



**Eskom Holdings SOC Ltd**  
**Environmental Management Strategy Rev. 5**  
**2024/25 to 2029/30**

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## Table of contents

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Executive Summary.....	5
<b>1. Context</b>	<b>9</b>
1.1 Strategic context.....	9
1.2 Global outlook.....	9
1.3 South African context.....	9
1.4 Electricity supply industry in the South African context .....	11
1.5 Eskom business context .....	11
1.6 Eskom’s mandate, vision, mission, and values .....	12
<b>2. Eskom’s Strategic Outlook .....</b>	<b>14</b>
2.1 Functional Context.....	15
2.2 The 2024/25 to 2026/27 Strategic Intent Statement (SIS) outlines Eskom’s priorities .....	15
2.3 Environmental alignment and strategic considerations .....	15
2.4 Key principles shaping Eskom’s Environmental Strategy .....	16
<b>3. Purpose of the Environmental Management Strategy .....</b>	<b>18</b>
3.1 Rules that apply to the Environmental Strategy .....	19
3.2 Objectives of the Environmental Strategy .....	20
3.3 Principles and rules that apply to the Environmental Strategy.....	21
3.4 How did we get here? .....	22
3.5 Key environmental legal contravention incidents .....	23
3.6 Root causes of environmental non-compliance.....	23
4.1 Eskom’s environmental strengths to leverage.....	24
4.2 Opportunities to be leveraged.....	24
4.3 Identified weaknesses to address .....	25
4.4 Identified threats requiring treatment.....	25
4.5 External environmental shifts and proactive responses.....	26
4.6 Critical issues to address and opportunities to leverage .....	28
4.7 Significant opportunities to leverage .....	30
5.1 Implementation of emissions abatement technologies .....	32
5.2 Transitioning to a hybrid model while ensuring energy security.....	33
5.3 The JET Strategy envisions .....	33
5.4 Key aspects of the JET strategy: .....	34
5.5 Breakdown of the energy trilemma .....	35
5.6 Economic and environmental considerations .....	36
6.1 Key implementation elements:.....	37
6.2 Strategic outcomes .....	38

6.3	Divisional environmental overview .....	38
6.4	National Transmission Company South Africa (NTCSA) Overview .....	40
6.5	Distribution overview.....	41
6.6	Eskom Rotek Industries (ERI) overview.....	43
6.7	Risk and Sustainability (R&S) Environmental Management Overview .....	45
7.1	Environmental, social, and governance .....	47
7.2	Benefits of robust ESG practices .....	48
7.3	Reporting and alignment with global standards.....	49
7.4	Circular economy.....	50
7.5	Circular economy principles in Eskom’s operations .....	50
7.6	Key initiatives and current progress .....	50
7.7	Benefits of the Circular Economy Approach.....	52
7.8	Strategic outlook and future plans:.....	53
8.1	Key Performance Areas (KPA)s.....	54
8.2	Formal reporting and integration .....	56
8.3	Assumptions for the environmental strategy .....	57
<b>9</b>	<b>Risks, Treatment plans, Contingency Plans and Implications of activities .....</b>	<b>63</b>
9.1	Key environmental risks and treatment plans.....	63
9.2	Monitoring, reporting, and continuous improvement.....	65
9.3	Summary of current environmental risk and compliance status .....	66
	<b>Abbreviations .....</b>	<b>67</b>
	<b>Glossary 69</b>	
	<b>APPENDICES: Business intelligence and environmental analysis .....</b>	<b>71</b>

**List of tables**

Table 1: Key Performance Areas .....	44
Table 2: Eskom’s Environmental Management Strategy KPAs and KPIs for the period 2024/25 to 2029/30.....	56
Table 3: Reduction of the environmental footprint.....	59
Table 4: Internal Stakeholders .....	50
Table 5: External Stakeholders.....	50

**List of Figures**

Figure 1: Global and local influences on Eskom’s strategic direction .....	9
Figure 2: Energy trilemma in the South African context .....	10
Figure 3: Eskom’s key operational challenges .....	12
Figure 4: Eskom’s Strategy.....	13
Figure 5: Eskom’s Strategic Objectives .....	14

Figure 6: Environmental Management Strategy .....	18
Figure 7: Just Energy Pillars .....	29
Figure 8: The ESG Overview .....	39

## **Executive Summary**

The Environmental Strategy is designed not to introduce entirely new actions but to expand and optimise existing initiatives, ensuring that current efforts are strengthened and refined to meet evolving environmental, and compliance demands. This approach aligns with Eskom's Corporate Strategy, Just Energy Transition (JET), Climate Change Strategy, and Sustainable Development Strategy, building on established actions to reduce the environmental footprint and support long-term sustainability. The strategy complements related objectives and should be read alongside these documents for a comprehensive understanding of Eskom's integrated approach.

This strategic direction, supported by alignment with the sustainable development goals (SDGs) pertinent to the electricity sector, reaffirms Eskom's commitment to leveraging and optimising existing initiatives to secure energy sustainability, compliance, and operational efficiency.

The Environmental Strategy aligns closely with Eskom's Corporate Strategy, Just Energy Transition (JET), Climate Change Strategy, and Sustainable Development Strategy, supporting a unified approach to sustainability and compliance. This strategy should be read in conjunction with these three key documents to provide a comprehensive understanding of Eskom's commitment to environmental stewardship. Additionally, it aligns with the sustainable development goals (SDGs) related to the electricity sector, reinforcing goals such as affordable and clean energy (SDG 7), climate action (SDG 13), and sustainable industry, innovation, and infrastructure (SDG 9).

The Department of Planning, Monitoring and Evaluation (DPME) sets Eskom's mandate and monitors its performance, while the Department of Electricity and Energy (DEE) oversees energy-related policies. Oversight is provided by other government entities, including the National Treasury (NT), Auditor-General (AG), and the Department of Forestry, Fisheries and the Environment (DFFE).

As South Africa navigates the energy trilemma of balancing security, affordability, and sustainability, Eskom's JET Programme targets net-zero emissions by 2050, focusing on reducing local pollution, conserving water, and supporting biodiversity. Trends such as decarbonisation, legislative amendments to the Electricity Regulation Act and Climate Change Act, and updates to the Integrated Resource Plan (IRP) guide Eskom's Strategy. The unbundling of Eskom Transmission into the National Transmission Company South Africa (NTCSA), and the ongoing unbundling of Generation and National Electricity

Distribution Company South Africa (NEDCSA), reflect structural changes in the energy sector.

Despite efforts to improve the Energy Availability Factor (EAF) and reduce load shedding, environmental performance remains a challenge for Eskom, particularly in the Generation business, necessitating a revision of the Environmental Strategy for FY2024/25 to FY2029/30. Challenges include persistent environmental risks, the need for a skilled workforce, and alignment with operational objectives. In May 2024, the DFFE Minister granted Eskom a suspension from complying with the minimum emission standards (MES) for plants scheduled to shut down by March 2030, including Hendrina, Grootvlei, Arnot, Camden, and Kriel. This decision preserves up to 30 GW of capacity but requires MES exemptions for plants operating beyond 2030.

High carbon emissions from coal present sustainability challenges, but South Africa is working to lower its carbon footprint through cleaner energy solutions. Eskom strategies, including the JET, climate change, and turnaround plans, as well as industry reforms and operational demands, underscore the need for workforce upskilling and reskilling.

The Environmental Strategy focuses on reducing Eskom's environmental impact, ensuring legal compliance, enhancing governance, promoting resource conservation, and implementing ecosystem protection and mitigation measures. It aims to balance operational efficiency with environmental obligations by addressing a decline in environmental performance. Eskom's 2035 Strategy further targets legislative compliance and performance improvement. Achieving success will depend on capital and operational funding, interministerial cooperation, and collaboration with key stakeholders. Leadership accountability and adherence to sustainable practices are emphasised to reduce the environmental impact of operations, supporting the vision of net-zero emissions by 2050.

