Eskom Holdings Environmental Management Strategy Rev. 4 2024/25 to 2029/30

March 2024

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EXECUTIVE SUMMARY

Eskom prioritised a Turnaround Plan execution in FY2023. Despite these efforts, the power stations' Energy Availability Factor (EAF) were at record lows, resulting in the most severe load-shedding period. This occurred while environmental performance was poor as measured by relative particle emissions, specific water use, and several occurrences of environmental legal contraventions. Criminal investigations and environmental administrative action against Eskom have increased from licencing authorities.

The legal separation, a material decline in Generation's environmental legal compliance, and Eskom's Just Energy Transition plan necessitated revising the existing environmental strategy (Revision 3) for 2024/25. Achieving compliance requires an integrated approach, including governance, performance management, skills development, and detailed operational plans to address risks and root causes of incidents leading to non-compliance. Unfortunately, the objectives of the previous strategy were not met due to the partial ineffective execution of the Strategic Water Management Implementation Plan and the Air Quality Improvement Plan.

The tolerance of this risk goes against Eskom's Risk Appetite for '*Legal and Compliance'* Category of *'No appetite for any non-compliance with Eskom's compliance obligations'*, and as such needs to be dealt with the urgency that Eskom's Safety, Health, Environment and Quality (SHEQ) Policy requires where one of the key Eskom principles and rules that underpin the way in which it approaches environment is as follows: '*No operating condition, or urgency of service, justifies exposing anyone to negative risks arising out of Eskom's business, causing an incident with health, safety, environmental and quality consequences'*. The tolerance of this risk, the materialisation of non-compliances and enforcement and criminal action through the failure to achieve the objectives of the strategy must be changed and addressed with urgency.

Eskom's environmental licencing limits plant emissions to reduce their impact. Due to declining technical performance and competing demands for environmental compliance and limiting load shedding due to the supply constraints, several power station sites are operating in non-compliance with legislation. However, a balance needs to be achieved in ensuring operational performance and environmental compliance. Globally and locally, the energy sector is transforming, driven by fundamental shifts in policy, technology, economic and environmental demands. The changes that arise out of the war in Ukraine are fundamental to slowing or changing the markets for fossil fuels and renewables around the world. We recognise the significant impact of climate change on the energy sector and are committed to driving decarbonisation and facilitating transformation. As a key player, we align our aspirations with international and national frameworks such as the Paris Agreement and the sustainable development goals (SDGs), while fulfilling our mandate as a state-owned entity. Efforts are underway to improve greenhouse gases (GHG) data integrity, identify feasible mitigation measures, and enhance disclosure of the financial impact of climate-related risks. The need to comply with environmental laws and Eskom's influence on human and environmental health cannot be overlooked. Eskom must lead the way in achieving environmental duty of care and compliance while ensuring electricity supply security.

South Africa, like many nations, faces the energy trilemma: of security, affordability, and sustainability. This balance must consider technology realities and customer electricity costs. Additionally, environmental authorisation compliance must be improved while meeting power demand. Through committed visible felt leadership, this approach seeks to strengthen systems, controls, and practices that protect people and the environment. As a corporate citizen of South Africa, Eskom strives to minimise its impact on the environment and affected people. The Eskom Environmental Management Strategy supports equitable energy transformation. Eskom's Just Energy Transition (JET) programme aim to achieve net zero carbon emissions by 2050 and in doing so also reduce local air pollution, conserve water, and improve biodiversity. The JET ensures Eskom's licence to operate and Sustainable Development Goal obligations by creating a climate-resilient, fair economy, society, and governance.

The environmental strategy will govern resource conservation and ecosystem protection mitigation strategies. The strategy details how to balance environmental and economic factors for a sustainable future. The Department of Public Enterprises (DPE) is the shareholder ministry and sets Eskom’s mandate. Eskom is subject to oversight and regulation by several other government departments and regulators (the Department of Forestry, Fisheries, and the Environment (DFFE), the Department of Water and Sanitation (DWS), and the Department of Mineral Resources and Energy (DMRE)).

To address the environmental challenges and the strategic direction of the business, the Eskom 2035 Strategy has been developed, which reflects all the initiatives, based on key assumptions, to be undertaken to contribute to dealing with all the issues related to non-compliance and environmental performance. The implementation of this environmental strategy will require capital and operational expenditure and inter-ministerial agreement on how to support Eskom’s move towards environmental compliance as part of the country’s journey to achieving its promises to the world. It is extremely important to manage the combined financial impact of the spend required to achieve compliance and the cost to the country’s economy associated with inability to use non-compliant coal generating

capacity. As stated in the draft 2023 IRP, energy security, health implications of poor air quality, and economic costs *associated with these plants shutting* down must be balanced.
To achieve Eskom's Vision of "Sustainable power for a better future" environmental duty of care is required.

In support of the Eskom strategic objective, "Strive for net zero emissions by 2050", two key strategic environmental objectives of the environmental strategy are:

1) reduce the environmental footprint of Eskom activities; and
2) position Eskom as an environmentally sustainable utility.

The strategy principles aim to reduce the environmental constraints and challenges faced by Eskom in optimally generating, transmitting, and distributing electricity and enhancing its positive environmental contributions.

The six specific goals aimed at achieving the two objectives are:

1) Ensure informed decision-making to avoid harm to the natural environment, minimising financial and legal liabilities through effective leadership, the appropriate structure, and with competent skills.
2) Achieve legal compliance with environmental legislation as a minimum requirement in all activities through effective management systems, monitoring, reporting, and research.
3) Reduce particulate and gaseous emissions to minimise the impact on human health and comply with regulated emission standards.
4) Reduce freshwater usage and avoid liquid effluent discharge to avoid affecting water resources, including groundwater, through effective water management processes and the use of mine water and wastewater treatment plants (grey water).
5) Improve waste management efficiency by prioritising reduction, reuse, and recycling while actively implementing principles of circular economy.
6) Minimise the impact of the activities on ecosystems and enhance the ecosystem services through responsible land and biodiversity management practices.

To minimise the impact of the activities on ecosystems, Eskom will continue to contribute to the improvement of the state of the South African natural environment and health of communities through:

1) air quality offsets.
2) management of specific Eskom land as nature reserves.
3) maintain a polychlorinated biphenyls (PCBs) free environment; and
4) reduction in red data mortalities through implementation of bird proactive mitigation plans.

APPROVALS PAGE

The strategy outlines Eskom's intended environmental strategic direction for the financial years 2024/25 to 2029/30 and puts a specific focus on its immediate priorities for 2024/25.

This Eskom Environmental Management Strategy was shared with the business for inputs.

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Senior Manager Environmental Management	GM: Risk and Sustainability
Date: 03 April 2024	Date: 4 April 2024

Information security

This Eskom Environmental Management Strategy must be treated in accordance with the Eskom Information Security Policy (32-85). Information resources are Eskom's business-critical assets requiring a high level of protection. Sufficient measures commensurate with the risk must be taken to protect these information resources against accidental or unauthorised modifications, disclosure, and/or destruction as well as to provide assurance regarding the confidentiality, integrity, and availability of Eskom's information resources.

3 STRATEGIC CONTEXT (WHY?)

Globally and locally, the energy sector is being transformed (Figure 1), driven by fundamental shifts in policy, technology, economic, and environmental demands. The industry is evolving from a predictive, vertically integrated model that is based on centralised generation flowing in a single direction that leverages economies of scale towards a decentralised, modular model based on a bidirectional flow of power. This introduces new players to the industry and an unfolding series of demand-centric, value-adding applications. The most significant of these is the shift towards greener, cleaner technology, which aims to reduce overall emissions in line with South Africa's commitment to the Paris Agreement.

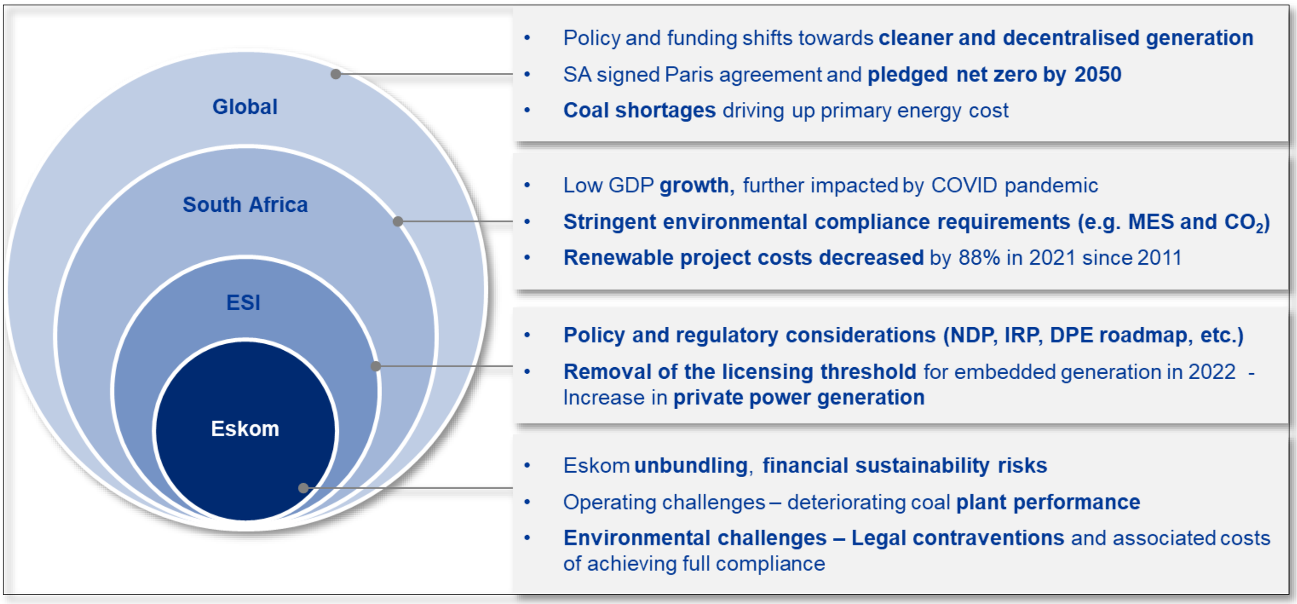

FIGURE 1: GLOBAL AND LOCAL INFLUENCES ON ESKOM'S STRATEGIC DIRECTION

Eskom has also experienced major operational, financial, and structural challenges as presented in Figure 2. These challenges have affected vital national priorities such as economic growth, job creation, and efforts to combat poverty in South Africa. The current ageing infrastructure, skills shortage, stringent policy requirements, theft, and vandalism, as well as the overall poor performance of the generation business present systemic risks to the South African economy. Eskom's weak balance sheet, high debt burden, and lower than cost-reflective tariffs pose a risk to the financial sustainability of the organisation. For Eskom to contribute towards improving the capacity shortages currently being experienced, it remains a priority to address grid constraints to connect additional capacity in high-yielding areas.

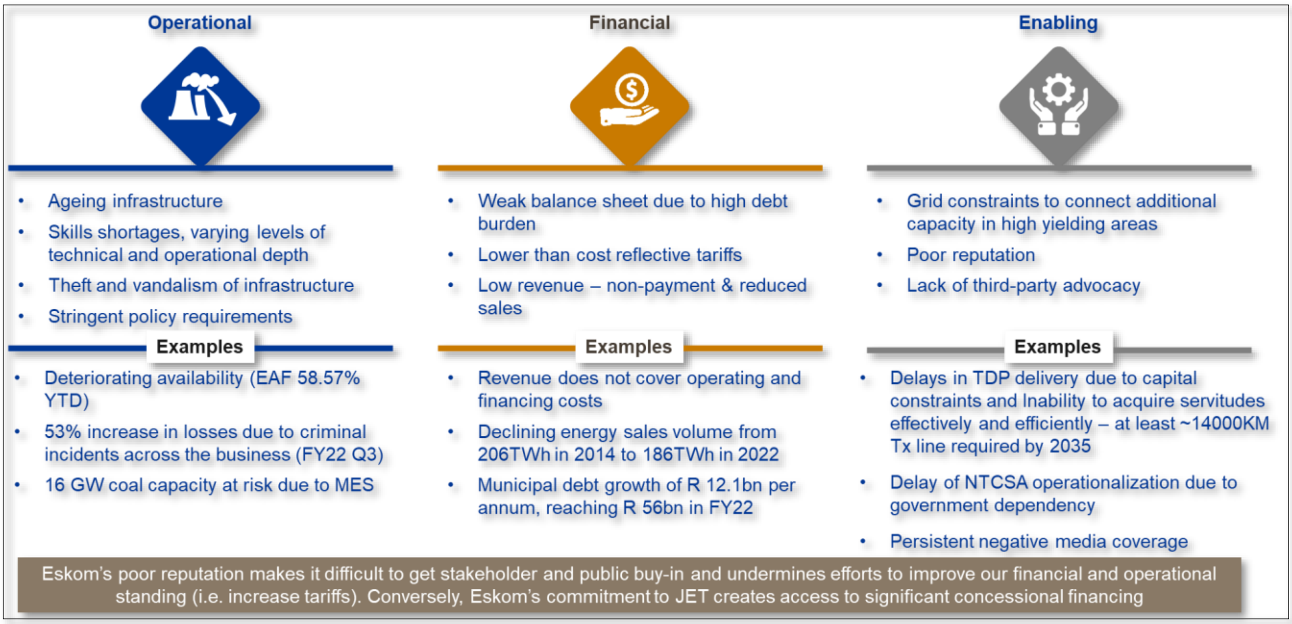

FIGURE 2: ESKOM STRATEGIC DIRECTION

Eskom's dilemma is that, as it responds to the global and local transformation that is shaping the electricity sector, it must first resolve the prevailing operational, financial, and structural challenges that are threatening its ongoing business sustainability. Consequently, in the shorter term, Eskom must focus on its Turnaround Plan, which, when achieved, will provide it with a foundation to pursue its longer-term strategic trajectory. The long-term strategy is in response to the major industry trends that are shaping the future of the electricity sector, which can be summarised as four key themes, namely, decarbonisation, decentralisation, digitisation, and democratisation.

