EThekwini Electricity Trading Service Reform Strategy

VERSION 1.6

eThekwini Municipality

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Abbreviations

ADMS	Advanced Distribution Management System
AFS	Annual Financial Statement
AMI	Advanced Metering Infrastructure
CAD	Computer Aided Design
CBM	Condition-based Maintenance
CFU	City Fleet Unit
CoGTA	Cooperative Governance and Traditional Affairs
COF	Certificate of Fitness
CTS	Cost to Serve
DOA	Delegation of Authority
DSM	Demand Side Management
EE	eThekwini Electricity
ERP	Enterprise Resource Planning
EUL	Expected Useful Life
EWS	eThekwini Water Services
HC	Human Capital
HCIS	Human Capital Information System
HID	High Intensity Discharge
HV	High Voltage
HRDC	Human Resource Development Committee
ICT	Information Communication Technology
IMU	Information Management Unit
IPPs	Independent Power Producers
ISUPG	Informal Settlements Upgrading Partnership Grant
ITOU	Industrial Time of Use
IVR	Interactive Voice Response
KPI	Key Performance Indicator
kWh	Kilowatt hour
LED	Light-Emitting Diode
LLF	Local Labour Forum
LV	Low Voltage
LDV	Light Duty Vehicle
MFMA	Municipal Finance Management Act
MPV	Multipurpose Vehicle
MTTR	Mean Time to Repair
MV	Medium Voltage
MVA	Megavolt-amperes
MW	Megawatt
NERSA	National Energy Regulator of South Africa
NRS	National Rationalised Specifications
NT	National Treasury
PMO	Project Management Office
PPE	Personal Protective Equipment
PV	Photovoltaic
RE	Renewable Energy
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SCADA	Supervisory Control and Data Acquisition
SCM	Supply Chain Management
SLA	Service Level agreement
SOP	Standard Operating Procedure
SPOMA	Single Point of Management Accountability
SSEG	Small Scale Embedded Generators
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAS	Turnaround Strategy
TLB	Tractor-Loader-Backhoe
TSRS	Trading Service Reform Strategy
USDG	Urban Settlement Development Grant

Executive summary

The long-term objective of municipal trading services is to sustainably provide universal access to essential services crucial for the social and economic development of the city's inhabitants, businesses, and institutions. Unlike other municipal services, trading services primarily generate revenue from their own service charges, which should be managed to make a surplus. In metropolitan areas, especially in water, sanitation, and electricity distribution, these surpluses should fund their own capital and maintenance spending and potentially support other municipal services (National Treasury, 2024).

Key issues and causes
A National Treasury (NT) presentation on reforming metro trading services identified two main issues contributing to rapidly cascading failure within the trading services clusters of municipalities. These issues include:

1. Systemic Underinvestment: Insufficient investment in infrastructure rehabilitation and expansion.
2. Operational Failures: Declining and negative cash flows impacting municipal finances and investment capacity.

While the causes of systemic underinvestment and operational failures within the trading services clusters are widespread, the local contributors are deemed to be:
1. Structural Weaknesses: Lack of management accountability.
2. Skill Deficiency: Loss of essential management and technical skills.
3. Governance Issues: Political instability and corruption.

External contributors to systemic underinvestment and operational failures within the trading services clusters at the national level are deemed to be:
1. Inefficient Grants: Lack of performance incentives.
2. Weak Enabling Environment: Economic regulation, procurement, and private sector engagement issues.

NT's guidance note highlights that many metros have not recognised the unique characteristics and management needs of the trading services cluster. Decision-making authority and operational performance are often diffused across multiple units, and financial relationships between trading services and metros are opaque. Collectively, this is leading to poor performance.

NT’s initiatives for reform
NT’s initiatives to reform trading service performance include grant reforms which aim to:
1. Increase investment by leveraging grant finance with loan finance.
2. Catalyse changes in structure, management, and governance.
3. Promote professional management with a single-point of accountability.
4. Ensure full financial transparency.

EThekwini Electricity (EE) Trading Service Reform Strategy (TSRS)
Under NT's guidance, eThekwini Electricity (EE) developed a reform strategy aligned with NT’s seven-box framework. The strategy includes, among other things, an assessment of historical performance, revenue generation, financial performance, investment history, network operations, asset maintenance, infrastructure theft, and call centre performance. The organisational structure, the current business model and the integrated model of operations were further evaluated.

Key challenges identified
The key challenges identified through the assessment process can be summarised as follows:
1. Financial Sustainability: EE is not financially sustainable.
2. Underinvestment: Long-term underinvestment in infrastructure.
3. Centralised Support Services: Complex and ineffective governance due to centralisation.
4. Inadequate Support Service Performance: Negatively impacting capital expenditures.
5. Aging Infrastructure: Maintenance backlogs and lack of outage management systems.
6. Electrification Backlog: Increasing delays in electrification.
7. Leadership Constraints: Inability to navigate challenges and meet customer expectations.

Strategic goals

EE's five-year strategy aims to address these challenges and achieve financial sustainability and improved customer service through the following goals:

1. Single Point of Management Accountability: Delegate management accountability to the Head of Electricity to be able to integrate support services into the business unit to establish a fit for purpose structure.
2. Optimised Support Operations: Prioritise improvements in the support services.
3. Efficient Primary Operations: Improve overall operations, reduce electricity losses, expedite new connections, enhance outage management systems, and accelerate the adoption of smart technologies.
4. Financial Sustainability: Break even by year three by optimising revenue streams and leveraging the benefit of efficient primary operations.
5. Increased Investment: Achieve a 10% capital-to-total expenditure ratio to ensure sustainable service delivery.

Implementation support

NT has committed to supporting the reform strategy with technical assistance and financing, including grants and loans, contingent on the following conditions:

1. Performance Targets: Defined and time-bound targets for improvement.
2. Professional Management: Develop a pathway to professionalise management to carry out the strategy and sustain results effectively.
3. Structured Business Units: Realign and integrate support service structures and evaluate an optimum trading services structural model.
4. Creditworthiness Goals: Develop clear milestones to achieve creditworthiness.
5. Investment Strategy: Develop a fundable plan to improve service reliability and build resilience.

Required submissions

In addition to submitting the council-approved strategy by 31 October 2024, NT requires the following documents to also be submitted by 31 October 2024:

1. Annexure A1: Institutional Reform Roadmap
2. Annexure A2: Business and Investment Plans consistent with the reform strategy.

The Institutional Reform Roadmap will:

1. Include a clear path and timelines to establish a single point of management accountability.
2. Demonstrate how the management capacity (technical, systems, change leadership, additional to current) to support the single point of management accountability to execute the reform, will be acquired.
3. Show a clear path and timelines to establish governance arrangements which protect, and re-inforce electricity services focus on and accountability for long-term performance.
4. Detail how to rapidly achieve transparency standards to produce a complete AFS (statements of financial position, performance, and cash flow) for electricity services separately.

The Business and Investment Plans will include:

1. An overall path towards electricity services operational effectiveness and financial solvency.
2. Plans to sharply increase capital spending on urgent capex, accompanied by increased allocation of Urban Settlement Development Grant (USDG) funds.
3. Plans to address commercial and social challenges (billing and collection, etc).
4. Plans to increase use of private and development finance and expertise.
5. Additional management capacity where necessary to support project implementation alongside the institutional and governance change.
6. Commercial plans to address billing and collections, priorities, etc.
7. Capital spending plans, project plans and associated funding plans.
8. Private sector contributions of finance and expertise.
9. Projections on how collectively the plans will return the utility to solvency.

The proposed reforms and strategic goals provide a comprehensive roadmap for transforming EE into a financially sustainable and efficient service provider. By addressing systemic issues and aligning with NT's initiatives, EE aims to enhance service delivery, ensure financial stability, and contribute positively to the city's overall development.

1.0 Introduction

The fundamental long-term objective of a municipal trading service is to sustainably provide universal access to essential services. This is critical for the social and economic development of the people, businesses, and institutions of the city, including its city government.

This document details eThekwini Municipality's strategy to turnaround the current negative trend of financial and service delivery performance of the electricity trading service.

EE's reform strategy aims to improve electricity service delivery by improving management and governance, optimising primary and support operations to increase cash revenue and capital investment, to create a positive re-inforcing cycle of growth and sustainability.

1.1 Need for trading services reform

Unlike other municipal services, the most important source of trading service revenues are their own service charges, which should in principle be set and managed to make a surplus. The particular importance of trading services is that in metropolitan areas, especially in water and sanitation and in electricity distribution, trading services should be able to generate real (cash) operating surpluses to fund their own capital and maintenance expenses; and thereafter potentially contribute any surplus revenue to cover the cost of other municipal services (National Treasury, 2024). Unfortunately, the ability to cross subsidise municipal services at eThekwini Municipality and other metropolitan municipalities has declined over the last four years. Hence, there is a need for a reform of the business to improve service and financial performance in line with customer expectations and industry evolution.

1.2 Changes to National Treasury grant funding

NT will be introducing an amendment to the USDG, specifically a performance-based incentive grant component for trading services, starting in 2025-26 with water and sanitation services, and rolled out to other trading services in subsequent financial years (National Treasury, 2024). In addition, National Treasury are making amendments to the Division of Revenue Bill. The reforms will therefore ultimately be applicable to all metro trading services. EThekwini Municipality will need to qualify to have access to the performance-based incentive grant component of the USDG, and associated funding. The qualification criteria include:

1. A Council-approved electricity trading services reform strategy by 31 October 2024.
2. A roadmap on institutional reforms for improved management and governance by 31 October 2024.
3. An electricity business and investment plan that is consistent with the electricity services development plan by 31 October 2024.

The USDG makes up 44,9 % and the Informal Settlements Upgrading Partnership Grant (ISUPG) makes up 31,4 % of the total capital budget of EE in the 2024-25 financial year. The amount being R518 million. Overall grant funding to EE represented 76 % of the total capital budget.

1.3 EThekwini One Plan

Government working together with stakeholders and communities aims to make eThekwini a leading Smart Port City Region that is just, safe, sustainable, socially cohesive and culturally expressive. This will result in a transformed regional economy and in the upliftment and well-being of people living in eThekwini, its neighbouring districts and the Province of KwaZulu-Natal at large. It will set eThekwini onto a sustainable path responding to climate change and the constraints in the natural environment including biodiversity and water (eThekwini Municipality, 2022).

Government, through the District Development Model (DDM), is viewing each of these spaces strategically and in relation to their unique conditions, endowments and potentials. This more focussed approach and development of each of these spaces will collectively and drastically improve overall inclusive economic growth and development of the country (eThekwini Municipality, 2022).

The eThekwini One Plan is based on the DDM Theory of Change which postulates six interrelated and interdependent transformations – as illustrated in the Figure 1 below - to move from the current problematic situation to a desired better future.

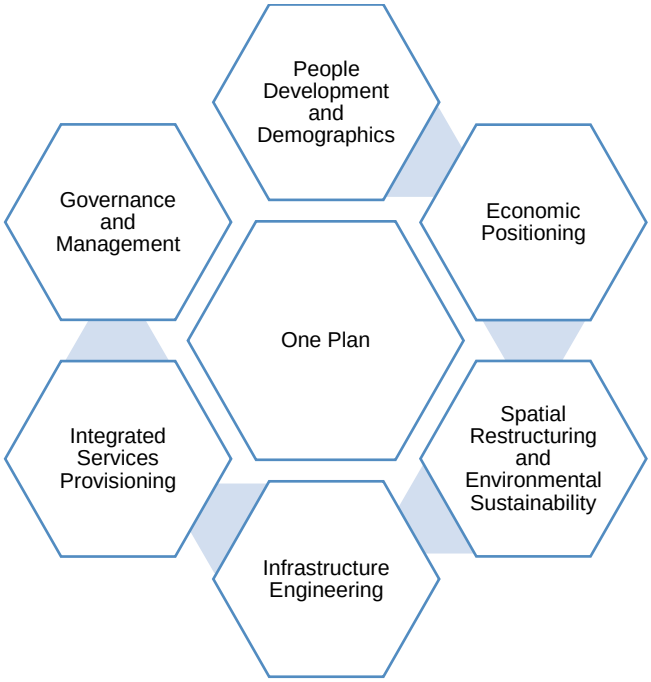


Figure 1 – eThekwini One Plan interrelated & interdependent transformations

This electricity trading services reform strategy seeks to support the eThekwini One Plan transformation areas:

1. Economic Position – Support domestic and foreign investment attraction and job creation by providing stable, reliable & cost effective electricity within the region.
2. Integrated Services Provisioning – Support the development of integrated sustainable human settlements with an integrated infrastructure network, particularly electrical distribution infrastructure.
3. Governance and Management – Support to ensure that planning, budgeting, procurement, delivery, financial and performance management takes places in an effective, efficient, accountable and transparent manner.

It is the intent of this reform strategy to support the eThekwini One Plan Strategic Goal 5: Integrated Service Provisioning, to enable the residents of eThekwini to experience reliable, cost effective, viable, sustainable and seamless provisioning of electricity services within functioning places.

Activities will include the co-ordination of service delivery, manage growth points, undertake financial reforms, implement Operation Good Hope, and promote innovative service delivery.

This reform strategy will also support the eThekwini One Plan DDM Goal 6: Governance to improve the performance of all three spheres of government working together with stakeholders and communities targeting developmental impact measures in eThekwini.

1.4 EThekwini Municipality Long Term Development Plan

The eThekwini Municipality Long Term Development Plan outlines the council-led project entitled Imagine Durban to focus on long term planning. The plan outlines the following six theme areas for collective action:
1. Creating a SAFE city.
2. Promoting an ACCESSIBLE city.
3. Creating a prosperous city where all enjoy SUSTAINABLE LIVELIHOODS.
4. Celebrating our CULTURAL DIVERSITY, ARTS AND HERITAGE.
5. Ensuring a more ENVIRONMENTALLY SUSTAINABLE City.
6. Fostering a CARING AND EMPOWERING City.

The reform strategy intends to support a more environmentally sustainable city. A short term target (10 years) has been set for citizens of Durban to use energy efficiently. A long term target (50 years) has been set for Durban to be carbon neutral and energy in Durban to be produced by renewable sources (eThekwini Municipality, 2010).

2.0 Baseline for reform strategy – financial performance

This section establishes a baseline of financial performance relating to the electricity trading service at eThekwini Municipality.

2.1 Current business model

The value add to customers offered by eThekwini Municipality is the reliable and cost-effective transformation of electricity to the appropriate voltage level and the transport of electricity from the Eskom point of supply to the customer premises. The electrical distribution network primarily consists of electrical cables and lines, transformers, switchgear, and metering infrastructure.

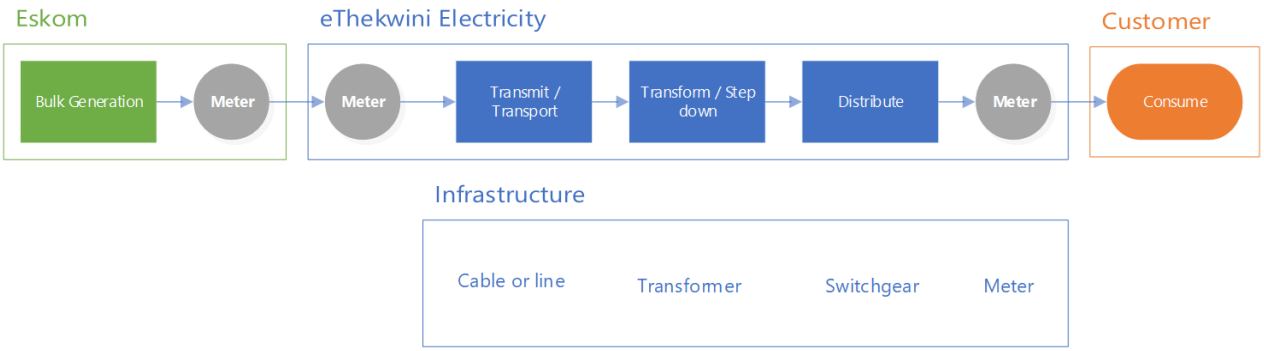


Figure 2 - Electricity value creation illustration

The current business model is based on the one directional flow of electricity, from the national electricity generator, Eskom, down to customers. Revenue is generated primarily from the sale of electricity. All costs associated with the operation and maintenance of the electrical distribution network is recovered from electricity sales.

This model is now obsolete due to the changes in the electricity generation landscape, primarily due to Eskom's inability to provide adequate bulk generation capacity. The outcome has been the introduction of Demand Side Management, loading shedding and the rising costs of electricity. In response to this market failure, authority to generate electricity has been expanded to customers and other businesses, resulting in prosumers, small scale embedded generation (SSEG) and independent power producers (IPP). This has taken much needed revenue away from EE.

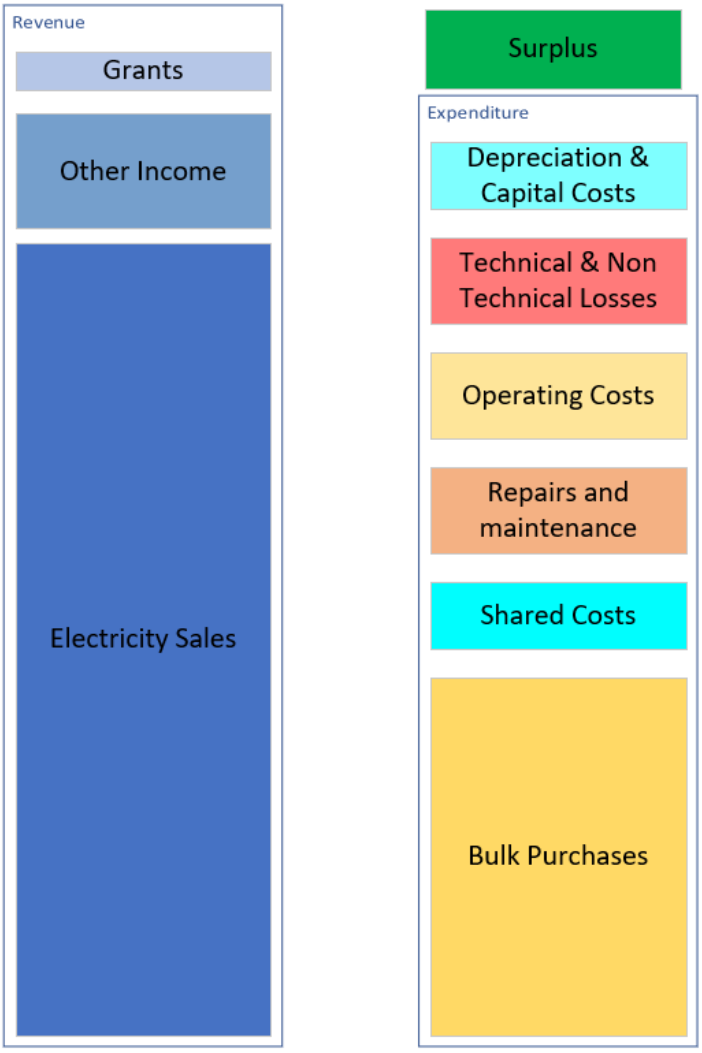


Figure 3 - Current financial model

2.2 Revenue generation – electricity sales

Overall, there has been a decline in electricity energy sales over the past 10 years. Figure 4 and Figure 5 below illustrates the downward trend. Reasons for this negative trend include:

1. There was a lack of alternative bulk electricity generation source.
2. National load shedding effectively introduced a sales ceiling which constantly lowered as load shedding stages intensified.
3. Demand Side Management was promoted.
4. Electricity tariffs were increased which negatively impacted electricity demand.
5. The state of the economy was poor which negatively impacted electricity demand.
6. Overall investor confidence was low.
7. A range of residential and commercial customers moved from electricity to alternate technologies for heating and cooking.
8. Many existing customers installed embedded generation.
9. Refining activities ceased within the eThekwini region which reduced electricity demand. The Engen refinery reduced demand by approximately 20 MVA and Sapref refinery reduced demand by 44 MVA.
10. The bulk customer Mondi significantly reduced its forecasted demand from 142 MVA down to 30 MVA.
11. Unforeseen events such as the COVID-19 pandemic, the July 2020 unrest, April 2022 floods occurred, which negatively impacted electricity demand.
12. The maximum demand reduced by 7 MW due to the introduction of LED streetlights.

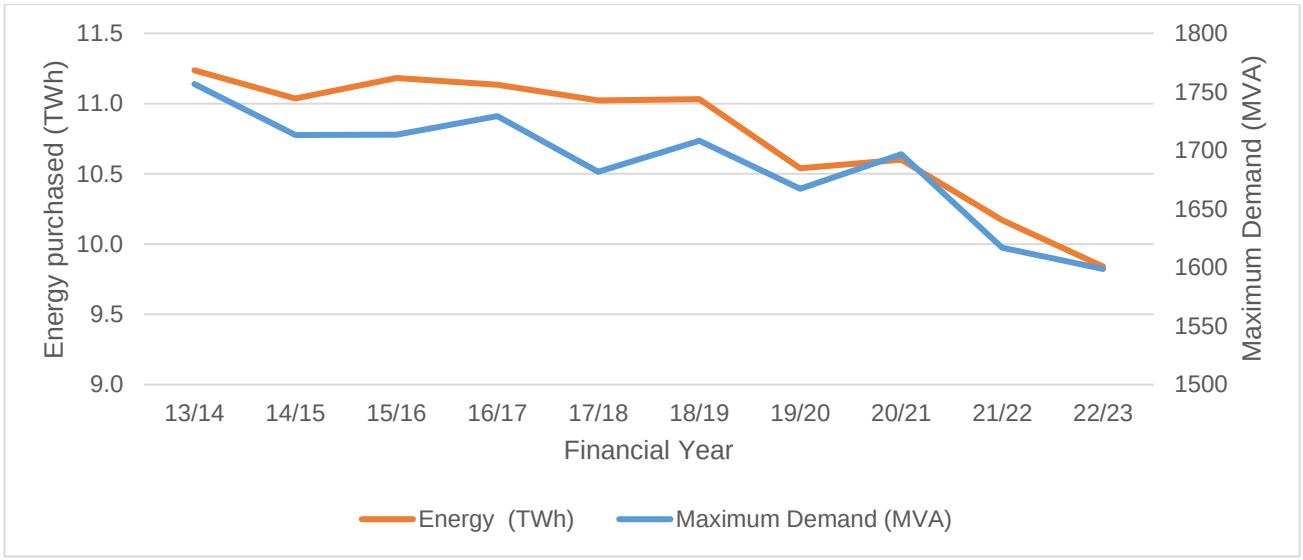


Figure 4 - eThekwini maximum demand and energy purchased

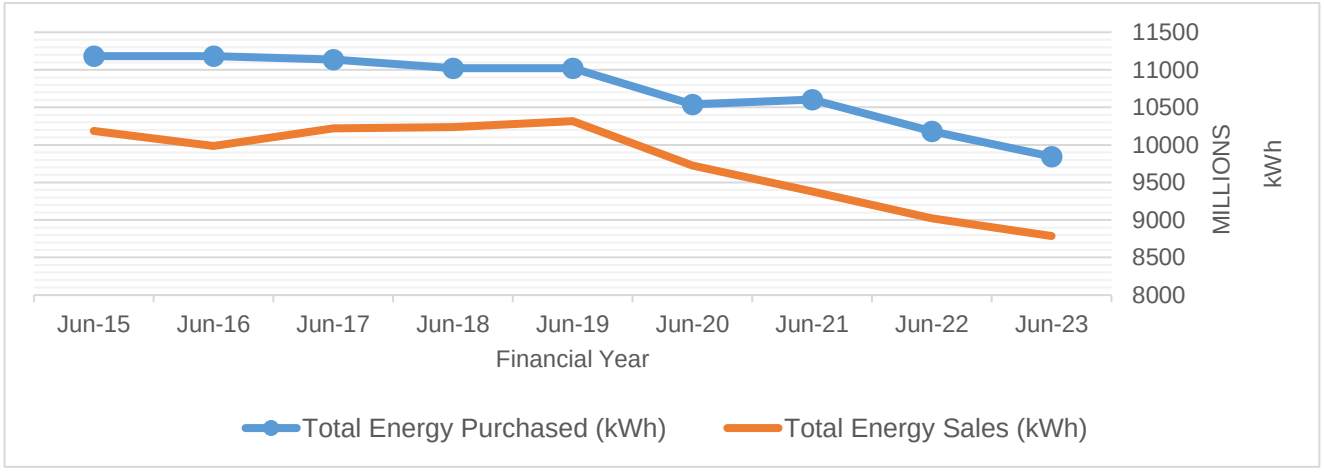


Figure 5 - Total energy purchased and total energy sold

2.3 Income and expenditure

The financial performance of EE has seen a steady decline in surplus over the last 7 years as can be seen in Figure 6 below. EE has shown increased operating expenditure that is aligned with inflation; however, the operating revenue has not increased accordingly. Tariff increases proposed by EE over the years have not been approved by the National Energy Regulator of South Africa (NERSA), thus resulting in decreasing revenue generation. This combined with increasing bad debts and amortisation costs, have resulted in EE moving from a surplus to a deficit.