Eskom's vision of "sustainable power for a better future" emphasises a duty of environmental care. This Environmental Strategy is built around two strategic objectives:

1. Reduce Eskom's environmental footprint.
2. Position Eskom as an environmentally sustainable utility.

To address risks, the Environmental Strategy outlines six specific goals:

1. Informed decision-making to prevent harm and legal liabilities.
2. Achieving legal compliance through effective systems and monitoring.
3. Reducing emissions to meet health and regulatory standards.

4. Conserving water resources and minimising liquid discharges.
5. Improving waste management through reduction, reuse, and recycling.
6. Protecting ecosystems through responsible land and biodiversity management.

Despite operational challenges, Eskom remains committed to meeting its environmental and social obligations and aligning with the SDGs and Paris Agreement. The strategy aims to enhance Eskom's role as a sustainable energy provider while ensuring a secure electricity supply.

**Note:** An Abbreviations, Glossary, and Energy Terms Section is included in this document to provide clear definitions and distinctions between key concepts, particularly aspects of sustainability, ensuring alignment with strategic goals and avoiding ambiguity in interpretation."

## 1 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 input.



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.....



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Date: 16 January 2025  
.....

**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 assure the confidentiality, integrity, and availability of Eskom's information resources.

## 1. CONTEXT

### 1.1 Strategic context

The energy sector is undergoing transformative changes globally and locally, driven by evolving policies, technological advancements, and economic, environmental, and social demands. These developments add complexity to Eskom's operational environment, requiring a strategy that balances these external trends while addressing internal challenges. The strategy focuses on navigating these shifts to facilitate a responsible transition and organisational turnaround. Key considerations shaping Eskom's strategic direction are illustrated in Figure 1.

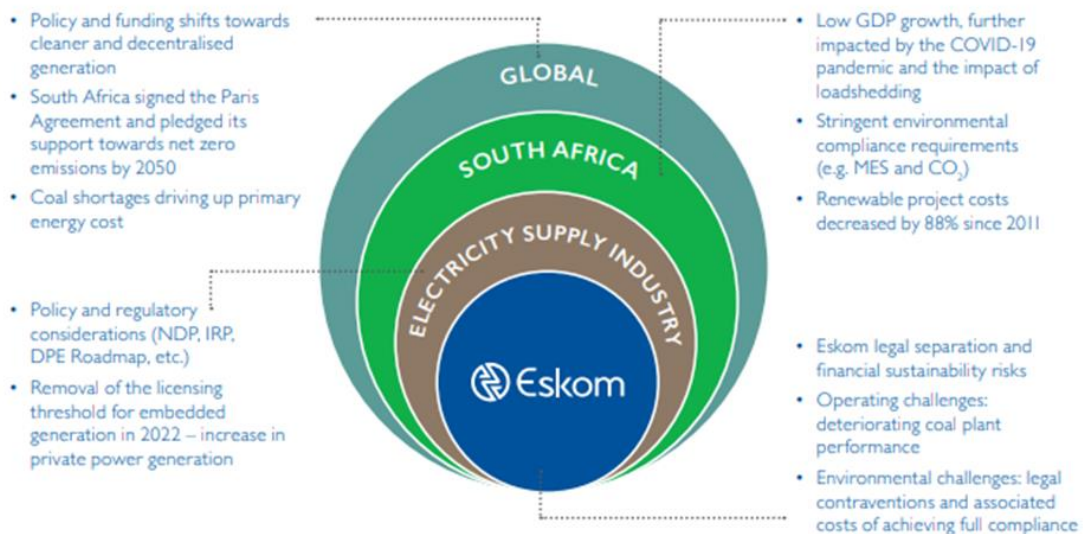


FIGURE 1: GLOBAL AND LOCAL INFLUENCES ON ESKOM'S STRATEGIC DIRECTION

### 1.2 Global outlook

Global energy dynamics are shaped by climate commitments and geopolitical factors impacting fuel and technology value chains, defined by the "4Ds": decarbonisation, decentralisation, digitisation, and democratisation. Decarbonisation, in particular, focuses on shifting to low-carbon energy sources, driven by advancements in technology, decreasing costs of renewable energy, and stringent environmental regulations. This global movement aligns with the Paris Agreement, which aims to achieve net-zero carbon emissions by encouraging countries to adopt this agenda.

### 1.3 South African context

South Africa, like other developing countries, faces the energy trilemma of balancing energy security, affordability, and sustainability. Structural constraints such as power shortages and logistical challenges hamper economic growth despite GDP recovery to pre-pandemic levels. As of the third quarter of 2024, South Africa's official unemployment rate decreased to 32.1%, down

from 33.5% in the previous quarter (South Africa Government). The expanded unemployment rate, which includes discouraged work-seekers, also declined to 41.9% from 42.6, while poverty is estimated at 62.7%. Widespread electricity shortages in 2023 disrupted economic activities, increasing operational costs for businesses reliant on costly diesel generators. The strained public finances limit government support for Eskom, and socio-economic conditions reduce the feasibility of raising electricity tariffs.

In 2024, South Africa experienced some positive shifts, laying the groundwork for further improvement in the country's energy and economic landscape. While widespread electricity shortages in 2023 disrupted economic activities and increased costs for businesses reliant on costly diesel generators, the implementation of strategic plans and interventions began to show results in 2024. These efforts have helped stabilise the system, creating a foundation for expected improvements in environmental performance and operational reliability. However, challenges remain, with strained public finances limiting government support for Eskom and socio-economic conditions reducing the feasibility of increasing electricity tariffs. Despite this, the progress made in 2024 signals a positive trajectory, supported by targeted initiatives and a commitment to achieving long-term sustainability and energy security. Figure 2 illustrates the energy trilemma in the South African context.

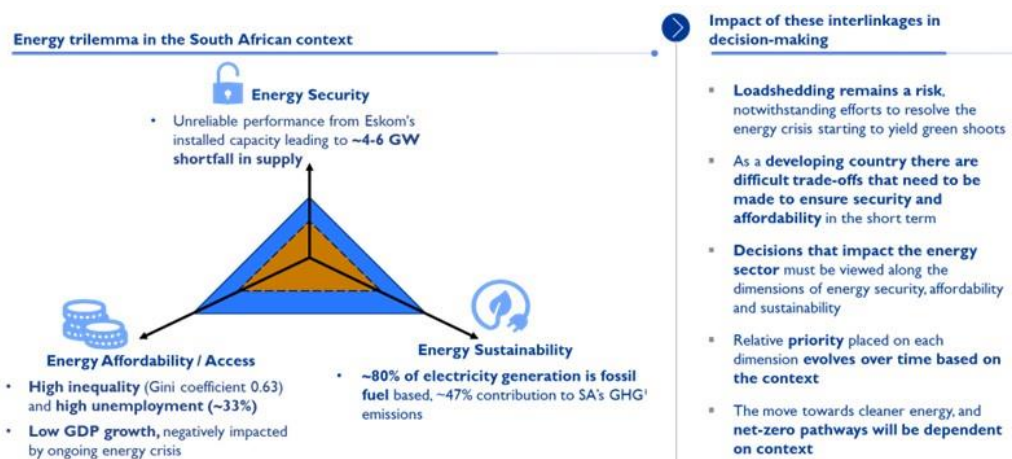


FIGURE 2: ENERGY TRILEMMA IN THE SOUTH AFRICAN CONTEXT

- Energy security**

According to the International Energy Agency (IEA), energy security has two main aspects: long-term and short-term energy security. The former deals with investments in energy supply and how they relate to timely economic developments and environmental needs. The

latter mainly tackles how the energy system can carry out prompt responses to sudden changes in the energy supply and demand cycle.