- **Decarbonisation**

The industry is experiencing huge shifts towards more carbon-efficient energy sources, resulting in global climate neutrality goals. This shift is driven by the continued decrease in renewable energy technology costs, more stringent environmental policies in line with the Paris Agreement, and funding availability for coal and coal-related projects decreasing significantly. The developed world is focusing on carbon-intensive technologies to mitigate the energy shortages caused by the Ukraine war, which is affecting South Africa.

- **Decentralisation**

Large utilities are paying more attention to distributed energy, which brings about new roles and participants in the power market. The penetration of residential and commercial rooftop photovoltaics (PV) has increased significantly in South Africa, particularly considering new regulations permitting South Africans to generate their own electricity for self-consumption. Decentralisation will require utility operations to be decentralised for local area control.

- **Digitisation**

Digitisation and digitalisation have become more prevalent to incorporate and co-ordinate distributed generation efficiently and improve the overall efficiency of the grid and operations across business value chains. The industry is experiencing an increase in digital electricity infrastructure investment and decreasing costs for grid technologies. New data, generated globally, will lead to new ideas and has huge value creation potential.

- **Democratisation**

Future energy systems will incorporate many customer technologies through decentralised generation and decentralised ownership. Artificial intelligence (AI), blockchain, the Internet of things (IoT), and advanced analytics start-ups are also disrupting the status quo and are driving innovation in this space.
Like many countries, South Africa is also grappling with the energy trilemma as depicted in Figure 3. The energy trilemma refers to the three interconnected challenges that energy systems worldwide face: energy security, energy equity or access, and environmental sustainability.

These three aspects form a complex triangle where improvements in one area can sometimes lead to challenges or trade-offs in another. It is critical for South Africa to find the balance between energy security, affordability, and sustainability.

As a developing country there are difficult trade-offs that need to be made to ensure security and affordability in the short term. Relative priority placed on each dimension evolves over time based on the context. Therefore, decision making during this dynamic context needs to enable sufficient flexibility to respond to changing context.

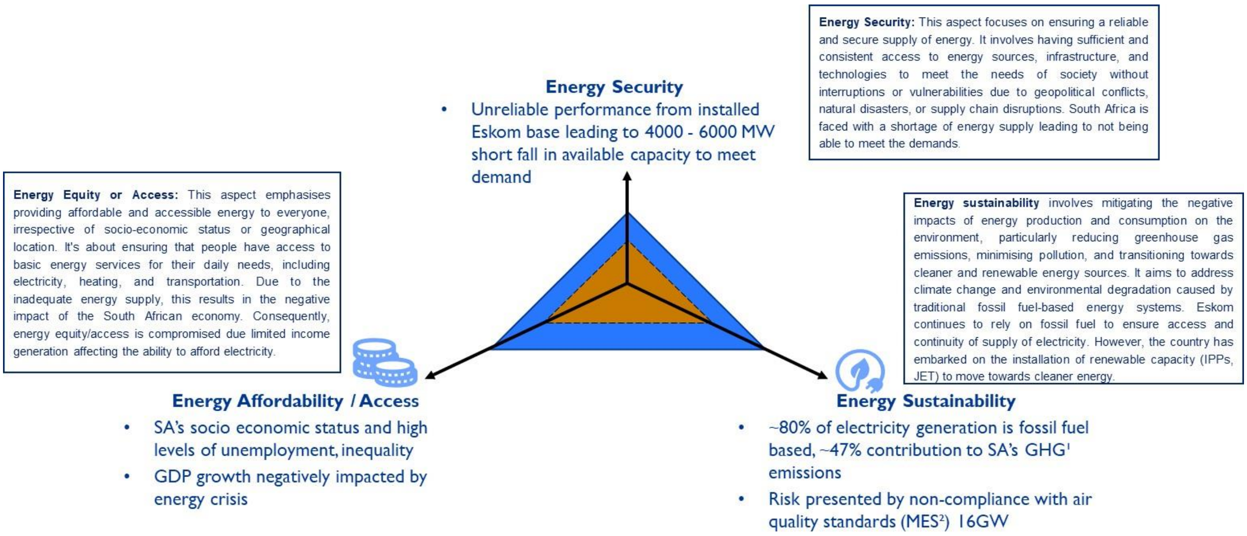

FIGURE 3. THE ENERGY TRILEMMA WITHIN ESKOM'S CONTEXT

3.1 Eskom mandate, vision, mission, and values

In line with the major global trends and influences highlighted above, Eskom has adapted its mandate, vision, and mission to provide guidance in setting the overall long-term strategic direction for the organisation. These promote sustainability and Eskom's contribution to the electricity supply industry from a technological, environmental, social, and financial perspective.

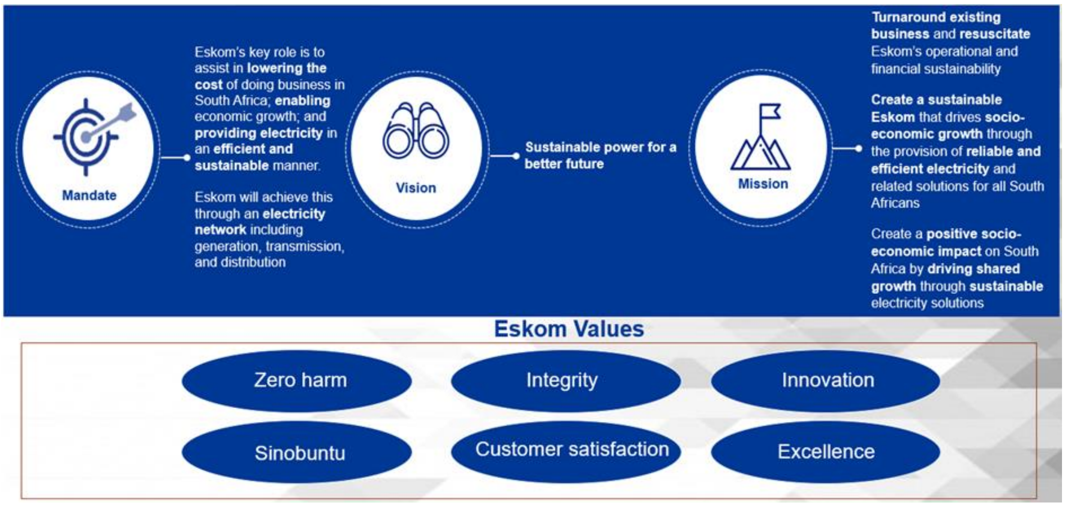

FIGURE 4: ESKOM'S MANDATE, VISION, MISSION, AND VALUES

While Eskom's focus is on delivering the outcomes of the Turnaround Plan, a deliberate focus will be placed on aligning its future investments and aspirations (Eskom's strategic trajectory). By driving a just energy transition (JET), Eskom will be enabled to address many of its immediate challenges in the short term while ensuring long-term growth and sustainability. The JET will also assist with supporting national goals to decrease greenhouse gas emissions, promote job creation through reskilling, and stimulate economic growth.

Objectives		Short term (0-3 years) - up to 2026	Medium term (3-6 years) – up to 2030	Long term (>6 years) – up to 2035
Deliver Turnaround Plan	Operational Recovery	▪ Achieve EAF of 60% by end Mar '24; 65% by end Mar '25 - Recover ~6000MW by 2025 ▪ Procure additional ~8000 MW capacity ▪ Implement demand side management (~750MW) ▪ Implement emissions abatement plans	▪ Implement demand side management (~1200MW) ▪ Procure ~6000MW additional capacity ▪ Improve payment levels above SHC target of 93,0%	▪ Reduce energy losses to 9.26% (TWh TBD)
	Financial Recovery *Debt and Liquidity*	▪ Implement balance sheet solution ▪ Deliver cost efficiencies & optimise working capital ▪ Optimise capital allocation, structure and discipline ▪ Limit municipal debt growth to R8bn/annum ▪ Reduce Energy Losses ~ 500GWh	▪ Implementation of optimal tariff structure ▪ Achieve cost reflective tariff ▪ Gx to migrate to profit focused production ▪ Dx to reduce Energy Losses volumes ~ 1TWh	▪ Increase non-regulated revenue
	Legal Separation	▪ NTCSA trading by April 2024 ▪ Separate Dx business by April 2025 (under review) ▪ DPE direction on path to establish NEWCO	▪ Establish & Operationalise NewCo ▪ Separate Gx business	▪ Complete legal separation process
	People and Culture	▪ Improve leadership quality and stability ▪ Strengthen governance foundation ▪ Entrench an ethical, high-performance culture towards a values driven organisation	▪ Attract, develop, retain critical skills and ensure strong pipeline for all critical positions ▪ Position Eskom as the employer of choice	▪ Ensure future fit and productive organisation
Prepare for Competition		▪ Establish energy trading market platform ▪ Launch low voltage wheeling arrangements ▪ Develop and offer ancillary services to the market ▪ Tariff restructuring and Influence EDI restructuring	▪ Revise Dx business model ▪ Establish Gx markets function ▪ Establish DSO & energy trader ▪ Investigate pumped storage options	▪ Increase market share in clean energy generation
Modernise the Power System		▪ Grid strengthening and expansion - 850km, 6790 MVA of transformation capacity ▪ Smart meter and smart grid roll out ▪ Digital business transition strategy finalised	▪ Construct cumulative ~ 2 400 km transmission grid and install ~8 600 MVA of capacity ▪ implement Dx wholesale and market trading platforms	▪ Implement ancillary products & services ▪ Construct cumulative 14 000 km of transmission grid cumulatively install ~170 units of transformers
Transition Responsibly (JET)		▪ Deliver Komati repurposing & repowering (R&R) ▪ Finalise Hendrina, Grootvlei, Camden and Arnot repurposing and repowering R&R approach and decision on Camden and Hendrina R&R plans ▪ Dx renewable tech deployments (microgrids, BESS, PV, etc.)	▪ Revisit Eskom's participation in new capacity projects ▪ Implement Hendrina, Grootvlei, Camden shut down and finalise, Tutuka, Kriel, Duvha, Matla R&R plans ▪ Dx Emobility and charging infrastructure	▪ Implement Tutuka, Duvha, Matla R&R ▪ Decrease SO_2 by 45%; NOx by 55%,PM by 77% and CO_2 by 38% (2021- 2035) ▪ Decide on last-mile decarbonisation options to get to net zero by 2050

FIGURE 5: STRATEGY GOALS OVER THE SHORT, MEDIUM, AND LONG TERM

The aim of Eskom's strategy is for Eskom to contribute to providing electricity to meet growing demand, have a significantly reduced financial dependence on the South African government, and demonstrate positive environmental and socio-economic impacts. In the short to medium term, a focused effort on performance improvement and optimisation, as well as financial turnaround, is critical. With global and national focus on decarbonisation, Eskom will also be initiating plans and programmes to gradually transition away from fossil-fuel-heavy operations to cleaner energy operations. The introduction of renewables and other cleaner technologies, as well as the expected shutdown of coal-fired power stations (~22 GW nameplate capacity by 2035), will require significant strengthening and expansion of the transmission infrastructure, in line with the stated capacity requirements of the Transmission Development Plan (TDP).

Eskom needs to, furthermore, position itself to respond to the changing environment through the introduction of technology for better efficiencies, the establishment of a Distribution System Operator to manage and co-ordinate distributed generation as a neutral facilitator of open markets, and active partnering to solve incapacity and non-payment challenges at municipalities.

Typically, resolving one element of an energy trilemma involves confronting the others. Improving energy security, for instance, might necessitate the increased use of domestic fossil fuels, which is detrimental to the environment. Environmental sustainability through the transition to renewable energy sources may increase costs and decrease energy security and accessibility.

4 FUNCTIONAL CONTEXT (WHY?)

4.1 Purpose of the Environmental Management Strategy

This strategy is in support of the Eskom's Vision of "Sustainable power for a better future". To achieve this Eskom needs to maintain its environmental duty of care. Section 24 of the Constitution of the Republic of South Africa of 1996 guarantees everyone a right to an environment that is not harmful to his/her health and well-being and to have the environment protected for the benefit of present and future generations.

