proposed that as the recovery of these amounts of R16.7bn per annum for FY2024 and FY2025, be allocated to the ROA for Distribution and Transmission. The R16.7bn be allocated in various proportions for each of FY2024 and FY2025, as illustrated below

Figure 10: Network businesses migrate closer to cost reflectivity



As reflected in the allowable revenue table and figure above the ROA for FY2023 was 1.08%. The targeted allocation of the court outcome and portion of the RCA balance allows for the ROA percentage, based on Eskom's valuation of the regulatory asset base, and the applied for ROA, for a significant migration for Transmission from approximately 1.69% to 8.65% (in FY2024) and from approximately 1.57% to 8.71% (in FY2025). Similarly, the migration for Distribution is from approximately 1.69% to 6.82% (in FY2024) and from approximately 1.57% to 6.25% (in FY2025). There is a slight regression in the ROA for Distribution in FY2025. However, it is envisaged that NERSA's implementation of the FY2021 RCA balance decision will allow further progress to be made. In light of the weighted average cost of capital (WACC) being determined by NERSA to be in the region of 10% for FY2023, this migration towards the WACC for Transmission and Distribution is a big step in the correct direction

This a major step in the direction of addressing the required changes in the electricity sector and will be to the benefit of various stakeholders. It will provide comfort to potential investors, rating agencies and many stakeholders in the industry. This will contribute to restoring confidence in South Africa's journey towards strengthening and expanding the Transmission grid and Distribution networks over the next decade. It is understood that once progress has been made in further migration towards cost reflectivity for the network businesses, the focus should shift to the generation business. In order to reflective the transparency of the three businesses, NERSA would need to present its reasons for decision where the audience can clearly see the allowable revenue for Generation, Transmission and Distribution from FY2024.

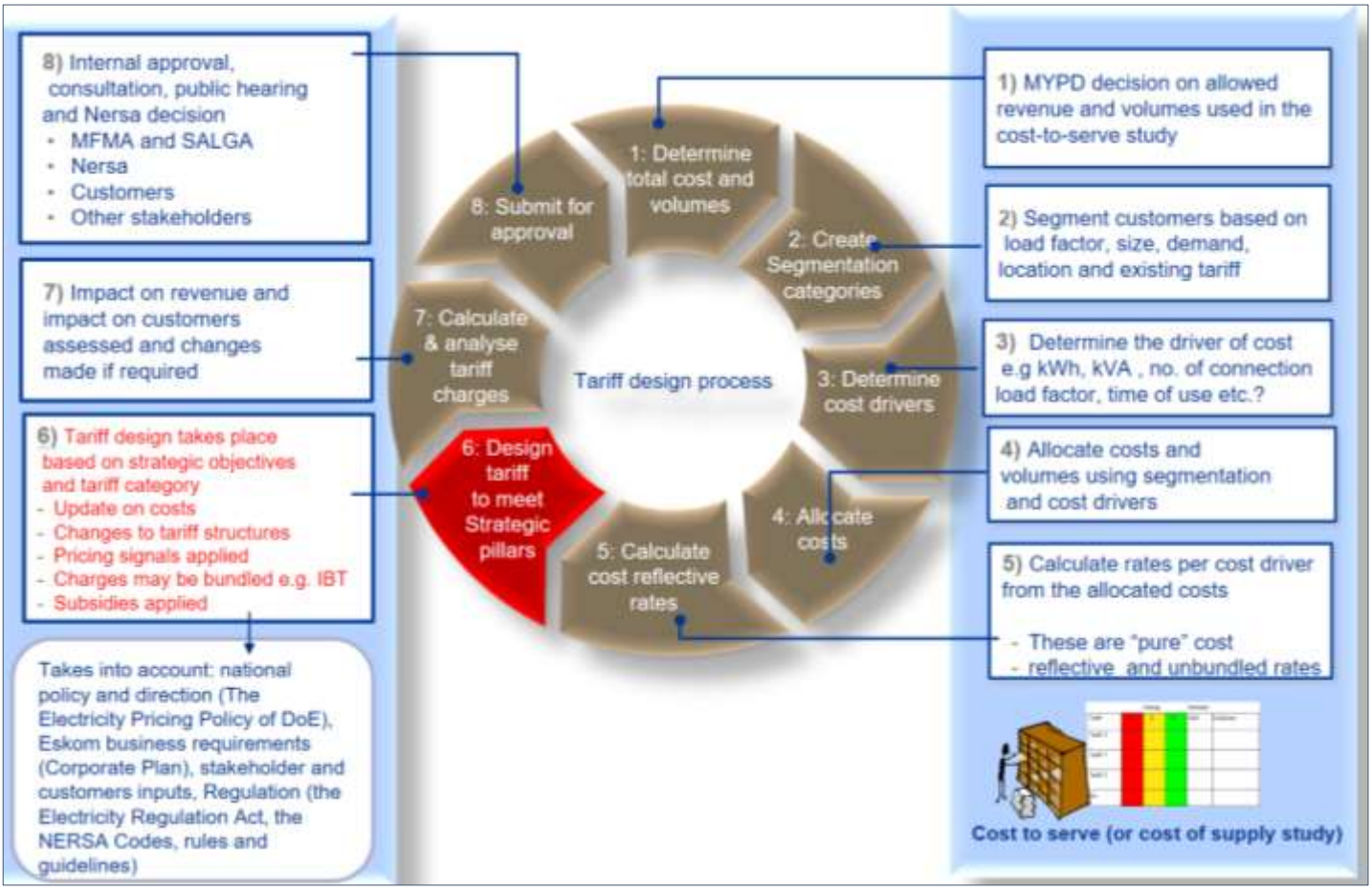
It is understood that once progress has been made in further migration towards cost reflectivity for the network businesses, the focus should shift to the generation business. Due to the extent of the assets in the generation business, it is acknowledged that this will take a little longer. However, a balance to minimize the burden on the fiscus needs to be prioritised. It is envisaged that overall cost reflectivity could be reached for the network businesses within two years from FY2025. The proviso for this further migration is that a stable revenue determination methodology is in place, efficient costs are recovered and significant changes in the generation mix does not result in further escalation in the value of generating assets. It is also acknowledged that this level of cost reflectivity will allow for an easier transition to a market when the legislative framework is reviewed to this effect.