- **Energy equity**

The idea of energy equity is rooted in principles of social justice and assumes that affordable and reliable energy should be a fundamental human right and a vital component of reducing poverty and improving our quality of life. ESKOM needs to ensure that everyone – especially historically underserved communities – has access to clean, affordable, and reliable energy.

- **Energy sustainability**

Energy sustainability is about finding the balance between a growing economy, the need for environmental protection, and social responsibilities to provide an improved quality of life for current and future generations.

As a developing country, difficult trade-offs need to be made to ensure security and affordability in the short term. The relative priority of each dimension evolves over time based on the context. Therefore, decision-making in this dynamic context must enable sufficient flexibility to respond to the changing context.

#### **1.4 Electricity supply industry in the South African context**

The South African electricity industry has experienced significant changes in recent years. Key developments include the implementation of the Energy Action Plan, the establishment of the Ministry of Energy and Electricity, and a Memorandum of Understanding (MoU) with the Department of Energy and Electricity (DEE), all of which impact ESKOM's operations.

The Electricity Regulation Act (ERA) Amendment Bill, recently passed by the National Assembly, aims to transform the industry by increasing competition and allowing consumers to choose their energy suppliers. This change will introduce multiple players in the generation sector, enhancing efficiency and market dynamics. Additionally, the operationalisation of the NTCSA and its commencement of trading marks a move towards an independent electricity market, fostering more participation, competition, and efficiency within the sector.

#### **1.5 Eskom business context**

Despite continued efforts to turn the organisation around, Eskom and its subsidiaries continues to face significant operational challenges that threaten their financial sustainability, as outlined in Figure 3.




	Challenges	Positive developments
 <b>Operational</b>	<ul style="list-style-type: none"> <li>• Ageing infrastructure and poor plant performance</li> <li>• Grid constraints to connect additional capacity, TDP execution not at required level</li> <li>• Theft and vandalism of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Gx Recovery Plan implementation and recent improvement in plant performance</li> <li>• Approval of continued operations plan</li> <li>• 3.5GW additional grid connection capacity unlocked in constrained areas via curtailment</li> </ul>
 <b>Financial</b>	<ul style="list-style-type: none"> <li>• Weak balance sheet due to high debt burden</li> <li>• Lower than cost reflective tariffs</li> <li>• Revenue pressure – municipality debt and non-payment accelerating, declining sales</li> </ul>	<ul style="list-style-type: none"> <li>• NERSA approval of 12.74% tariff increase in Dec 2023, promoting cost reflectivity</li> <li>• NT debt relief - ~60% of Eskom debt to be converted to equity, improving overall financial health</li> </ul>
 <b>Sustainability</b>	<ul style="list-style-type: none"> <li>• Outdated vertically integrated business model</li> <li>• The need to transition into clean energy</li> <li>• Prevalent fraud, corruption and criminality</li> </ul>	<ul style="list-style-type: none"> <li>• Operationalisation of NTCSA as of July 2024</li> <li>• Suspension of MES limits for stations closing before 2030 granted</li> <li>• Stability in leadership with appointments of Eskom Board and GCE</li> <li>• Addressing skills gap through skills audit, crowdsourcing</li> </ul>

FIGURE 3: ESKOM'S KEY OPERATIONAL CHALLENGES

These challenges impact critical national priorities such as economic growth, job creation, and poverty alleviation. Issues such as ageing infrastructure, skills shortages, strict regulatory requirements, theft, corruption, grid constraints, and vandalism, combined with poor generation performance, pose systemic risks to South Africa's economy. Additionally, Eskom's financial sustainability is threatened by a weak balance sheet, high debt, and tariffs below cost-reflective levels. To address capacity shortages, Eskom must prioritise resolving grid constraints to enable the integration of new capacity in high-potential areas and collaborate with stakeholders to manage electricity consumption effectively.

### 1.6 Eskom's 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.

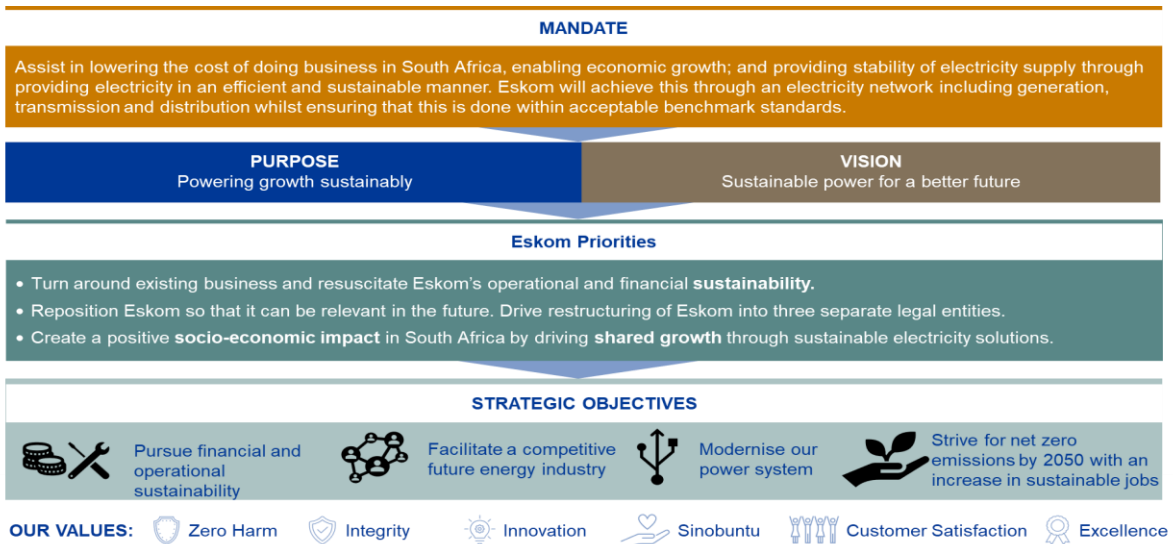


FIGURE 4: ESKOM'S STRATEGY

On 30 April 2024, the Department of Electricity and Energy (*previously DPE*) issued a revised Strategic Intent Statement (SIS) to Eskom outlining updated shareholder expectations. This revised SIS reflects recent developments in the energy supply industry that influence Eskom's operational and financial sustainability and serves as a key framework guiding Eskom's strategic direction.

## 2. ESKOM'S STRATEGIC OUTLOOK

The strategic objectives have been refined to emphasise immediate interventions that will yield desired outcomes and put Eskom on a sustainable path. In the short to medium term, Eskom's priority is to implement the Turnaround Plan to enhance performance and drive the legal unbundling of Transmission into the NTCSA, which will be followed by Distribution and then Generation. In the long term, ESKOM aims to position itself competitively in the evolving market by aligning investments and aspirations with the future goals of the organisation and its subsidiaries.