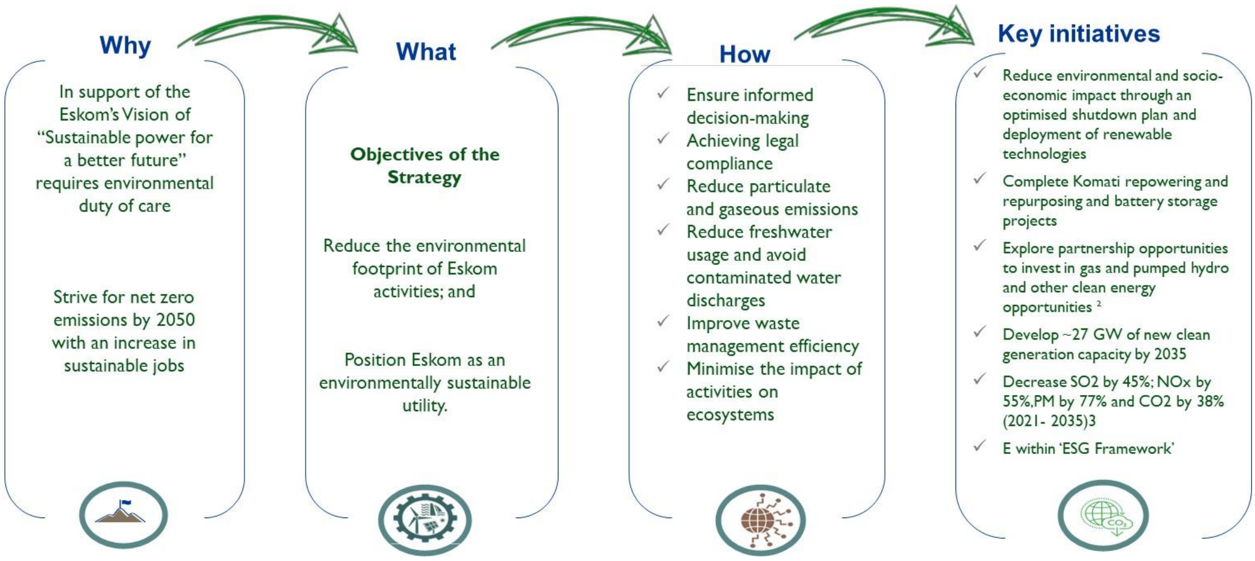

FIGURE 6: ENVIRONMENTAL STRATEGY

The Environmental Management Strategy aims to guide efforts in addressing environmental issues to ensure environmental duty of care and promote sustainable practices. The environmental considerations in Eskom's operation will be integrated with sustainable goals and drive all the responsible practices that are meant to protect the environment. This will result in compliance with legislation, efficiency enhancement, and contribution to improved environmental practices. The strategy outlines the actions, objectives, and policies aimed at mitigating environmental impacts and promoting a sustainable future.

Environmental duty of care in all we do and, as a minimum, meeting Eskom's compliance obligations are critical to ensure a sustainable business now and into the future. However, current environmental performance and the environmental risks that have materialised in parts of Eskom's operations over the last few years have made it clear that the control measures implemented have not been fully effective. While environmental performance in Generation has been poor, there has been continual improvement in processes and practices in Transmission, Eskom Rotek Industries (ERI), and Distribution that has led to good and improved performance. The Environmental Management Strategy, which is aligned to Eskom's Turnaround Plan, is critical in shaping and supporting Eskom's strategic direction and the alignment of the environmental objectives. The integration of the environmental objectives, culture, accountability, and decision-making processes into the strategic direction will ensure that environmental sustainability contributes to a positive impact on the environment.

4.2 Environmental context

Eskom is in an unprecedented financial situation, which has necessitated the business making several very difficult decisions. To ensure the continued viability of Eskom, substantial reductions in anticipated capital and operational expenditures have been implemented. However, this course of action has not been undertaken without due regard for community health and the environment.

The desired end state for Eskom is a company that can contribute to providing electricity to meet growing demand, has a significantly reduced financial dependence on the South African government, and demonstrates positive environmental and socio-economic impacts. The Department of Forestry, Fisheries, and the Environment (DFFE) Strategic Plan 2019/20 to 2023/24 sets the five-year strategic plan. The plan takes the eight priorities of national government into account, including the need to grow the South African economy, eradicate poverty, and improve the lives of all people in our country. The plan is not only in line with the constitutional commitment to provide a healthy environment for all and to ensure sustainable utilisation of natural resources, but also meets the requirements of the National Development Plan's Vision 2030, which requires a transition to a low-carbon, climate-resilient, and just economy, and society. In support of this vision Eskom has formulated a Just Energy Strategy with the dual purpose of propelling the nation and the economy of South Africa towards greater environmental sustainability and facilitating a fair energy transition. These endeavours will have a profound impact on the environment and yield positive outcomes.

The DFFE's strategic direction is impacted by external environmental factors such as degradation of ecosystem services (including water quality and quantity, air quality, and declining land productivity that compromise food security), trending global environmental threats (including climate change and degradation of ecosystem services), and global responses motivated by a changing world order that emphasises international economic competitiveness and the collapse of multilateralism.

To attain a desired future, the Global Resources Outlook to 2060 (Natural Resources for the Future We Desire) emphasises the importance of sustainable utilisation and management of natural resources. It is acknowledged that natural resources are indispensable for economic growth, environmental sustainability, and human well-being. These resources include land, water, minerals, forests, and biodiversity.

"Towards a Global Pact for the Environment" (Resolution 72/277) was enacted by the United Nations (UN) General Assembly (the Assembly) on 10 May 2018. The pledge affirms the necessity of adopting a unified stance and set of guiding principles to motivate and direct the collective endeavours towards environmental protection and preservation.

The subsequent 27 articles are directly applicable to the formulation of Eskom's environmental strategy:

1. Right to an ecologically sound environment
2. Duty to take care of the environment.
3. Integration and sustainable development
4. Intergenerational equity
5. Prevention of environmental harm by following a precautionary approach
6. Remediation of environmental damage
7. Ensuring that the polluter pays for environmental disruption and degradation.
8. Proactive encouragement of public participation
9. Access to information

Eskom's key activities that have a negative impact on the environment are related to the generation of electricity (air emissions, water usage, water effluent, nuclear waste, and ash disposal) including the transmission and distribution of electricity (animal interactions with infrastructure, vegetation control in servitudes, oil spillages, and waste disposal).

The environmental contributions pertain to the management of Eskom land at power stations as nature reserves, generation of electricity by Eskom and through lease agreements to Independent Power Producers (IPPs), water supply to third parties and air quality offsets, and transmission and distribution of electricity by electrification, which reduces ambient air quality in urban areas. These contributions are frequently associated with social aspects.

4.3 Principles and rules that apply to the environmental strategy.

Eskom’s environmental strategy is intended to ensure that its own environmental policy statements and rules/principles, as outlined below, are achieved, and maintained. The following documents have a bearing on the environmental strategy.

Eskom’s Safety, Health, Environmental, and Quality (SHEQ) Policy (32-727)	The purpose of this policy is to set the commitment for safety, health, environment, and quality management in Eskom and to ensure uniformity across the organisation.
Eskom’s Air Quality Improvement Plan (32-1143	The objective of Generation’s Air Quality Improvement Plan is to reduce particulate and gaseous emissions from Generation power stations.
Atmospheric Emissions Management Policy (32-419)	The primary objective of the air quality implementation is to minimise the impact of air quality on human health, and this and the other objectives will be obtained by the implementation of integrated initiatives
Eskom’s Waste Standard (32-245)	Eskom supports government’s commitment to waste management for ensuring the protection of health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation.
Eskom’s Land and Biodiversity Policy (32-736)	The policy statement is as follows: Eskom will follow the mitigation hierarchy in its approach to the management of biodiversity throughout the life cycle of its operations (planning, construction, operations, maintenance, and decommissioning activities).
Eskom’s Water Management Policy (32-1163)	Eskom, as a strategic water user, is committed to focusing on four key pillars to ensure that it uses water in a sustainable way throughout its business value chain, while complying with water legislation and ensuring alignment with the objectives of Sustainable Development Goals (SDGs) 6, 13, and 17: (a) corporate water stewardship; (b) assurance and compliance; (c) stakeholder management; and (d) training and development.

Eskom’s current situation

Ensuring a sustainable business for the present and future generation, necessitates the fulfilment of Eskom's compliance obligations and upholding an environmental duty of care in all that we do.

The present environmental performance is poor in some areas and some environmental risks have materialised in relation to Eskom's coal-fired power station operations. This has demonstrated that the implemented control measures are not fully effective primarily due to the partial ineffectiveness of the Strategic Water Management Implementation Plan and the Air Quality Improvement Plan. In contrast to the poor environmental performance exhibited by Generation - Transmission, Eskom Rotek Industries, and Distribution have consistently implemented processes and practices that have resulted in improved performance.

The demands of electricity production against implementation of the environmental projects necessitating shut down of units to enable upgrades are in continuous conflict due to supply constraints and associated load shedding. While electricity production aims to meet the energy needs of society, environmental projects focus on mitigating the negative impacts of Eskom’s activities on the environment and ultimately on the health and wellbeing of society.

Electricity production from coal-fired power stations has a high demand for water (water-intensive), particularly regarding water for cooling purposes. Within the South African context, aquatic ecosystems are being impacted by the strain on local water supplies caused by the increased demand. Priority must be given to environmental initiatives that safeguard watersheds, promote water conservation, and ensure adequate water flow in rivers and streams. Failure to develop and implement appropriate strategies could potentially lead to water usage restrictions for power plants.

To achieve a balance between environmental initiatives and electricity production, meticulous planning, stakeholder engagement, and policy formulation are required. Many initiatives including frameworks for sustainable development, renewable energy incentives, and targets for reducing emissions, aim to reconcile these competing demands by promoting the generation of cleaner energy while minimising environmental impacts.

How did we get here?

Eskom's current situation where all the environmental objectives have not been met, can be attributed to a combination of factors:

1. Operational discipline has been a challenge, which has led to inefficiencies and non-adherence to environmental legislation and standards. This has contributed to a decline in environmental performance.
2. The environmental performance has deteriorated over the years with respect to specific water uses, relative particulate emissions, and environmental legal violations. The decrease has additionally had an impact on the capacity of numerous power plants to adhere to the conditions outlined in its water use and atmospheric emission licences. This decline has resulted in adverse environmental effects and has placed Eskom and its personnel at unacceptable levels of legal liability; this is despite Eskom's increased emphasis and concern for environmental protection.
3. There is a skills gap within the organisation, which has resulted in insufficient capacity to meet the demand for effective environmental management. The lack of specialised technical skills has made it difficult for Eskom to implement and maintain environmentally sound practices.

4. Inadequate plant maintenance has played a significant role in the deterioration of environmental performance. Ageing plant infrastructure has led to increased emissions and environmental impact due to the lack of proper maintenance and upgrades exacerbated by a shortage of supply to meet demand.
5. The execution of retrofit projects, such as fitting Flue Gas Desulfurization (FGD) at Medupi, has been delayed. This has limited Eskom's ability to modernise its plants and reduce emissions effectively.
6. Eskom has not proactively implemented abatement technologies as previously committed. This failure to fulfil previous commitments has resulted in a delay in reducing environmental impact and improving overall environmental performance.
7. Eskom is unable to adhere to the SHEQ Policy commitments, which sets the rules and principles for environmental management in Eskom.

All these factors combined have contributed to Eskom's current poor environmental performance. An analysis of environmental incidents in Eskom revealed the following root causes: equipment failure, deviation from standard practice/procedure, inadequacy of standards, inadequate engineering, uncontrolled natural causes (e.g., rainfall). The highest number of root causes was attributed to human error/inaction, equipment failure, followed by deviation from standard or procedure. The 2023/24 quarter three performance for environmental legal contravention incidents indicated a particularly challenging year, with a total number of reported contraventions at 62 incidents, YTD, end January 2024. Four (4) of these incidents were registered as environmental legal contravention incidents in terms of the failure of business systems (FBS).

The majority of the reported legal contravention incidents were particulate emissions-related to exceedances of atmospheric emission limits, accounting for 60% of incidents in FY2023/24. Water and waste related incidents accounted for 39% and 1% respectively of the 2023/24 legal contravention incidents. Several coal-fired power stations received pre-compliance and compliance notices related to non-compliance with atmospheric emission and water use licences. In Distribution, the KwaZulu-Natal Operating Unit was issued with criminal charges in October 2023. These charges are part of a criminal prosecution process for alleged contraventions contained in previously issued pre-compliance notices for the iSimangaliso World Heritage Park.

5 KEY CONSIDERATIONS PERTAINING TO THE ENVIRONMENTAL STRATEGY

Through the strengths, weaknesses, opportunities, and threats (SWOT) analysis undertaken, the following were identified, among others in the appendices. These included the various related business intelligence, internal and external analyses of the environment (for example, SWOT, political, economic, social, technological, environmental, and legal (PESTEL), etc.), and so on, including an identification of risk(s) leading to the need for the strategy.

5.1 Eskom's environmental strengths that need to be further leveraged.

- There is a robust compliance framework in place supported by a SHEQ policy, functional strategies, procedures, standards, technical documents, legal registers, combined assurance (Level 1, Level 2 and Level 3) assurance audits and reviews, KPIs, and certified management systems.
- Experienced environmental practitioners throughout the business.
- Strong stakeholder relationship.

5.2 Opportunities to be leveraged.

- JET programmes and Eskom's role in shifting South Africa towards cleaner energy over time in a just manner, resulting in a change in the energy mix to reduce emissions and water use.
- New or future technologies: biomimicry, emission reduction, and water treatment.
- Divisionalisation and environmental roles and responsibilities at appropriate levels and in appropriate entities.
- The National Treasury's debt relief to Eskom, which means that Eskom can fund maintenance- and environmental-related projects.