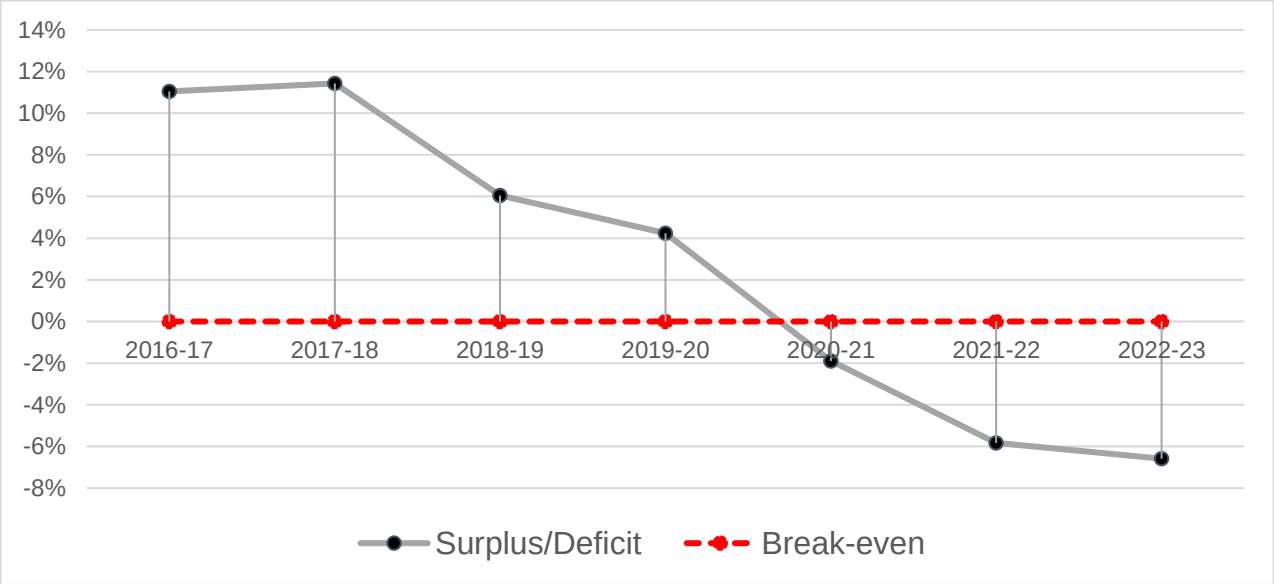


Figure 6 - Surplus/deficit per annum

In terms of expenditure, EE has seen an increase in bulk purchases expenses, increasing bad debt expenses, increasing operating costs and increasing repair and maintenance expenses. This can be seen in Figure 7 below.

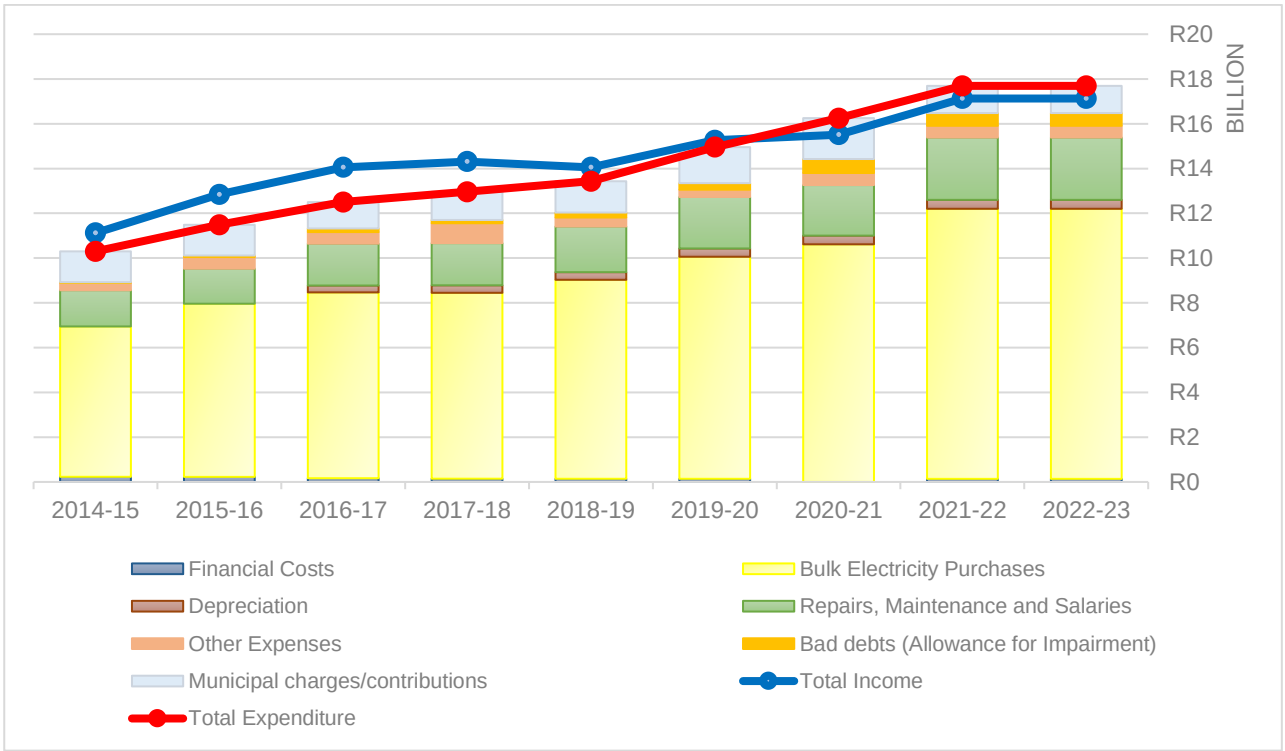


Figure 7 - Income and expenditure per annum

2.4 Investment history

With respect to the balance sheet, EE has seen a decrease in asset and owners' equity value over the last three years as can be seen in Figure 8 below. This aligns to deficits seen in the statement of financial performance impacting equity.

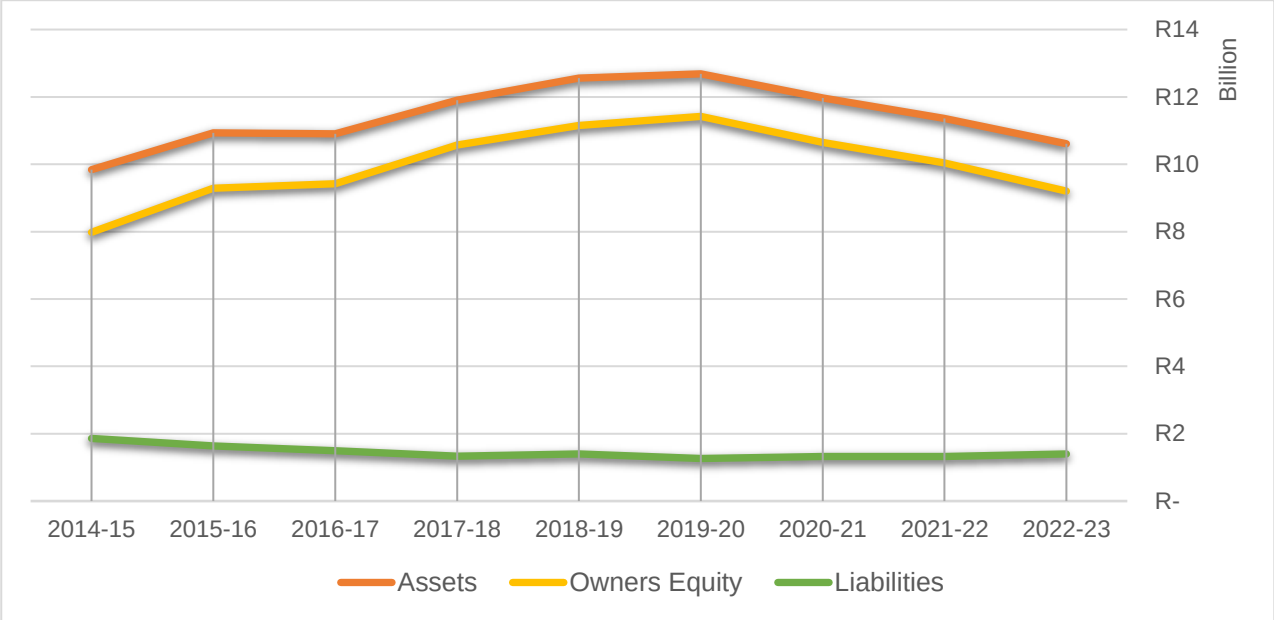


Figure 8 - Financial position – assets, owners equity and liabilities

EE has also directed prioritisation of expenditure towards current operations versus future capacity in terms of municipal services. Figure 9 below is the Capital Expenditure to Total Expenditure ratio graph which indicates a trend in long term under investment in property, plant, and equipment.

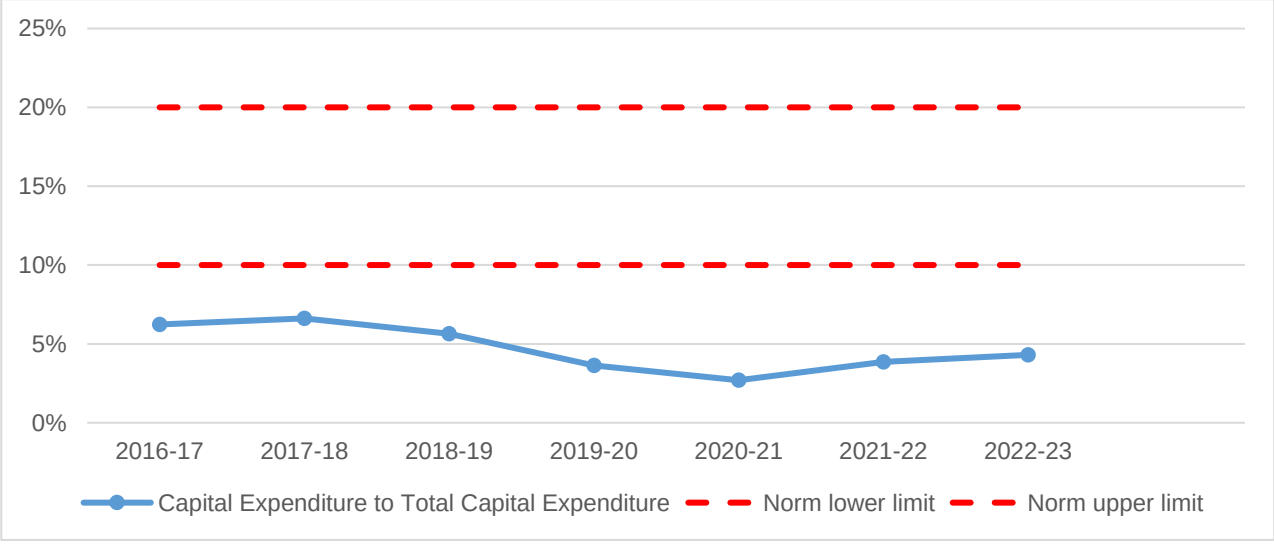


Figure 9 - Capital expenditure to total expenditure ratio per annum

Typically, high voltage infrastructure represents a significant area of investment for EE. EE's capital investment plan is partially derived from the high voltage masterplan which covers a twenty-year horizon. The masterplan includes asset replacement, refurbishment, reliability, and expansion projects based on load forecasts. The planned capital budget for high voltage infrastructure for the past five years was R1,55 billion with actual expenditure for the period amounting to R0,36 billion. Figure 10 illustrates the HV infrastructure investment performance for the past five years. The trend highlights a second significant issue, namely. EE is unable to effectively deliver on high voltage projects even when capital is available. Hence, it can be inferred that a significant high voltage infrastructure capital project backlog has been created.

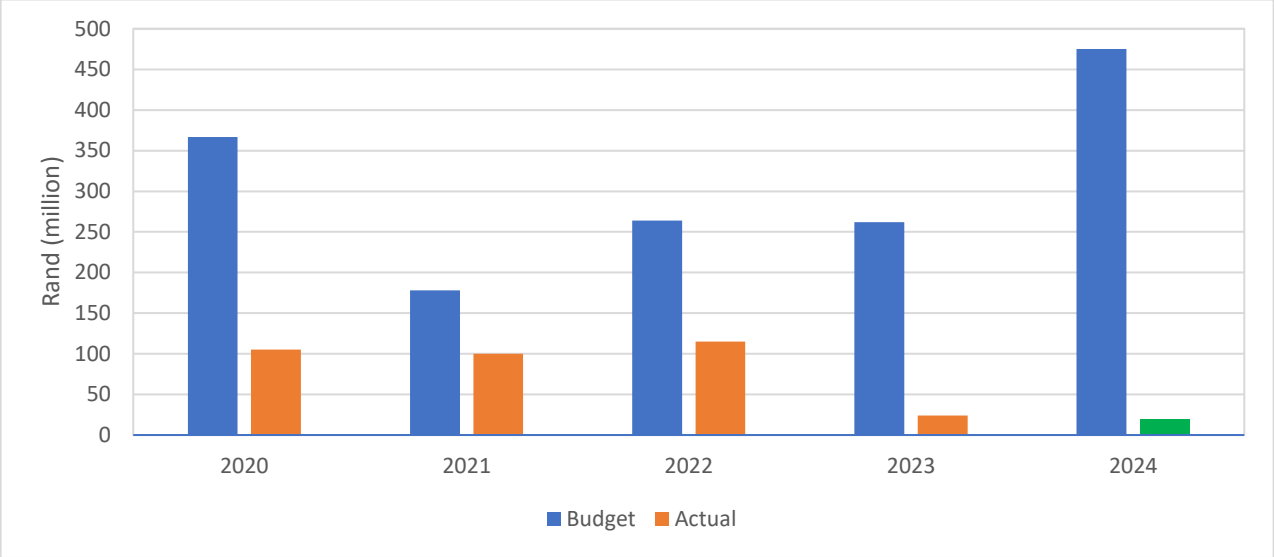


Figure 10 - High voltage infrastructure investment history

3.0 Baseline for reform strategy – operational performance

This section establishes a baseline of operational performance relating to EE.

3.1 Providing quotes to customers

Over the past 10 years there has been a reduction in requests for quotations. Figure 11 below shows the total number of customers quotations issued per annum, Figure 12 below shows the total number of quotations issued per annum within the minimum standard times as per NRS 047 detailed in Table 1.

Table 1 - Minimum standard times to provide quotations

Status of network/Customer classification	Minimum standard
Existing infrastructure can be used	10 working days
Network extensions required	1 month
New network installation required	By agreement
Industrial & commercial customers	By agreement

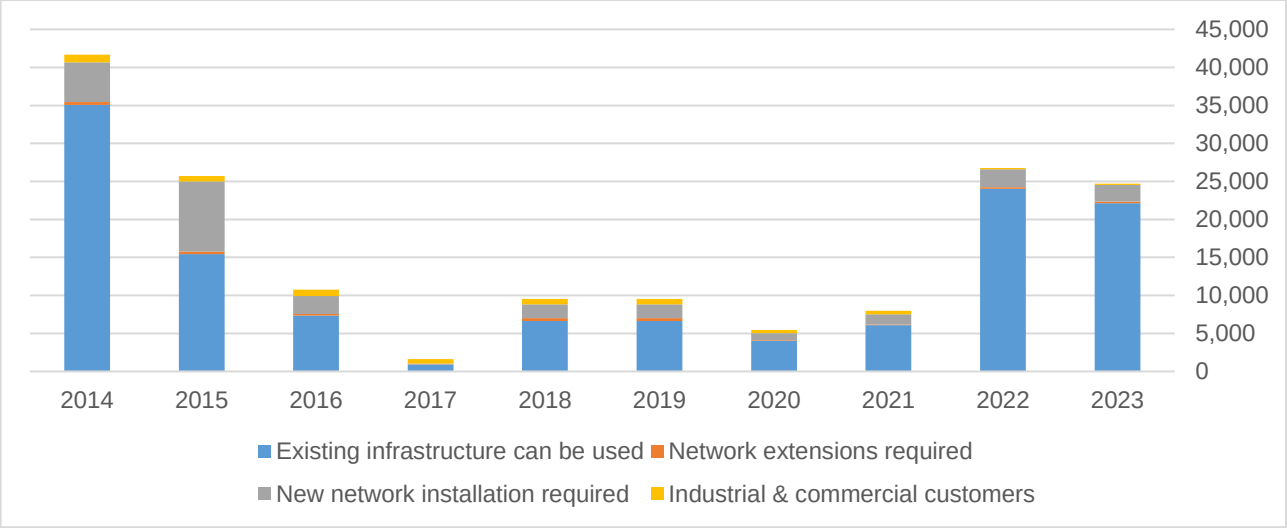


Figure 11 - Number of quotations provided to customers

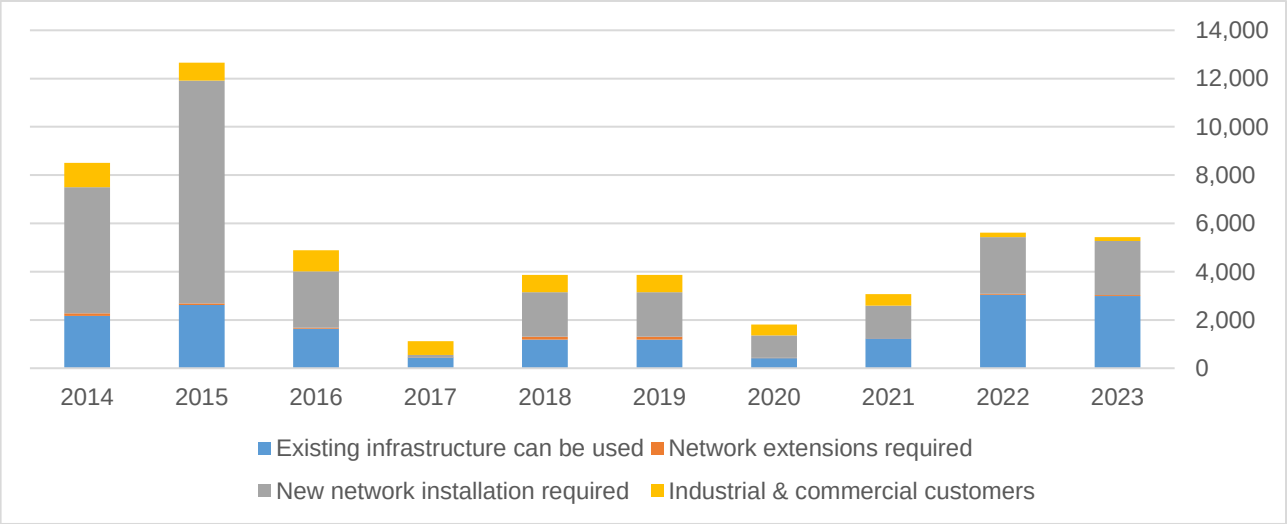


Figure 12 - Number of Quotations provided to customers within minimum standard

While the volume of quotations differed significantly over the past decade, the ability for the unit to provide quotations within the minimum timeframes was consistently poor for where quotations related to connecting to existing infrastructure and network extensions required. This can be seen in Figure 13 below. It highlights a clear area of business process improvement that is needed.

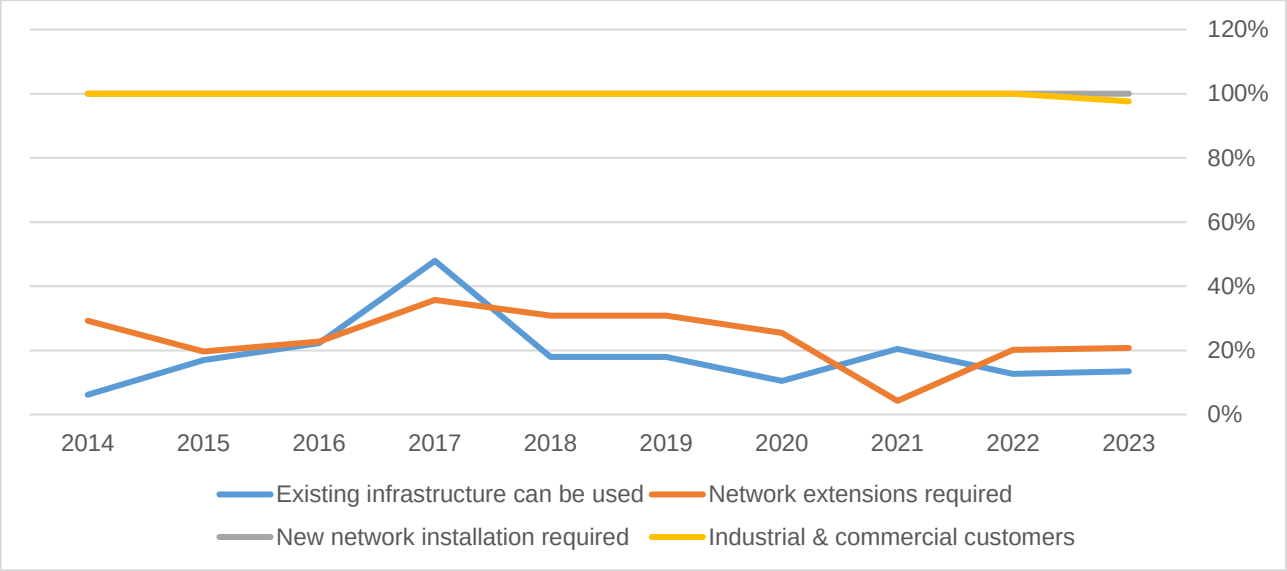


Figure 13 - Percentage of quotations issued to customers within minimum standard

3.2 Providing supply to customers

Over the past 10 years there has been a reduction in customer connections. Figure 14 below shows the total number of customers connected per annum, Figure 15 below shows the total number of connections issued per annum within the minimum standard times detailed in Table 2.