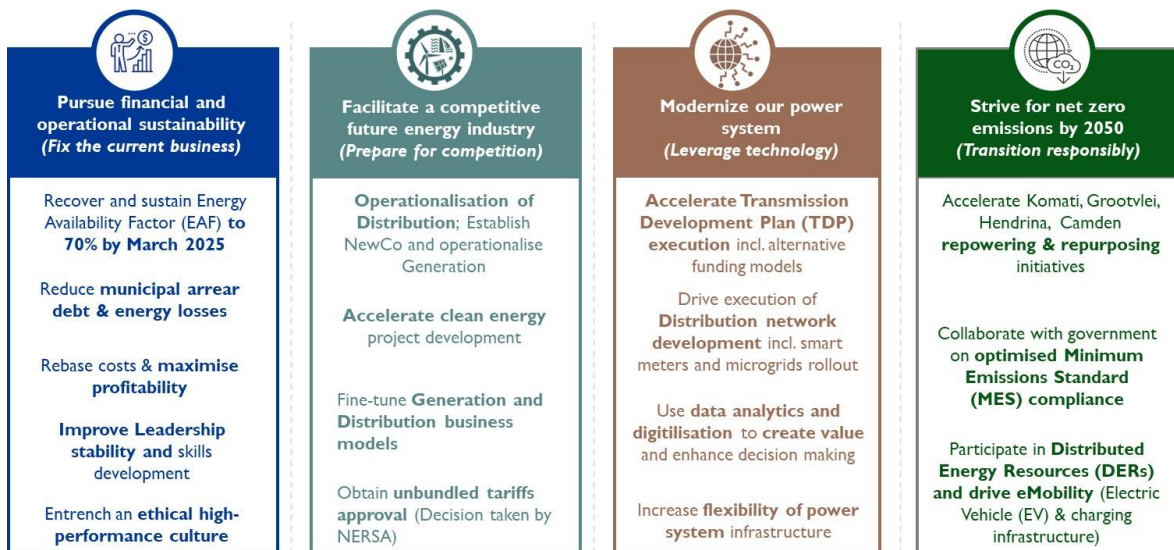


Figure 5: Eskom 's Strategic Objectives

While long-term goals focus on developing new infrastructure and achieving financial sustainability, Eskom's immediate priority is executing the Turnaround Strategy and completing legal separation while preparing for the energy transition. The shift towards more renewables and the planned shutdown of coal-fired plants require strengthening and expanding the transmission infrastructure as outlined in the Transmission Development Plan (TDP). To adapt to the evolving energy landscape, Eskom must leverage new technologies to enhance efficiency.

Transitioning to more renewable energy is essential for Eskom's future financial sustainability due to the significant costs of compliance with the MES and the costs related to managing the ageing coal fleet. The organisation aims to build a sustainable and equitable energy system, reducing carbon emissions while creating new jobs for those affected by coal plant closures. Eskom's Just Energy Transition (JET) Strategy underpins this transition, targeting net-zero carbon emissions by 2050.

## 2.1 Functional Context

Eskom is facing a challenging financial situation, necessitating difficult decisions, including significant reductions in capital and operational expenditures. However, these measures have been undertaken with duty-of-care to ensure community health and environmental protection. The goal is for Eskom to become a self-sustaining entity capable of meeting electricity demand with reduced reliance on government support while achieving positive environmental and socio-economic outcomes.

This vision aligns with South Africa's National Development Plan's Vision 2030, which aims for a low-carbon, climate-resilient, and just economy. Eskom's Just Energy Strategy is central to this effort, ensuring both environmental sustainability and a fair energy transition.

## 2.2 The 2024/25 to 2026/27 Strategic Intent Statement (SIS) outlines Eskom's priorities

- a. Establish a sustainable, transparent, accountable, and competitive utility to meet national needs.
- b. Address operational, financial, infrastructural, and corruption challenges exacerbated by state capture, which threaten the organisation's sustainability and impact key national priorities like economic growth, job creation, and poverty alleviation.
- c. Balance the energy trilemma: achieving energy security, affordability, and sustainability.

Additionally, the non-compliance of the coal fleet with national emission standards and challenges in meeting water efficiency targets present further hurdles, requiring costly and time-consuming technological upgrades. The external environment is influenced by ecosystem degradation, declining water and air quality, and global threats such as climate change. These factors, alongside a shifting global order emphasising economic competitiveness, shape the Department of Forestry, Fisheries, and the Environment's (DFFE) strategic direction.

## 2.3 Environmental alignment and strategic considerations

The Global Resources Outlook to 2060 emphasises the critical role of sustainable management of natural resources such as land, water, minerals, forests, and biodiversity in achieving economic growth, environmental sustainability, and human well-being. Similarly, the UN General Assembly's Resolution 72/277, "**Towards a Global Pact for the Environment**," (2018) supports the need for a unified global approach to environmental protection through shared principles that guide sustainability efforts worldwide.

Aligning Eskom's environmental strategy with the global pact for the environment is fundamental to ensure compliance with international standards and to position the organisation as a leader in environmental stewardship and sustainability. This alignment enhances Eskom's corporate reputation and supports global environmental initiatives. Additionally, South Africa's Climate Change Act, National Biodiversity Act, and National Environmental Management Waste Act and others necessitate a duty-of-care approach, focusing on environmental health and the sustainable use of natural resources. Legislation drives Eskom to prioritise compliance and implement practices that support long-term environmental sustainability.

The emergence of Environmental, Social, and Governance (ESG) standards requires a stronger emphasis on social management. This includes enhanced public participation and stakeholder management, highlighting the need for transparent engagement and collaboration with communities and stakeholders to ensure that environmental and social considerations are integrated into all decision-making processes.

## **2.4 Key principles shaping Eskom's Environmental Strategy**

### **a. Right to an environmentally sound and healthy environment**

Eskom is committed to conducting operations in a way that upholds the right to an environment that leads to health and well-being by prioritising low-carbon energy sources, minimizing pollution, natural resource conservation and fostering environmental sustainability.

### **b. Duty to take care of the environment**

Eskom adopts best practices for sustainable resource management and aims to minimise its environmental footprint across all operations.

### **c. Integration and sustainable development**

Environmental considerations are integrated into all strategic decisions, ensuring economic growth is achieved in harmony with environmental protection.

### **d. Intergenerational equity**

Eskom's environmental practices are designed to preserve resources and environmental integrity for future generations, with a long-term focus on sustainability.

### **e. Prevention of environmental harm**

Eskom follows a precautionary approach to prevent environmental damage, conducting comprehensive risk assessments and opting for safer alternatives whenever possible.

f. **Remediation of environmental damage**

If environmental damage occurs, Eskom is committed to restoring the affected areas through prompt and effective remediation efforts.

g. **Polluter pays principle**

Eskom ensures that any entity causing environmental disruption or degradation is held accountable for remediation and restoration costs.

h. **Proactive public participation**

Eskom actively engages with stakeholders, including communities, environmental organisations, and the public, to foster inclusive and transparent environmental decision-making.

i. **Access to information**

Eskom promotes transparency by making relevant environmental information readily available to the public, enhancing accountability in its environmental practices.

These principles collectively guide Eskom in aligning its environmental strategy with both national and international sustainability standards, promoting responsible environmental stewardship and compliance with regulatory requirements.

Eskom's operations have notable environmental impacts, particularly from its electricity generation processes, which contribute to air emissions, water consumption, water effluent, nuclear waste, and ash disposal. Additionally, construction and related activities impact ecosystems, social structures, and heritage sites. While these impacts are inherent to its operations, Eskom implements mitigation measures to minimise and manage their effects responsibly. Additionally, the transmission and distribution of electricity contribute to environmental challenges, including GHG emissions, animal interactions with infrastructure, vegetation control in servitudes, oil spillages, and general waste management.

Equally, Eskom's positive environmental contributions include managing portions of its industrial land as nature reserves, supporting electricity generation through IPP lease agreements, ash beneficiation and supplying water to third parties. Additionally, biodiversity and air quality offsets and electrification help reduce ambient air pollution in urban areas, demonstrating Eskom's commitment to mitigating its environmental footprint. These contributions often intersect with social aspects, highlighting the need for integrated environmental and social management strategies.