5.3 Identified weaknesses that need to be addressed.

- Poor operational and technical performance at many coal-fired power stations, leading to poor water and air quality management practices and performance.
- Environmental issues being traded off against other competing priorities (for example, an area that is traded off when it comes to costs) – operating practices that deprioritise the environment.
- Loss of critical skills
- The lack of disciplined execution in implementation is evident, particularly in neglecting the maintenance regime/philosophy of systems. Issues are only addressed during breakdowns or crises, highlighting a need for proactive attention.
- The inability or failure to comply with the environmental authorisations due to lack of disciplined execution, lack of skills for interpreting the environmental legislation requirements, as well as time

pressures requiring urgent execution of projects (e.g., the electrification projects).

- Addressing declining environmental performance requires identifying and implementing solutions without interrupting operations, considering the impracticality of halting operations due to high energy demands.
- Coal quality issues lead to high ash content, causing disruptions in the ash conveyance system and emergency dumping of ash on the floor. Prolonged problems could result in persistent blockages, presenting significant challenges.
- Addressing poor operational behaviour necessitates a significant shift in management's approach towards exercising a duty of care. This transformation will bolster environmental compliance and mitigate harm to the environment.
- Capacity building is essential to empower on-site personnel, enabling them to comprehend the consequences of non-compliance with procedures and regulatory requirements.
- A significant change is necessary to restore operations to their normal functioning. This will entail consistently adherence to the principle of "doing the right things at all times".
- Cultivating a culture of accountability is crucial in taking responsibility for unacceptable actions. This cultural shift will contribute to enhancing environmental performance, indirectly leading to improvements in technical performance.

5.4 Identified threats that require treatment.

- Increased environmental incidents and non-compliance with conditions of AELs, EAs and WULs have led to increased authority monitoring, inspections, and sanctions pre-compliance notices, compliance and enforcement (including criminal investigations and prosecution).
- Decommissioning and rehabilitation of coal-fired power stations – will lead to material environmental liabilities.
- Greater pressure from non-governmental organisations (NGOs), external stakeholders and communities building up environmental cases that could lead to private prosecutions.
- Investor appetite for continued poor environmental performance i.e., funders.

5.5 External environmental shifts

This section provides a summary of the key drivers identified and changes in the environment that will radically alter the future of the business. These are the outcomes of the environmental scan, business intelligence, and research that will alter the future business and, therefore, Eskom's approach to environmental management, as follows:

- Concerns about the health effects of air emissions are likely to grow, and regulations will become more stringent; thus, the probability and magnitude of impacts on the Eskom business are likely to increase.

- Regulatory changes and increased scrutiny may lead to increased environmental enforcement, and future environmental compliance costs could have a material adverse effect on an already constrained balance sheet.
- Failure to comply with legal requirements could subject the business and individuals to substantial penalties and fines, including criminal prosecution of individuals.
- A growing awareness among stakeholders, politicians, industry, and the general public regarding the impact of both ambient air pollution and its effect on people's health and well-being; and climate change is expected to continue to drive momentum away from fossil fuels towards a low-carbon economy going forward, increasing the risk of stranded carbon assets and increased scrutiny of individual energy infrastructure investment.
- The electricity infrastructure is increasingly threatened by extreme weather patterns. Resilience to the expected changes in climate is likely to require new approaches to network planning, risk analysis, contingency management, and innovation.
- The continued rise in renewable energy, distributed generation and battery storage have introduced new players to the market; this may also challenge the economics of power generation businesses, along with the current economic conditions.
- Government's own national development plans aligned with the United Nations' 17 Sustainable Development Goals (SDGs) could lead to a need for holistic environmental and socio-economic approaches.

5.6 Critical issues to address or significant opportunities to leverage/exploit.

Building on historical successes, Eskom will continue to reduce the negative environmental footprint of Eskom's activities through a holistic approach, which includes the following:

- Incorporating decisions to prevent environmental damage, such as the preservation of power plants in preparation for a complex future grid and energy mix.
- Achieve legal compliance with environmental legislation as a minimum requirement. Adherence to permits and licenses such as Environmental Authorisations (EAs), Water Use Licences (WUL), tree cutting and heritage permits, and other applicable legal requirements.
- Reduce gaseous and particulate emissions to mitigate health and climate change effects.
- Mitigate environmental harm imposed on property and infrastructure, such as sinkholes and severe weather, which may compromise stability and operational effectiveness.
- Reduce/avoid human encroachment (invasion) on Eskom servitudes and properties by prohibiting

unauthorised entry or utilisation of Eskom-designated sites, potentially disrupting the environmental activities.

- Increase the effectiveness of waste management through reduction, reuse, and recycling. Adherence to waste management regulations and to the principles of the circular economy.
- Reduce the amount of freshwater utilised and impede the discharge of effluent to preserve water resources and minimise costs.
- Minimise the impact of our activities on ecosystems and enhance ecosystem services through responsible land management practices and mainstreaming of biodiversity into Eskom's business processes.

Addressing these challenges within an environmental strategy involves a multifaceted approach that encompasses policy implementation, stakeholder engagement, technology utilisation, and continuous monitoring and improvement to achieve sustainable and compliant operations.

6 AVAILABLE OPTIONS

This environmental strategy is aligned to the Corporate Plan (Eskom Holdings Corporate Plan FY2024 to FY2028, Rev. 13, Unique Identifier 240-56927206) and legal separation, which includes the adoption of the functional leadership model. The functional leader operating model capitalises on economies of scale and skill utilisation, allowing subsidiaries enough autonomy to fulfil their mandates. Corporate support functions have been established to provide enterprise-level direction, policies, guidelines, and assurance. This framework ensures that the core business operations, which drive value, function effectively and efficiently while upholding accountability.

The environmental strategy, therefore, reflects what is applicable to each of the divisions and ensures that there is alignment of Distribution, Transmission, and Generation environmental objectives/KPIs with Eskom's strategic environmental objectives.

6.1 Making a step change.

Implementing a step change that will result in the achievement of the environmental strategy involves significant and transformative actions to expedite progress and achieve substantial improvements. Some of the step changes required are listed below:

- Executive management support is crucial for the implementation of the environmental strategy. It should cascade down to all operations. Divisional leadership should develop plans aligned to the strategy and track initiatives achieve the objectives.
- To ensure transparency and accountability, we must have clear objectives and targets that are specific, measurable, achievable, relevant, and time-bound (SMART). In addition, the allocation of sufficient resources, and investment in sustainable technologies are important.
- Environmental sustainability demands a decisive action plan. It is important to allocate resources, adopt sustainable technologies. These involve adopting renewable energy sources, implementing advanced monitoring systems, or utilising eco-friendly materials and processes.
- Ensure employee engagement through training programs. Employees at all levels must be engaged and empowered to make sure everyone works towards the common goal of environmental sustainability. There is no alternative to a determined stance towards these measures in achieving a sustainable future.
- To ensure the success of an environmental strategy, it is important to implement robust monitoring mechanisms to track progress. This allows for adjustments to be made in real-time, ensuring that the strategy remains aligned with goals and adapts to changing circumstances.

- Transparency is key in maintaining environmental performance. Always reporting results and achievements and presenting turn-around programmes can help effect performance improvements. This not only demonstrates accountability but also encourages continual improvement.
- Risk assessments can help identify potential obstacles or challenges in implementing the strategy. Developing and implementing mitigation/treatment plans are critical to address these risks proactively.
- Engaging with stakeholders beyond Eskom, including local communities, regulatory bodies, suppliers, and customers, is important. Collaboration with external partners can enhance the impact and credibility of the environmental strategy.

The above statements provide a clear direction and aligns all stakeholders towards a common goal. By integrating these approaches and principles into the implementation process, Eskom will be able to drive a significant step change in their environmental strategy, resulting in a meaningful and impactful outcome.

6.2 Implementation of the emissions abatement technologies

To reduce emissions Eskom needs to continue to implement the approved emission retrofit plan to achieve the commitments in addressing particulate emissions, sulphur dioxide, and nitrous oxide limits through the implementation of abatement technologies.

The following is required:

1. Commitment to emissions reduction backed by specific targets and timelines for emission reductions.
2. There are financial implications of implementing abatement technologies, including capital investments, operational costs, and potential sources of funding or partnerships to support these initiatives.
3. Technology selection, such as Flue Gas Desulfurization (FGD) systems, selective catalytic reduction (SCR) systems, and electrostatic precipitators (ESP should be based on its effectiveness in reducing specific pollutants.
4. Eskom should integrate the implementation of abatement technologies with planned plant upgrades and retrofits. This approach will ensure that environmental improvements are incorporated into the overall upgrading of the plant infrastructure.
5. Ongoing research and development are required to identify and assess emerging abatement technologies that may offer improved environmental performance.
6. A robust compliance and monitoring framework should be established to ensure that abatement technologies are effectively implemented and maintained. Monitoring systems should be put in place to assess the performance of these technologies and their impact on emissions.

7. Skills Development should be prioritised, i.e., skills development programs to ensure that employees are adequately trained to operate and maintain the abatement technologies. This may involve collaboration with educational institutions and specialised training providers.
8. Engaging with stakeholders, including regulatory authorities, local communities, and environmental organisations, to communicate the benefits and progress of implementing abatement technologies is imperative for transparency and building trust.
9. A culture of continuous improvement is fundamental, wherein lessons learned from the implementation of abatement technologies are used to inform future decision-making and refine environmental management practices.

By implementing the above, Eskom will be able to demonstrate a proactive approach to the implementation of emissions abatement technologies, ultimately contributing to improved environmental performance and sustainability.

6.3 Transitioning (hybrid) while ensuring security of energy.

The Eskom's Just Energy Transition (JET) strategy is focused on resolving all components of the energy trilemma (Figure 3 - i.e., energy security, energy affordability/access, energy sustainability). In addition, the strategy guides the development of a renewables-dominant power system towards 2050 to progressively, but with certainty, deliver on the 5 Es: Energy, Economy, Employment, Equity, and Environment. The objective is supported by three interdependent pillars: **Just, Energy, and Transition**, which rely on the key Enablers of the JET in turn as depicted in figure 7.

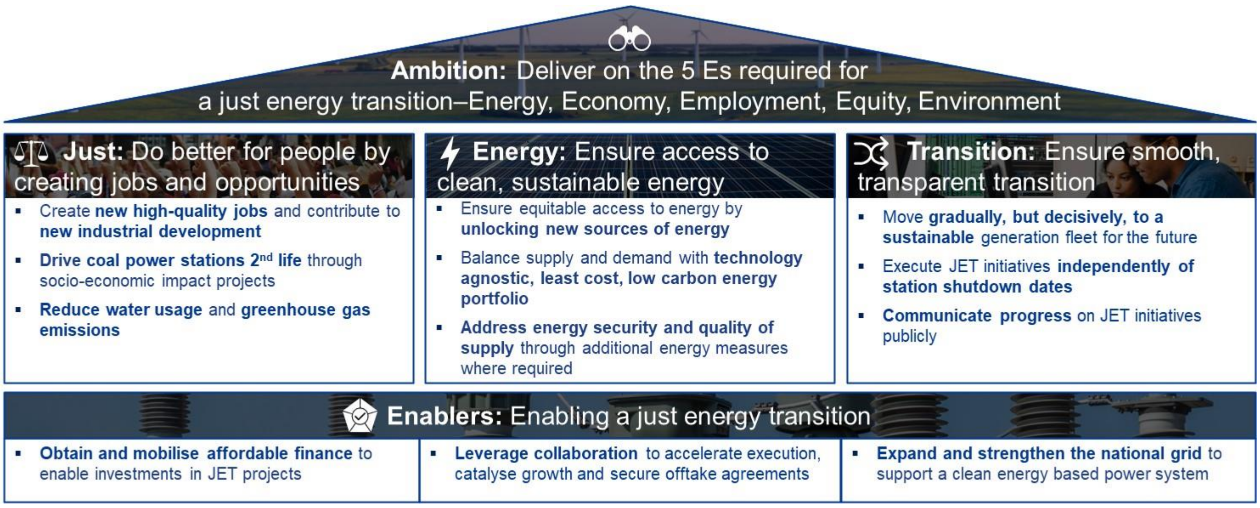

FIGURE 7: JUST ENERGY PILLARS

SOURCE: ESKOM HOLDINGS JUST ENERGY TRANSITION (JET) REVISION 1 AND ROADMAP 2023-2050

Through Eskom's Just Energy Transition, the organisation will move towards a greener economy Given that parts of the current coal fleet are gradually reaching the end of their useful life, and life extension interventions would be costly, new generation capacity is needed to supplement South Africa's insufficient power supply and end load shedding. Eskom's JET Strategy, together with the government's Generation strategy and Energy Crisis Management programme, is focused on addressing these capacity constraints by developing new generation capacity.

In the context of the global effort to mitigate climate change, CO2 emissions from a coal-dominant power system could place a significant proportion of South Africa's exports at risk due to rising carbon import tariffs and related policies among key trading partners. To create jobs, while supporting South Africa's stated emissions and environmental targets, Eskom must gradually transition towards producing more electricity from sustainable sources.