Table 2 - Minimum standard to provide supply to new customers

Status of network/Customer classification	Minimum standard
Existing infrastructure can be used	30 working days
LV network extensions required	2 months
MV network extensions required	3 months
New network installation required	By agreement
Industrial & commercial customers	By agreement

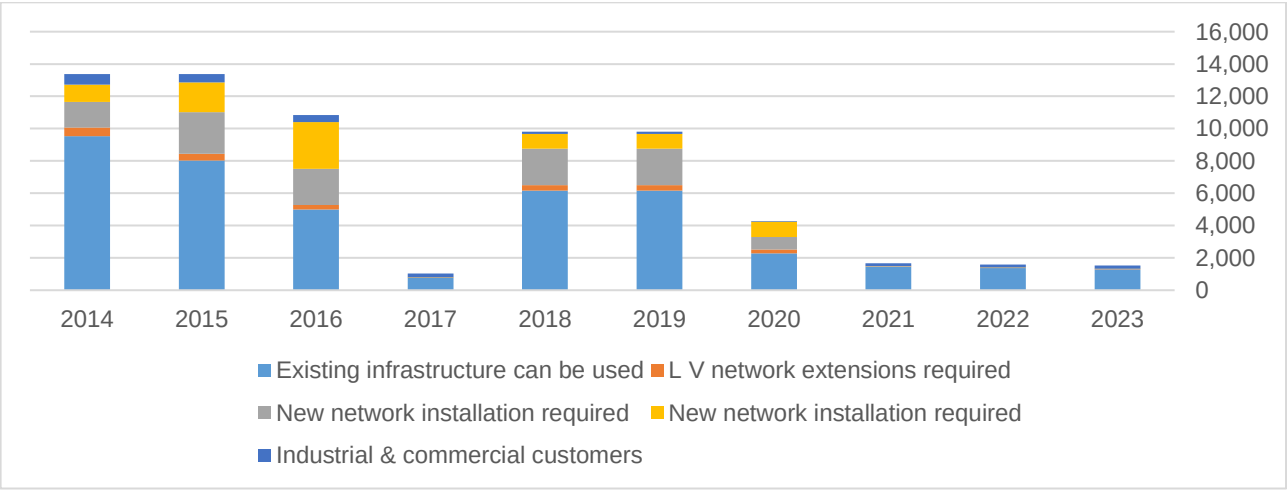


Figure 14 - Providing supply to customers

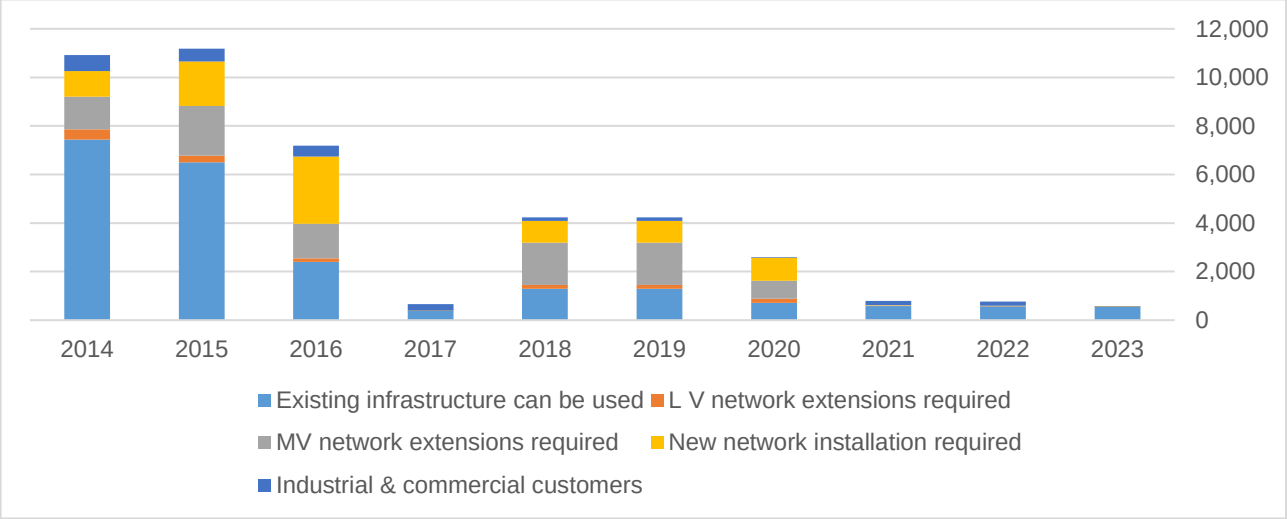


Figure 15 - Providing supply to customers within minimum standard

While the volume of customer connections differed significantly over the past decade, the ability for EE to connect customers to where LV network extensions are required, and existing infrastructure can be used was consistently below standard. This can be seen in Figure 16 below. This highlights a clear area of business process improvement that is needed.

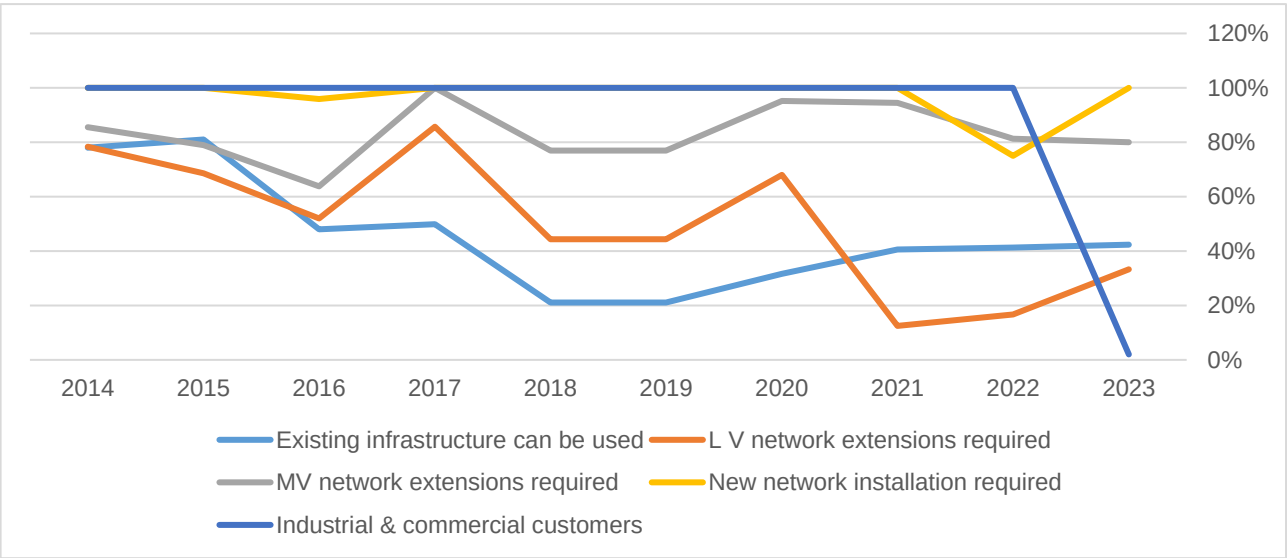


Figure 16 - Percentage of supply to customers completed within minimum standard

3.3 Customer connections – electrification

It is widely known that there is a national electrification backlog, the same is true for eThekwini Municipality. The graph below indicates that there was a declining trend in the electrification backlog between 2011 and 2018. The trend has since progressed to an increasing trend due to the dwelling count in eThekwini Municipality increasing at a rapid pace of approximately 3,3 % per annum based on the last four years dwelling count statistics provided by Stats SA. The largest factors contributing to the backlog increasing are:

1. The dwelling count due to urbanisation increasing at a pace faster than service delivery can be provided;
2. Informal dwellings growing faster in areas that cannot be provided with services due to land ownership issues, environmental issues, safety risks;
3. Increasing cost per connection currently sitting at an average of R15 000 per connection; and
4. Limited budget availability restricting the number of service connections that can be provided.

A large portion of dwellings that contributes towards the backlog is from the informal sector that requires the Human Settlements Unit and other departmental interventions prior to the EE being able to provide services, as these settlements are found to be in areas that cannot be safely serviced. The lack of suitable land results in informal

settlements being constructed in areas that are not safe to be serviced and therefore leads to an increase in the backlog. There are approximately 320 000 informal dwellings across eThekwini. There are 64 informal settlements with a household count of approximately 18 200 dwellings that have been identified where more than 50 % of the settlement is affected by factors that do not allow for services to be provided.

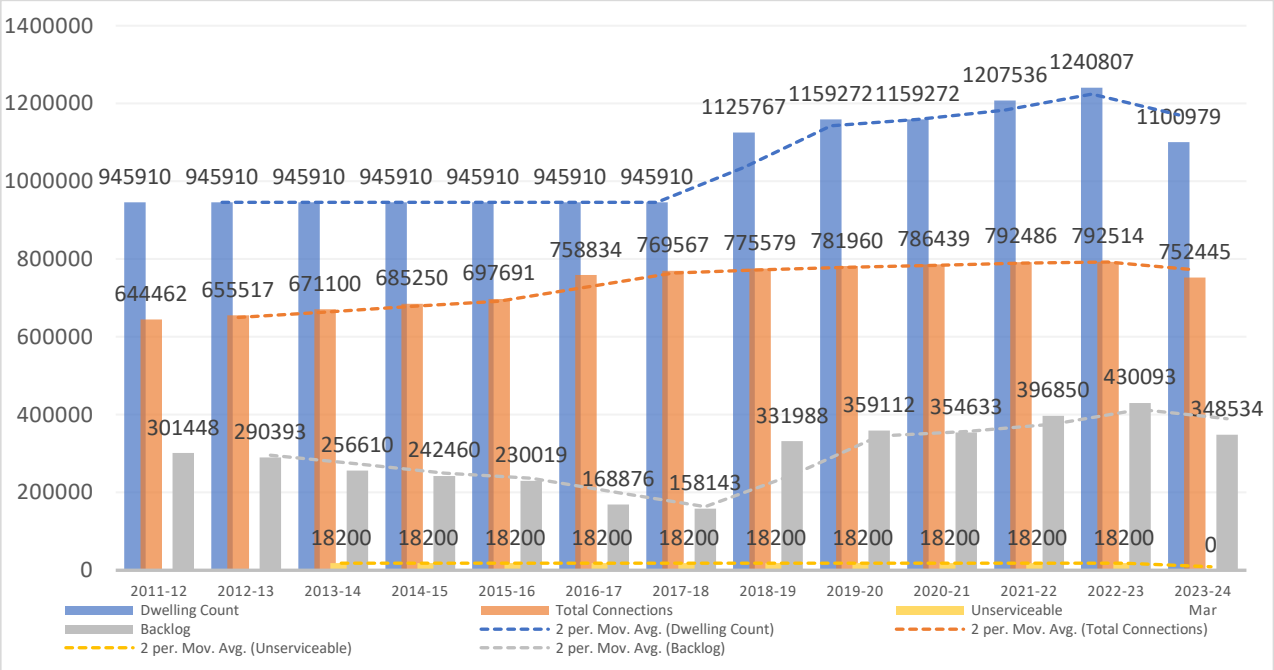


Figure 17 - Electrification data

The budget requirement by EE to eradicate the service delivery backlog based on an approximate servicing cost of R15 000 per dwelling would equate to R5 228 010 000. Table 3 below lists the budget allocations for the past three years.

Table 3 - Budget Allocated per annum vs serviced dwellings

Financial Year	Budget Allocation	Dwellings Service Information
2021-22	R 101 226 810	6 047
2022-23	R 103 737 779	5 831
2023-24	R 89 700 000	3 000 (Targeted dwellings to be serviced – challenges experienced due to shortage of material)

3.4 Metering performance

3.4.1 Residential prepaid

Figure 18 below illustrates that prepaid electricity consumption for the period from 2016 to 2020 was relatively constant. However, from 2020 there has been a rapid decline in consumption, with percentage decreases of 16 % and 28 % for the 2020-21 and 2021-22 financial years respectively. The drop in consumption coincides with the end of the meter sweep contract in 2019, the COVID-19 pandemic, the riots in Durban and the catastrophic floods.

The absence of the meter sweep contract and the consequent lack of monitoring and enforcement has resulted in high levels of meter tampering and loss in sales. A detailed analysis of metering data was conducted for the period from 2017 to 2022.

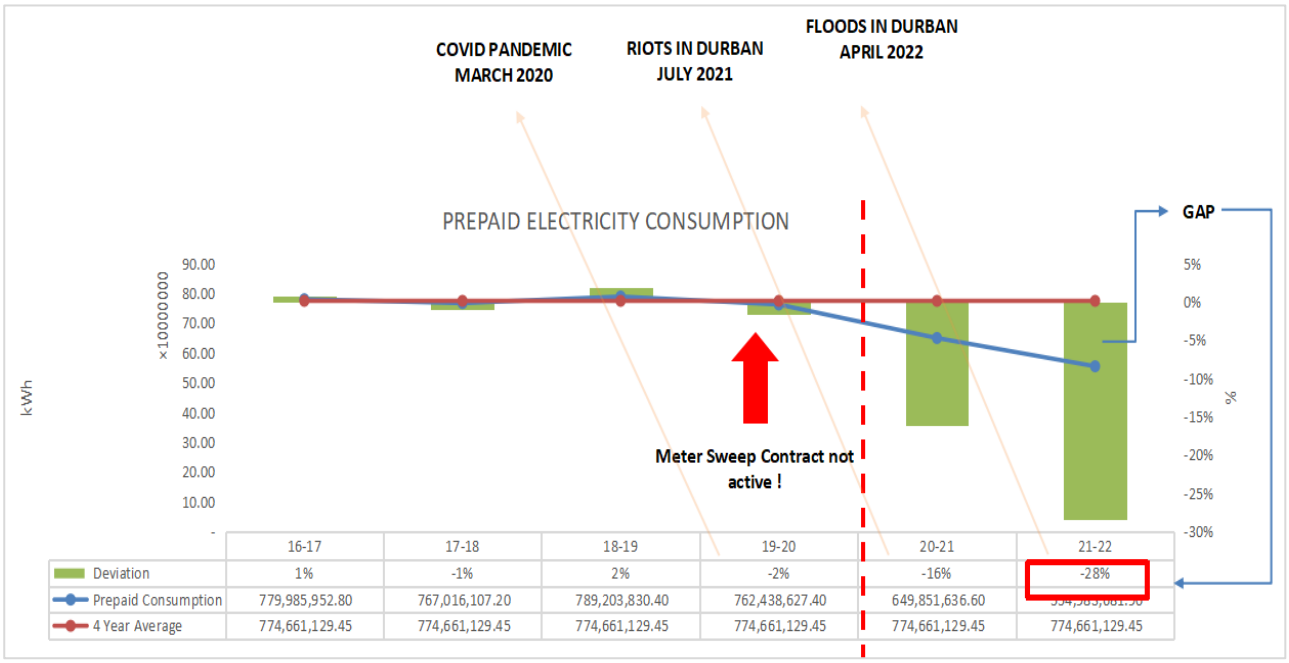


Figure 18 - Prepaid metering consumption analysis

The consumption pattern for meters purchasing in 2022 was evaluated based on their previous purchasing history. Table 4 below illustrates the results of the assessment.

Table 4 - Consumption pattern for meters purchasing in 2022

No.	% of Previous Purchase	Number of meters	Amount (R)	Approx kWh
1.	Up to 10% of purchases	39 188	92 122 758	35 431 830
2.	Between 10% and 20%	8 072	19 605 707	7 540 657
3.	Between 20% and 30%	5 943	12 780 487	4 915 572
4.	Between 30% and 40%	5 475	11 038 851	4 245 712
5.	Between 40% and 50%	4 764	8 203 470	3 155 181
	Total	52 561	143 751 273	55 288 951

This decline in consumption could also be part of a broader trend where customers have been reducing their electricity usage, possibly due to various factors like technology adoption or circumstantial changes. Additionally, there are constraints affecting the availability of meters, prompting the need for immediate evaluation and action to address the situation.

3.4.2 Residential credit

The residential sector has experienced a net decline in electricity sales since 2016. Figure 19 below illustrates the trend in residential credit meter consumption. In 2016, the actual consumption deviated from the 4-year average by 5 %. In 2017-18, the electricity sales declined compared to 2016-17; however, it was still 1% higher than the 4-year average. In 2018-19, residential sales showed no growth compared to the previous 2 years and was in accordance with the 4-year average. In 2019-20, residential sales started to decline and deviated from the 4-year average by -6 %. Whilst in 2020-21, the electricity sales increased, it was still 3 % lower than the average. The declining trend continued in 2021-22 and deviated from the 4-year average by -6 %.

The decline in electricity sales to the sector can be attributed to three main issues:

1. Drop in consumption either through technology adoption or circumstantial changes.
2. Drop in consumption through grid deflection, i.e., adoption of renewable energy technologies.
3. Meter tampering and/or bypass.

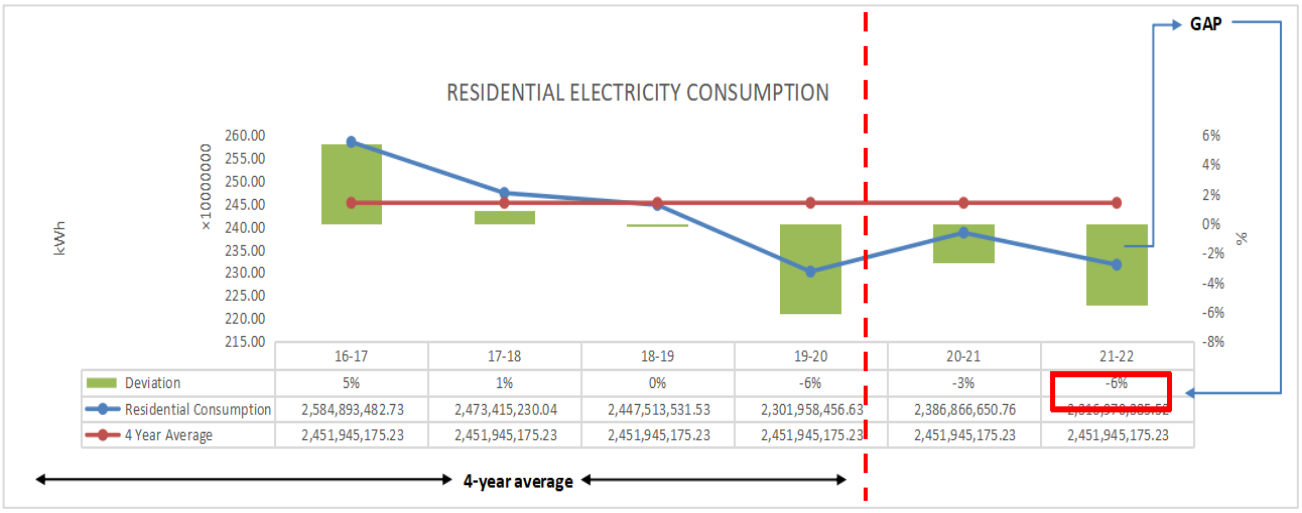


Figure 19 - Residential credit consumption analysis

3.4.3 Business and general

The business sector's electricity consumption has fluctuated over the years, with a 10 % drop in 2020-21 compared to the 4-year average. Despite a recovery in 2021-22, consumption remained 1% lower than the average. The sector's consumption aligns with the average between 2016 and 2019, but the impact of the COVID pandemic led to billing based on averages during lockdown, resulting in consumption drops in the 2020-21 financial year. When meter readings were loaded into the system in the new financial year, many reversals were carried out on the system. This has resulted in a drop in consumption in the 2020-21 financial year. As meter readings were loaded into the system and customers recovered from the effects of the pandemic, a rise in the sector usage was expected and materialised, as clearly depicted in Figure 20 below.

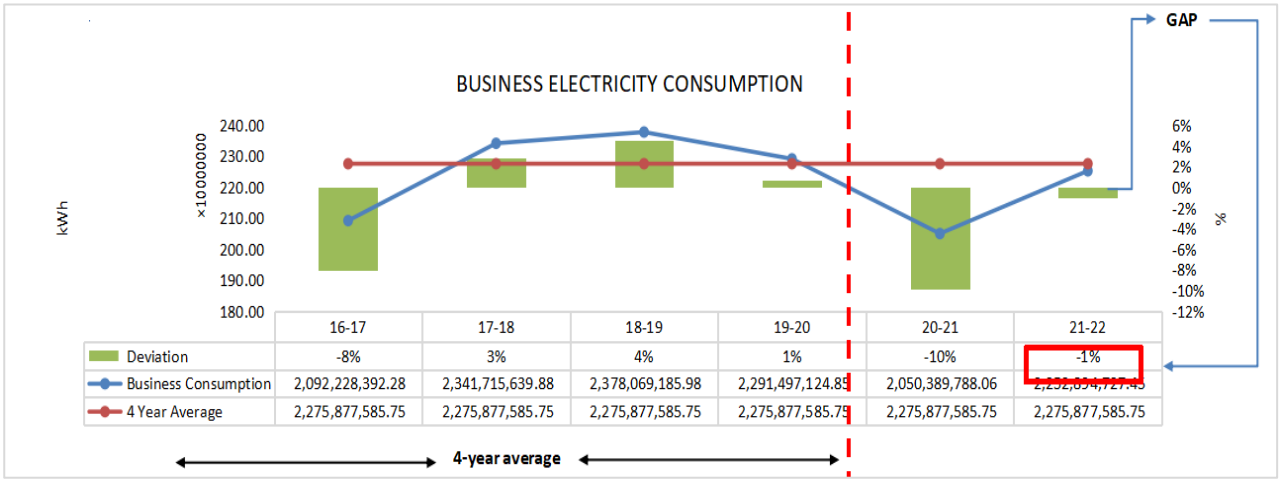
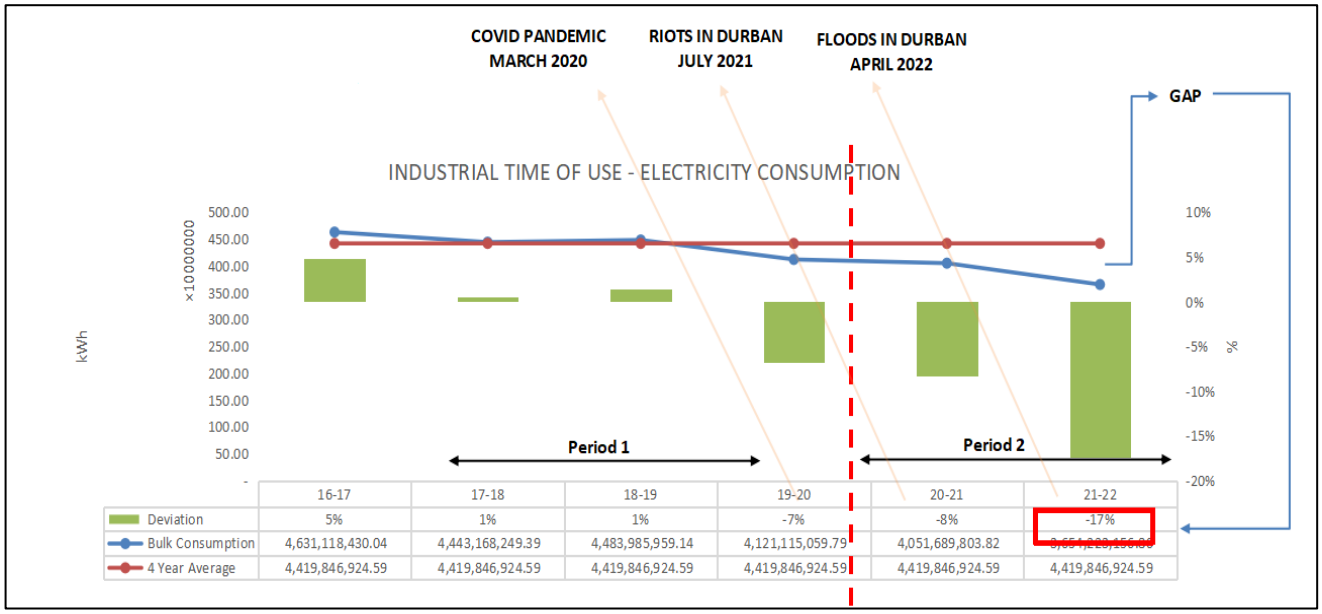


Figure 20 - Business and general consumption analysis

3.4.4 Industrial time of use (ITOU)

Customers on the ITOU tariff have significantly dropped their consumption as can be seen in Figure 21 below. The declining trend was initiated in 2019-20, with a 7 % decline in energy use compared to the 4-year average. In 2020-21, there was an -8 % deviation from the average; however, in 2021-22, there was a deviation of -17 %.