12 Tariff Determination and Structure

Once the allowable revenue is determined by NERSA (NERSA MYPD methodology), the revenue requirement is allocated among customer classes (NERSA Cost to supply (CTS) framework) and tariff levels determined (NERSA ERTSA methodology). Eskom has submitted a revised retail tariff plan (RTP) (NERSA did not decide on 2020 RTP) for implementation from 1 April 2023.

For Eskom to recover the revenue that has been determined, NERSA notes that the CTS has been correctly done before approving the tariffs in accordance with the NERSA ERTSA methodology. It is acknowledged that the Eskom revenue is migrating towards cost reflectivity and the RTP allows for migrating towards cost reflectivity from a tariff structural and level perspective. The figure below illustrates the overall process followed for tariff structural changes:

Figure 11: Steps in electricity tariff design



There is now a window of opportunity to allow for the migration of tariffs to further reflect their cost in accordance with the NERSA revenue determination. Eskom last revised its tariff

structures in 2012 and is proposing structural changes to the Eskom tariffs, based on an updated cost-of-supply (or cost-to-serve (CTS)) study. The key reasons for changes in tariffs include that tariff rates no longer reflect the services being provided (that is, they are not aligned with energy, network and retail costs). Unbundling requires charges are more reflective of the costs per division, keeping abreast of the evolving industry and to protect customer interests and to ensure adequate recovery of NERSA approved revenue by Eskom. The key objectives of the tariff restructuring submission include reflecting unbundled costs more accurately, reflect the changing electricity supply and demand environment, alignment between wholesale purchases and retail tariffs and mitigate volume and revenue risk.

Eskom's (or any utility) ability to collect its allowed revenue and achieve a reasonable rate of return, depends on the level of electricity sales. The recovery of a utility's fixed costs through volumetric charges totally relies on the level of usage and if sales reduce, so does the recovery of this revenue contributing to fixed costs, but not necessarily an equal reduction in costs. To ensure adequate recovery of costs, there needs to be an evolution in the thinking of how fixed costs can be recovered in tariffs.

The following major structural changes to the retail tariffs are included:

- Energy c/kWh rates to reflect internal wholesale energy purchase structure, changes to the TOU ratios (peak, standard, and off-peak) and TOU periods (swopping the peak period and introducing a standard period on Sundays) to be aligned with the wholesale rates
- Splitting the energy charges, based on the internal wholesale purchase energy price into variable TOU c/kWh charges and a fixed generation capacity charge
- Network charges to reflect Transmission and Distribution network costs
- Retail charges to reflect the Distribution retail costs.
- Introducing a residential TOU tariff plus a new net billing offset rate for customers with small-scale embedded generation (SSEG)

It is imperative for NERSA to take to opportunity to implement a step change in the tariff area in FY2023. These decisions need to be made timeously to allow for customers to better understand and respond to the truer reflection of the actual costs of the services that they receive.