Implementing Eskom's JET will be complex and will require key enablers to be successful. In particular, the JET relies on the mobilisation of sufficient affordable financing, collaboration with stakeholders outside of Eskom to accelerate execution, and a rapid expansion and strengthening of the national grid to support the future energy system. However, it is important for a balance between compliance and energy that is aligned with the sustainable development goals while ensuring legal compliance and operational efficiency.

Environmental criteria forming part of Eskom's JET initiatives include reducing Eskom's contribution to local air pollution and making a positive impact on water conservation and biodiversity. The key outcomes include (ii) repurposing of old power stations, (iii) installing additional renewables, and (iv) ensuring reliability of supply.

7 OBJECTIVES OF THE ENVIRONMENTAL STRATEGY (WHAT?)

This strategy aims to ensure the ongoing improvement in our culture, controls, and practices through visible and felt leadership behaviours that effectively prevent harm to people and the environment. As a corporate citizen of South Africa, Eskom has ensured, and continues to ensure, that its processes and practices reduce the impact of its operations on the environment.

The strategy outlines Eskom's intended environmental management strategic direction for FY2024/25 to FY2029/30 while considering the road ahead. The two environmental strategic objectives in support of the Eskom objectives to strive for net zero emissions by 2050, seek to sustainably mitigate the environmental risks, position environmental management in Eskom, and in so doing improve environmental performance by FY2029/30.

Strategic objectives:

1. reduce the environmental footprint of Eskom activities; and
2. position Eskom as an environmentally sustainable utility.

The following six specific goals aimed at achieving the objectives.

1) Ensure informed decision-making to avoid harm to the natural environment, minimising financial and legal liabilities through effective leadership, the appropriate structure, and with competent skills.

2) Achieve legal compliance with environmental legislation as a minimum requirement in all activities through effective management systems, monitoring, reporting, and research.

3) Reduce particulate and gaseous emissions to minimise the impact on human health and comply with regulated emission standards.

4) Reduce freshwater usage and avoid liquid effluent discharge to avoid affecting water resources, including groundwater, through effective water management processes and the use of mine water and wastewater treatment plants (grey water).

5) Improve waste management efficiency by prioritising reduction, reuse, and recycling while actively implementing the principles of a circular economy.

6) Minimise the impact of the activities on ecosystems and enhance the ecosystem services through responsible land and biodiversity management practices.

8 STRATEGY (HOW?)

By addressing the **"how"** of the environmental strategy, the objectives will be achieved through the following actionable, practical, and realistic aspects. It can be demonstrated as a purposeful approach to improving environmental performance and achieving the two objectives of the strategy.

The strategy is applicable to the Generation, Transmission, and Distribution Divisions and their future legally separated entities, including the subsidiary, Eskom Rotek Industries. This is in line with Eskom's approach to divisionalisation. Divisional Boards that have and will be formally established will be accountable for aligning themselves with the environmental objectives set out in this strategy. There is a responsibility and accountability for the Risk & Sustainability Environmental Management to ensure integration and provide direction and guidance in line with the functional leadership model.

1. Cross-functional/divisional collaboration: Emphasise the importance of cross-functional collaboration within Eskom, ensuring that different departments and teams work synergistically towards environmental goals. This involves establishing environmental governance committees and task teams.
2. Performance Metrics and KPIs: Define key performance indicators (KPIs) and metrics that will be used to measure the effectiveness of the implementation of the environmental strategy. These metrics should be aligned with the overarching environmental objectives and provide a basis for regular performance evaluation.
3. The development of a technology adoption roadmap and integration of emissions reduction (abatement) technologies, outlining the timeline for the implementation of specific technologies at different plant sites. This roadmap should consider factors such as funding, regulatory approvals, and technical feasibility.
4. Detail plans for capacity building and training programs aimed at upskilling employees to effectively operate and maintain abatement technologies. This may involve partnering with external training providers and leveraging internal expertise.
5. Establish a regulatory compliance framework that will govern the implementation of the environmental strategy. This should include governance committees, adherence to environmental regulations, permit requirements, and reporting and monitoring requirements.
6. Address potential risks and challenges associated with the implementation of the strategy and outline contingency plans to mitigate these risks. This proactive approach demonstrates a commitment to risk-aware environmental management.

7. Outline strategies for engaging external partners, such as technology suppliers, research institutions, and government agencies, to facilitate the successful implementation of the environmental strategy.
8. Communication and Transparency are important for both internally and externally regarding the environmental strategy. This includes regular updates, stakeholder engagement, and mechanisms for feedback and improvement.
9. Establish systems/processes/procedures for continuous monitoring of environmental performance and the effectiveness of strategy implementation. This should be accompanied by a commitment to adapt the strategy based on emerging insights and changing circumstances.

8.1 Generation

The Generation Group's mandate is to generate electricity, provide ancillary services, and leverage core competencies to expand the revenue base. This will be done within the bounds of the triple bottom line of financial, environmental, and social sustainability and in a manner that is supportive of the economic growth objectives of the country. The operations of the division affect the environment both positively and negatively, and all the activities rely heavily on the provision of non-renewable resources, including land, water, coal, and air. Generation strives to reduce its environmental footprint and considers environmental performance a key strategic thrust that will enable the power stations to retain their licence to operate and achieve its values, specifically the value of Zero Harm to people and our environment.

With the repowering and repurposing projects, the "just energy transition" emphasises fairness, equity, and inclusivity when shifting from traditional, often fossil fuel-based energy systems to cleaner and more sustainable alternatives. This transition aligns closely with environmental strategies by acknowledging that addressing environmental challenges should not come at the expense of social and economic justice for communities and individuals. The JET will also assist with supporting national goals to decrease greenhouse gas emissions, promote job creation through reskilling, and stimulate economic growth. It is envisaged that the Just Energy Transition will create opportunities for levering South Africa's fleet of aging fossil fuel power stations as they approach the end of their economic life. To catalyse government's JET strategy, Eskom has developed a Repurposing and Repowering (R&R) plan, through our Eskom JET Strategy, which will rejuvenate the value-creating capability of aging power stations to enable the transition to a low-carbon dispensation for South Africa's future electricity sector. Eskom's JET plan embodies the ongoing deep commitment of the organisation to sustainable development.

The case to decommission old, cost-inefficient coal-fired power plants is underscored by the fact that these plants are now unreliable, are uneconomical to maintain or to extend their useful lives any further and have become a key contributor to repeated loadshedding affecting the economy.

Decommissioning its coal plants – starting with Komati, which was shut down on 31 October 2022 – demonstrates Eskom's and the Government of South Africa's commitment to decarbonising the electricity supply sector, adapting to water scarcity, addressing local ambient air pollution, and maximising value for money through investment in lower-cost, cleaner technology options. Concessional funding has been secured through the World Bank for the Komati repowering and repurposing (R&R) project. There are three key activities associated with the shutdown and repurposing of Komati, namely, (1) decommissioning, (2) repowering, and (3) opportunities for workers and communities (as outlined in the Eskom Holdings Corporate Plan FY24 to FY28 Rev. 13 Unique identifier 240-56927206). The Generation's shutdown plan has been reviewed and revised as part of the Eskom 2035 Strategy. This resulted in several power stations, earmarked for shutdown before 2030, being operated longer than anticipated. Table 1 represents Generations' environmental aspects with its related key performance indicators.

TABLE 1: GENERATION DIVISION

Env. aspects	Env. contribution	Env. objective – what	How (initiatives)	Key Performance Areas
Environmental compliance	Management of environmental compliance of our operations.	Achievement of legal compliance	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management system and conditions of contracts on projects ✓Adhere to the legislative	✓Management of legal non-compliances, compliance notices. ✓Zero failure for business systems (FBS) ✓Close-out of non-conformances/ non-compliances

			requirements and regulations	
Air emissions	Contribution to reduction of ambient air quality in residential areas around Eskom's power stations through air quality (AQ) offsets Just energy transition – repurposing of power stations	Reduction of the environmental footprint of Eskom activities	✓Maintenance of environmental management systems ✓Emission reduction plan ✓MES projects ✓Offset programme. ✓Supporting the JET Strategy ✓Repurposing and repowering	Relative particulate emissions reduction SO_2, NO_x, and CO_2 emissions reduction Atmospheric emissions licence compliance Phase 1 and 2 AQ offsets
Water usage	Management of water supply to third parties	Positioning Eskom as an environmentally sustainable utility	Implementation of strategic water management implementation plans which focuses on – detail the initiatives from these plans.	✓Assurance of supply ✓Net water usage ✓Specific water consumption reduction
Water effluent	✓Environmental and social impact assessment inclusive of social issues and ESG reporting. ✓Management of effluent generated at power stations.	Positioning Eskom as an environmentally sustainable utility	Supporting Gx turnaround strategies (preventing discharges and exceedances, complying with the relevant environmental legislation)	✓Incident management ✓Prevention of water spillages to the natural environment. ✓Improved compliance (reduction of legal contraventions, failure of business systems)

				Compliance notices.
Water contamination incidents at GC project site	Continuing with construction and commissioning of power station complex projects	Reduction in freshwater usage and avoidance of liquid effluent	Reduction in freshwater usage and avoidance of liquid effluent	Compliance – breaches and environmental legal contravention incidents
Land contamination	✓Management of Eskom's land at power stations as nature reserves ✓Tax rebates from nature reserves and other opportunities ✓rehabilitation	Positioning Eskom as an environmentally sustainable utility	Alien invasion eradication plan	Alien invasion eradication plan
Biodiversity management	✓Biodiversity offsets ✓Overall risk management ✓Climate change adaptation	Reduction of the environmental footprint of Eskom activities	Management of game on site.	All biodiversity offsets undisputed Alien invasive plants
Waste management	Ash and gypsum beneficiation.	Reduction of the environmental footprint of Eskom activities	✓Ozone-depleting substances (ODS) phase-out ✓Reducing, reusing, and recycling ✓Ash gypsum beneficiation. ✓Waste reduction, reuse, and recycling ✓Minimisation of the impact of our	✓Increased ash sales ✓ODS phase-out

			activities on ecosystems and enhancement of ecosystem services	
Stakeholder engagement	Stakeholder and partnership management	Positioning Eskom as an environmentally sustainable utility	Stakeholder and partnership management	Establish partnerships
Environmental authorisations and permits. Environmental Management Systems	Management of environmental authorisations and systems	Achievement of legal compliance	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management system and conditions of contracts on projects ✓Adhere to the legislative requirements and regulations	✓#of authorisations obtained ✓Retain certification status. ✓Zero failure of business systems (FBS) ✓Close-out of non-conformances/ non-compliances
Environmental impacts related to work undertaken	Continuing with construction and commissioning of power station major projects	Informed decision-making to avoid harm to the natural environment	✓Management of external specialist services contracts ✓Optimisation of resources – management of Eskom	✓Compliance requirements of environmental authorisations ✓Close-out of non-conformances/ non-compliances

managerial and technical environmental leaders.

8.2 Transmission

Transmission's mandate is to provide a reliable and efficient transmission network, System Operator, and energy market services in South Africa and designated electricity markets. Eskom Transmission also carries out projects in respect of the refurbishment of ageing infrastructure, strategic projects, environmental authorisations, and acquisition of sites and servitudes, facilities, production equipment, and strategic capital spares. The acquisition of sites and servitudes and the associated environmental impact assessments (EIAs) and other statutory approvals are necessary to construct transmission infrastructure.

The Eskom Transmission Development Plan (TDP) 2022-2032, indicates that the transmission networks of the Eastern, Northern and Western Cape regions have significant capacity constraints. This plan indicates that historical investments in transmission lines over nine years between 2013 and 2022 resulted in just over 4,000 km constructed while more than 14,000 km of new lines are required by 2032. What about what is required with the formation of the National Transmission Company of South Africa (NTCSA). Table 2 represents Transmission' environmental aspects with its related key performance indicators.

TABLE 2: TRANSMISSION DIVISION

Env. aspects	Env. contribution	Env. objective – what	How (initiatives)	Key Performance Areas
Environmental compliance	✓Management of environmental compliance of our operations.	Achievement of legal compliance	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management	✓Zero failure o business systems (FBS) ✓Close-out of non-conformances/non-compliances

			system and conditions of contracts on projects ✓Adhere to the legislative requirements and regulations	
Biodiversity ✓Animal interactions with infrastructure ✓Vegetation control	✓Catalyst for renewable energy use in South Africa through renewable energy connection to national grid ✓Contribution to sustainability of biodiversity in South Africa through proactive wildlife interaction management and good vegetation control practices	Informed decision-making to avoid harm to the natural environment	✓Maintenance of environmental management systems ✓Implementation of proactive wildlife interaction management practices	✓Wildlife interaction score (WIS) ✓Decrease in Red data bird mortalities
Waste management ✓Oil spillages ✓Asbestos-containing material ✓Emissions – SF_6 gas release	Ensuring that management practices not harmful to the environment	Waste reduction, reuse, disposal, and recycling	✓Asbestos phase-out – disposal ✓SF6 phase-out ✓Appropriate waste disposal	Waste monitoring index (with annual percentage improvements on targets)

	✓Disposal			
Stakeholder management	Positioning Eskom as an environmentally sustainable utility	✓ Ensure stakeholder requirements are met. ✓ Ensure continuous stakeholder engagements.	Stakeholder management, that is, strategic partnerships.	✓ Establish partnerships (for example, the Southern African Power Pool (SAPP) and the International Council on Large Electric Systems (CIGRE) and environmental Competent Authorities. ✓ Agreed engagements with stakeholders
Vegetation control in servitudes	✓Catalyst for renewable energy use in South Africa through renewable energy connection to the national grid and battery storage ✓Contribution to expansion of biodiversity in South Africa through maintenance of power line servitudes ✓ Microgrids project	Minimisation of the impact of our activities on ecosystems and enhancement of ecosystem services	Vegetation control on Transmission infrastructure, that is, facilities, servitudes, and substations.	Set measurable targets for vegetation restoration and enhancement.