	16-17	17-18	18-19	19-20	20-21	21-22
Deviation	5%	1%	1%	-7%	-8%	-17%
Bulk Consumption	4,631,118,430.04	4,443,168,249.39	4,483,985,959.14	4,121,115,059.79	4,051,689,803.82	[illegible]
4 Year Average	4,419,846,924.59	4,419,846,924.59	4,419,846,924.59	4,419,846,924.59	4,419,846,924.59	4,419,846,924.59

Figure 21 - ITOU consumption analysis

An average consumption profile was created for each customer within the ITOU category based on their consumption between 2017 and 2020 (Period 1). After that, this was compared to their average consumption between 2020 and 2022 (Period 2). The results of deviation between these two periods are indicated in Figure 22 below:

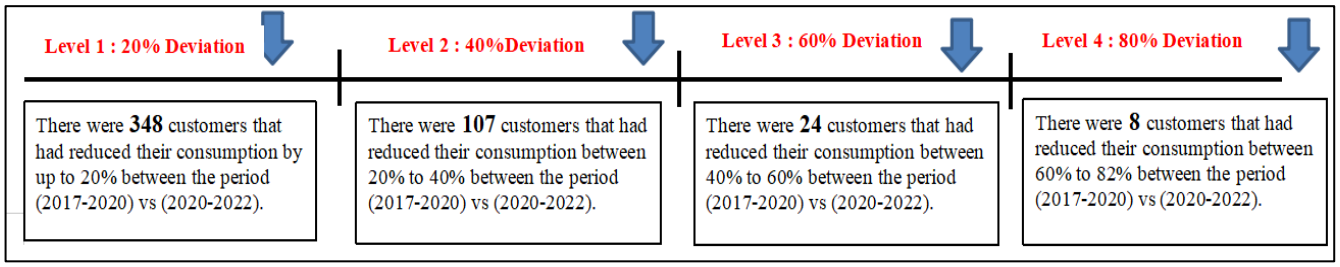


Figure 22 - ITOU consumption deviations

3.4.5 Electricity non-technical losses

Electricity non-technical losses are a critical issue for eThekwini Municipality as they directly impact financial performance and operational efficiency. Maintaining low electricity losses has been a priority to ensure both economic viability and reliable service delivery. This section delves into the trends and factors influencing electricity losses within the municipality over recent years.

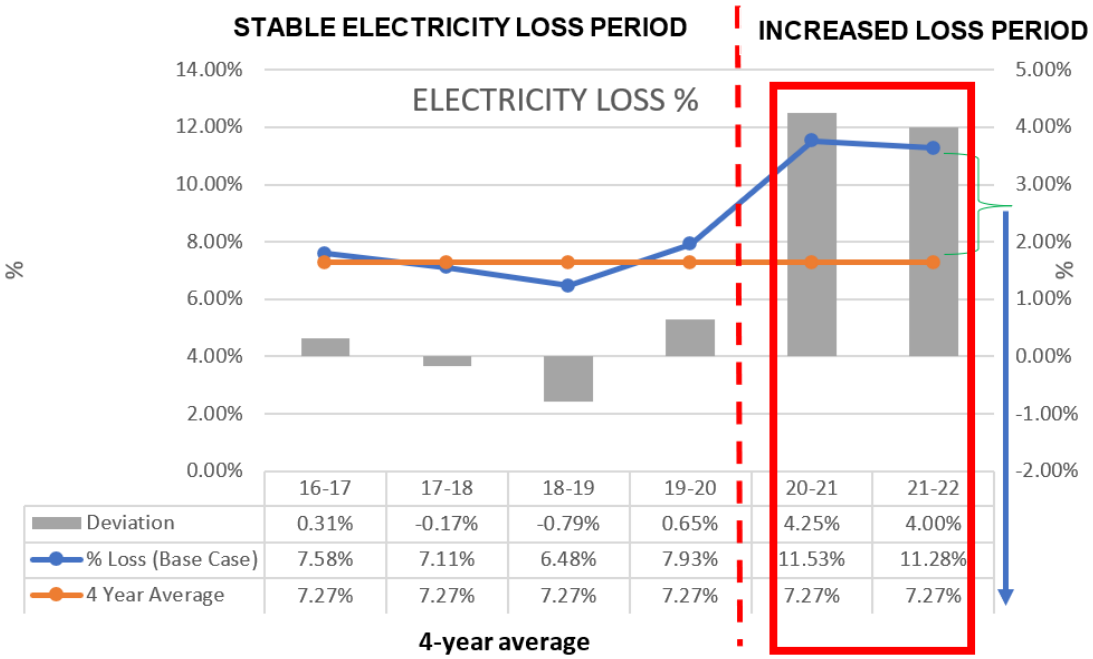


Figure 23 - Electricity losses

Figure 23, shows that electricity losses in eThekwini Municipality were historically well managed, remaining below 8 % and within the “good standard” of 10 %. However, since 2020, there has been a significant increase in losses, peaking at 11,53 % in 2020-21 and slightly reducing to 11,28 % in 2021-22. This is substantially higher than the previous four-year average of 7,27 %.

The rise in electricity non-technical losses can be attributed to three key factors. Firstly, The termination of the meter sweep contract in 2019 led to a gap in meter inspections, which only resumed in 2022. This lapse allowed for increased tampering and illegal connections. Secondly, the steady above-inflation electricity price increases since 2010 have made electricity less affordable, driving more consumers to bypass meters. Thirdly, uncontrolled growth of informal settlements has resulted in an exponential increase in illegal connections.

3.5 Outage management

EE has seen an increase in the number of reported outages due to various factors. Table 5 below shows that the number of faults attended to have almost doubled over the last ten years while the number of outages restored (performance) within 24 hours has halved, indicating that the Unit is unable to meet the performance target set. The increase in customer count and behaviour has also brought about additional outages. Load shedding and adverse weather conditions create abnormalities that also result in outages.

Table 5 - Comparative table of outage management performance

	2013-14	2022-23
Total complaints received	171 268	473 462
Total number of outages	81 366	112 815
Cumulative restored within 24 hours	59 093	23 326
Cumulative restored within 24 hours (%)	82,9%	40,4%

3.6 Quality of service

As part of the Quality-of-Service reporting requirements mandated by NERSA, municipalities are obligated to report annually on the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI). SAIDI represents the average duration of power outages experienced by customers and is calculated by dividing the total duration of all outages by the total customer base. SAIFI represents the average number of power outages experienced by customers. It is calculated by dividing the total number of outages by the total customer base.

These indices are used to evaluate performance and can assist in identifying areas for improvement in terms of reliability and customer satisfaction. To comply with this regulatory requirement, EE will need to work towards

automating the calculation process for these indexes. The ultimate solution would be the implementation of an Advanced Distribution Management System (ADMS). However, at present, the calculation is being performed manually, relying on assumptions that may not fully reflect the true performance levels, and there is no clear indication of the actual values for these indexes. A major challenge is the inability to accurately measure these indices due to limitations in data collection and outage tracking systems, hindering EE from effectively monitoring and improving service reliability.

3.7 Operations and maintenance history

By virtue of the fact, that EE operates under a license from NERSA, the NRS Grid Code and other NRS standards and requirements directly influence the level of service requirements for EE since there are guidelines, targets and standards set within these requirements. As seen in Figure 24 below, one of these requirements where EE has seen significant decline in the level of service over the past ten years is the number of forced power interruptions (faults). Not only has the number of forced power interruptions increased, but there has been a sharp increase in the number of interruptions that were restored after prolonged period, i.e. after 24 hours. The number of forced power interruptions is a clear indication of a poorly performing network. There is also a clear correlation between this trend of forced power interruptions and the trend of maintenance backlogs shown in Figure 25 below. It is evident that the increased maintenance backlogs (deferred maintenance) are contributing to forced power interruptions.

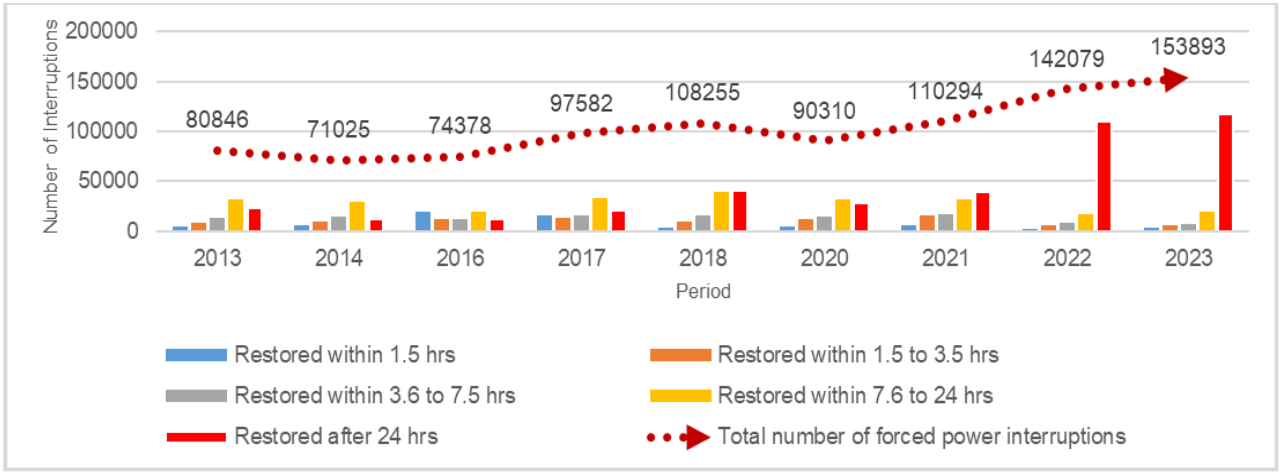


Figure 24 - Ten year trend of forced power interruptions (outages)

The graph below shows a trend of maintenance backlog over the past eleven years. This is a combination of both tactical and non-tactical work orders. EE's maintenance backlog has been increasing year-on-year. This can be attributed to the ageing infrastructure and delayed infrastructure replacement programs, resource constraints and other external factors such as theft of infrastructure and illegal connections. It is estimated that approximately R 1.25 billion will be required to overcome this maintenance backlog, assuming that human resources, tools and materials are available.

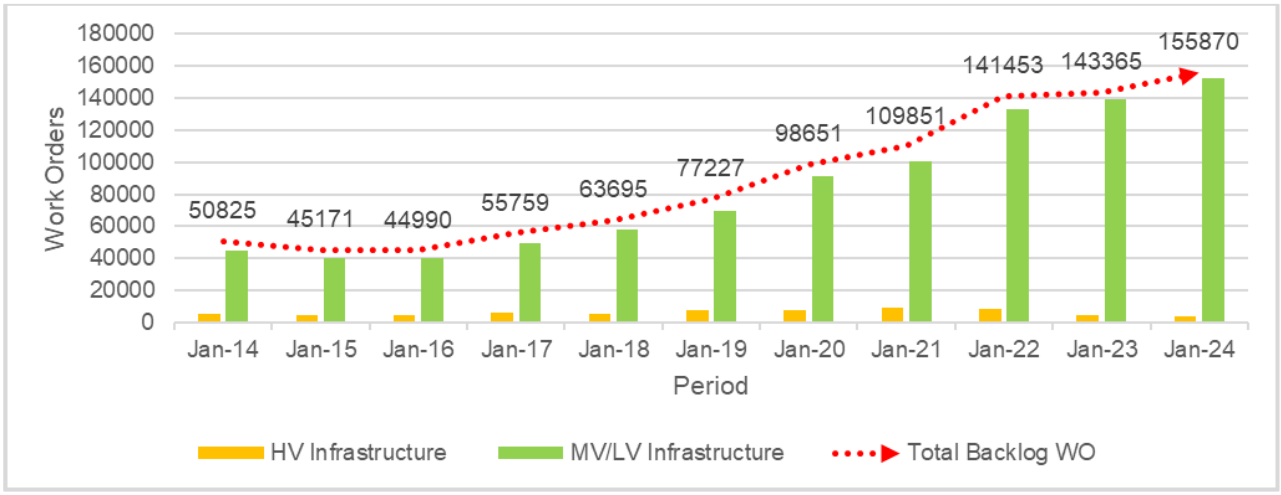


Figure 25 - Ten year trend of infrastructure maintenance backlog

3.8 Infrastructure theft

Figure 26 below provides an indication of direct financial loss suffered by EE because of infrastructure theft. These financial losses contribute to factors driving up costs of providing the essential electricity services. The funds used to address theft related incidents could be injected into various other electricity and municipal projects for social upliftment. Combating theft of infrastructure will require a multi-pronged approach including enforcement, adoption of technical and non-technical solutions. Technical solutions include the implementation of integrated substation security systems and non-technical solutions including increasing public awareness on impact of infrastructure theft.

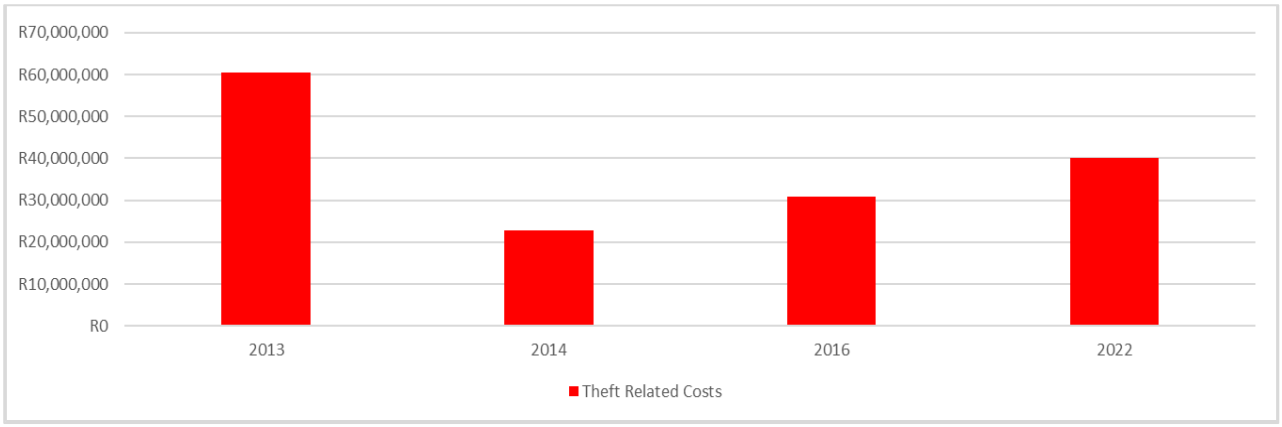


Figure 26 - Annual financial losses as a result of infrastructure theft

3.9 Call centre operations performance

The data from the EE Contact Centre over the years 2022 to 2024 reveals a clear trend towards improvement in customer service responsiveness across various communication channels. This analysis reflects the effectiveness of the strategic initiatives undertaken to enhance the operational capabilities of the Contact Centre.

In 2022, the overall response rate stood at 50 %, with traditional calls lagging significantly at a 35 % response rate. This was a clear indicator of the challenges faced by the Contact Centre in handling high volumes of calls efficiently. In contrast, WhatsApp demonstrated a robust performance with a 92 % response rate, signalling the potential benefits of digital communication tools in managing customer queries.

Recognising the limitations of traditional call systems, the Contact Centre introduced automated channels in 2023, which included a mobile app and an online portal. These platforms achieved a 100 % response rate right from their inception. This shift not only alleviated the load on traditional call systems but also streamlined the process of fault reporting and query handling, leading to an increase in the overall response rate to 63 %.

By 2024, further improvements were evident as the overall response rate climbed to 70 %. The sustained high performance of WhatsApp and automated channels underscored the success of the digitalisation strategy. Moreover, the call response rate improved significantly to 62 %, more than doubling from the initial figures in 2022. This improvement was largely due to refined operational processes, including optimised call-handling protocols and enhanced staff training programs.

The continuous refinement of the Contact Centre’s operations through the adoption of technology and better management practices highlights a proactive approach to addressing customer needs. By transitioning more customer interactions to automated and online platforms, the Contact Centre is not only improving its service delivery but also preparing to handle future increases in query volumes more efficiently. This strategy not only enhances customer satisfaction by reducing wait times and streamlining query resolution, but also positions the Contact Centre to manage the increasing complexity and volume of customer requests effectively.

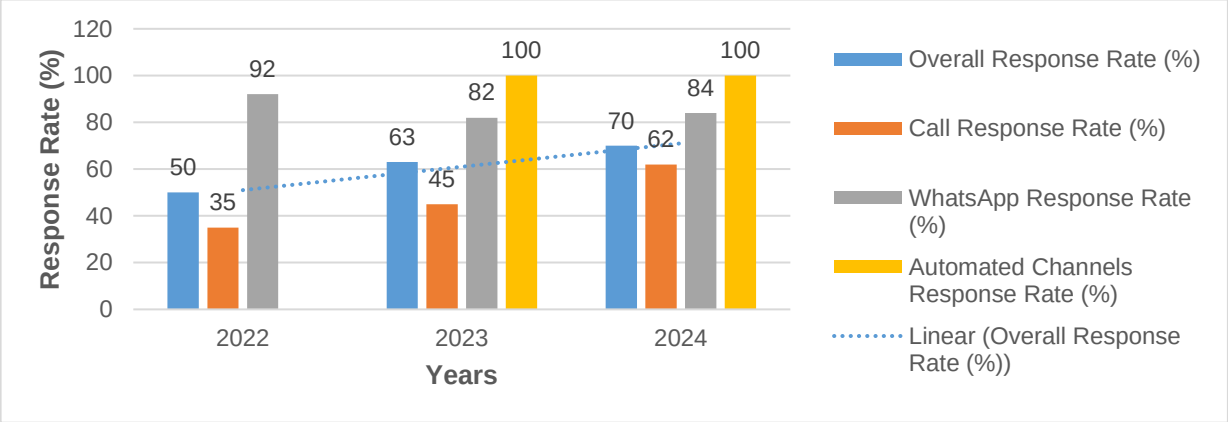


Figure 27 - Call centre performance 2022-24

3.10 Streetlighting performance

EE currently provides 235 000 public lighting installations across the city. This figure includes streetlights, high masts, park lighting, sports fields, bridges and subways, cemeteries, beaches, and all other unmetered lighting installations. Thirty percent of luminaires have been upgraded to LED, with 70 % still using high intensity discharge (HID) technology (metal halides, mercury, and sodium vapour). The maximum demand for lighting is currently 33 MW, compared to 40 MW when all lighting was using HID technology. The city's lighting consumption charges is approximately R400 million per annum.

EE is unable to provide statistics relating to streetlighting performance. In general, streetlighting performance is negatively affected by infrastructure theft and these theft incidents are a major contributor to the rising number of work orders related to streetlighting work as shown in Figure 28 below.

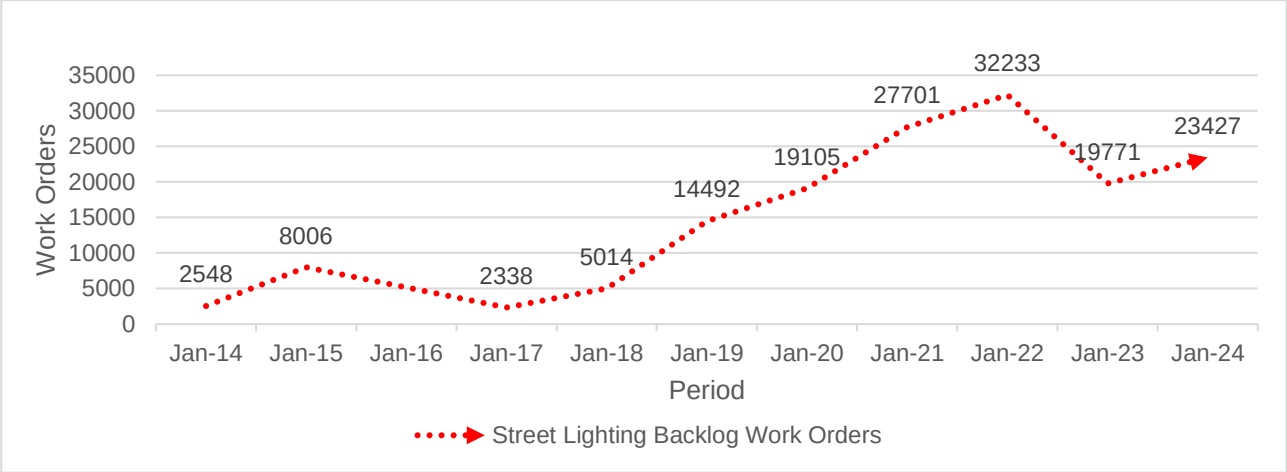


Figure 28 - Ten-year trending of street lighting maintenance backlog work orders

3.11 Staff productivity

There are many factors which negatively impact on overall productivity of field teams, whose performance is measured by the Electrical Work Assessments Branch. Some of these factors are:

1. Poor work culture and a lack of an entrenched value system, with cardinal rules.
2. Lack of basic tools to monitor staff.
3. Frequent stock-out of materials.
4. Poor vehicle availability..
5. Insufficient tools and equipment.
6. Inadequate number of competencies held by field teams, including Superintendents and Clerk of Works, leading to poor levels of workmanship and high failure rates.

There is also a need to measure and improve the productivity levels of office-based staff.

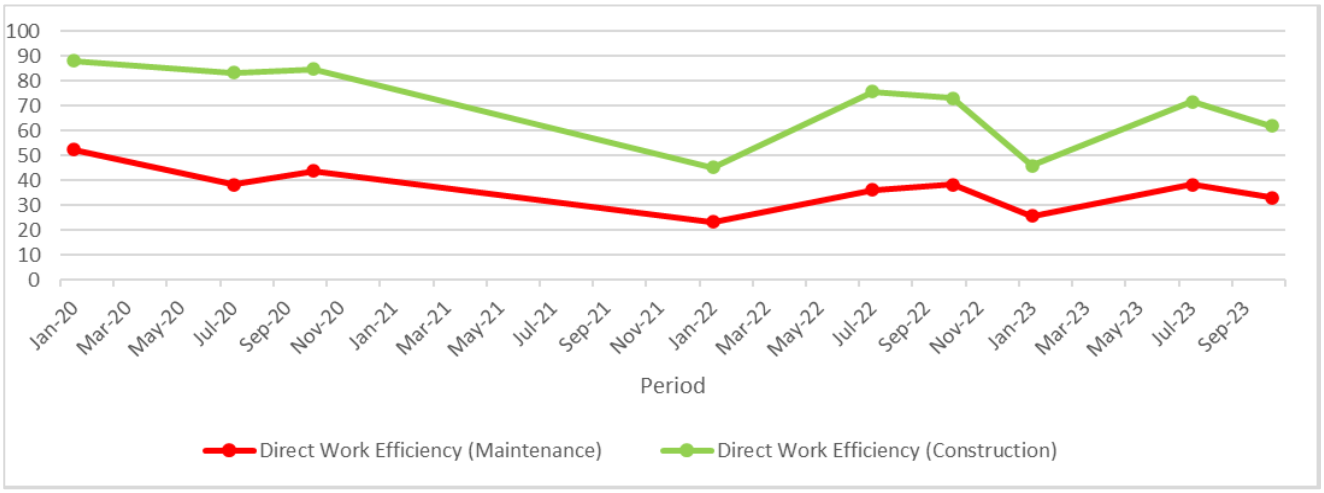


Figure 29 - Productivity trend of field employees

4.0 Challenges and underlying causes of underperformance

This section details the challenges and underlying causes which necessitate the implementation of a reform strategy for electricity services at eThekwini Municipality.

4.1 Sustainability of electricity trading service

Trading services in metro areas are expected to be sustainable, funded by their own service charges. They should not rely upon property tax revenues to achieve sustainability. Unfortunately, the electricity trading service has been on a downward trend, producing losses in the last three years. A continued negative trend will result in the trading service becoming increasingly dependent on property tax for sustainability (National Treasury, 2024).

A key measure to track financial performance is the operating cost to coverage ratio. This measures the extent to which the service can cover its operating costs and contribute to capital costs. The operating cost coverage ratio for EE has declined from 1,19 in 2019 down to 0,97 in 2023. This means that the operating revenue is only sufficient to cover 97 % of the direct operating costs resulting in a direct operating deficit for EE.