### 3. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT STRATEGY

The Environmental Management Strategy (Figure 6) aligns with Eskom’s purpose of “**powering growth sustainably**” and vision of providing “**sustainable power for a better future**” by ensuring environmental duty of care. This strategy upholds Section 24 of the Constitution of the Republic of South Africa (1996), which guarantees everyone the right to an environment that is not harmful to their health and well-being, and mandates the protection of the environment for the benefit of current and future generations. Through this strategy, Eskom commits to sustainable practices that balance energy production with ecological preservation, supporting the nation’s broader environmental and constitutional obligations.



FIGURE 6: ENVIRONMENTAL MANAGEMENT STRATEGY

The Environmental Management Strategy aims to address environmental challenges by aligning Eskom Holdings SOC Ltd operations with the National Environmental Management Act (NEMA) Principles, emphasising the environmental duty of care and promoting sustainable practices. The strategy ensures that Eskom integrates environmental considerations into its operational and strategic goals, driving responsible practices that protect the environment while ensuring compliance, efficiency, and reduced environmental and societal impact.

Despite recent challenges, such as poor environmental performance in Generation and the materialisation of environmental risks, progress has been made in NTCSA, Eskom Rotek Industries (ERI), and Distribution, resulting in notable improvements. The strategy outlines clear actions, objectives, and policies to mitigate impacts, promote sustainability, and ensure that

environmental objectives are embedded within Eskom’s corporate culture, decision-making, and accountability structures.

This integrated approach is critical to aligning Eskom’s environmental objectives with its broader strategic direction. Thus, it improves environmental performance and contributes positively to both the environment and society.

### 3.1 Rules that apply to the Environmental Strategy

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

South African Signatory	
Eskom Policy	Description
Eskom’s Safety, Health, Environmental, and Quality (SHEQ) Policy (32-727)	The purpose of this policy is to set the commitment to safety, health, environmental, and quality management in Eskom and to ensure uniformity across the organisation.
Eskom’s Climate Change Policy (240-77569976)	The purpose of this policy is to set out Eskom’s response to climate change through a coordinated approach.
Eskom’s ESG Plan (559-1176736448)	The Eskom ESG Plan sets out the requirement to first identify the ESG risks we face and opportunities we are presented, second to ensure we treat these risks and pursue these opportunities through strategies, plans and initiatives, with the oversight of appropriate governance structures, and lastly to measure progress against key performance indicators (KPIs).
Atmospheric Emissions Management Policy (32-419)	Eskom shall manage and reduce particulate matter, gaseous and fugitive emissions to minimise the impact on human health based on its legal obligations and through a Just Energy Transition (JET).

Eskom's Waste Standard (32-245)	Eskom supports the government's commitment to waste management to ensure 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)	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 sustainably uses water throughout its business value chain while complying with water legislation and ensuring alignment with the objectives of the Sustainable Development Goals (SDGs) 6, 13, and 17: (a) corporate water stewardship; (b) assurance and compliance; (c) stakeholder management; and (d) training and development.

### 3.2 Objectives of the Environmental Strategy

The Environmental Strategy for FY2024/25 to FY2029/30 aims to drive continuous improvement in Eskom's environmental culture, controls, and practices. It emphasises leadership accountability and adherence to sustainable practices that reduce the impact of operations on the environment, ultimately supporting Eskom's goal of achieving net-zero carbon emissions by 2050.

#### The strategy is anchored by two primary objectives:

1. Reduce the environmental footprint of Eskom's activities.
2. Position Eskom as an environmentally sustainable utility.

#### Specific goals to achieve the objectives:

- a. **Ensure informed decision-making:** Make decisions that prioritise environmental protection, minimise financial and legal liabilities, and are guided by effective leadership, sound structure, and skilled personnel.
- b. **Achieve legal compliance:** Meet all applicable environmental regulations and requirements through robust management systems, regular monitoring, reporting, and research.

- c. **Reduce particulate and gaseous emissions:** Minimise emissions to protect human health and comply with regulated standards.
- d. **Optimise freshwater usage:** Reduce freshwater consumption and minimise effluent discharge through effective water management and the use of alternative sources (e.g., mine water and treated wastewater).
- e. **Improve waste management efficiency:** Implement the principles of a circular economy by prioritising waste reduction, reuse, and recycling.
- f. **Protect and enhance ecosystems:** Mitigate operational impacts on ecosystems and support biodiversity conservation through responsible land management.

### 3.3 Principles and rules that apply to the Environmental Strategy

Environmental management is integrated into Eskom's business processes and systems, yet performance has declined over the past five years, particularly in relative particulate emissions, specific water use, and compliance incidents at several coal-fired power stations. This decline is largely attributed to the ongoing energy crisis and the challenge of balancing the energy trilemma: ensuring energy security, affordability, and sustainability simultaneously.

The current environmental risks, especially those linked to coal-fired power operations, indicate that existing control measures are not fully effective. However, NTCSA, Eskom Rotek Industries, and Distribution have consistently implemented processes that resulted in improved environmental performance. A major conflict exists between electricity production demands and the execution of environmental projects that require unit shutdowns for upgrades. This conflict exacerbates the challenge of meeting supply needs while also adhering to environmental standards.

Coal-fired electricity production is water-intensive, primarily due to wet cooling and FDG requirements. Although water use is currently lower than licensed supply volumes, there is a need to further reduce consumption, which will take place as part of Generation's recovery strategy and when older units are shut down. The strain on water resources impacts aquatic ecosystems and local water supplies, and this requires prioritisation of environmental initiatives focused on watershed protection, water conservation, and ensuring ecological water flow.

This strategy must be implemented to balance electricity production with environmental duty of care to ensure the sustainability of ESKOM but it is also noted that reduced water use has many other advantages, such as lower costs and lower operational risk. This requires alignment with the SDGs.

### **3.4 How did we get here?**

The failure to meet Eskom's environmental objectives stems from a combination of operational, technical, and financial challenges, as outlined below:

**a. Lack of operational discipline:**

Inconsistent compliance with environmental legal requirements and operating procedures has led to inefficiencies and a decline in environmental performance. Non-compliance with established standards has negatively affected the organisation's ability to achieve its environmental targets.

**b. Deterioration of environmental performance:**

Over the years, specific water use, relative particulate emissions, and legal compliance have worsened, impacting Eskom's ability to meet the conditions of its Water Use Licenses (WULs) and Atmospheric Emission Licenses (AELs). This has resulted in significant environmental impacts and exposed Eskom to increased legal liabilities.

**c. Skills shortages:**

A shortage of experience and competent technical and operational skills within Eskom has limited the organisation's capacity to implement sound environmental practices and effectively meet compliance requirements.

**d. Inadequate plant maintenance:**

Inadequate maintenance and operation of ageing infrastructure has led to increased emissions, water use inefficiencies, and other environmental impacts. This is compounded by the pressure to maintain electricity supply, which limits the time available for necessary maintenance and upgrades.

**e. Delayed retrofit projects:**

Despite prior commitments, key projects, such as the installation of flue gas desulphurisation (FGD) at Medupi, have been delayed, resulting in continued poor emission performance and unmet environmental commitments. These delays result in a prolonged negative environmental impact.

**f. Financial constraints:**

Eskom's financial difficulties have hindered its ability to replace underperforming plants or modernise its existing fleet. This has limited opportunities to implement advanced emission-reduction technologies.

### **3.5 Key environmental legal contravention incidents**

The 2023/24 financial year (FY) ended with many environmental legal contravention incidents, with 68 reported incidents. The breakdown is as follows:

- a. 54% of these incidents were due to exceedances of atmospheric emission limits.
- b. 44% were related to water use contraventions.
- c. 1% were linked to waste management issues.

Several coal-fired power stations received pre-compliance and compliance notices for non-compliance with AELs and WULs. Additionally, in Distribution, criminal charges were issued against the KwaZulu-Natal Operating Unit in October 2023 for alleged environmental contraventions at the iSimangaliso World Heritage Park. However, these charges were dropped in 2024. The criminal charges against Eskom, related to emissions at the Kendal Power Station, continue.