Waste disposal	Reduction and management of waste disposal.	Waste reduction, reuse, and recycling	✓Asbestos ✓phase-out / disposal. ✓Oil spill reduction plan	✓Compliance with legal requirements ✓ Asbestos phase-out by 2033.
Environmental authorisations and permits. Environmental Management Systems	✓Management of environmental authorisations and permits. ✓Maintenance and continual improvement of environmental management systems	✓Achievement of legal compliance ✓Strive for zero harm to the environment.	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management system and conditions of contracts on projects ✓Adhere to the legislative requirements and regulations. ✓Digitising tools, that is, reporting, environmental authorisations, permits, and licences	✓#of authorisations obtained ✓Retain certification status. ✓zero failure of business systems (FBS) ✓Close-out of non-conformances/non-compliances ✓Compliance – breaches and environmental legal contravention incidents
Ensure that all the environmental authorisations are applied for and obtained	Compliance to the environmental regulatory requirements of commissioning of powerlines.	Minimisation of the adverse impacts on the environment, protection of natural resources, and promotion of sustainable	Minimisation of the adverse impacts on the environment, protection of natural resources, and promotion of sustainable	✓ Compliance to the requirements of environmental authorisations. ✓Close-out of non-conformances/ non-compliances

		practices for the benefit of current and future generations.	practices for the benefit of current and future generations.	

8.3 Distribution

Distribution's mandate is to power economic growth through the provision of reliable electricity and related energy services to our customers in a sustainable manner. Eskom needs to further position itself to respond to the changing environment through the introduction of technology for better efficiencies. Table 3 represents Distribution' environmental aspects with its related key performance indicators.

TABLE 3: DISTRIBUTION DIVISION

Env. aspects	**Env. contribution**	**Env. objective – what**	**How (initiatives)**	**Key Performance Areas**
Environmental compliance	Management of environmental compliance of our operations.	Achievement of legal compliance	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management system and conditions of contracts on projects ✓Adhere to the legislative requirements and regulations	✓Zero failure of business systems (FBS) ✓Close-out of non-conformances/non-compliances
Animal interactions with infrastructure	Reduction in red data bird mortalities	Informal decision-making to avoid harm	✓Maintenance of environmental	✓Wildlife key performance indicators

		to the natural environment	management systems. ✓Roll-out of proactive wildlife interaction management practices to ensure that wildlife is not adversely affected during undertaking of Eskom's operations, thereby promoting conservation.	✓Red data bird mortalities
Vegetation control in servitudes	✓Catalyst for renewable energy use in South Africa through renewable energy connection to the national grid and battery storage ✓Contribution to expansion of biodiversity in South Africa through maintenance of power line servitudes.	Minimisation of the impact of our activities on ecosystems and enhancement of ecosystem services	Vegetation control on distribution' infrastructure, that is, facilities, servitudes, and substations.	✓Set measurable targets for vegetation restoration and enhancement. ✓Audits and monitoring of close out of actions

	✓Microgrids projects			
Water use	Reduction of water use and avoiding liquid effluent	Reduction of water use and avoiding liquid effluent	Undertaking of monitoring, audits, and reviews	Compliance breaches and environmental legal contravention incidents
Waste disposal	✓ Ensuring that waste management practices are not harmful to the environment. ✓ Reduction and management of waste disposal.	Waste reduction, reuse, and recycling	✓Asbestos phase-out / disposal. ✓Oil spill reduction plan	✓Compliance with legal requirements. ✓Asbestos phase-out by 2033. ✓Waste monitoring index (with annual percentage improvements on targets)
Biodiversity management	Ensuring that infrastructure is not harmful to animals, in particular red data bird species	Minimisation of the impact of activities on ecosystems and enhancement of ecosystem services	Vegetation control on Eskom power line servitudes.	Implementation of Approved Biodiversity Management Plan
Environmental legal updates/training	Improvement on compliance	Standardised updates of the relevant legislation/legal updates	✓Customised and focused training based on the environmental gaps. ✓Training programme ✓Competency matrix assessment	✓Develop a manual on legal/training updates. ✓Clusters to develop Implementation Plan on manual and report on status executed
Contractor management	Reduction in environmental wasteful	Environmental project management	Environmental contractor training	100% of env employees trained in

	expenditure (compensation events).			NEC and contracts management.

8.4 Eskom Rotek Industries

This mandate has been revised to recommit ERI to providing Eskom with prioritised services. The key implications of the mandate are that ERI will continue focusing on providing prioritised strategic and commercial life-cycle services, including the development, construction, refurbishment, operations, and maintenance of infrastructure. Table 4 represents Eskom Rotek Industry' environmental aspects with its related key performance indicators.

TABLE 4: ESKOM ROTEK INDUSTRIES

Env. aspects	Env. contribution	Env. objective – what	How (initiatives)	Key Performance Areas
Environmental compliance	Management of environmental compliance of our operations.	Achievement of legal compliance	✓Adhere to the legislative requirements and regulations. ✓Maintenance of environmental management systems ✓Adherence to management system and conditions of contracts on projects. ✓Adhere to the legislative requirements and regulations	✓Zero failure of business systems (FBS) ✓Close-out of non-conformances/non-compliances
Environmental impacts related to work undertaken.	Management of environmental impacts in various product groups and at various sites	Informed decision-making to avoid harm to the natural environment	✓Maintenance of environmental management systems. ✓Adherence to management	✓Comply to applicable environmental legislation. ✓Management of legal non-compliances,

			system and conditions of contracts on projects.	compliance notices. ✓Zero failure of business systems (FBS).
Water contamination at Rosherville site	Facilitating monitoring of water points	Achievement of legal compliance	✓Borehole monitoring and analysis. ✓Implementation of recommendations from monitoring.	Audits and monitoring of close out of actions.
Emissions at Rosherville	Facilitating monitoring of compliance with AEL and record of decision	Maintenance of levels of particulate and gaseous emissions within limits	Undertaking of monitoring, audits, and reviews.	Audits and monitoring of actions from reviews.
✓Waste management ✓Removal, transport, and disposal of general and hazardous waste ✓Removal of and asbestos	✓Removal, transport, and disposal of hazardous and general waste. ✓Safe removal, transport, and disposal of PCB and asbestos waste.	✓Documentation compliance for waste removal, waste service providers. ✓Implementation of waste reduction, reuse, and recycling measures, where practical.	✓Monitoring of documentation compliance. ✓Initiating an e-waste recycling project in Rosherville.	✓Compliance with legal requirements. ✓Asbestos phase-out by 2033.
Oil spillages	Management of environmental impacts in various product groups and at various sites.	Reduction of oil spillages and severity of oil spillages.	✓Oil spill reduction plan ✓Leak detection at Rosherville ✓Training and awareness	✓Compliance – # of breaches and ✓Environmental legal contravention incidents ✓Zero failure for business systems (FBS)
Biodiversity management	Management of environmental impacts in various	Minimisation of the impact of our activities on	Development and implementation of biodiversity	Approved ERI Biodiversity Management Plan

	product groups and at various sites	ecosystems and enhancement of ecosystem services Reduction in freshwater usage and avoidance of liquid effluent	management plan in relevant product groups

8.5 Risk and Sustainability (R&S) Environmental Management

The Risk and Sustainability (R&S) Division has committed itself to fulfilling its mandate to improve the overall sustainability of Eskom by addressing the challenges that Eskom is faced with, particularly in relation to environmental sustainability. The Division has set out strategic objectives and deliverables in line with Eskom's overall strategy and corporate plan. Table 5 represents R&S Environmental Management Department' environmental aspects with its related key performance indicators.

TABLE 5: R&S ENVIRONMENTAL MANAGEMENT

Env. aspects	Env. contribution	Env. objective – what	How (initiatives)	Key Performance Areas
Environmental management strategic direction.	Provide strategic direction and safeguarding for the organisation.	1. Reduce the environmental footprint of Eskom activities; and 2. Position Eskom as an environmentally sustainable utility.	Develop an Eskom Environmental Strategy for divisional implementation.	An approved Environmental strategy
Environmental assurance and compliance.	✓Providing assurance and oversight to the overall organisation – reviews, data integrity, incident investigation framework. ✓ Ensure development of divisional plans are	Reduce the environmental footprint of Eskom activities.	✓Approved assurance plan (level 2). ✓Compliance framework	✓Implementation of an approved assurance plan ✓Establish a compliance framework to ensure compliance to

	aligned to the environmental strategy. ✓ Lead and drive Eskom's environmental responsibility and, ultimately, contribute to South Africa's efforts in terms of a greener country and economy through the facilitating of the JET, resulting in environmental improvements (compliance and performance).			relevant environmental regulations and authorisations.
Improvement of Eskom's environmental reputation.	✓ Collaborate and develop the relationships with the NGOs, authorities, and other relevant stakeholders on behalf of Eskom. ✓ Continuously and effectively communicate challenges and efforts to the stakeholders and authorities.	Position Eskom as an environmentally sustainable utility.	Stakeholder engagement plan	Establish partnerships and relationships with the authorities (e.g., DFFE, DWS, etc).
Implementation of 'E' of the ESG framework.	✓ A standardised framework, such as Global Reporting Initiatives to ensure transparency and comparability. ✓ Align environmental accurate reporting	Position Eskom as an environmentally sustainable utility.	Lead and drive the 'E' of the ESG framework.	Lead and drive the 'E' of the ESG framework.

	(including expenditure) with an approved ESG framework. ✓ Equip and align Eskom Environmental Management on the reporting for environmental, social, and corporate governance (ESG).			
Tools ✓Smart reporting	✓ SMART reporting tools are to be used for the ESG report, which highlights the environmental performance, compliance, goals, challenges, and achievements.	Review existing tools (SAP EHS, SAPQIM) for applicability and improvement.	✓ Training and awareness program(s) on the usage of SMART reporting (waste, biodiversity, compliance, etc).	✓ Deliver training and awareness on the usage of SMART reporting (waste, biodiversity, compliance, etc)
Environmental training programs, communication and awareness, skills, and capacity building.	✓Build a culture of duty of care through awareness sessions. ✓Enable the business to understand and comprehend complex issues surrounding the environment and providing knowledge on the impact of the activities and the impact on the ecosystem.	Reduce the environmental footprint of Eskom activities. Position Eskom as an environmentally sustainable utility.	Training programs, communication and awareness, skills, and capacity building.	✓Webinars ✓Conference(s) ✓Develop an E-Learning module. ✓Training and awareness sessions (legal liability, leadership onboarding).

8.6 Key performance areas (*measurement and tracking*)

The following key performance areas (KPAs) and key performance indicators (KPIs) relating to this strategy constitute the environmental performance measures that need to be approved by incorporated in Eskom's Corporate Plan. These will be measured on a quarterly basis and reported through a formalised process.

TABLE 6: ESKOM'S ENVIRONMENTAL MANAGEMENT STRATEGY KPAS AND KPIS FOR THE PERIOD 2024/25 TO 2029/30

			Target						
Key performance area	**Key performance indicator**	**Actual FY2023**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**
Air quality	Relative particulate emissions (kg/MWhSO)	0.70	0.30	0.35	0.35	0.35	0.30	0.25	0.20
Water use	Specific water use (l/kWh/SO)	1.39	1.38	1.38	1.38	1.37	1.30	1.25	1.20
Atmospheric emission licence compliance	Atmospheric emission licences (AEL) compliance (%)	87.4	91	90	90	90	95	95	95
Environmental compliance	Environmental legal contravention incidents	105	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Failure of business systems (FBS)	1	0	0	0	0	0	0	0
Waste management – polychlorinated biphenyls	PCB > 50 ppm	5	0	0	0	0	0	0	0
Biodiversity management	Red data mortalities	170	208	187	168	151	135	121	109

Environmental legal contravention incident: *an incident where a provision of environmental legislation (national, provincial, or local) and/or a condition of an environmental approval (for example, environmental authorisation, water use licence, waste licence, licence in terms of the relevant Act) or any other legal document issued in terms of environmental legislation is contravened. (An environmental legal contravention incident is considered a breach in terms of compliance reporting.)*

Environmental legal contravention incident because of a significant failure of business systems (FBS): *specific cases of environmental legal contravention incidents that are of very high significance in terms of their impact on the environment and/or Eskom in that they have a material business impact and illustrate a significant failure of business systems.*

8.7 Assumptions

The following are the assumptions regarding Eskom's current business environment and its relation to this strategy:

- The E (environment) focusses on the reduction of the greenhouse gas emissions and water consumption contributing to South Africa's sustainable development goals.