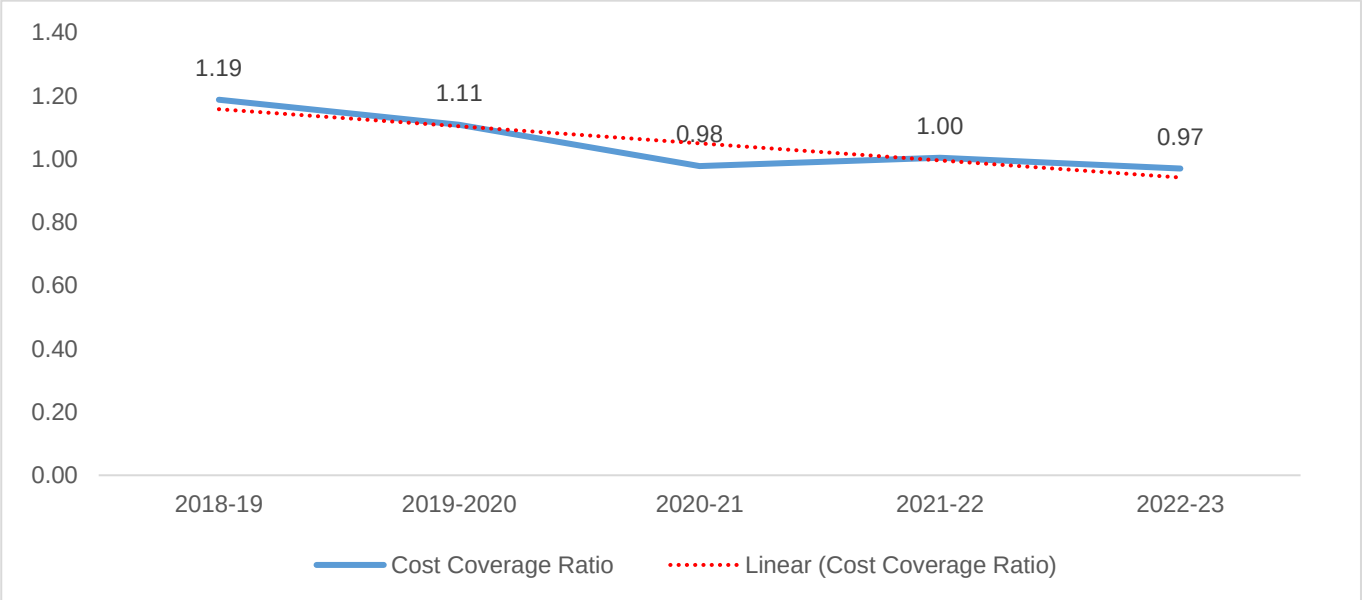


Figure 30 - Cost to coverage ratio

The causes for poor financial performance include:

1. Inability to recover all costs associated with electricity services due to regulatory misalignment.
2. Loss of revenue due to load shedding.
3. Loss of revenue due to customers installing small scale embedded generation systems.
4. Increase in operating expenditure from bad debts due to poor economic climate.
5. Increase in operating expenditure from non-technical losses.
6. Increases in operating expenditure from poor operational performance due to in-efficiencies in support activities.
7. Increase in operating expenditure inherited from support services. There has been very large, costly, and increasing operating inefficiencies, leading to widespread, long-term, and serious declines in the reliability and quality of services.
8. Increasing cost due to maintenance backlog.
9. NERSA regulated tariff increases.

4.2 Long term capital under investment

Electricity services are recognisably caught in a self-reinforcing downward spiral (with an increasing pace of decline) involving long-term and substantial under-investment in maintenance, rehabilitation, and new infrastructure (very large investment gaps) (National Treasury, 2024).

It is well-established that there is widespread and long-term under-investment in metro bulk infrastructure, specifically electrical infrastructure to the extent that infrastructure failures now threaten city social wellness and economic performance (National Treasury, 2024). The long-term underinvestment is resulting in power capacity constraints in certain areas e.g. Westmead. Many high voltage substations are operating beyond firm design capacity as can been seen in Table 6 below.

Table 6 - Example of HV substation peak loading

Subtation	kV	MVA @ System Peak i.e. 2023-07-20 @ 18:3	Peak MVA of Substatic 2023	Designed Firm Capacit	Designed Installed Capaci	Peak MVA/Designed Firm Capaci
Addington	132/11	20	29.3	60	120	0.49
Alice Street	132/11	31.7	49.3	30	60	1.64
Avoca	132/11	36.4	40.1	30	60	1.34
Bayhead	33/11	2.5	4.5	15	30	0.30
Beachwalk	132/11	8.8	18.9	30	60	0.63
Berea Park	132/11	20.2	31.4	30	60	1.05
Blair Atholl	132/11	33	38.2	60	120	0.64
Cathedral Road	132/11	4.9	17.3	30	60	0.58
Cato Street	132/11	8	17.2	30	60	0.57
Chamberlain Road	33/11	12.9	19.4	15	30	1.29
Chatsworth	132/11	52.3	62.7	60	120	1.05
City Central	33/11	4.6	11.7	15	50	0.78
Clayfield	33/11	14.1	16.5	1	25	16.50
Clermont	132/11	35.6	43.6	60	120	0.73
Congella	132/11	17.5	20.9	30	60	0.70
Congella	132/33	6.8	35	80	160	0.44
Connaught	33/11	10.3	21.3	25	50	0.85
Dalton Road	132/11	21.0	27.8	60	120	0.46
Durban North	275/132	159.3	258.7	315	630	0.82
Durban South	275/132	198.2	201.2	630	1260	0.32
Eastbury	33/11	19.5	26.3	1	25	26.30
Engen Tara 2	132/11	6.2	6.9	60	120	0.12
Esplanade	33/11	0.3	6.7	25	50	0.27
Frametex	132/11	3.8	6.5	30	60	0.22
Fynnlands	132/11	10.2	16.5	60	120	0.28
Gateway	132/11	21.4	34.8	60	120	0.58
Glen Ashley	33/11	4.5	6.4	25	50	0.26
Glenwood	33/11	5.0	13.7	15	30	0.91
Greenbury	132/11	15.0	32.3	60	120	0.54
Gyles	33/11	9.5	17.1	15	30	1.14
Havenside	132/11	33.3	42.2	60	120	0.70
Hillcrest	132/11	39.8	49.2	60	120	0.82
Isipingo	132/11	24.4	35.0	30	60	1.17
Isipingo	132/33	12.8	22.0	40	80	0.55
Jacobs	132/11	32.7	48.3	60	120	0.81
Jameson Park	33/11	8.0	15.2	25	50	0.61
Karim Lane	33/11	9.7	22.1	15	30	1.47
Kingsburgh	132/11	35.5	43.0	30	60	1.43

There have been catastrophic failures of aged infrastructure resulting in poor service delivery. The municipality is exposed to a known risk of additional failures where assets are being operated beyond their design life. The long-term failure to allocate sufficient necessary capital funding or, correspondingly, to adequately spend allocated funds for construction and maintenance of infrastructure needs to be addressed. The causes of underinvestment include:

1. Inability to afford the cost of capital due to declining service delivery and financial performance of EE.
2. Reliance on centralised city functions.
3. Mandatory contributions to city.
4. Reprioritisation of capital funds to address damages from 2021 riots and April 2022 floods.
5. Lack of adequate funding for new connections.

4.3 Complexity of governing electricity trading service due to centralisation

The structure and governance of electricity services at eThekwini Municipality, are such that decision-making authority (e.g. capital investment and tariff decisions – units, council and NERSA), and key parts of operational performance (such as supply chain management, billing, and collection) is diffused over multiple units. This has resulted in overly complex governance of electricity services. The cause of this challenge could be attributed to the centralisation of support services (National Treasury, 2024).

NT has noted that essential components of the electric utility value chain (meter management, billing, collection), and support services (Finance, SCM, HC, Fleet) are provided centrally as a shared service (National Treasury, 2024).

The benefits of centralisation were meant to be consistent decision making across the municipality and lower cost of support services through economies of scale. While consistency in decision making is a good practice, the significant changes occurring within the electricity distribution sector (SA energy crisis) requires agility and swift decision-making unique to the sector.

There is an urgent need to confront the changes in the markets for power (an increasingly open and competitive market; changes in technology mix, customers generating their own power, business model changes (energy to network), and possibilities for municipalities to generate power themselves). This will be better supported by operating a decentralised Electricity Business Unit with autonomy to navigate this complex business environment (National Treasury, 2024).

4.4 Impact of support services on capital spend

The poor performance of support services to EE had a significant impact on the HV Operations Department's poor investment history as outlined in section 2.4. The pipeline of projects in planning, ready for construction hand over and/or in construction phase, amounts to approximately R3,2 billion. The estimated completion dates for these projects covers the period 2024 to 2031. Securing capital funding for completing these projects will be a challenge. Some of the underlying causes of the poor capital expenditure created by support services include:

1. Unspent capital funds were declared as savings and were lost to the EE.
2. Delay in infrastructure builds resulted in increased costs due to inflation.
3. SCM challenges related to the processing of tenders.
4. Contracts and their contract values are often capped to planned projects for 36-month period due to challenges in applying the MFMA section 33 process for contracts longer than three years.
5. The high voltage substation build schedule is dependent on five main contracts. One inactive contract leads to schedule delays to multiple projects.
6. Insurers not timeously settling claims for HV infrastructure damaged during April 2022 floods.

4.5 Challenge of financial information

National Treasury have noted that the sustainability of electricity services is in question. The challenge is complicated due to inadequate utility-level financial information, especially regarding balance sheets and cash flows. Given the condition of the assets and the conversion of revenue into cash, these statements are critical for utility management and analysis. (National Treasury, 2024).

4.6 Challenges in asset operations

4.6.1 Ageing infrastructure

Many parts of the electricity distribution system are in the advanced stages of their lifespan and close to reaching the end of its operational life. This is leading to increased outages, maintenance costs, and the need for extensive upgrades.

The age distribution of critical and high value assets is illustrated in Figure 31 below, it shows that a significant volume of assets has exceeded a 30-year life. Replacing those assets will be expensive and inevitable in the long-term, given that the expected useful life (EUL) of most of these assets is generally between 20 to 40 years. Although age does not provide any conclusive information on the state of an asset or the need to refurbish, or to replace, it does provide a good overview of the extent of the task at hand. One of the biggest risks that EE is currently facing in respect of HV infrastructure has been the very slow delivery of HV projects (new, renewal and refurbishments). This has been largely due to shortage of resources, SCM delays/issues and more recently limited project funding. As the infrastructure ages, smoother renewal programmes become essential and current delays will result in extreme peaks in asset refurbishment/replacement needs. These may then result in financial distress and potentially sudden and sharp increases in rates and tariffs, due to overloading of the ability of the city to implement and manage renewal programmes. With respect to medium voltage assets, while some of the replacements have been as a result of network capacity expansion and pro-active replacements, a large percentage has been through forced replacements as a result of theft and vandalism of infrastructure as well as failures emanating from overloaded equipment, resulting from illegal connections.

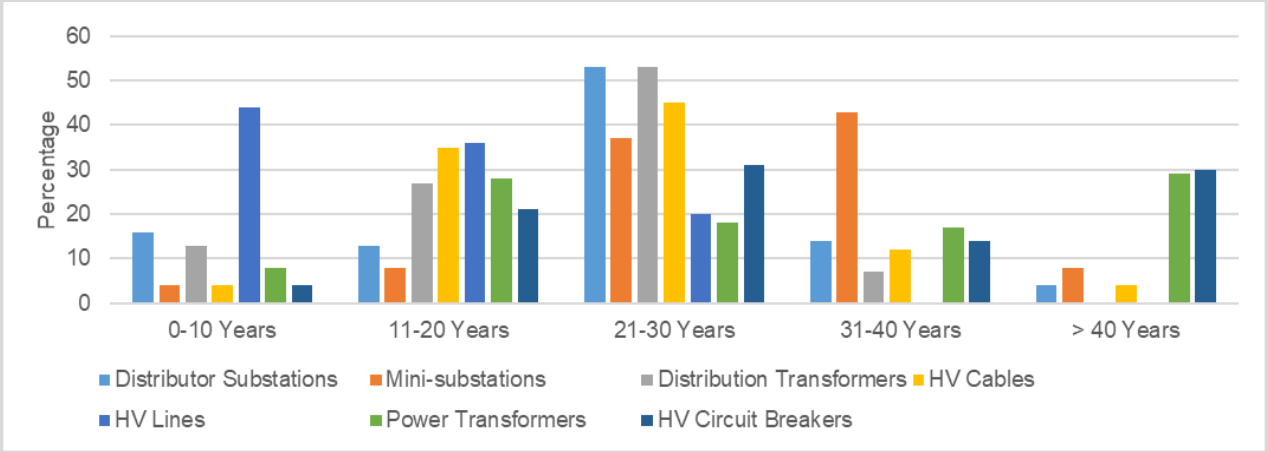


Figure 31 - Age distribution of critical, high and medium voltage assets

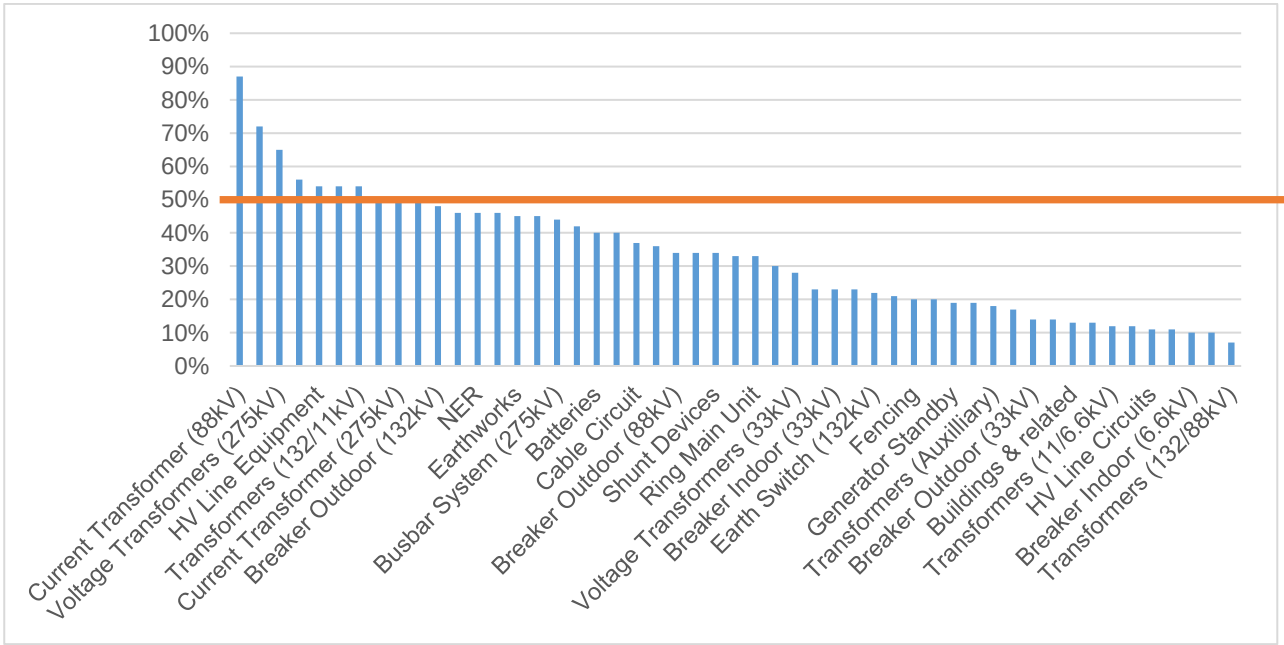


Figure 32 - Remaining lifespan of high voltage infrastructure

4.6.2 Maintenance

EE is caught in a negative loop with respect to access to operating funds to maintain and capital funds to replace. Figure 33 below shows a clear distinction of the difference in cost required to maintain a distributor substation vs the cost of replacement. The costs of maintenance are approximately 4% of the costs of replacement.

EE currently has limited funding available within the operating budget to maintain its infrastructure. This often results in maintenance cycles of equipment being missed to cater for more urgent requirements that have been deemed a priority. Delayed maintenance cycles however can lead to premature failure of equipment thus resulting in replacement of equipment that would require to be undertaken in the capital budget which is also constrained.

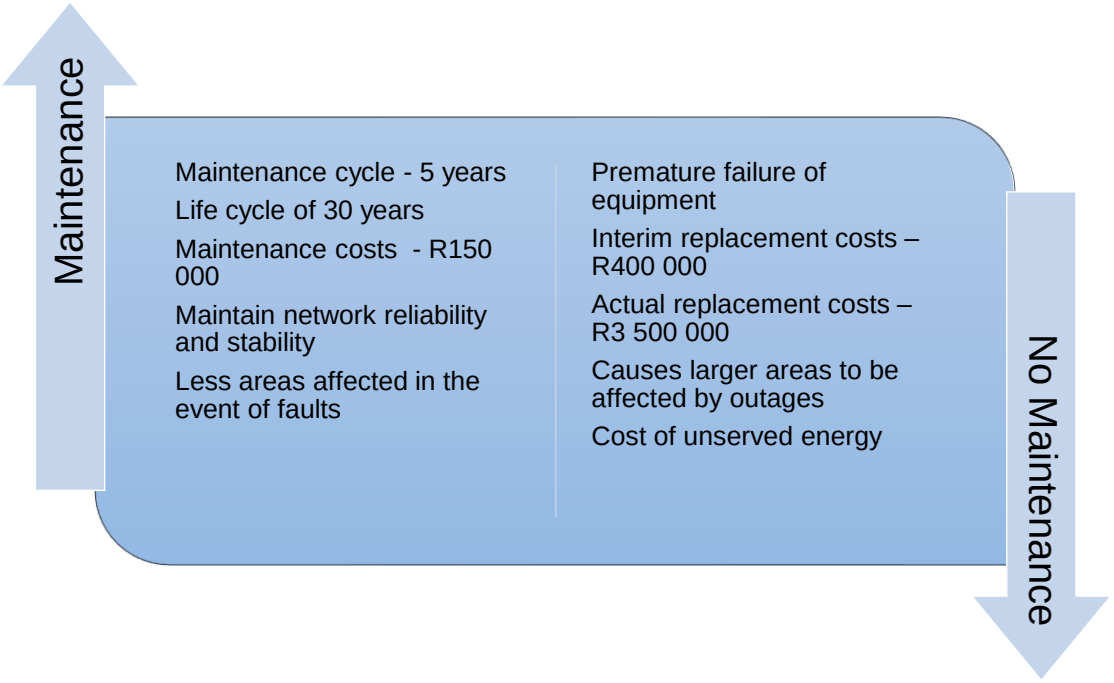


Figure 33 - Effects of 11kV substation maintenance versus no substation maintenance

4.7 Customer service

4.7.1 Connections – electrification

EE's electrification programme includes the provision of subsidised connections to informal settlements and housing developments. The benefits of the programme include increased safety and reduced risk of fires, improved quality of life for the beneficiaries and restoration of human dignity. The project execution is dependent on human settlement readiness and funding availability. The average funding required per annum is R120 million. It is dependent on the cost per connection and excludes high voltage and medium voltage infrastructure costs. There are currently challenges which have contributed to the backlog in electrification. Households located in encumbered areas, infills resulting from new dwellings after the project has been completed and re-servicing fire damaged settlements contribute to the electrification backlog.

4.7.2 Connections - catalytic projects

Customers are paying for connections, but the funds are not earmarked for EE to undertake the work, leading to litigations. Underlying causes include lack of financial transparency and poor accounting practices adopted by the Expenditure Unit.

4.7.3 Outage management

EE's Network Control Branches rely on an Enterprise Resource Planning (ERP) system to undertake customer call management, outage management and reporting. As the ERP is not designed for these functions, outage management processes are manual and are scattered over several systems and tools. These systems and tools include (but are not limited to) ERP System, Supervisory Control and Data Acquisition (SCADA) system, mimic board, Computer-Aided Design (CAD) network diagram, manual spreadsheets, and Word documents. Referring work for restoration and repairs is manual and does not allow automated feedback of the progress. All of these contribute to the inefficiencies of the business processes which results in a lack of timeous feedback to the customer, longer outages, and lower customer satisfaction levels.

To address all these issues an ADMS is required. Previous attempts to implement an ADMS system failed due to the following reasons:

1. Project overran (2008-2020) before all its components could be delivered.
2. EE was not ready for the critical data required, namely geo-network connected data and customer network links.
3. EE did not have the right skills within the business at the beginning of the project.
4. Lack of prioritisation of capital funding or access to capital funds.

4.8 Leadership and management

NT has noted a decline in the presence of professional and capable staff to not only manage the utilities but also to lead in decision-making and navigating dynamic political and social contexts. EE is held accountable for service delivery; however, it does not have autonomy on decision-making. This has a detrimental effect on EE's ability to control and manage these functions.

One of the strategic goals of EE is to have a leadership team that is visionary, approachable, and professional, and have a workforce that is motivated, skilled, and customer focused. This goal can be achieved through improved transversal management of support services to ensure that all parties fulfil their role in the electricity value chain.

In addition to the above, the corporate machinery of the municipality, which oversees a multitude of different "businesses," each with its own dynamics, has attempted to manage this complexity with one set of policies, processes, procedures, and business tools, which are then provided to management from each specific business unit. It is therefore imperative for the leaders and senior management of EE to be given the latitude to craft its own tailored responses, in providing enhanced service delivery.

5.0 Self-Assessment of governance of electricity trading service

5.1 Current management structure

Figure 34**Error! Reference source not found.** below is an illustration of the EE's Executive Structure.

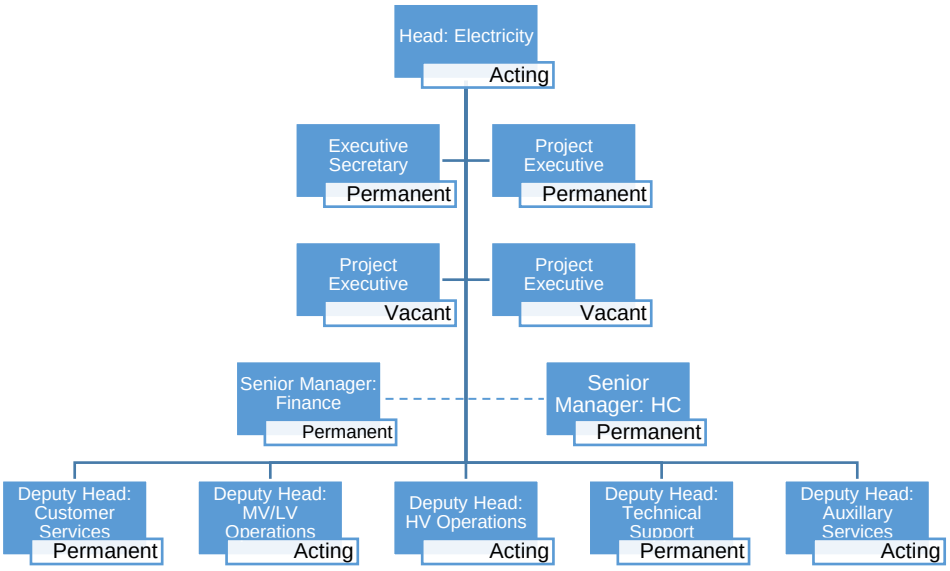


Figure 34 - Current executive organisation structure of EE

EE's Executive Management team has 10 posts. As illustrated in **Error! Reference source not found.** above, only 4 of these posts are currently filled by permanent incumbents. The Executive Management team is responsible for overseeing the operations and activities of EE and their respective Departments. They are also key to setting strategic direction and steering EE towards achieving its long- and short-term goals. The consequences of a high number of vacancies in these key strategic positions include a lack of effective leadership and decision-making, limited organisation accountability which create negative impacts on financial sustainability and a decline in service delivery outcomes.

Centralisation of functions has resulted in the Senior Manager: Human Capital reporting to and accountable to the Deputy Head: Human Capital (Trading Services) and has a secondary reporting line to the Head: Electricity, hence forms part of the EE Executive team. The Senior Manager: Finance has a secondary reporting line to the Head: Electricity, hence forms part of the EE Executive team.
The graph below illustrates the total number of vacancies, the number of funded vacancies and the vacancy rate for the period from 2015 to 2023.