### **3.6 Root causes of environmental non-compliance**

The root causes of this compliance include:

- a. Human error or indecision delays which is the primary cause of environmental incidents.
- b. Equipment failure is a major contributor to non-compliance, linked to the poor state of ageing infrastructure.
- c. Deviation from standard procedures, which are non-adherence to established protocols and standards.

To address these issues, Eskom implements a robust environmental management framework focused on:

- a. Strengthening operational discipline and ensuring adherence to legal and environmental standards.
- b. Investing in skills development to fill technical gaps.
- c. Prioritising plant maintenance and modernisation to reduce emissions and improve water use efficiency.
- d. Accelerating key retrofit projects and proactively implementing abatement technologies.
- e. Engaging stakeholders and enhancing transparency to build trust and ensure accountability.

A strategic realignment, combined with targeted investments and improved operational practices, is important to restoring Eskom's environmental performance and meeting its legal and sustainability commitments.

#### **4 Key considerations for the Environmental Management Strategy**

To develop an effective Environmental Strategy, Eskom conducted a comprehensive environmental scan using methodologies such as SWOT and PESTEL analyses. This process identified key strengths, opportunities, and risks to guide the strategy.

##### **4.1 Eskom's environmental strengths to leverage**

- a.** Environmental matters are well integrated (Integrated Environmental Management) into Eskom's business processes and management systems.
- b.** Monthly Environmental Steering Committee (ESC) meetings provide strong structured oversight of performance, risks, and progress towards strategic objectives.
- c.** A robust compliance framework, supported by a SHEQ Policy, functional strategies, standards, technical documents, and certified environmental management systems. This includes combined assurance audits (Levels 1, 2, and 3) to ensure compliance.
- d.** Eskom has skilled and experienced environmental professionals throughout its operations.
- e.** Effective engagement with strong stakeholder relationships strengthens Eskom's ability to address environmental issues collaboratively.

##### **4.2 Opportunities to be leveraged**

- a.** Eskom's role in the Just Energy Transition and nuclear initiatives positions it as a key player in shifting South Africa towards a cleaner energy mix, reducing emissions and water use.
- b.** The regulatory exemption(s) granted by the Minister of DFFE for certain power stations to operate until 2030, with further exemptions to be applied for beyond 2030, provides operational flexibility if it is granted
- c.** Eskom's environmental, social, and governance (ESG) approach aligns with global sustainability trends and aims to minimise environmental and societal impacts.
- d.** The adoption of emission reduction new and emerging technologies and water treatment innovations can significantly enhance Eskom's environmental performance.
- e.** A smart reporting system that links to ESG and collates performance data on one integrated system.

- f. The divisionalisation (*organisational restructuring*) of Eskom and the clear definition of environmental roles and responsibilities will support more effective environmental management across the organisation.
- g. The debt relief provided by the National Treasury enables Eskom to prioritise funding for maintenance and critical environment-related projects.

These strengths and opportunities will be important for Eskom as it seeks to improve its environmental performance and ensure compliance with its strategic environmental objectives.

#### **4.3 Identified weaknesses to address**

Eskom faces several weaknesses that delay its environmental management initiatives and impact its ability to achieve optimal compliance and performance. These include:

- a. Many coal-fired power stations have ageing infrastructure, leading to poor operational, ineffective, and technical performance such as water and air quality management practices.
- b. The extensive reliance on coal increases Eskom's environmental footprint and constrains its ability to transition to cleaner energy sources.
- c. Limited (constraints) financial and technical resources affect the ability to modernise infrastructure and address environmental issues.
- d. Navigating multiple and complex environmental regulatory landscapes creates compliance challenges and increases the risk of non-compliance.
- e. The impacts of climate change pose continuous risks and threats to environmental performance, operational stability, and infrastructure integrity.
- f. Inadequate skilled and competent personnel in technical and operational roles weakens Eskom's capacity for effective environmental controls and compliance.

Addressing these weaknesses requires targeted investments in infrastructure modernisation, a shift towards cleaner energy sources, improvement of skills, and proactive climate change adaptation strategies. By doing so, Eskom can strengthen its environmental management, ensure compliance, and achieve sustainable long-term performance.

#### **4.4 Identified threats requiring treatment**

- a. Inadequate government funding or investment support may delay the successful implementation of Just Energy Transition (JET) and nuclear initiatives.
- b. Delays or failure in replacing the coal fleet with new technologies could compromise Eskom's ability to meet future sustainability goals.

- c. Non-compliance with legal requirements may lead to severe financial penalties, criminal prosecution of individuals, and reputational damage.
- d. An increase in non-compliance with Atmospheric Emission Licenses (AELs), Environmental Authorisations (EAs), and Water Use Licenses (WULs) poses a risk to operational stability and environmental integrity and may lead to increased environmental incidents.
- e. Managing the decommissioning of coal-fired stations and ensuring effective rehabilitation as part of repurposing and repowering plans is a complex and costly endeavour.
- f. Increased scrutiny from NGOs, communities, and other external stakeholders increases the likelihood of environmental lawsuits and reputational damage.
- g. Poor environmental performance can reduce investor confidence and financial support, further declining Eskom's ability to fund critical projects.

Addressing these threats requires a robust risk management framework, transparent stakeholder engagement, and a strategic focus on legal compliance, environmental performance improvement, and sustainable business practices to secure long-term viability.

#### **4.5 External environmental shifts and proactive responses**

To improve Eskom's competitiveness, resilience, and sustainability in a rapidly evolving business environment, proactive responses to external environmental shifts are critical. Implementing these strategies will not only help mitigate risks but also unlock opportunities for growth, innovation, and positive environmental and societal impact.

##### **i. Environmental scanning**

- a. Continuously monitor and analyse external environmental factors, trends, and emerging issues affecting Eskom.
- b. Conduct scenario planning and risk assessments to anticipate future challenges and opportunities, ensuring timely strategic adjustments.

##### **ii. Stakeholder engagement**

- a. Engage with key stakeholders, including government authorities, NGOs, communities, customers, and industry partners, to understand their perspectives and expectations.
- b. Develop shared (collaborative) goals and initiatives that align with sustainability priorities and societal needs.

- iii. **National and international participation:** Actively participate in environmental forums and improve environmental information disclosure on Eskom's website for greater transparency.
  
- iv. **Innovation and research, testing, and development (RT&D)**
  - a. Invest in research and development to explore new technologies that support sustainability, energy efficiency, and environmental conservation.
  - b. Promote a culture of continuous improvement (innovation) to advance sustainable processes, products, and business models.
  
- v. **Strategic partnerships**
  - a. Form collaborative partnerships with other organisations, academia, research institutions, and start-ups to pool resources and address environmental challenges.
  - b. Collaborate on projects (joint Initiatives) and innovation hubs to drive sustainable solutions and collective environmental impact.
  
- vi. **Policy Advocacy**
  - a. Advocate for policies, regulations, and incentives that promote sustainability and environmental protection.
  - b. Engage in policy dialogues and consultations to influence regulatory frameworks and industry standards.
  
- vii. **Resource efficiency**
  - a. Implement measures (optimised operations) to reduce waste, energy consumption, water use, and emissions across operations and supply chains.
  - b. Adopt circular economy principles for sustainable sourcing and eco-friendly technologies to minimise environmental impact.
  
- viii. **Capacity building**
  - a. Improve sustainability literacy and environmental awareness through training and development opportunities for employees (e.g. upskilling).
  - b. Build internal capabilities in areas such as climate risk management, carbon accounting, and green technology solutions.

**ix. Community engagement**

- a. Promote positive community relationships through transparent communication, participatory decision-making, and community development initiatives.
- b. Involve local communities in reempowering and repurposing activities to ensure mutual benefits.