- Eskom's role in supporting the country's JET plan. The JET Framework guides the development of a renewables-dominant power system towards 2050.
- The expanding of renewable energy generation will not only decrease carbon dioxide emissions but also mitigate other detrimental pollutants like sulphur and nitrogen oxides.
- Eskom's existing fleet of power stations will inevitably reach end of life, whether in accordance with the 2035 shutdown plan or on a revised schedule to address the energy crisis. This in itself will result in a material reduction in particulate matter (PM), sulphur oxides (SOx), nitrogen oxides (NOx) and other coal- related pollutants. Achieving a net-zero power sector by 2050 will significantly reduce water consumption in addition to harmful emissions. Carbon emissions would decline by ~76% between 2022 and 2050. Similarly, SOx, NOx and PM emissions will reduce by 89%, 81%, and 86% respectively by 2050.
- Eskom applications in terms of postponement of, and/or exemption from, minimum emission standards requirements will be granted.
- Current technology and plant operations will, at times, result in non-compliance with current emission licence and water use licence requirements.
- A significant reduction in Eskom's water consumption could release water resources for use in productive economic sectors such as agriculture. Reducing water consumption aligns with the goal of minimizing the environmental footprint.
- Deterioration of water quality in the short term will have a negative impact on plant operations.
- Legal separation of divisions.
- Technical performance of power station plants will improve.
- There will be an increase in ash and gypsum beneficiation and backfilling of mined areas with ash.
- The lifespan, capacity, and compliance of existing waste disposal facilities will increase waste management risks for Eskom.
- The achievement of Eskom's environmental objectives and targets set will result in Eskom being recognised as an environmentally responsible and sustainable electricity utility by all its stakeholders.
- The implementation of red data bird and other wildlife mitigation measures will have the desired effect in terms of significantly reducing bird mortalities and improving quality of supply. Improved and inclusive biodiversity management within Eskom's control and influence. Research projects are prioritised based on impacts to Eskom infrastructure, to reduce transmission outages and ensure continuity of supply, and reduce mortalities and injury caused by collisions and electrocutions of birds on Eskom infrastructure. Endangered and vulnerable species are prioritised.

- The benefits of the emissions offsets will be realised in those areas and a reduction in health impacts).

TABLE 7: REDUCTION OF THE ENVIRONMENTAL FOOTPRINT

Strategic objectives	Measures	Initiatives	Responsibility
Reduction of the environmental footprint	Compliance, emissions and relative emissions, water use and specific water use, waste disposed, red data bird mortalities.	Implement the emission reduction plan.	Generation
		Implement the water, biodiversity, and waste plans.	All
		Monitor and track the progress of implementation of the projects aimed at improving compliance.	All divisions
		The divisions are to assess the effectiveness and adequacy of the measures and initiatives put in place to improve the level of compliance.	Divisions
		Implement the zero liquid effluent discharge philosophy.	Generation
		Implementation of proactive and reactive red data bird and other wildlife mitigation measures.	Transmission and Distribution

TABLE 8: INITIATIVES – BASED ON THE TERM OF IMPLEMENTATION

Initiative	Short term	Medium term	Long term
Reduce emissions. Decrease greenhouse gases.	Achieve a reduction in emissions in line with the Eskom goal of net zero by 2027.	Achieve a reduction in emissions in line with the Eskom goal of net zero by 2030.	Achieve a reduction in emissions in line with the Eskom goal of net zero by 2050.
Identify strategic projects.	Influence research direction by identifying	Influence research direction by identifying	Implementation of research to address operational challenges by

	key projects to address operational challenges by 2026.	key projects to address operational challenges by 2028.	2030.
Eliminate contamination of water resources by 20%.	Reduce freshwater usage by 25% by FY2025. Implement site-specific water management plans.	Implement site-specific water management plans by 2025.	Eliminate contamination of water resources by 20% by 2030.
Improve waste management practices.	Improve waste management practices by 20% by 2025.	Improve waste management practices by 30% by 2030.	Improve waste management practices by 50% by 2030.
Reduce red data mortalities by 10%.	Put measures in place to mitigate the red data mortalities annually until 2026.	Put measures in place to mitigate the red data mortalities annually until 2027.	Put measures in place to mitigate the red data mortalities annually until 2028.
Position Eskom as an environmentally sustainable organisation.	Equip Eskom Environmental Management on the e-reporting for environment, social, and governance (ESG) by 2024.	Equip Eskom Environmental Management on the e-reporting for environment, social, and governance (ESG) by 2025.	Implementation and reporting on the “E” of the ESG framework 2030.
	Implement digitised reporting at 20% by 2025.	Implement digitised reporting at 50% by 2028.	Implement digitised reporting at 100% by 2030.
	Improve stakeholder confidence to address the reputational risk associated with the environmental performance and compliance across the organisation.	Improve stakeholder confidence to address the reputational risk associated with the environmental performance and compliance across the organisation.	Establish 100% stakeholder confidence to address the reputational risk associated with the environmental performance.
Achieve compliance for all environmental skills requirements.	Identify and implement relevant environmental training programs by	Identify and implement improved relevant environmental training	Identify and implement improved relevant

	2026.	programs by 2028.	environmental training programs by 2030.
	Conduct skills gap to determine the level of environmental shortages/pipelining by 2026.	Develop a skills program and a succession plan by 2028.	Implement succession planning by 2030.
Align Eskom with international best practices in ESG.	Establish and develop the E part ensuring influencing of the ESG framework by 2025.	Implement the E part (of the ESG framework) across the business by 2026.	100% implementation of the E part of the ESG framework by 2030.

8.8 Stakeholder engagement and advocacy plan

The Eskom environmental strategy cannot be achieved in isolation. There are many key stakeholders who need to be engaged with proactively, internal and external to the business, in order to realise the Environmental Management Strategy. Engagement with stakeholders will be purpose-driven and contribute to the achievement of Eskom's strategic environmental objectives. All the divisions have developed an advocacy plan (including the focussed communication plan) aimed at attaining the required support and commitment.

Key to the success of this strategy is buy-in and adoption of this strategy from the following stakeholder groupings:

- The Eskom Board and future Boards of legally separated subsidiaries
- The Eskom Executive Management Committee (Exco)
- Divisional management committees/Boards
- Eskom management
- Eskom environmental practitioners
- Organised labour
- Contractors, service providers, and consultants to Eskom
- The public
- Landowners/users/farmers
- The authorities (e.g., DPE, DFFE, DWS, etc)
- Industry associations
- Civil society organisations and non-governmental organisations

- National, provincial, district municipality, and local government

9 Environmental, Social and Governance and Circular Economy

Globally, stakeholders, particularly investors, are incorporating Environmental, Social, and Governance (ESG) reporting aspects into their investment decision-making. While the aspects of ESG are included in Eskom's Integrated and Sustainability reports, Eskom recognises the imperative of reporting on the non-financial risks and opportunities inherent to its activities. Since the mid-1990s, Eskom has been actively engaged in reporting on the performance of its key environmental aspects, with recent emphasis on ESG issues in the Integrated and Sustainability report. The ESG framework serves as a strategic tool, which enables the organisation to report on identified opportunities, navigate challenges, and mitigate risks in the dynamic electricity sector. Eskom's reporting aligns with the International Financial Reporting Standards (IFRS), Global Reporting Initiative (GRI), United Nations Sustainable Development Goals (SDGs), United Nations Guiding Principles, Task Force on Climate-Related Financial Disclosure (TCFD), and the Carbon Disclosure Project.

9.1 Environmental, social and Governance

Eskom intends to demonstrate adherence to ESG principles through a range of means, predominantly by implementing targeted initiatives, policies, and strategies that tackle environmental impact, social responsibility, and governance practices. Throughout the upcoming fiscal year, Eskom, will further integrate the ESG framework into its operational framework, thereby aligning it with its commercial and socio-economic responsibilities.

By Implementing strong ESG practices, Eskom can reap significant benefits, including:

- Improved financial performance through effective and cost-cutting efficiency.
- Improved risk management, by identifying and mitigating potential risks related to ESG.
- Enhanced brand reputation, by demonstrating its commitment to sustainability, social responsibility, and good governance.
- Improved access to capital and reduced cost of capital through an improved reputation which will attract more investors.
- Improved employee engagement, retention, and attraction of top talent resulting in committed staff.
- Drive innovation by finding new and more sustainable ways of doing business.

For the purposes of this strategy, compliance with the environmental € component of ESG will be prioritised. It represents an increased dedication to confronting and alleviating environmental consequences. Environmental performance is one of the most significant challenges for Eskom. The challenges relate to Eskom's abilities to reduce its environmental footprint through management of water use and emissions, conserving natural resources, empowering communities, and protecting employee health and safety through enhancing its strategies and initiatives. Environmental performance is measured through key ESG metrics or indicators which compare the environmental results of significant environmental aspects against agreed environmental objectives or targets. Eskom continually measures, monitors, investigates, tracks, and reports on its environmental performance: ambient air quality, emissions, raw water use, water quality, biodiversity management, waste management, environmental management system implementation, compliance status (permitting, licensing application status and compliance status to permit conditions).

Eskom is committed to not only enhancing its long-term environmental sustainability but also in improving its reputation and overall ESG performance. Eskom's commitment to the ESG signifies a pivotal step toward a sustainable and ethical future. Integrating ESG into its core operations will contribute to environmental preservation, societal well-being, and a sustainable way of conducting business which guarantees longevity.

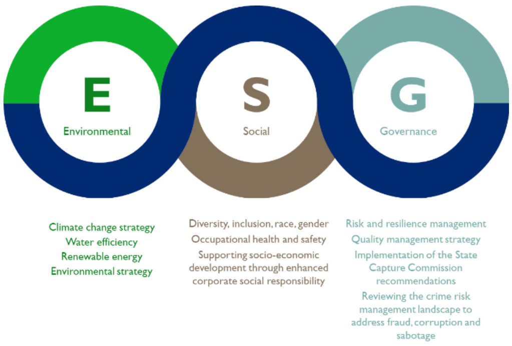

FIGURE 8: THE ESG OVERVIEW

9.2 Circular Economy

The circular economy is fundamental due to its potential to significantly reduce waste, conserve resources, reduce the cost of raw resources, and minimise environmental impact and the risk of environmental liabilities. Eskom has established contracts for ash sales, with several off-takers. To-date ash is sold from seven (7) power stations. Eskom is continuously investigating opportunities for increasing the sales through the existing contracts, as well as establish new markets for its ash.

In addition, the Department of Forestry, Fisheries and the Environment (DFFE) promulgated in February 2020 a "Notice indicating the exclusion of certain waste streams or portions of waste streams from the definition of waste for beneficial use", which provided opportunities for Eskom's ash to be used in various applications including cement, bricks and block making, geopolymers, filler applications, zeolites production, metal and mineral extraction, mineral fibre production, road construction, mine backfilling, treatment of acid mine drainage, and soil amelioration.

To exploit these provisions, Eskom is undertaking extensive research on use of its ash for road construction, mine backfilling, zero cement concrete. Some ash is already being use for soil amelioration at mines, mine rehabilitation and for liner development at ash disposal facilities.

The integration of the circular economy is fundamental for reducing waste, conserving resources, mitigating environmental degradation, promoting innovation, and contributing to a more sustainable and resilient economy and society overall. By adopting circular economy practices can benefit not only environmentally but also economically and socially, paving the way for a more sustainable future for Eskom.

10 RISKS, TREATMENT PLANS, CONTINGENCY PLANS, AND IMPLICATIONS OF ACTIVITIES FOR ESKOM

The environmental risks have been identified and treatment plans developed using the Eskom integrated risk management processes. Table 8 provides a summary of the environmental risks within Risk and Sustainability, Generation, Transmission and Distribution as of end of fourth quarter FY23/24.

TABLE 9: ENVIRONMENTAL MANAGEMENT RISKS

Division	Risk Category	Risk Description	Treatment Summary	Comments
Risk and Sustainability	Compliance	Deteriorating environmental performance and non-compliance to regulatory requirements, caused by inconsistent disciplined execution and limited safeguarding and specialised servicing, leading to environmental degradation, penalties and/or fines.	• Legislation and compliance obligations (specified parameters, environmental authorisations) • Corporate Strategy, Corporate Plan and Shareholder Compact • Governance structures (internal and external, which include PESTEL structures, internal/external stakeholder engagements) • Assurance and compliance framework • Policies, procedures and implementation plans • RACI (segregation of duties) • Capabilities (resources, tools, systems) – e.g. EMS, SAP EHS, QIM, Legal SHE registers • Defined corporate function in place (Functional leadership role through shaping, safeguarding and specialised servicing)	Ongoing challenges with the inconsistent disciplined execution,
Generation	Env and Climate Change	Loss of license to operate due to environmental performance and regulation/ legislation non-compliance leading to plant shut down /or litigation.	• The Eskom approved ERP 2022 includes the requirement for NOx burner retrofits at Majuba, Lethabo, and Tutuka; NOx burner optimization and load reduction at Matla, Duvha, Kriel, Grootvlei, and Arnot.	Exco is concerned about the likelihood of increasing social, environmental and health risks associated with increasing emissions. Eskom has actions in place to continually

			• Based on this decision, funding of the required projects is being unblocked through governance committees, and the projects will continue. • Present scheduling indicates that projects will be completed after 2025 (by 2032). Work to optimize delivery is being planned, and the timing of completion will be discussed in further MES appeal engagements. • Continued non-compliance with emission limits at Kendal, Matla, and Kriel places Eskom in a poor position with respect to compliance. • Delays in outages mean that multiple stations will not meet the compliance deadline of 2025, and further legal indulgence will be required.	monitor emissions and air quality and appropriate steps will be taken to address the impact of such. Furthermore, Eskom is embarking on several projects to reduce emissions and discharges. Efforts will be made to accelerate the Kusile return to original design within the temporary license timeframes.
Transmission	Operations	• Failure to comply with environmental legislation and other requirements, caused by negligence by employees and people working on behalf of Transmission, leading to non-compliance. • Environmental performance mandate not being fulfilled due to constrained environmental resources.	• Tracking and ensuring compliance for all General Authorisations (GA), Water Use Licenses (WUL), Environmental Authorisations (EA), permits and other conditions. • Establishment of the Tx ISO Certification Contract. • Capacity building on environmental resources.	None
Distribution	Operations	• Loss of license to operate, due to environmental non-performance and regulation/legislation	• Oversight provided by Distribution Head Office. • Zero Harm Improvement Plan with detailed objectives and actions.	Ongoing changes in legislation with onerous conditions

		non-compliance, leading to project delays /or litigation and customer dissatisfaction.	• Audit Programmes to test ongoing compliance. • Continuous oversight and monitoring at Distribution SHEQ committees and Cluster SHEQ committees.	