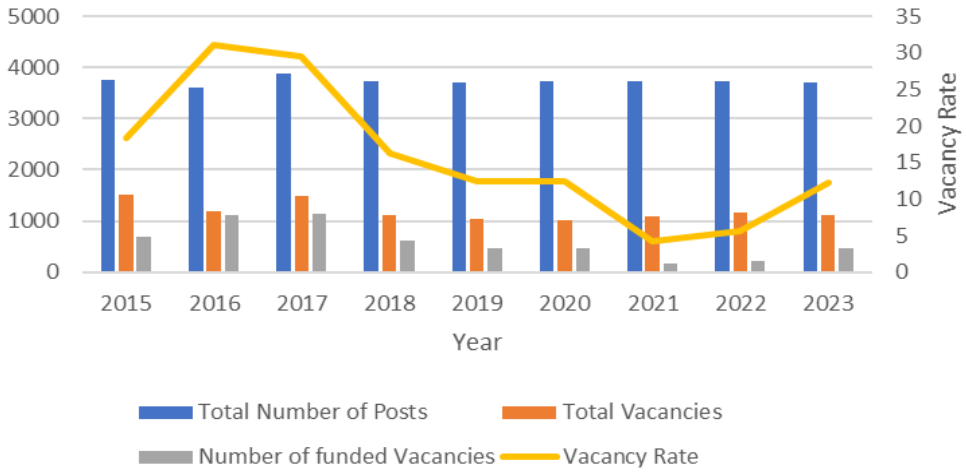


Figure 35 - Vacancy statistics

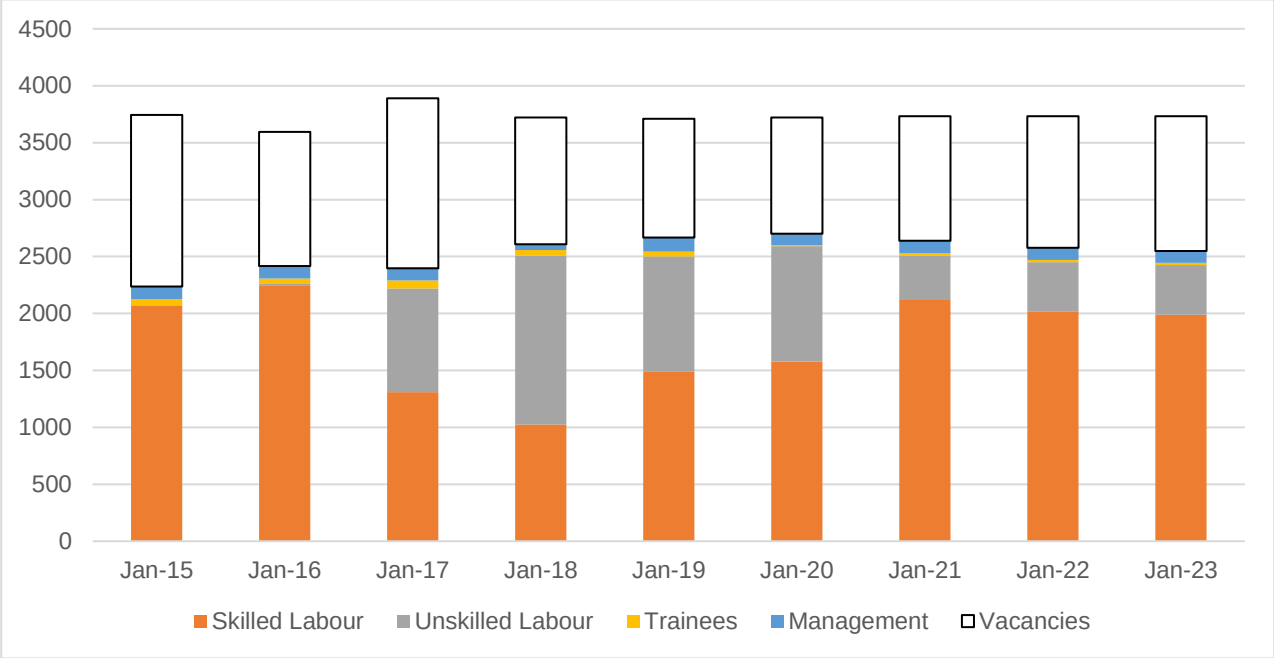


Figure 36 - HC statistics

It should be noted that in recent years EE has seen a significant increase in the number of skilled labour incumbents it has in its employ. This is because of focussed initiatives to recruit new skilled staff and train and develop existing staff.

5.2 Human Capital Branch

The Human Capital (HC) Branch provides integrated HC management service that should be responsive to the needs of EE. It aims to lead in the application of legislation, collective agreements, policies, and procedures consistent with the eThekwini Municipality's overall strategic objectives, and service delivery mandates. HC aims to foster a strategic business partnering with EE in the delivery of excellent customer service through an empowered, engaged, competent and inspired workforce. It offers the following general and specialised HC services to EE Management:

1. Development and updates of employment policies and SOPs used by HC Unit to deliver effective and efficient services to line management.
2. Job evaluation and grading.
3. Employee attraction and onboarding (recruitment, selection, and appointment of staff).
4. Performance management.
5. Integrated talent management.
6. Transformation, diversity, and inclusion (employment equity).
7. Employment relations: consultation and management of collective agreements, conditions of service, etc.
8. Employee wellness: management of sick leave, absenteeism, injury-on-duty, incapacity ill-health, awareness creation, etc.
9. Remuneration and benefits.
10. Human capital information systems (HCIS), data integrity, and administration.
11. Human capital compliance, risk management and business continuity.
12. Business communication and engagements: (Cluster/Unit Meetings, LLFs, HRDC, bilaterals, etc.).

Some of the inefficiencies identified with the human capital service to EE includes the long turnaround time when filling vacancies (currently seven signatures are required in the approval process), unresponsive bureaucratic recruitment and selection processes and protracted institutional review processes.

5.3 Administration Branch

The Administration Branch is responsible for, various general administrative functions, which include document management, word processing, micro-filming, fleet management, facilities management, and security of buildings and personnel.

The Fleet Division is responsible for the acquisition, servicing, maintenance, usage, and disposal of the fleet for EE. The fleet size is 1 282 operational vehicles and plant, consisting of various types of cranes, aerial platforms, trucks,

bakkies, cars, generators, trailers, and compressors. Much of the fleet are specially modified vehicles, which are adapted to best suit the operational work activities, undertaken by technical staff.

Some of the challenges with the City Fleet Vehicle Supply and Repair Services includes the lengthy turnaround times for the servicing and repairs of vehicles and the existing SLA with City Fleet requires review as there are no penalty clauses for poor performance.

The Building Division is responsible for the repair and maintenance of the buildings via the Architecture Department. Challenges with the Architecture Department includes protracted processes to design, construct and maintain buildings and critical facilities. The slow turnaround times and/or lack of service delivery places Managers at risk to be legally liable for fines/prosecution in terms of the Occupational Health and Safety Act. The existing SLA with Architecture Department requires review as there are no penalty clauses.

5.4 Information Communication Technology Branch

The EE ICT Branch is responsible for end user support, data centre and ICT network management, development of systems, support to prepaid vending systems, DA applications, industrial control systems (ICS), supervisory control and data acquisition systems (SCADA), technical APN/VPN systems, advanced metering infrastructure, smart metering, Revenue Protection Systems, 24/7 Control Rooms, Contact Centre, etc. The ICT Branch continued to adhere to sustainable business operations practices by developing and supporting new digital platforms and services including chatbots and faults reporting applications to support the core business functions at EE and to all stakeholders.

Corporate IMU manages services relating to the WAN network, internet, Microsoft, and procurement of certain IT equipment. The support functions from the corporate IMU are not readily available 24/7 for EE's operations and this requires review to improve the level of service.

The JDE system is used to manage financial systems and the Ellipse system is used to manage the operations. Integration challenges relating to systems need to be addressed as soon as possible, in line with MSCOA requirements, in order to improve efficiencies and materials management.

5.5 Supply Chain Management Branch

The SCM Branch is responsible for all procurement processes, contracts, stores, and warehousing. As such it ensures that there are adequate materials available for operations, manages contracts in terms of SCM processes and ensures that the stores are properly managed. The main challenge is delays in the SCM Processes.

Challenges related to materials management

Of particular importance, EE has noted a range of challenges related to materials management. Materials costs have been increasing annually as can be seen in Figure 37. This rapidly rising cost in materials requires further investigation. In addition, there are issues relating to stock outs and stock management.

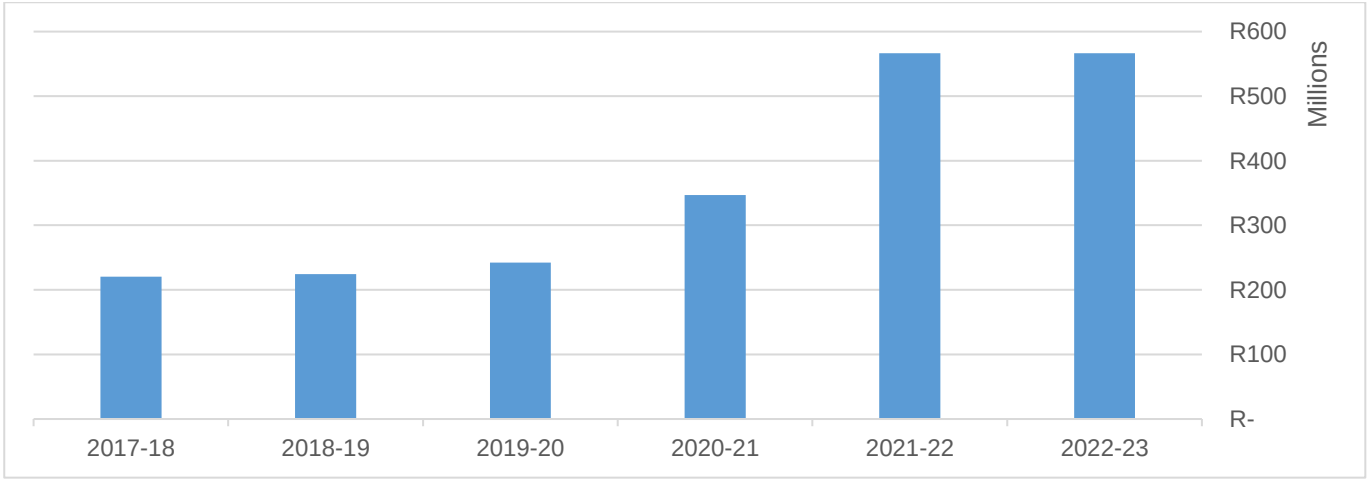


Figure 37 - Materials costs per annum

6.0 Outline of reform strategy

EE's trading service reform strategy aims to improve electricity service delivery by improving management and governance, optimising primary and support operations to increase cash revenue and capital investment, to create a positive reinforcment cycle of growth and sustainability of EE. This concept is illustrated in Figure 38 below.

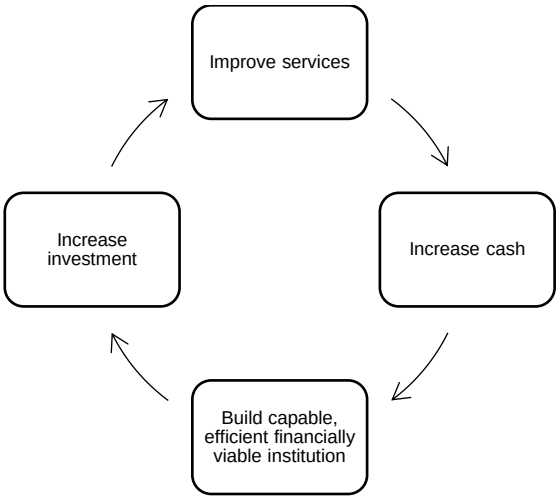


Figure 38 - Positive reinforcement cycle

The strategy is under pinned by the seven-box framework recommended by NT. The framework is illustrated in Figure 39 below. The framework recommends that the strategy include the following elements to ensure success:

1. customer service and trust since service delivery depends upon customer trust and satisfaction;
2. sound finances necessary to maintain and invest in assets;
3. asset maintenance and operations;
4. investment in new assets;
5. properly motivated and skilled staff, underpinned by effective support systems;
6. sound governance and a supportive enabling environment; and
7. leadership and professional management with the vision, strategy and execution capacity required to achieve the outcomes required (National Treasury, 2024).

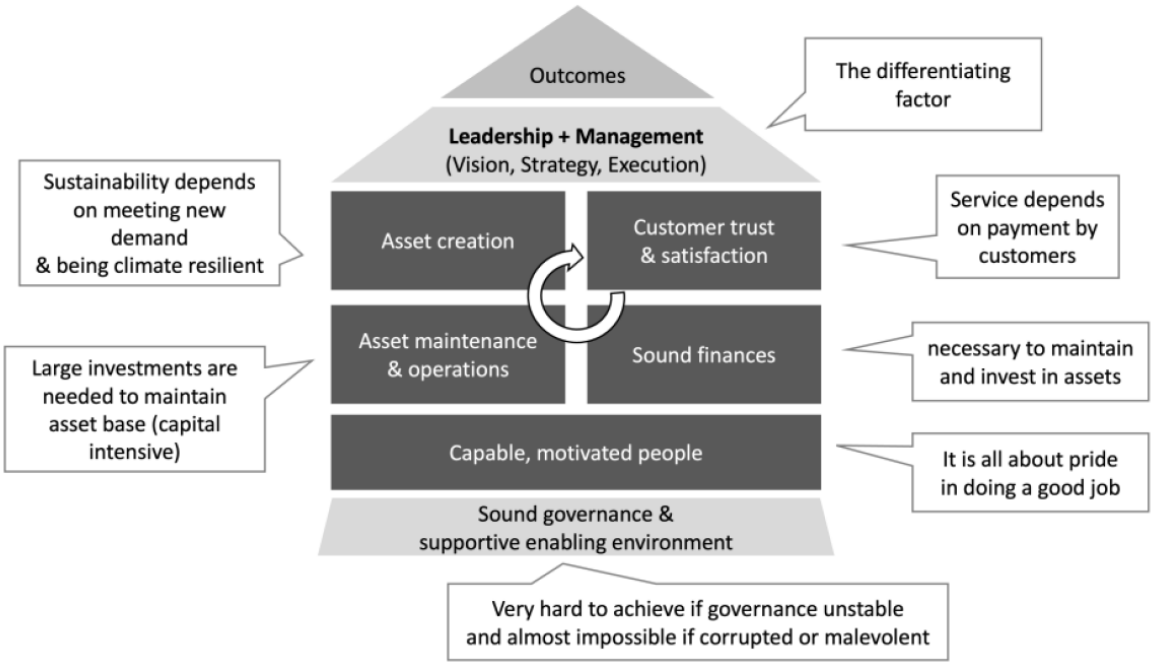


Figure 39 - Seven box framework

Figure 40 below illustrates the direction for a positive turnaround of EE. The reform strategy shall commence with establishing a single point of management accountability to account for electricity service delivery and have the necessary authority to implement changes required to restore agility and sustainability to EE. A single point of management accountability can proceed to make institutional and governance reforms to optimise primary and support activities for electricity operations. A single point of management accountability will be able to make decisions, considering all factors such as financial, operational, and technical performance. The institutional changes will include the integration of support services, and a fit- for-purpose structure to efficiently and effectively deliver electricity services.

It is envisioned that the improved service delivery will result in increased revenue. In addition, the institutional changes will enable operational efficiency initiatives to reduce operating expenditure.

The compounding increase in revenue will result in a surplus that can be used to obtain additional capital funding which in turn will be reinvested into the network. The increased investment into the network will further improve service delivery creating a positive reinforcement cycle.

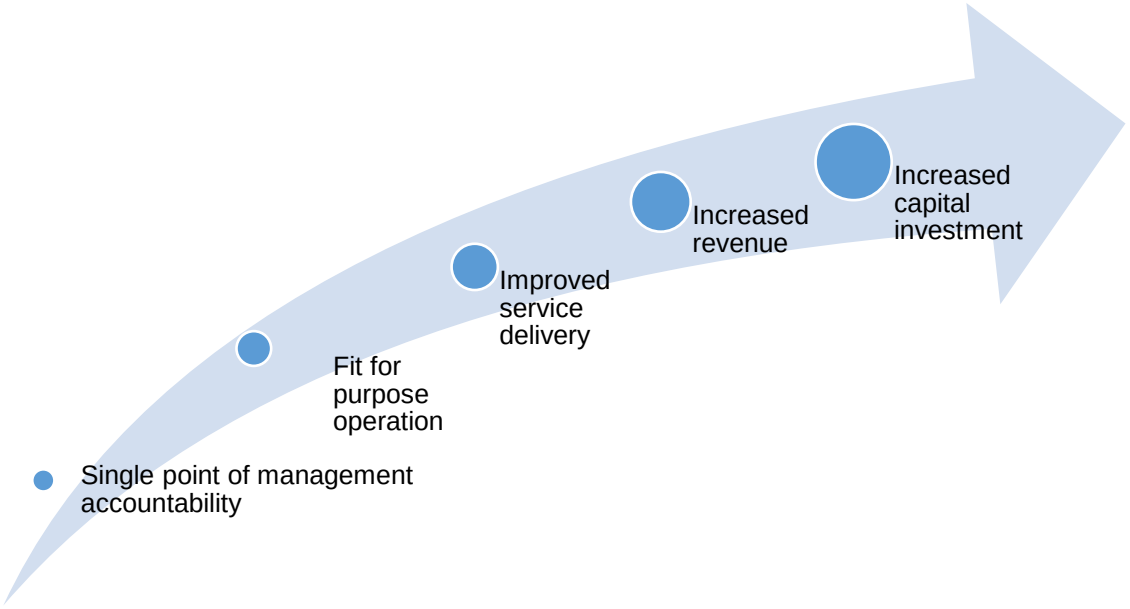


Figure 40 - Strategic direction for a positive turnaround of EE

Figure 41 below is a conceptual diagram which illustrates how the reform strategy can be integrated with the seven-box framework to achieve a successful reform of electricity trading services.

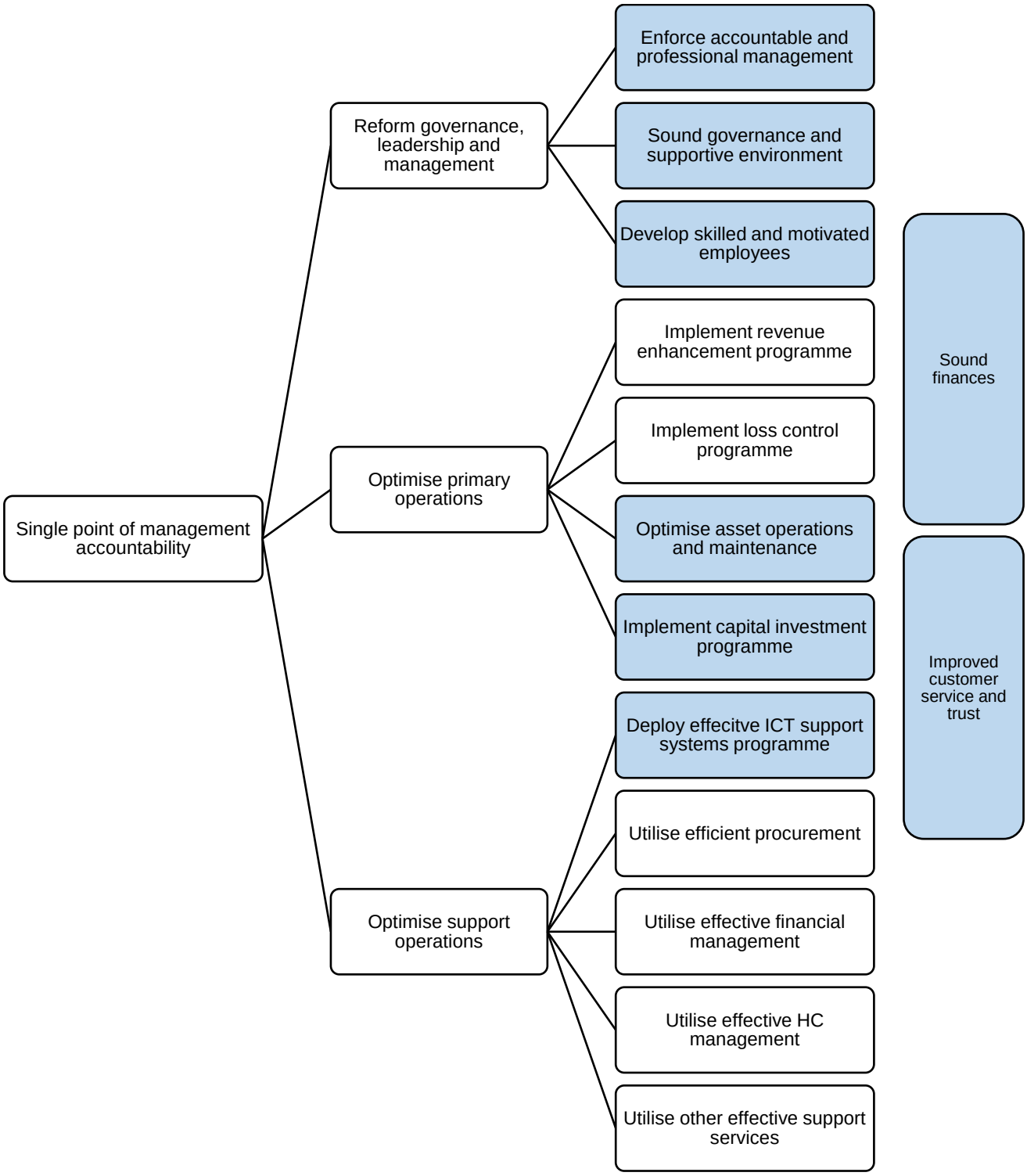


Figure 41 - Conceptual diagram of reform strategy integrated with seven box framework

7.0 Priority goals and targets for reform strategy

Five strategic goals have been set to provide direction in achieving a turnaround in delivering electricity services and ensuring financial sustainability of the trading service, namely:

1. Establish a single point of management accountability for the delivery of electricity services.
2. Optimise primary operations to deliver services efficiently to customers.
3. Optimise support operations to deliver services efficiently to primary operations.
4. Turnaround cash revenue to deliver a surplus to sustain operations.
5. Increase investment into electricity operations to increase revenue and ensure efficient and sustainable service delivery.

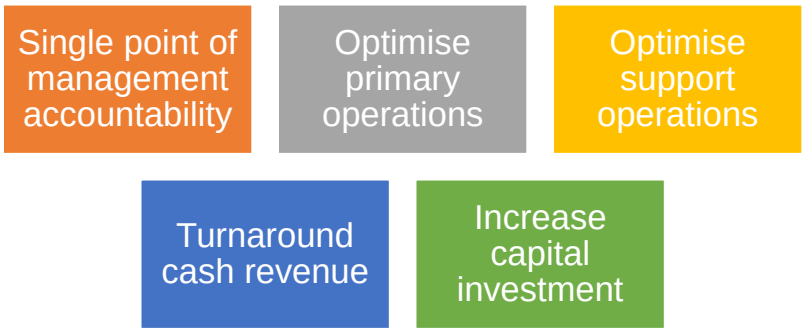


Figure 42 - Five strategic goals

Figure 43 below illustrates the anticipated timeline and sequence of benefits realisation from achieving the strategic goals.