13 Economic Impact

An independent study was commissioned to ascertain the impact of the electricity price path over the MYPD 5 period on the macroeconomic variables. The objective was to model the trade-offs of the different approaches as to who pays and when they do so, providing a fully informed consideration of the potential economic impacts of various pricing paths over the short-to-medium term.

To ascertain the impact of price adjustments the following four scenarios were modelled.

- **Eskom's high-price, quick recovery toward cost reflectivity scenario**. Some key macroeconomic variables, such as GDP and investment, deteriorate relative to the baseline in the first year following the large electricity price increase. However, macroeconomic variables generally perform better than the baseline in the medium term as the impact of the price shocks are offset by the improved credit rating. Modelling Eskom revenue shortfalls by means of government debt financing, the government deficit is significantly reduced by R110.48bn by 2026.
- **Eskom's MYPD5 Application**. With the increase in electricity prices almost eliminating the annual revenue shortfall at Eskom by FY2026 relative to the baseline. This again follows from the fact that there is much less need for government subsidies (as well as the assumption that government expenditure remains on the baseline path). GDP deteriorates slightly relative to the baseline in the first year following the electricity price increase, but all macroeconomic variables beside inflation perform better than the baseline in the medium term as the impact of the price shocks are offset by the improved credit rating.
- **Eskom's low-price scenario**. With electricity prices only slightly higher than the baseline, Eskom's annual revenue shortfall decreases marginally. The government deficit thereby also reduces by R29.39bn by FY2026 relative to the baseline. Whilst a significant annual revenue shortfall is still expected, it will be slightly less than in the baseline price (where full economic costs are also not covered by tariff levels, but less severely so). Since there is not a significant deviation in the baseline electricity price path, and by implication financial stability of the SOE, under this scenario, no further changes relative to the baseline credit rating are expected. Most key macroeconomic and fiscal variables remain below baseline projections over the simulation period
- **CPI-linked, very low-price scenario**. With significantly lower electricity prices than in the baseline, the annual revenue shortfall at Eskom widens and the government deficit similarly increases by R81.7bn relative to the baseline. This follows from the more extensive need for government subsidies to cover Eskom's shortfall. A significant annual revenue shortfall, worsening Eskom's financial position and further destabilising the

country's overall fiscal outlook, results in an expected credit rating downgrade. Whilst consumers benefit from the cheaper price of electricity and lower inflation more generally, this is offset on a macroeconomic and fiscal level by the effects of increased budget deficits, higher debt-servicing costs, lower employment, lower household consumption spending, less government tax revenue and less investment.

- The ranking of the four tariff scenarios in terms of the outcomes of each of the modelled macroeconomic variables is shown in the figure below. The MYPD5 Application scenario performs best on the majority of the variables of interest (five of the eight). Relative to the other price path scenarios modelled, this suggests that the scenario is the optimal mix between achieving a sustainable electricity price path toward cost reflectivity and considering the short-run impacts on consumers and the broader economy.

Figure 12: Macroeconomic impacts' of various price increase scenarios

Scenarios	Macroeconomic indicators (cumulative % deviation from Baseline from 2022 to 2026)					Financing indicators (cumulative deviation from Baseline from 2022 to 2026)		
	GDP	Employment	Inflation	Investment	Household consumption	Public sector deficit (R bn)	Current account balance (R bn)	Tax revenue (% change)
High-price	0.29%	0.03%	0.80%	4.06%	0.33%	-R110.48 bn	-R137.00 bn	4.56%
MYPD 5 Application	0.64%	0.25%	0.85%	6.95%	0.82%	-R110.25 bn	-R255.47 bn	5.10%
Low-price	-0.14%	-0.16%	0.14%	-0.54%	-0.23%	-R29.39 bn	R28.39 bn	0.91%
Inflation-linked	-0.81%	-0.43%	-0.15%	-6.84%	-1.13%	R81.71 bn	R274.84	-3.96%

Legend for ordinal ranking of scenarios

1st 3rd
2nd 4th

In the large part, as a consequence of historical under-pricing and under-investment, Eskom's current operational and financial challenges are placing a significant strain on the country's economy. Insufficient generation capacity and short-term supply shortages have seen record-levels of loadshedding implemented for each subsequent year from 2019 to 2021. Similarly, credit ratings agencies cite fiscal deterioration due to Eskom's debt levels as the country's main credit risk. Eskom's debt alone amounted to 15% of total government debt in 2019 (or equivalent to the value of 9% of the country's GDP).