While there is a correlation between technical and environmental performance, the continued poor environmental performance at many coal-fired power stations in terms of relative particulate emissions, specific water uses, and environmental compliance has led to a P1 risk of *"Loss of license to operate due to environmental performance and regulation/legislation non-compliance leading to plant shut down /or litigation".*

The progress and treatment summary indicates that: '*The Eskom approved ERP 2022 includes the requirement for NOx burner retrofits at Majuba, Lethabo, and Tutuka; NOx burner optimization and load reduction at Matla, Duvha, Kriel, Grootvlei, and Arnot. Based on this decision, funding of the required projects is being unblocked through governance committees, and the projects will continue. Present scheduling indicates that projects will be completed after 2025 (by 2032). Work to optimize delivery is being planned, and the timing of completion will be discussed in further MES appeal engagements. Continued non-compliance with emission limits at Kendal, Matla, and Kriel places Eskom in a poor position with respect to compliance. Delays in outages mean that multiple stations will not meet the compliance deadline of 2025, and further legal indulgence will be required'.*

ABBREVIATIONS, GLOSSARY, AND TERMS

Abbreviations

AEL	Atmospheric emission licence
BLSA	BirdLife South Africa
CSO	Civil society organisation
CO_2	Carbon dioxide
CoE	Centre of excellence
DEAC	Distribution Environmental Advisory Committee
DFFE	Department of Forestry, Fisheries, and the Environment
DPE	Department of Public Enterprises
DWS	Department of Water and Sanitation
EA	Environmental authorisation
EAL	Eskom Academy of Learning
EDCC	Eskom Department of Environmental Affairs Co-ordinating Committee (EIA)
EIA	Environmental impact assessment
ERI	Eskom Rotek Industries
ESC	Environmental Steering Committee
ESG	Environment, social, and governance
EWT	Endangered Wildlife Trust
Exco	Executive Management Committee
FBS	Failure of business systems
FGD	Flue gas desulphurisation
FY	Financial year
GEM	Generation Environmental Management
IRM	Integrated risk management
JET	Just energy transition

KPI	Key performance indicator
MES	Minimum emission standards
MMP	Middle management programme
MW	Megawatt
NO_x	Nitrogen Oxides
PCB	Polychlorinated biphenyls
PESTEL	Political, economic, social, technological, environmental, and legal (sphere)
PM	Particulate matter
RACI	Responsible, accountable, contributing, and informed
RT&D	Research, Testing, and Development
SES	Social, ethics, and sustainability
SHEQ	Safety, health, environment, and quality
SO	Sent out
SO_2	Sulphur dioxide
SOC	State-owned company
SOP	Standard operational procedure
TEOF	Transmission Environmental Operations Forum
WML	Waste management licence
WUL	Water use licence

Glossary

Competent authority	In respect of a listed activity or specified activity, the organ of state charged by the National Environmental Management Act with evaluating the environmental impact of that activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity.
Environment	The surroundings within which humans exist and that are made up of: i. the land, water, and atmosphere of the earth. ii. micro-organisms and plant and animal life. iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and iv. the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.
Just energy transition	A transition towards a low-carbon, climate-resilient economy and society in a manner that does not impede socio-economic development and that occurs in a phased manner over time.
Kilowatt-hour (kWh)	Basic unit of electric energy equal to one kilowatt of power supplied to, or taken from, an electric circuit steadily for one hour; one kilowatt-hour equals 1 000 watt-hours.
Megawatt	One million watts.
Megawatt-hour (MWh)	One thousand kilowatt-hours or one million watt-hours.
Net zero by 2050	The net zero ambition implies that residual emissions still emitted after significant work has been done to reduce emissions, will be mitigated by other projects that which will either absorb some residual emissions from the atmosphere or be offset by carbon credits.
Sustainable development	The integration of social, economic, and environmental factors into planning, implementation, and decision-making to ensure that development serves present and future generations (National Environmental Management Act).
Zero Harm	The prevention of harm to people and the environment brought about through visible and felt leadership, including the implementation of

effective controls and practices.

Energy terms

Units of power	**Units of energy**
Power is generated per unit of time.	Energy is power multiplied by time.
Power is expressed in watts (W).	
1 kW (kilowatt) = 1 000 W	1 kWh (kilowatt-hour) = 1 kW expended over one hour
1 MW (megawatt) = 1 000 kW	1 MWh (megawatt-hour) = 1 000 kWh
1 GW (gigawatt) = 1 000 000 kW or 1 000 MW	1 GWh (gigawatt-hour) = 1 000 000 kWh or 1 000 MWh
Voltage	
1 kV (kilovolt) = 1 000 V	
Presentation currency	
R1 million = R1 000 000	
R1 billion = R1 000 000 000	

APPENDICES

Business intelligence and environmental analysis

The SWOT analysis

EXHIBIT 1: A CONSOLIDATED SWOT ANALYSIS – ESKOM AND THE ENVIRONMENTAL MANAGEMENT STRATEGY

Strengths to leverage:	Weaknesses to treat/overcome:
• Strong compliance framework – compliance framework in place – policy, strategies, procedures, standards, technical documents, legal registers, Level 2 assurance audits and reviews, KPIs, and management systems • Integration in business processes and reporting visibility. • Stable and visible leadership • Top management buy-in • Industry leaders • Resilient organisation • Robust policies and procedures • Regular communication to the organisation • Just energy transition concept • Strong stakeholder relationship – strategic environmental NGO partnerships, for example, EWT, BLSA, and Middelpunt Wetland Trust • Mechanisms in place with authorities to track and engage on licence applications. • Transition to the new ISO 14001:2015 EMS standard and the maintenance of certification • Environmental professional resources – experienced environmental practitioners throughout the business • Declaration of natural reserves (Gx) – management of certain land as nature reserves • Intellectual property – historical research and databases	• Poor operational and technical performance in Generation, leading to poor water and air quality management practices and performance. • Environmental issues traded off against other priorities (for example, an area that is traded off when it comes to costs) – operating practices that deprioritise the environment. • Disciplined execution – lack of disciplined execution in implementation • Increasing number of water and air environmental legal contravention incidents and general environmental breaches • Limited implementation of environmental research outcomes and scaling down of environmental research • Environmental data integrity • Loss of skills – loss of key environmental engineering/technical skills and inability to retain. • Inadequate/misallocated funding • Inability to use funding due to long research. • Poor operation • Poor maintenance • Competing priorities – compliance versus supply • Aging plant, leading to high minimum emission standards • Environmental reporting and accounting • Prompt reporting and accounting (data management) • Shifting responsibilities (blaming/accountability) – leadership and culture • Spares unavailability for emergency work • Silo mentality

Opportunities to leverage:	**Threats to neutralise, mitigate, or accept:**

• Partnerships with the non-governmental organisations
• Further ash and gypsum beneficiation
• JET programmes and Eskom's role in shifting South Africa towards cleaner energy over time in a just manner, resulting in a change in the energy mix to reduce emissions and water use.
• New or future technologies: biomimicry, emission reduction, and water treatment
• Investing in offsets
• Social aspects becoming a strong component of environmental issues.
• Green energy diversification
• Supplier and local development
• Ash beneficiation
• Micro businesses
• Eskom seen as an attractive employer.
• Marketing/Messaging around Eskom
• Adoption of circular economies
• Divisionalisation and environmental roles and responsibilities at appropriate levels and in appropriate entities
• Increased focus on rehabilitation, decommissioning, and closure of mines and power stations
• Internal training to develop staff.
• Improving communication and stakeholder engagement
• Other:
  • Environmental management throughout the life cycle of the value chain
  • Energy and battery storage
  • Mainstreaming of biodiversity into the business
  • Increased financial investments in the environmental initiatives.
  • Study of global trends – global focus on cleaner/environmentally friendly technology
• Maintaining ISO 14001 certification and use of management systems to improve performance and
	• Stringent environmental legislation
	• Increased authority monitoring, inspections, and stricter compliance and enforcement (including criminal investigations and prosecution)
	• Private prosecution
	• Political landscape (leadership/conflicting messages)
	• Decommissioning and rehabilitation of coal-fired power stations – massive environmental liabilities
	• Greater pressure from NGOs and communities building up environmental cases.
	• An increasing focus on health impacts of emissions and water use
	• Social aspects becoming a strong component of environmental issues.
	• Encroachment on servitudes and vulture restaurants
	• Safety of employees and assets
	• Theft/Corruption
	• Technological advances
	• Theft and corruption (syndicates and cartels)
	• Climate change (extreme weather patterns)
	• Investor appetite – funders – considerations by funders and withdrawal from coal
	• Funding for decommissioning of the power stations reaching the end of life (rehabilitations, recycling, and reuse)
	• Sacrifice of the environment for radical economic transformation to reduce poverty – the environment being a secondary consideration.
	• Increasing the environmental cost base – threats to Eskom's business
	  • Increasing charges for waste discharge and use of water
	  • Deteriorating water quality
	  • Maintaining compliance, for example, FGD, fabric filter plants (FFPs), etc.
	  • Significant costs of retrofitting
	• Worldwide ageing of infrastructure, fluctuating

levels of compliance	economies, emphasis on environmental impact, and an inherent low level of innovation in the construction industry

A further analysis of the external environment (PESTEL: political, economic, social/society, technological, environmental, and legal and regulatory) as it pertains to Eskom and the environment was also performed as part of the environmental strategy review/development; the consolidated results/outcomes are shown in Exhibit 2 below.

EXHIBIT 2: A CONSOLIDATED PESTEL ANALYSIS FOR ESKOM ENVIRONMENTAL STRATEGY

Political	• Different environmental authorities and conflicting mandates – ministries (DFFE/DWS/DMRE/Department of Energy (DoE)), provincial authorities, and district municipalities • International treaties, UN Global Compact, Sustainable Development Goals, and related initiatives • Government's will to deliver on the environmental mandates. • Government seen to support driving the green economic agenda. • "State capture" • NERSA and Eskom's applications for tariff increases. • DFFE and Eskom's application regarding Minimum Emission Standards • Expectation that state-owned enterprises (SOEs) will deliver on state priorities. • South Africa as a driver in the international political environment. • Drive for independent power producers (IPPs).
Economic	• Green funding • Circular economy • Competition for funding • Environmental safeguards • Environmental taxes (including carbon tax) and incentives. • Reduction of the cost of renewable technologies • Demand for coal resources increasing costs and lowering availability. • Costs affected by cleaner technologies (positive and negative) • South Africa's competitiveness because of the impacts of the electricity energy mix on investment and foreign direct investment. • Increasing costs of electricity and impact on the economy
Social and society	• Disparity between the haves and have-nots • Conservation (preservation) versus development (growth) • The need for energy security, addressing health impacts of poor air quality and the economic cost associated with an energy transition. • Public participation, environmental activists • Eskom's reputation and public perception • Weak local and provincial government – dependence on Eskom to deliver infrastructure beyond the electrical domain, for example, roads and water supply. • Competition for land and land use and obtaining rights of way. • Increase in distributed generation at the residential level

Technological	• More green options and mature technologies • Focus on renewable energy. • Environmental implications of technology options • Nuclear as part of the energy mix – low water uses and low emissions. • Existing technologies and assets non-compliant with environmental specifications • Low water technologies • Global interest in the deployment of small modular reactors • Hybrid technologies and related environmental impact
Environmental	• Shifting South Africa towards cleaner energy over time in a just manner • Adaptation to climate change. • Known impacts related to electricity generation. • Quality of the environment – link to human health and well-being • Long-term liabilities (radioactive waste, ash dumps, coal mining, PCBs, hazardous waste, and asbestos) • Need to be accountable to greater footprint – suppliers and customer environmental impact. • Ecosystem services – pay for the service you receive from the environment. • Offsets • Resource shortages/constraints • Environmental citizenship as a good governance/business practice • Green movement and special interest groups • Global and local environmental policies, practices, and norms
Legal and regulatory	• Changing legislation in South Africa • More and stricter legislative requirements • “Leapfrog” legislation in South Africa • Increased compliance monitoring and enforcement – DFFE’s environmental management inspectors • Personal and criminal liability • Licence to operate held through many authorisations and licences. • Obtaining authorisations and rights to land • International environmental standards • Increase in environmental taxes (environmental levy, carbon tax, and wastewater discharge) • Lack of municipal licensed waste management sites for use by Eskom