**x. Risk management**

- a. Identify environmental risks and vulnerabilities that could impact business continuity, reputation, and financial performance.
- b. Identify and pursue opportunities.
- c. Develop adaptive responses and contingency plans (resilience strategies) to strengthen organisational resilience.

**xi. Reporting and transparency**

- a. Improve transparency and disclosure by regularly reporting environmental performance, sustainability practices, and impact assessments.
- b. Align with international reporting standards and ESG frameworks to demonstrate accountability and progress towards environmental goals.

By adopting these proactive measures, Eskom can better navigate external environmental shifts, improve its sustainability performance, and strengthen its position as a responsible energy provider committed to environmental and social stewardship.

**4.6 Critical issues to address and opportunities to leverage**

To navigate external environmental shifts and promote sustainability, Eskom must address key issues and seize strategic opportunities that align with its goals, values, and stakeholder expectations. Embracing sustainability as a strategic priority and engaging proactively with environmental challenges will be able to create long-term value and contribute to a more sustainable future for all stakeholders. Here are some critical areas and significant opportunities for leveraging:

**a. Climate change**

While the Eskom Climate Change Strategy provides a detailed framework for addressing climate-related risks and opportunities, this section highlights high-level considerations for alignment with broader environmental objectives. For more information, including adaptation and mitigation measures, refer to the Eskom Climate Change Strategy document (Document Reference: 240-91566389). Key areas of focus include:

1. Reducing greenhouse gas emissions and the overall carbon footprint.
2. Increasing the share of renewable energy sources, improving energy efficiency, and adopting sustainable energy solutions.
3. Implementing adaptation measures to counteract climate-related risks, such as extreme weather events and impacts on property and infrastructure stability (e.g., sinkholes).
4. Minimising gaseous and particulate emissions to mitigate adverse health and climate effects.

**b. Resource scarcity**

1. Address water scarcity through sustainable resource management and reduce freshwater use.
2. Manage sensitive environmental areas (land and biodiversity conservation) and prevent human encroachment on Eskom's properties and servitudes.
3. Reduce raw material shortages, control waste generation, and promote sustainable production processes.
4. Avoid excessive discharge of effluents to preserve water resources and minimise associated costs.

**c. Legal compliance**

1. Comply with all environmental legislation, permits, and licenses, such as, but not limited to environmental authorisations (EAs), water use licenses (WULs), and heritage permits.
2. Influence and engage proactively in shaping energy, electricity, and environmental policy and regulations to better align with Eskom's strategic objectives.
3. Promote stakeholder engagement and improve transparency in regulatory compliance and permitting processes.

**d. Social responsibility**

1. Incorporate diversity, and inclusion and promote social equity in organisational policies and community engagement.
2. Implement responsible business practices that benefit surrounding communities and promote social sustainability.

**e. Technological advancement**

Adopt and embrace digital transformation, automation, and advanced sustainable technologies to improve operational efficiency and innovation.

**f. Circular economy**

1. Promote and implement circular economy principles for waste reduction, recycling, and resource efficiency.
2. Ensure compliance with waste management legislation and regulations, including circular economy practices.
3. Collaborate for resource efficiency with stakeholders to minimise environmental impacts and optimise resource use.

**4.7 Significant opportunities to leverage**

**a. Clean energy transition**

1. Expand investment in low-carbon and renewable energy projects, energy storage, and smart grid technologies to reduce reliance on coal and achieve decarbonisation goals.
2. Explore and evaluate diverse energy sources such as solar, wind, hydropower, nuclear, battery storage, and clean coal technologies for environmental and cost benefits.

**b. Sustainable innovation**

1. Innovate and develop sustainable products (eco-friendly solutions) and services that address environmental and social needs.
2. Leverage sustainability as a differentiator to gain a competitive advantage.
3. Collaborate with suppliers and partners to establish circular value chains that improve resource conservation and economic resilience.
4. Minimise operational impacts on ecosystems and integrate biodiversity considerations into business practices.
5. Employ information and communication technology (ICT) and digital tools for effective innovation management.

**c. Establishment of strategic partnerships**

1. Form strategic partnerships and industry collaborations to co-create sustainable solutions and share best practices.

2. Engage with academia, NGOs, and government authorities for policy advocacy, knowledge sharing, and sustainable development.

**d. Resilience and adaptation**

1. Strengthen the organisation's ability to adapt to environmental changes, disasters, and disruptions (build organisational resilience).
2. Integrate climate risk assessments, scenario planning, and adaptation strategies into business continuity and disaster management plans.

**e. Environmental, social, and governance (ESG)**

1. Address and accelerate socio-economic and environmental (sustainable development) pressures with improved accountability and transparency.
2. Focus on double materiality by evaluating material environmental and social risks, emphasising the impact of operations on the environment and communities.
3. Ensure robust governance structures to monitor and improve ESG performance, aligning with international standards.

By addressing these critical issues and leveraging strategic opportunities, Eskom can strengthen its environmental performance, improve resilience, and drive long-term value for the organisation and its stakeholders.

## **5 ENVIRONMENTAL MANAGEMENT STRATEGIC OUTLOOK**

The Environmental Strategy aligns with the Eskom Holdings Corporate Plan (FY2025 to FY2029, Rev. 14) and the legal separation of its subsidiaries, adopting a functional leadership model that maximises economies of scale and skill utilisation. This approach provides each subsidiary: Distribution, NTCSA, Generation, and ERI with sufficient autonomy to meet their environmental mandates while ensuring consistency and alignment with Eskom's overall strategic environmental objectives.

A centralised Corporate Support Framework provides policies, guidelines, and assurance at the enterprise level, driving value across the core business operations while maintaining accountability and enabling each entity to effectively implement its specific environmental goals.

### **5.1 Implementation of emissions abatement technologies**

To reduce its environmental impact, Eskom must continue and enhance the implementation of its existing Air Quality Implementation Plan and Emission Reduction Plan, which addresses particulate emissions, sulphur dioxide, and nitrous oxide through advanced emission abatement technologies. These efforts are ongoing initiatives that Eskom is optimising and expanding to achieve greater environmental performance. Key considerations include:

- a. Maintain and refine specific emission reduction targets and timelines to demonstrate measurable progress, reinforcing current commitments.
- b. Evaluate capital and operational costs associated with abatement technologies while exploring additional funding opportunities or partnerships to sustain these initiatives.
- c. Continue deploying proven technologies such as flue gas desulphurisation (FGD), selective catalytic reduction (SCR), and electrostatic precipitators (ESPs), chosen for their effectiveness in reducing specific pollutants.
- d. Align the implementation of abatement technologies with planned infrastructure upgrades and retrofits to ensure environmental benefits are realised alongside operational improvements.
- e. Expand existing R&D efforts to identify and adopt emerging technologies that provide enhanced environmental performance and cost-efficiency.
- f. Strengthen the robust compliance and monitoring systems already in place to evaluate the effectiveness of abatement technologies and ensure compliance with emission standards.
- g. Build on current training programs to enhance employee capability in operating and maintaining these technologies. Collaborate with educational institutions and training providers to further develop a skilled and future-ready workforce.

- h. Deepen ongoing engagement with regulatory bodies, communities, and environmental organisations by transparently communicating progress, benefits, and challenges associated with implementing abatement technologies.
- i. Apply lessons learned from the ongoing implementation process to refine and optimise future environmental management practices.

By continuing to build upon existing initiatives, Eskom will proactively address emission challenges, ensure regulatory compliance, and advance its long-term sustainability goals. These ongoing efforts support improved environmental performance but also reinforce Eskom's enduring commitment to a cleaner, healthier environment for future generations.