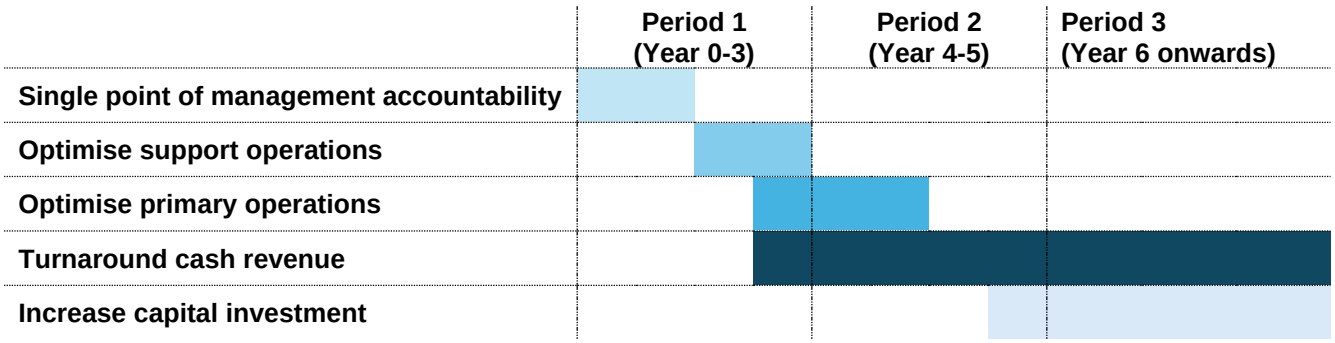


Figure 43 - Sequence and timeline of strategic goals

Table 7 below details aspirational performance measures that have been identified for the five strategic goals. The aspiration performance measures reflect the minimum performance needed to operate efficiently.

The ability of Electricity Unit to achieve its aspirational performance measures is contingent upon institutional reforms that establish a single point of management accountability and a suitable organisational structure. This emphasis is crucial, as a well-organised and efficient entity with the necessary resources and delegated decision-making autonomy is essential for the successful implementation of this reform strategy.

Table 7 - Aspirational performance measures

No.	Goal	No.	Performance Description	Immediate (Within 100 days)	Period 1 (4 months-3 years)	Period 2 (4-5 years)	Period 3 (> 5 years)
1	Establish single point of management accountability	1.1.	Delegation of Authority for a single point of management accountability to the Head: Electricity within 3 months of Council approval of the Strategy.	100%			
		1.2.	Establish a single point of management accountability within Period 1 - 36 months of Council approval of the strategy through delegation or change of reporting lines.		100%		
2	Optimise Support Activities	2.1.	ICT/Governance - provide a fully integrated Enterprise Resource Planning (ERP) system to measure and control business processes in compliance with MSCOA tailored for electricity distribution utility.		100%		
		2.2.	ICT/Governance - increase productivity of staff through providing efficient ICT resources.		100%		
		2.3.	SCM - process tenders within a 6-month time frame.		100%		
		2.4.	SCM - achieve zero stock outs of materials by the end of period 2.			100%	
		2.5.	HR – complete organisational changes within 6 months of being granted single point of management accountability for key/critical minor amendments.		100%		
		2.6.	HR – complete staff recruitment within 6 months of RTF approved.		100%		
		2.7.	Facilities – construct substation buildings within 18 months of need being identified.		100%		
		2.8.	Facilities – construct office buildings within 24 months of need being identified.			100%	
		2.9.	Facilities - minor building repairs completed within 1 month.		100%		
		2.10	Facilities – Remedial work on substation building repairs completed within 3 months.		100%		
		2.11.	Facilities - achieve 100 % legal compliance to OHS Act requirements.		100%		
		2.12.	Fleet - Increase vehicle availability and utilisation.		100%		
		2.13.	Fleet - 100% roadworthy vehicles.		100%		
		2.14.	Fleet - routine maintenance of vehicle completed within 3 days for vehicles within warranty and spare parts are available. Fleet - routine maintenance of vehicle completed within 5 days for vehicles within warranty and spare parts are not available.		100%		
		2.15.	Fleet – Mobile Workshop service in place and functional.		100%		
		2.16.	Finance - Electricity Executives have full control of investment and decision making for example CAPEX prioritisation within the approved budget.		100%		

No.	Goal	No.	Performance Description	Immediate (Within 100 days)	Period 1 (4 months-3 years)	Period 2 (4-5 years)	Period 3 (> 5 years)
		2.17.	Finance - transparent and effective cost accounting and financial accounting. Cost reflective interdepartmental charges.		100%		
		2.18.	Finance - ability to conduct variance analysis on all work (inclusive of labour, material, and transport costs).		100%		
		2.19.	Finance - invoices paid within 30 days.		100%		
		2.20.	Finance - budgeting completed within statutory timeframes.		100%		
		2.21.	Finance – adjustment budgets completed within 4 weeks		100%		
3		3.1.	Meter reading within 3 months for residential, within 1 month for business and industrial.		100%		
		3.2.	Electricity losses.	< 10%	<8%		
		3.2.	Quotation to customers: - within 10 working days where network extension is not required - within 1 month where network extension is required.		75%	97%	97%
	Optimise Primary Operations	3.3.	Providing an electrical supply: - within 30 working days where existing infrastructure is available - within 2 months for LV network extensions and within 3 months for MV network extensions, with a target percentage of		50%	75%	97%
		3.4.	Electricity ADMS system (functionality).		50%	75%	100%
		3.5.	Network outage restoration within 24 hours.		40%	80%	98%
		3.6.	Completion of streetlight outage restoration existing backlogs.	20%	100%		
		3.7.	Individual streetlight outage restoration in 10 days.		50%	75%	100%
		3.8.	Section fed streetlight failure outage restoration within 10 working days.		50%	75%	100%
4	**Turnaround Cash Revenue**	4.1.	Achieve breakeven within 3 years.		Achieve breakeven	Achieve a surplus >2,5%	
5	**Increase Capital Investment**	5.1.	Improve the capital expenditure/total expenditure ratio.			10%	

8.0 Strategy implementation

This section details how EE intends to implement the reform strategy.

8.1 Revision of business model

The South African energy generation sector is naturally evolving from a traditionally vertically integrated structure to a more liberalised one via the promotion of local generation. The main drivers of such a transition are the inability of Eskom to provide sufficient generation capacity, rapid drop in generation technology prices, especially solar photovoltaic (PV) and the corresponding increase in electricity prices. As the generation becomes more localised, customers reduce their energy dependency from the network due to their ability to self-consume generated electricity. This self-consumption creates an imbalance in the recovery of network-related charges for the municipality, i.e. creating a revenue loss. The rate of localisation of energy generation will dictate the magnitude of loss for the municipality (Moodliar, Integration of Distributed Energy Resources (Solar PV) A Revenue Impact Study & Tariff Optimisation Analysis for eThekwini Municipality, 2020).

These changes will unfortunately expose the realities of poor cost recovery and structural reflection within the tariffs used for EE. There are views that distribution grids may become obsolete as renewable and storage technologies become more price competitive. The future role of the grid is not clearly defined yet; however, what is certain is that the role of the grid will evolve. To ensure eThekwini Municipality is ready to respond to the rapidly changing environment, the municipality will need to commence with tariff structure reflectivity studies and understand the revenue recovery models within its customer base. Furthermore, eThekwini Municipality must migrate its tariffs to higher cost and structural reflectivity levels, ensuring a smoother transition to the looming changes (Moodliar, Davidson, & Buraimoh, A Cost to Serve (CTS) Study at eThekwini Municipality, 2022).

Revenue losses are introduced because the current municipal tariffs recover fixed network charges via variable energy rates. Each unit of electricity offset due to self-consumption via solar PV results in fixed network costs incorrectly being offset as well, due to the nature of the current tariff design (Moodliar, Integration of Distributed Energy Resources (Solar PV) A Revenue Impact Study & Tariff Optimisation Analysis for eThekwini Municipality, 2020). To calculate pure cost-reflective tariffs, electricity supply costs must be unbundled to reflect the costs of the retail and wires (network) businesses. These costs are then further unbundled into costs that are either fixed or variable (NERSA, 2022).

8.1.1 Retail and wires business

A well-balanced tariff for eThekwini should therefore be made up of at least the following four tariff components: Energy Charge, Network Charge, Service Charge and Administrative Charge. The nature of the service and administration charges are similar and may be combined to simplify the overall tariff structure (Moodliar, et al., 2022)

Figure 44 - Retail and wires business illustration

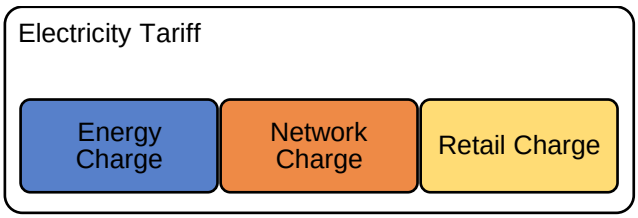


Figure 45 - Three proposed components of an electricity tariff

Introduction of network charges

Network charges and distribution use of system charges are cost-reflective rate mechanisms that recover costs of a network (wires) business. To have tariffs that are cost-reflective, it is necessary to have rate components that allow the recovery of costs in an unbundled way. The introduction of network charges is therefore essential to achieve this objective of cost reflectivity (NERSA, 2022).

The costs recovered through a fixed charge should include transmission purchases and all distribution capital related costs and should reflect the capacity required/reserved by a customer in the short term. As network capital (depreciation and finance costs) are largely fixed and do not vary (at least in the short term) according to the amount of demand used or not, this cost should be recovered through a fixed network charge (NERSA, 2022). Recovering all network-related costs in a fixed network charge offers the utility the lowest risk in cost recovery and promotes the highest level of cost reflectivity. Therefore, it is the preferred method of recovery (Moodliar, Davidson, & Buraimoh, A Cost to Serve (CTS) Study at eThekwini Municipality, 2022).

Service and administration (retail) charges

Customer service and administration costs are costs associated with billing, the meter cost, meter reading and customer service. These costs are allocated to customers mainly based on their size category as this is the cost driver (the bigger the customer, the more expensive the meter, the service etc.) (NERSA, 2022) (NERSA, 2022).

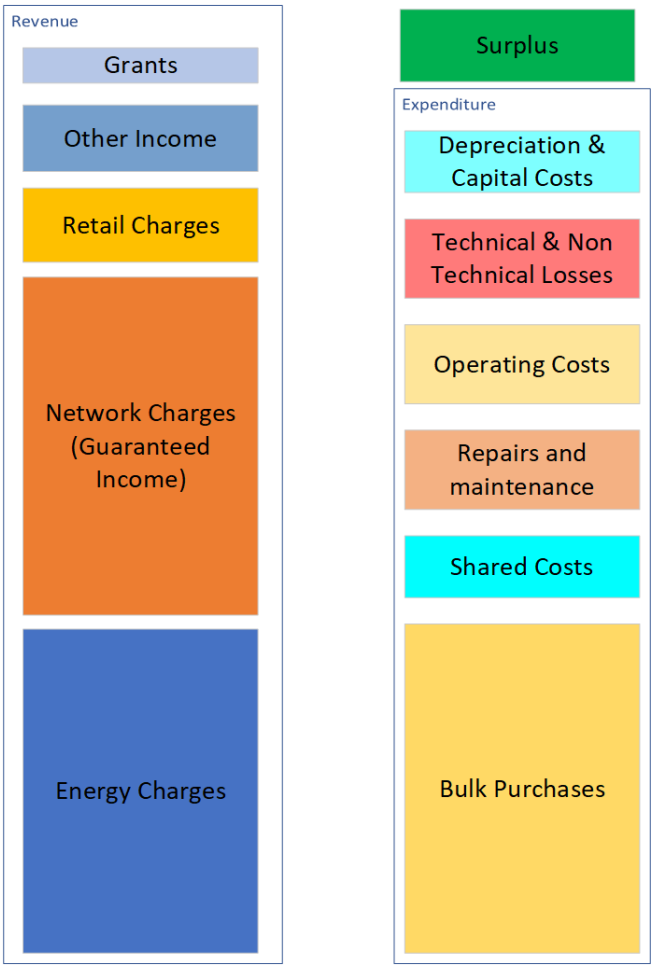


Figure 46 - Revised financial model

8.1.2 Recovery of subsidies and other levies

Subsidy provision is a reality within electricity tariffs as it enables a more significant contingent of customers to enjoy access to the grid. Renewable energy and storage technologies will reduce overall consumption and affect the subsidy provision mechanism within the existing tariff. Careful consideration must be applied in all future tariff designs to ensure a careful balance that promotes renewable energy (RE) technologies and the protection of indigent customers within the network. The commencement of an indigent register within eThekwini Municipality is a forward-looking step that could target deserving customers in respect of subsidy provision as opposed to the current mechanism of providing a subsidy through low electricity consumption for all customers (Moodliar, Davidson, & Buraimoh, A Cost to Serve (CTS) Study at eThekwini Municipality, 2022).

8.1.3 Role of independent power producers (IPPs) and small scale embedded generators (SSEG)

It is eThekwini Municipality's intent to make existing spare capacity available on its networks and provide open non-discriminatory access for the use of this capacity to all loads and SSEGs. EE is entitled to a fair compensation through electricity tariffs (NERSA, 2022) for this access.

EThekwini Municipality has prepared a draft eThekwini Integrated Resource Plan to guide the purchase of energy from renewable (IPPs).

8.1.4 Electricity wheeling for eThekwini Municipality

The requirement to deliver electricity to consumers is gaining popularity due to increasing liberalisation in the electrical sector that enables private generators. EThekwini Municipality is aware of the broader implications and potential benefits of wheeling in a fully liberalised market; nonetheless, the current tariff structures and price regimes are insufficient to allow wheeling without inflicting revenue losses for municipalities. Changing the pricing mechanisms and tariff structures adopted by municipalities to recover customer network expenses independent of energy charges is one technique municipalities can adopt to avert revenue losses. Changing

recovery methodologies, however, is time-consuming and will impact revenue recovery for other customers. Therefore, there must be an intense effort to migrate to wheeling frameworks that minimise revenue losses to municipalities while maximising the benefits of wheeling.

In South Africa, wheeling has been progressively liberated through the ongoing amendments to regulations, acts, and policies, primarily driven by the notion of creating a competitive generation sector. However, costs and unpinning tariff structures must be fully unbundled to appreciate and utilise wheeling fully. Such unbundling must be classified into energy costs, wires costs (network) and retail costs (commercial). Unfortunately, this is not the case in many distribution utilities within South Africa. Further, as wheeling gets more pronounced, there will be a need to adopt network congestion management, and a need to apply a range of pricing methodologies, each with its own pros and cons.

Following the principles of a just energy transition, wheeling should neither be restricted nor ignored but instead incorporated to enable sector growth. However, transitioning from a monopolised structure to a liberalised market is neither simple nor instantaneous. Consequently, a revenue-neutral wheeling framework should be adopted immediately but adapted gradually over time as the market develops, ensuring that all parties acclimate to this process in a just manner (Moodliar, Davidson, & Buraimoh, The Consequences of Electricity Wheeling for eThekwini Municipality, 2022).

8.2 Sound governance and a supportive enabling environment

National Treasury proposed two activities be undertaken to improve governance of trading services:
1. Improving governance within a municipality.
2. Creating a structure for the provision of electricity services that lends itself to better governance and which has rules and norms which protect governance from poor or corrupt governance practices.

8.2.1 Improving governance within eThekwini Municipality

The table below summarises the proposed activities to improve governance within eThekwini Municipality with respect to EE.

Table 8 - Proposed activities to improve governance of EE

Area	Proposed activities to support sound governance
Leadership	▪ Public commitment by political leadership to turnaround EE. ▪ Dashboard on performance published and regularly updated.
Strategy and plans	▪ Council-approved reform strategy. ▪ Approved business plan. ▪ Council-approved and funded investment plan.
Revenue and tariffs	▪ Council-approved tariff generates sufficient revenue (with available grants) to meet efficient operating costs and necessary investment costs. ▪ Processes and methods for setting tariffs well-defined and transparent, and based on accepted economic regulation methodologies for public infrastructure.
Governance and oversight	▪ Oversight committee (“Board”) suitably skilled, experienced, and trained. ▪ Separate reporting on financial performance for electricity trading service business (with full set of audited financial statements comprising income statement, balance sheet and cash flow).
Management	▪ Clear separation of governance role from day-to-day operations and management. ▪ Zero tolerance of corruption and patronage. ▪ Appointment of capable management team with mandate and autonomy to manage. ▪ Accountability for performance with incentives (annual performance review linked to remuneration).

8.2.2 Revision of institutional structure

NT detailed four options for institutional structures for trading services, namely a department (supported by centralised services), a standalone business unit (with integrated support services and single point of management accountability), a municipal entity, and an external entity. The options are illustrated in Figure 47 below.

EE is technically a business unit; however, it is supported by centralised services. It is proposed that EE be restructured to be a business unit in the full sense, with integrated support services and a single point of management accountability. This is consistent with the approach taken by eThekwini Municipality for the water and sanitation trading services.

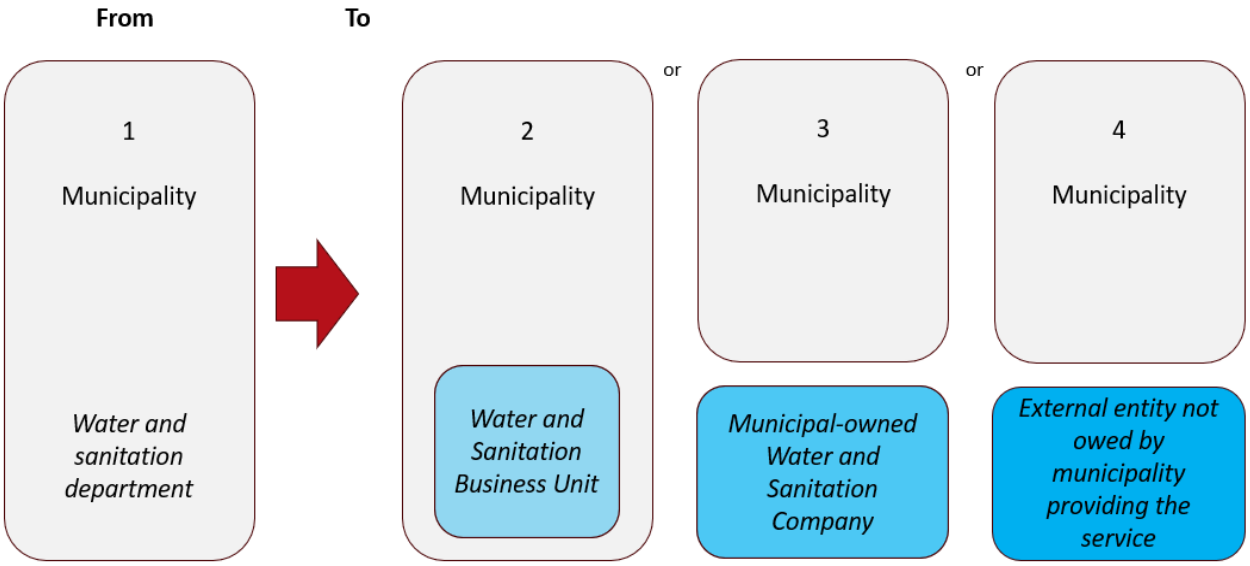


Figure 47 - Institutional structure options

8.3 Leadership and management

Effective leadership and management are cited by NT as the differentiating factors to achieve a successfully turnaround and maintain a sustainable trading service operation.

8.3.1 Single point of management accountability

It is proposed the Head: Electricity be appointed to be the single point of management accountability for EE.

8.3.2 Making space for change

It is proposed that EE establish a dedicated Turnaround Strategy Management team to support the Head: Electricity in implementing the reform strategy.

The team will consist of experienced professionals with leadership and technical skills from within the organisation, who will be seconded from their substantive duties.

The transition period should be as short as possible, ideally timeboxed. Acting appointments and responsibility appointments will be used as a tool to ensure operations are sustained through this transition period. Co-incidentally this arrangement may be a mechanism to develop additional leadership and management skills within EE, creating the next generation of management.

8.3.3 Use of management contracts

NT proposed the use of management contracts to supplement the need for leadership and management skills. The use of such contracts will be considered where necessary.

8.4 Fast tracking of recruitment

The filling of the key critical positions in the Executive Management team must be prioritised. To support the reform, the interim leaders appointed must be experienced, have the necessary qualifications, competencies and be familiar with the Unit's operations.

Reduce the time to fill vacancies to 3 months Hence the aspirational target to fill vacancies within EE will be 2-3 months.

The Talent Management Strategies, Programme and Policies will also be reviewed. A SWOT analysis will be conducted in consultation with the talent management team to discuss key concerns and develop SMART Succession Plans.

The Trading Services shall be granted special concession in the interim for prioritisation by the Organisational Design and Change Management Unit, Compensation Management Branch, Talent Management Branch, and other extended support functions until these services are optimised.

The HC Branch will require additional staff to provide an internal support service to EE.

8.5 Institutional reform

Section 8.5.1to section 8.5.4 refer to support services and the broad approach to be adopted in improving services. The detailed approach will be further elaborated in Annexure A1 – Institutional Reform Roadmap which must be read in conjunction with this document.

8.5.1 Fleet

EE currently has an SLA in place with the City Fleet Unit. The short-term focus will be on the enforcement of the SLA, and introduction of internal governance reforms within EE to better manage the fleet. The Fleet Section within the Administration Branch will require additional staff to provide an internal support service to EE.

The units can introduce internal arrangements via the SLA to integrate fleet management services from City Fleet. Interim arrangements examples include:

1. Access to the corporate fleet management system.
2. Access to existing City Fleet's Vehicle Service Providers.
3. Dedicated workshop for mechanically specialised vehicles i.e. (COF and load test vehicles).
4. Prioritisation of service delivery fleet for bookings into a workshop.
5. SLA to be reviewed to include penalties.

In the medium to long term, EE will assess viability for its own workshops, vehicle usage authorisation system, fleet monitoring system and access to the fuel management system.

8.5.2 Architectural services

In the interim, it is proposed that architectural services function will reside within the Administration Branch which currently has resources for minor building maintenance and repairs.

To improve turnaround times and ensure compliance with OHS Act requirements, EE must in the interim be allowed to manage minor building maintenance and repairs utilising either the Architecture Department's existing contracts directly or via RFQs. Also, for specialised contracts [e.g., lifts /air conditioners], EE shall deal directly with Architecture Department's Service Providers. The existing SLA shall be reviewed to include penalties.

It is envisioned that a much-needed Facilities Management Branch is established to appropriately management the vast range of depots, office buildings, control centres, customer service centres, training centres, and specialised workshops. It is envisioned that a management contract will be required to cater for construction of office and substation buildings.

8.5.3 Information Communication Technology

EE must be allowed to manage and maintain the mission critical Information Communication Technology (ICT) wide area and local area networks, and the procurement of all ICT equipment, comprising of end user equipment and complex data centre equipment including servers, storage network and other related cloud-based services. EE should be allowed to access existing IMU contracts directly and participate in all ICT related SITA, National Treasury, and other transversal contracts of government departments directly to drastically improve capital and operational procurement turnaround times.

8.5.4 Supply Chain Management

The integration of SCM functions will ensure a more flexible and responsive approach which will be tailored to EE's needs.

Corporate policies will be used where applicable to EE. EE will develop its own SOPs in compliance with legislation and corporate policies.

It is recommended that an interim SLA is developed and implemented with the SCM Unit for tender administration services such as the generation of letter of awards and creation of additional Bid Specification Committee and Bid Evaluation committee to be considered to service trading services.

8.6 Uncontrollable factors impacting strategy implementation

8.6.1 eThekwini Municipality corporate policies

Corporate policies, designed for a broad spectrum of municipal services provide an overall framework and, in some instances, do not directly address the unique needs of specific industries like electricity services. This one-size-fits-all approach overlooks the technical and operational difficulties inherent in electricity distribution, leading to inefficiencies and delays in service delivery. Such misalignment between corporate policies and the unique business needs of EE underscores the need for more customised and industry-specific policy frameworks.