Across the majority (six out of eight) of the macro-economic and fiscal indicators, the economy is decisively better off over the medium term if prices are set such that they reach cost-reflective levels over the MYPD5 period. The only metric on which consumers are marginally worse off under tariffs approaching cost-reflective levels is inflation – but this is more than offset by increases in GDP growth, employment, investment levels and household consumption spending.

Among the paths to cost-reflectivity over the MYPD5 period, the smoothed pricing path proposed under Eskom's MYPD5 application is preferable to one where price-increases are front-loaded to achieve cost-reflectivity as soon as possible. In a dynamic sense, the general pattern is one of "short term pain for long term gain." Whilst most metrics experience some immediate, adverse shock in the first-year or two as the economy adjusts to tariffs under the cost-reflective pricing paths, the aggregate state of the economy over a five-year period improves as Eskom's financial position and the country's credit rating improves.

These results are consistent with the widespread acceptance that prices play a key role in efficient resource allocation. Economic theory suggests that in a context of scarce resources, prices play a key signalling role to both consumers and producers, informing their decision-making and so facilitating the optimal resource allocation.

13.1 Price elasticity studies – key outcomes

A frequent and robust estimation of the price elasticity of electricity demand is a helpful tool to understand the consequences of price changes on consumer demand and the revenue that a utility can expect to generate. As Eskom's total revenue (R) is its average price per unit of electricity sales (P) multiplied by total consumption (Qd) (or R= P x Qd), this means that when demand is inelastic (elastic), a price increase will lead to an increase (decrease) in revenue from sales, all else held constant.

Figure 13: Interpreting Price Elasticity

Price elasticity (Ɛ)	Interpretation	Revenue implication
Elastic ($\|Ɛ\|>1$)	% change in Q_d greater than % change in P	**Revenue decreases with price increases** (% increase in P more than offset by % decrease in Q_d)
Inelastic ($0\leq\|Ɛ\|<1$)	% change in Q_d less than % change in P	**Revenue increases with price increases** (% increase in P causes a smaller % decrease in Q_d)

The elasticity estimates for the respective sectors are as follows:

- **Industrial**: The price elasticity is negative and significant, but below 1 – indicating that demand is price inelastic. A 1% increase in prices is associated with a 0.254% decrease in demand for industrial consumers. We find no evidence to suggest that the price elasticity changed before and after the assumed structural break from 2008. The income elasticity is positive and significant but inelastic. A 1% increase in the economic output sees a 0.828% increase in electricity demand.
- **Mining**: Mining customers also price inelastic: a 1% increase in prices is associated with a 0.107% decrease in demand. We find evidence that the elasticity marginally decreases in absolute terms after the break. Electricity is income inelastic, with a 1% increase in economic output associated with a 0.5% increase in demand.
- **Rail:** As with other sectors, demand is price inelastic. A 1% increase in prices is associated with a 0.445% decrease in demand. Again, there is evidence that the elasticity may have marginally decreased after 2008. Rail is an outlier in the sense that its income elasticity is greater than 1, suggesting a relatively elastic response to output changes (measured here as annual rail freight tonnages hauled). A 1% increase in the economic output is associated with a 1.455% increase in demand when all other things remain unchanged.
- **Bulk sales to municipalities**: Demand is also price inelastic for municipal distributors' bulk electricity purchases. A 1% increase in Eskom's prices is associated with a 0.218 % decrease in bulk demand. Note that this is not the elasticity to end consumers, however, which would be determined by a range of other additional factors (like municipal costs in distributing electricity to their end-consumers, including technical and non-technical distribution losses, as well as any additional municipal margins on-top of bulk purchases from Eskom). We find some evidence that the elasticity may be marginally lower in absolute terms after 2008. Municipal demand is also income inelastic, with a 1% increase

in national household disposable income associated with a 0.243% increase in bulk electricity purchases from municipalities when all other things remain unchanged.

- **Eskom's direct Residential customers** are price inelastic over the period from 2010 - 2020, with a 1% increase in prices associated with a 0.614% decrease in demand. In contrast, their demand is income elastic, with a 1% increase in household disposable income associated with a 1.014% increase in demand. However, it is not possible to draw conclusions from the elasticity estimates for this subset of Residential customers to the broader Residential sector. The predominant share of Residential customer demand (72%) is supplied by municipal distributors, whose prices vary significantly and can be much higher per kWh than those faced by the equivalent Eskom customer.
- **For the aggregate demand from the national grid**, we find that the economy overall is price inelastic over the period from 1990 to 2020. A 1% increase in prices is associated with a 0.144% decrease in demand. Although the price elasticity of demand over the entire analysis period is inelastic, we also investigate the time-varying nature of the elasticity and find that elasticities have changed over time, especially in the period immediately after 2008. Shortly after the first significant real price increases and rounds of loadshedding, the price elasticity peaks at -0.37 in 2009. Since then, the price elasticity has stabilised in a range between -0.15 and -0.10 in the decade from 2011.