8.6.2 Regulatory approval and alignment: electricity tariffs

The National Energy Regulator of South Africa (NERSA) does not always approve tariff increases that align with the cost of supply studies conducted by EE. These studies are designed to reflect the actual costs incurred in providing electricity services, ensuring that tariffs are both fair and sustainable. However, when NERSA's approvals do not align with these studies, it results in tariffs that fail to cover the true costs of electricity provision. This misalignment creates a financial shortfall, hindering EE's ability to maintain infrastructure, invest in new projects, and deliver reliable services. The discrepancy between the approved tariffs and the cost-reflective tariffs necessary for sustainable operations highlights the need for more supportive regulatory frameworks.

It must be noted that EE is dependent on tariffs approved by NERSA. Any misalignment will jeopardise the ability of the unit to recover its planned cost of operation.

8.6.3 Municipal Finance Management Act (MFMA) – Section 33

The Municipal Finance Management Act (MFMA), particularly Section 33, imposes stringent approval processes for long-term contracts. While these processes are intended to ensure financial prudence, they can significantly hamper service delivery when appeals are lodged against contract awards. In the electricity sector, these delays can be especially detrimental as they interrupt critical services that require continuous and timely delivery of goods. Furthermore, these stoppages often force the municipality to engage out-of-contract service providers, which are not only more expensive but also tend to deliver less value for money, exacerbating the inefficiencies and financial strain on the municipality.

It must be noted that eThekwini Municipality is dependent on support from NT to efficiently process contracts having future budgetary implications greater than 36 months. In principle, this should be a fair portion of capital and operational expenditure.

8.6.4 Alignment of national mandates

It must be noted that eThekwini Municipality is dependent on alignment of mandates from the respective national ministries. With regards to establishing a single point of management accountability, eThekwini Municipality is dependent on CoGTA and NT aligning the relevant acts, regulations, programmes and initiatives, for example the Municipal Staff Regulations under the Municipal Systems Act and the Metro Trading Services Reform Programme.

9.0 Tactical goals, objectives, and initiatives

This section unpacks the tactical goals, objectives and initiatives that need to be accomplished to successfully reform EE at eThekwini Municipality in the short-term (first 3 years).

The Electricity Unit aims to accomplish the following initiatives and goals, contingent upon institutional reforms that establish a single point of management accountability and a suitable organisational structure. This emphasis is crucial, as a well-organised and efficient entity with the necessary resources and delegated decision-making autonomy is essential for the successful implementation of this reform strategy.

Figure 48 below summarises key initiatives required in to improve financial and operational performance. The left-hand side of the diagram represents activities relating to income and revenue, and the right-hand side of the diagram represents activities relating to operating expenditure and surplus generation. The right-hand side of the diagram also includes reference to capital expenditure needed to reduce operational expenditure and improve revenue.

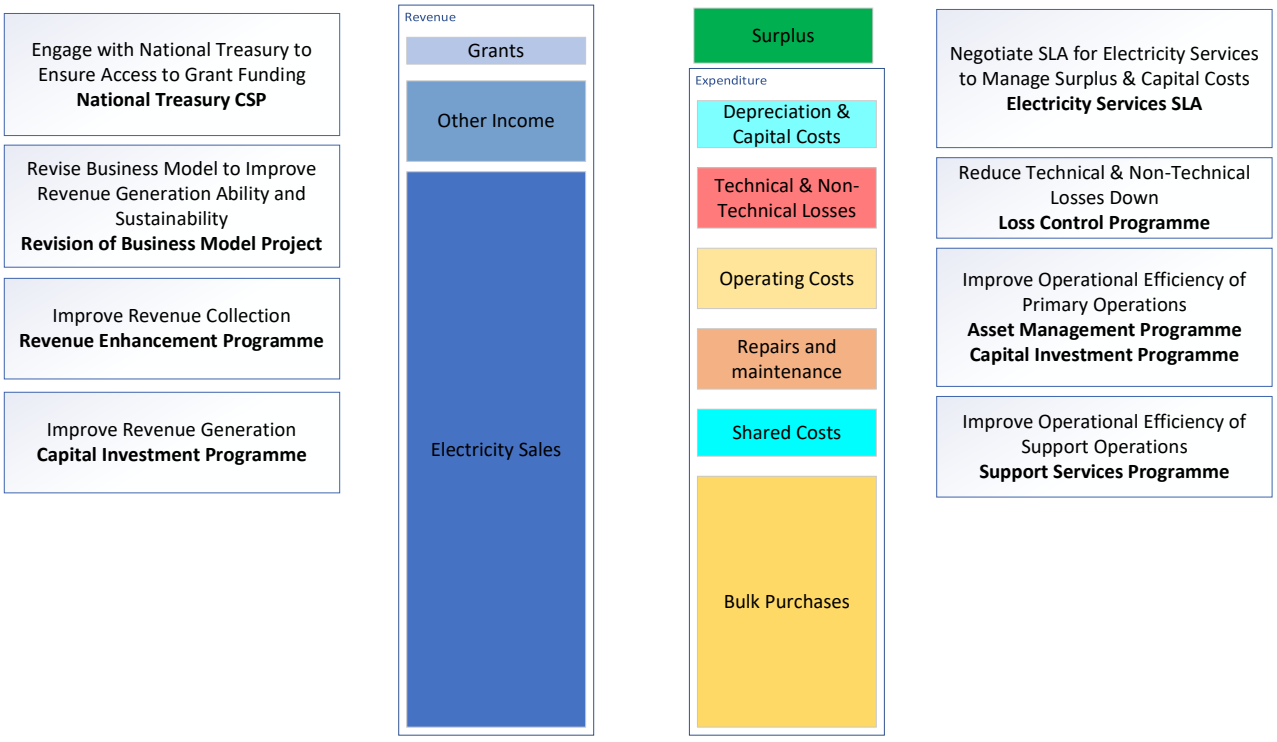


Figure 48 - Conceptual diagram linking strategy implementation to financial performance

9.1 Goal 1: Reform Leadership and Management

Objective: To reform leadership and management to be able to have the vision, strategy and execution capacity to achieve the reform strategy outcomes.

Initiatives:

1. Demonstrate public commitment by political leadership to reform EE.
2. Establish a dashboard on performance which should be published and regularly updated.
3. Develop a council-approved electricity trading services reform strategy.
4. Develop an institutional reform roadmap approved business plan.
5. Develop council-approved and funded business and investment plans.
6. Separate reporting on financial performance for electricity trading service business.
7. Separate the governance role from day-to-day operations and management.
8. Apply zero tolerance of corruption and patronage.
9. Appoint a capable management team with mandate and autonomy to manage.
10. Enforce accountability for performance with incentives.

9.2 Goal 2: Strengthen Governance and Accountability Frameworks

EE faces governance challenges rooted in the overlap between political and administrative functions. This lack of structure affects the overall performance of EE.

The reform strategy aims to improve governance and create a supportive and enabling environment by the outlined strategic goals and initiatives.

Objective: Strengthen governance, financial transparency and improve stakeholder engagement.

Initiatives:
1. Review and implement King Code recommendations for ethics.
2. Develop ICT governance and systems for financial transparency.
3. Introduce a change management program to address the political overlap.
4. Reform governance of primary and support activities.
5. Oversight committee ("Board") suitably skilled, experienced, and trained.
6. Clear separation of governance role from day-to-day operations and management.
7. Establish Financial transparency for the electricity trading service business.

Implementing the proposed reform strategy is vital as it addresses the foundational issues that have eroded governance and impeded performance in EE. Strengthening governance and accountability frameworks will foster a culture of responsibility and integrity, where transparent and consistent practices build trust and legitimacy.

Optimising support and performance structures will eliminate administrative overlaps, creating streamlined processes that enhance efficiency, financial transparency, and employee motivation. Furthermore, by stakeholder engagement EE will ensure that its decisions reflect the needs and concerns of its community while solidifying external confidence in its operations.

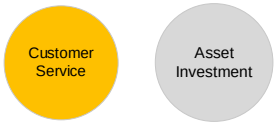
Collectively, these initiatives will create a supportive, enabling environment where effective management drives EE to operate successfully as a business, improving service delivery and fostering sustainable growth.

9.3 Goal 3: Reform support activities within the electricity value chain

Objective: To restructure the electricity value chain to establish a single point of management accountability.

Initiatives:
1. Establish a single point of management accountability.
2. Integrate HR Support Services.
3. Integrate Finance Support Services.
4. Integrate SCM Support Services.
5. Integrate ICT Support Services.
6. Integrate Fleet Management Support Services.
7. Establish Centralised Services via optimised SLAs where they are not in place.
8. Co-locate support services to improve governance and integration.
9. Establish a Facilities Management Branch.
10. Establish a Security Management Branch.

9.4 Goal 4: Improve customer satisfaction



Objective: Enhance customer engagement and response times.

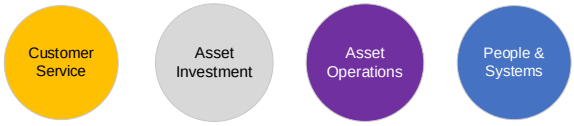
Initiatives:
1. Upgrade the customer contact centre systems, including improved IVR (Interactive Voice Response), chatbots, and call-routing technologies.
2. Run educational campaigns to inform customers about new billing processes, smart meters, and service improvements.
3. Implement real-time customer feedback systems for post-interaction evaluations and identify key areas for service enhancement.

9.5 Goal 5: Increase billing accuracy and efficiency

Objective: Reduce discrepancies in customer billing.

Initiatives:
1. Roll out smart meters across customer bases to provide accurate readings and minimise estimated bills.
2. Deploy AMI for all the customers to leverage AMI data for more accurate and timely billing, reducing estimation errors and billing disputes to improve revenue by 10%-20% within the next 5 years.
3. Streamline the integration between different internal systems, particularly billing, to ensure accurate data transfer and reconciliation.
4. Establish regular audits and cross-checks to identify and rectify billing discrepancies promptly.

9.6 Goal 6: Optimise outage management



Objective: Reduce downtime and improve resolution for power outages.

Initiatives:
1. Improve legacy outage management practices.
2. Implement outage management system that integrate with smart grids for faster fault detection and isolation.
3. Optimise electrical distribution network to improve reliability and resiliency.

9.7 Goal 7: Optimise financial stability and efficiency

Objective: Streamline cost recovery, minimise non-technical losses, and enhance financial oversight.

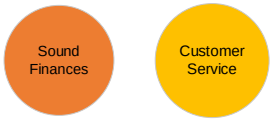
Initiatives:
1. Implement an integrated financial dashboard.
2. Enhance variance analysis to align budgets with core business processes.
3. Formalise an agreement on surplus contributions from EE to City Treasury.
4. Formalise an agreement on the cost of capital between EE and City Treasury.
5. Formalise an agreement on the cost of centralised services.
6. Introduce a single integrated ERP system for effective resource management.

9.8 Goal 8: Transform infrastructure management

Objective: Reduce operational inefficiencies and premature asset failures while improving work-in-progress delivery.

Initiatives:
1. Implement a comprehensive asset management system with predictive maintenance.
2. Minimise work-in-progress delays through an improvement program.
3. Adapt procurement practices to mitigate cost increases.

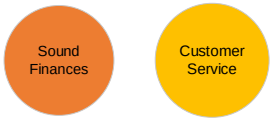
9.9 Goal 9: Adapt to market and regulatory changes



Objective: Adjust business models to accommodate renewable energy integration and address regulatory impacts on service delivery.

Initiatives:
1. Establish a renewable energy department to coordinate integration.
2. Streamline tariff approval processes.
3. Align operational policies with national regulations.
4. Design and progressively align the business to the true cost of supply model.
5. Formalise the role of “generation” business component.

9.10 Goal 10: Safeguarding revenue streams



Objective: Safeguard revenue streams by making it a critical priority for EE. Losses due to meter tampering and illegal bypassing have significant financial implications. To address this challenge effectively, a multi-faceted approach is necessary namely:

Initiative 1: Implement an aggressive meter sweep/management program; namely:

a. Regularly inspect meters for any abnormalities or tampering;
b. Promptly address issues identified during inspections; and
c. Consistently enforce these to minimise tampering and bypassing.

Note:

Meter sweep program aims to prevent further revenue losses and maintain gains from current efforts to curb losses. To facilitate the meter sweep program, it is essential to make meters readily available for inspection and replacement as necessary which is the current challenge due to financial constraints.

Initiative 2: Investigate meters showing significant consumption reductions, namely:
a. Inspect installations of renewable energy systems at customers premises which will contribute to reduced consumption
b. Investigate promptly to rule out potential tampering or bypassing; and
c. Analyse data and conduct targeted inspections which are both vital for accurate assessments.

Initiative 3: Improve the customer application and connection processes through digitalisation.

Initiative 4: Establish an SLA with the Revenue Management Unit.

9.11 Goal 11: Improve loss control

Objective: To reduce operational expenditure by minimising controllable losses.

Initiatives:

1. Introduce a single integrated ERP system for effective resource and materials management.
2. Improve materials management.
3. Optimise outage management.
4. Review the free basic electricity limit.
5. Enforce revenue protection by managing illegal connections.
6. Implement a LED streetlight programme.
7. Establish an infrastructure security branch.
8. Optimise the use of insurance.
9. Improve productivity management.
10. Implement an internal restructuring project.
11. Restructure outsourcing contracts.

9.12 Goal 12: Enhance maintenance efficiency and effectiveness

Objective: Streamline maintenance processes to reduce downtime and improve asset performance.

Initiative 1: Embrace technologies and methodologies to optimise maintenance efforts, namely:
a. Upscale condition-based maintenance (CBM) programs.
b. Deploy condition monitoring devices on critical assets.
c. Implement risk-based maintenance prioritisation for high value assets.
d. Expand the scope of predictive maintenance schedules based on asset condition data.
e. Train maintenance teams on CBM techniques and procedures.
f. Expand the utilisation of work planning and control business process across the Unit.
g. Prepare long term maintenance plans to aid prioritisation of maintenance budget allocations.

Initiative 2: Compile and make available all maintenance documents, namely:
a. Conduct regular reviews and updates of maintenance procedures based on feedback.
b. Improve and optimise maintenance procedures.
c. Implement a digital maintenance manual accessible to field staff.

Initiative 3: Manage spares inventory to meet maintenance needs, namely:
a. Optimise stores inventory and spare parts management.
b. Implement a predictive spare parts ordering system based on historical data.
c. Establish partnerships with reliable suppliers for timely delivery of critical parts.

9.13 Goal 13: Strengthen infrastructure resilience and security

Objective: Enhance infrastructure protection measures to mitigate risks of damage, theft, and vandalism.

Initiative 1: Utilise technologies to improve security of infrastructure, namely:
a. Implement integrated security solutions.
b. Install surveillance cameras and alarm systems at critical infrastructure sites.
c. Integrate security systems with central monitoring stations for real-time response.
d. Conduct regular security audits and assessments to identify vulnerabilities.

Initiative 2: Engage with communities to protect infrastructure, namely:
a. Increase public awareness on infrastructure protection.
b. Launch public awareness campaigns highlighting the impact of infrastructure damage.
c. Collaborate with local communities and law enforcement agencies to report suspicious activities.
d. Organise community engagement events to foster a sense of ownership and responsibility.

Initiative 3: Adopt technologies to mitigate against theft, namely:
a. Enhance infrastructure design for security.
b. Implement design modifications to deter theft and vandalism, such as anti-climb features.
c. Explore innovative solutions like smart tagging or tracking devices for equipment and materials.
d. Upgrade fencing and access control mechanisms to secure infrastructure sites.

9.14 Goal 14 Improve data management and decision-making

Objective: Enhance data quality and utilisation for informed decision-making in asset management.

Initiative 1: Focus improvement on data management, quality, and velocity, namely:
a. Implement advanced data management.
b. Upgrade existing data management systems to ensure reliability and scalability.
c. Integrate data sources from various departments for a comprehensive view of assets.
d. Train staff on data collection, analysis, and interpretation techniques.

Initiative 2: Identify key metrics to measure asset performance and improvement, namely:
a. Improve and reinforce the use of infrastructure asset management scorecard for variance analysis on maintenance related measurement of Key Performance Indicators (KPIs).
b. Develop dashboards and reporting tools to track KPIs in real-time.
c. Conduct regular reviews of KPI performance and identify areas for improvement.

Initiative 3: Secure access to and vulnerability of asset management systems, namely:
a. Enhance data governance and security.
b. Implement data governance policies and procedures to ensure data integrity and privacy.
c. Establish role-based access controls to restrict unauthorised access to sensitive data.
Conduct regular data audits and compliance assessments to maintain data quality and security standards.

9.15 Goal 15: Reform investment management practices

Initiatives:
1. Establish an investment framework.
2. Reskill workforce to align to the investment framework.
3. Implement a HV Investment programme.
4. Implement a MV/LV Investment programme.
5. Implement a fleet Investment programme.
6. Implement a facilities investment programme.
7. Develop a support systems roadmap.
8. Implement An ICT/OT investment programme.
9. Engage with National Treasury to ensure access to grant funding.

9.16 Goal 16: Enhance project efficiency and delivery

Objective: Improve project management processes to streamline project delivery, reduce time and cost overruns.

Initiatives:

1. Establish a Project Management Office (PMO) to centralise project oversight, ensure adherence to timelines and budgets and facilitate communication between stakeholders.
2. Implement standardised project management methodologies and tools across all project teams to enhance coordination, increase transparency and mitigate risks.
3. Conduct regular project performance evaluations and post-implementation reviews to identify areas for improvement and lessons learned, fostering a culture of continuous improvement.

9.17 Goal 17: Strengthen asset management practices

Objective: Optimise the lifecycle management of assets to improve reliability, extend asset lifespan and minimise maintenance costs.

Initiatives:

1. Review and implement an Asset Management Charter (Policy, Strategy and Plan) outlining clear objectives, strategies, and responsibilities for asset management activities.
2. Invest in technology solutions such as an integrated Enterprise Resource Planning (ERP) system to centralise asset data, facilitate condition-based maintenance, and enable predictive analytics for proactive asset management.
3. Enhance workforce training and development programs to build internal capacity and expertise in asset management best practices, ensuring staff are equipped with the necessary skills to effectively manage assets.

9.18 Goal 18: Foster innovation and sustainability in infrastructure development

Objective: Promote the adoption of innovative technologies and sustainable practices to modernise infrastructure and address environmental concerns.

Initiatives:

1. Launch a pilot program to explore the feasibility and benefits of integrating renewable energy sources, into the electricity network as another revenue stream for EE.
2. Collaborate with research institutions and industry partners to identify and pilot emerging technologies, such as smart grid solutions or energy storage systems, which can improve grid resilience, optimise energy distribution, and support future growth.
3. Implement initiatives to promote energy efficiency and conservation among consumers, including public awareness campaigns, incentives for energy-efficient appliances, and demand-side management programs to reduce peak demand and enhance system reliability.

9.19 Goal 19: Enhance employee engagement and motivation

Objective: Improve employee engagement levels by fostering a culture of recognition and empowerment.

Initiatives:
1. Establish a system to acknowledge and reward outstanding performance, contributions, and innovative ideas.
2. Provide leadership training to Managers to equip them with the skills necessary to effectively engage and motivate their teams.
3. Create regular forums, suggestion boxes, or online platforms for employees to voice their concerns, ideas, and feedback.

9.20 Goal 20: Develop a high-performance workforce

Objective: Close skill gaps and develop a workforce equipped to meet current and future business needs.

Initiatives:
1. Identify current skill deficiencies and future skill requirements through comprehensive assessments and surveys.
2. Develop customised training programs based on the identified skill gaps, utilising both internal resources and external training providers.
3. Pair employees with experienced mentors or coaches to facilitate knowledge transfer, skills development, and career growth.

9.21 Goal 21: Streamline administrative processes and enhance efficiency

Objective: Simplify administrative procedures and optimise operational workflows to improve overall efficiency.

Initiatives:
1. Assess existing bureaucratic procedures and streamline approval workflows by reducing unnecessary steps and introducing digital solutions where applicable.
2. Invest in technology platforms and tools to automate repetitive tasks, enhance communication, and centralise data management.
3. Foster collaboration between different departments and units by establishing cross-functional teams or task forces to address common challenges and streamline processes.

10.0 Overall risks to the reform strategy implementation

Table 9 - Risks to implementation of the reform strategy

Risk to implementation of reform strategy	Mitigation
Conflicts of interest and a lack of buy-in from various stakeholders	Prepare a communication strategy that enlists support for the creation of a self-sufficient, financially sustainable and service orientated trading service.
Rejection of tariff structure by NERSA It must be noted that EE is dependent on tariffs approved by NERSA. Any misalignment will jeopardise the ability of EE to recover its planned cost of operation.	EE has requested support from NT to include NERSA as a stakeholder in supporting turnaround plans.
Potential for conflicting mandates from National Treasury and CoGTA With regards to establishing a single point of management accountability, eThekwini Municipality is dependent on CoGTA and NT aligning the relevant acts and regulations, particularly the Municipal Staff Regulations under the Municipal Systems Act.	NT has volunteered support to engage with CoGTA regarding institutional changes needed to support turnaround plans.
Effective leadership skills and commitment to address employee attitudes and low morale	Capacitate the leadership and management to create a sense of urgency and momentum for change. Create a clear and achievable vision. Consistent communication regarding the objectives/initiatives and progress. Address quick win hygiene factors.
Change fatigue / Change Management	Deliberate allocation of capacity – sponsorship, clear charter for programmes and initiatives, appoint Strategy Implementation Steering Committee to track and co-ordinate initiatives, include in individual performance plans. Develop the short-term wins and celebrate their achievement. Support the implementation team to persevere through the difficulties and resistance.
Access to necessary resources, including financial, technological, and human resources, is a significant challenge **Competing priorities – on scarce resources**	Secure sufficient funding. Create the enabling environment and team for business unusual. Prioritise the initiatives to deliver quick wins, low effort, and high impact. The team leading the implementation must understand the requirements. They must also be committed, enthusiastic and focussed on achieving the outcomes. Outsource if required.

11.0 Conclusion

A comprehensive analysis within EE has revealed systemic issues, including significant underinvestment in infrastructure and operational inefficiencies, which have strained municipal finances and compromised service delivery. Governance deficiencies due to non-integrated support services, skills gaps, and financial constraints hinder service provision and impede management effectiveness at the Unit level. Challenges with grant mechanisms and regulatory frameworks at the national level also continue to impede efficient service provision.

In response, NT proposes reforms to enhance investment through innovative financing models integrating grants with loans, promoting transparent governance, and fostering professional management practices within municipal services. EE's tailored reform strategy, aligned with NT's frameworks, focuses on achieving financial sustainability and operational efficiency. Key elements include enhancing management accountability, optimising support services and enhancing operations to achieve financial stability and increase capital expenditure ratios.

Critical to the success of these reforms is establishing clear performance targets, professionalising management structures, and implementing a resilient investment strategy aligned with EE's operational requirements and growth aspirations. NT's commitment to supporting EE through technical assistance and financial resources is contingent upon achieving predefined milestones and submitting comprehensive governance and investment plans.

NT's framework, including the seven-box strategy, emphasises creating accountability and efficiency in electricity trading services through institutional and governance reforms. This includes integrating support services to establish a more agile and accountable institution capable of meeting the dynamic challenges of the electricity sector.

Furthermore, EThekwini Municipality's long-standing objective to sustainably provide low-cost, universal access to electricity highlights the urgency and importance of these reforms. Operating losses over consecutive years and the municipality's inability to meet customer expectations necessitate immediate action. EE's reform strategy aims to enhance service delivery and adapt the business model to meet the evolving electricity landscape in South Africa.

Electricity availability is paramount for the social and economic development of eThekwini's residents, businesses, and institutions. It serves as the economy's lifeblood, enabling livelihoods and improving overall quality of life. Urgent reforms are essential to ensure these benefits are realised promptly. Stakeholders are called upon to support the reform agenda, beginning with council approval of EE's reform strategy.

The proposed reforms and strategic initiatives provide a comprehensive roadmap for achieving sustainable development through efficient and resilient municipal trading services. EE will make significant strides towards long-term sustainability by addressing systemic challenges and fostering a culture of transparency, accountability, and strategic investment, ensuring universal access to essential services, and promoting inclusive growth in EThekwini.

12.0 References

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