14 Electricity price outlook

14.1 Economic Impact study indicate price increases to cost reflectivity being viable option

The economic study undertaken recently indicates that the most viable option from a macroeconomic perspective is to allow for the migration of the price of electricity through increases in tariffs. This is to only allow for the recovery of revenue based on prudent and efficient costs and a fair return. It is recognised that certain vulnerable sectors, such as poor residential customers and certain energy intensive industrial require support in forms of subsidies. The country policy positions require cross subsidies.

14.2 Eskom's electricity price is still inelastic

The detailed sectoral price elasticity undertaken recently indicates that Eskom's electricity price in all sectors as well at a national level, is still inelastic. The Eskom price has not yet reached a level where other options for securing energy become viable.

14.3 Migration towards cost reflectivity in last decade still required to continue

The price increases in the last decade have allowed Eskom to migrate to a level where a significant level of its operational costs have been recovered through revenue determinations and regulatory clearing account balance determinations. The focus has been on Eskom's operational and primary energy costs. However, a large gap in the recovery of efficient capital costs still needs to be addressed. This has resulted in a severe debt burden and dependence on the fiscus through the continuous equity support over the last few years. This is not a sustainable situation requiring interventions to change course. It is submitted that even if a certain portion of Eskom's debt is taken over by Government, if a meaningful migration towards cost reflectivity is not implemented, then the country will find itself in a very similar situation as presently. The basic requirement for Eskom to recover its prudent and efficient costs including the cost of capital is still a journey. It needs to be noted that the changes in especially the generation mix will have resultant impact on the cost reflective price of electricity. It is feasible that as soon as the cost reflective level has been achieved, a leveling in the rate of price increases could be possible. It needs to be understood that all electricity consumers have been subsidised by the taxpayer for many years. Another important and consequential aspect of price increases is the ability for Eskom to provide quality services. Inadequate increases unfortunately will impact the nature of the service being provided.

14.4 Network businesses revenue will now be closer to cost reflectivity

Proposals have been made in this update for NERSA to consider allowing for a more rapid achievement of cost reflectivity for the network businesses – Transmission and Distribution. Due to the value of the assets for these network businesses, it is possible to achieve this as a priority. It also demonstrates progress being made by NERSA in meeting its mandate of ensuring that licensees must recover prudent and efficient costs and a fair return. The benefits to various stakeholders could indicate that the country is addressing the important electricity sector and the support it provides to the economy of the country.

14.5 Focus on Generation migration to cost reflectivity is required

Now that a significant gap in the network businesses has been addressed, the focus will need to be on the generation part of the business. It is envisaged that this focus will allow for NERSA to make meaningful decisions over the next few years to narrow the gap in the recovery of a reasonable return on assets. The assumption is that all revenue related to efficient and prudent operational and primary energy costs will be recovered. It is proposed that the quicker this gap is filled, the better for the overall economy of the country. The burden on the fiscus will be minimised.

14.6 Tariff cost reflectivity journey is initiated

With the implementation of the proposals in the retail tariff plan, as submitted by Eskom to NERSA during August 2022, it is envisaged that the translation of the allowable revenue to tariffs that more truly reflect the unbundled costs and fixed vs variable costs will be achieved. This ensures that customers are more aligned to the actual costs they impose on the system. This also addresses the key aspect of certain customers using the electricity system as a battery and back-up.

15 Pillars for Eskom's financial viability

The four pillars for Eskom's financial viability are as follows:

a) Eskom ensuring its cost base is efficient – cost exemplarity

b) Price of electricity reaches cost reflective revenue levels – covering efficient costs and recovering full cost of capital ie. fair returns

c) Collecting the revenue which has been billed – reducing arrear debts

d) Significant debt relief as Eskom cannot sustain and service R400 bn debt stock level

For financial viability to materialise, all four of these elements must deliver their components and critically they must occur within a short timeframe. A drawn-out process on any of the elements will result in Eskom being unable to remove itself as being a burden and strain on the sovereign. Eskom is currently working with government on debt relief proposals which would still need to follow the necessary processes and governance approvals. Hypothetically a debt relief of R150bn ~R200bn in the absence of cost reflective revenue levels, will buy Eskom a runway of about 3-4 years cash flow reprieve, but with the continuous operational and capital requirements across the business, Eskom will soon be back at unsustainable debt stock levels of R400bn again.

End