## **5.2 Transitioning to a hybrid model while ensuring energy security**

Eskom's Just Energy Transition (JET) Strategy is designed to address the energy trilemma by balancing energy security, affordability and access, and sustainability. The strategy aims to establish a renewables-dominant power system by 2050, progressively achieving the "**5 Es**": **E**nergy, **E**conomy, **E**mployment, **E**quity, and **E**nvironment. This vision is supported by three interdependent pillars: Just, Energy, and Transition, which are enabled by key strategic elements as outlined in the JET framework.

The JET Strategy takes into account the ongoing energy crisis and the Generation Strategy, emphasising a phased approach to transition. The focus is on maintaining operational units in the short term without extending their lifespan while ensuring that repowering and repurposing (R&R) projects progress independently of decommissioning schedules. This approach prevents delays in transitioning to alternative projects and ensures that new economic and social opportunities are realised before coal plants are fully decommissioned.

## **5.3 The JET Strategy envisions**

- a. A progressive transition that gradually shifts Eskom towards generating more electricity from sustainable sources while maintaining a balance between the three trilemma elements.
- b. Investments in grid upgrades are essential to accommodate new capacity and facilitate the integration of renewable energy.
- c. Potential growth markets and new economic opportunities that could emerge from the shift to a low-carbon economy, thus supporting economic resilience and sustainable growth.

## **5.4 Key aspects of the JET strategy:**

### **5.4.1 Maintaining energy security.**

- a. Ensure that existing coal-fired units remain operational for a defined period to secure energy supply, while concurrently accelerating the deployment of renewable energy projects.
- b. Implement R&R projects to bring new capacity online before coal plants are shut down, thus minimising disruptions to the power grid.

### **5.4.2 Decoupling R&R from decommissioning timelines**

- a. Pursue repowering (using alternative energy sources such as renewables) and repurposing (converting sites for non-power activities) independently of the coal station shutdown dates to avoid delays in new capacity and socio-economic initiatives.

### **5.4.3 Socio-economic impact**

- a. Consider the socio-economic impact of the transition, including job displacement and creation. The strategy projects a net growth in employment by 2050 as the economy shifts towards more sustainable energy systems.
- b. Develop tailored support and re-skilling programs for affected workers and communities to ensure that the transition is equitable and inclusive.

### **5.4.4 Financing and partnerships**

- a. Leverage diverse financing and partnership options to support the execution of the JET strategy, including public-private partnerships, international climate finance, and investments from green funds.
- b. Promote collaboration with stakeholders, government entities, and the private sector to optimise financial resources and align strategic goals.

### **5.4.5 Key enablers of the JET**

- a. Ensure the successful implementation of JET through policy support, regulatory alignment, technical expertise, and stakeholder engagement.
- b. Focus on improving the grid infrastructure, strengthening technical capacity, and streamlining regulatory processes to facilitate a seamless transition.

By implementing this approach, Eskom aims to achieve a balanced and just transition that ensures energy security, supports economic growth, and fosters social equity while progressively reducing its carbon footprint and environmental impact.

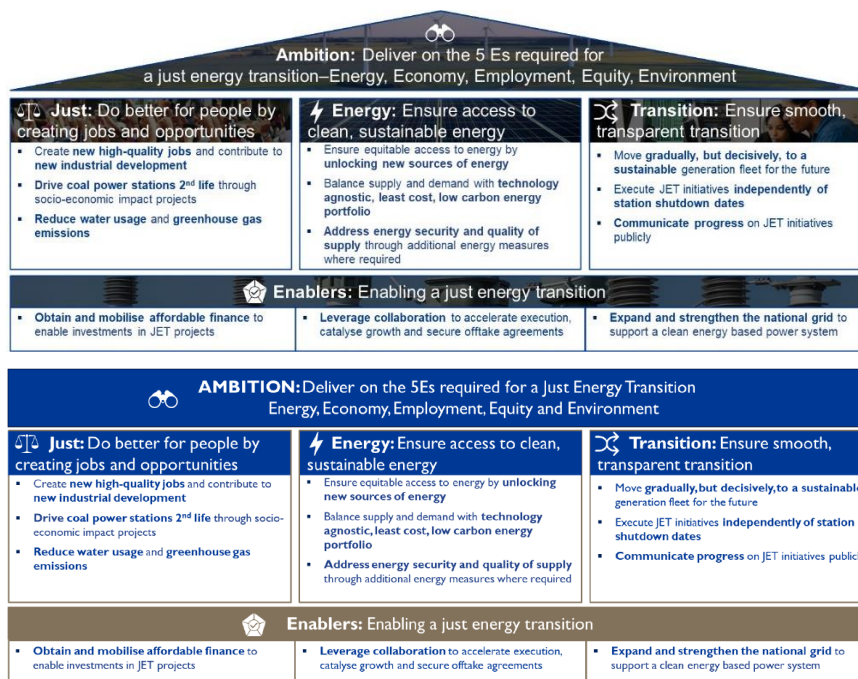


FIGURE 7: JUST ENERGY PILLARS

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

The Just Energy Transition (JET) Strategy aims to balance the three pillars of the energy trilemma: energy security, affordability, and sustainability while providing a second life to power stations to maintain economic stability. The strategy’s objective is to ensure a reliable, cost-effective, and sustainable energy supply that supports South Africa’s socio-economic needs and environmental goals.

## 5.5 Breakdown of the energy trilemma

### 5.5.1 Energy security

- Ensuring a stable and reliable supply of electricity to support economic growth, which involves not only meeting supply and demand but also maintaining quality of supply in a rapidly changing energy landscape.
- A critical factor for South Africa’s economy, as a stable energy supply underpins industrial activity and national development.

### 5.5.2 Affordability and access

- Addressing the high levels of unemployment, inequality, and poverty in South Africa by providing cost-effective energy solutions.
- Ensuring that energy remains affordable for consumers while introducing accessible technology options that balance economic and social priorities.

### **5.5.3 Sustainability**

- a. Encompassing more than just air quality management, sustainability includes efficient use of natural resources, such as water and soil, and effective waste management.
- b. Incorporating an economic sustainability perspective, the strategy explores local manufacturing and regional supply chain development to minimise dependency on imports and create new economic opportunities.

### **5.6 Economic and environmental considerations**

In the context of the global drive to reduce CO<sub>2</sub> emissions, South Africa's reliance on a coal-dominant power system places its export economy at risk due to potential carbon import tariffs and restrictive policies from key trading partners. Thus, the JET Strategy must navigate these risks by:

- a. Reducing carbon emissions through the gradual integration of renewable energy sources.
- b. Supporting South Africa's climate commitments while protecting economic interests.
- c. Creating new job opportunities in sustainable sectors to offset job losses in coal-dependent industries.

By addressing each pillar of the energy trilemma and focusing on long-term sustainability, the JET Strategy aims to achieve a just and equitable energy transition that contributes to South Africa's socio-economic development and environmental sustainability.

## 6. STRATEGY IMPLEMENTATION (HOW?)

By focusing on **building upon existing initiatives**, the environmental strategy emphasises enhancing and optimising current efforts across the organisation, including Generation, Distribution, NTCSA, and Eskom Rotek Industries. Divisional boards will continue to align their activities with the strategy objectives, supported by Risk and Sustainability Environmental Management (functional leadership) to ensure integration, corporate direction, and strategic alignment.

### 6.1 Key implementation elements:

- a. Strengthen existing cross-functional governance structures such as environmental committees, work forums, and task teams to promote collaboration across divisions and departments.
- b. Refine and enhance KPIs aligned with strategic environmental objectives to effectively monitor and evaluate performance.
- c. Expand and optimise the existing roadmap for Generation, integrating emission reduction technologies such as flue gas desulphurisation (FGD) and selective catalytic reduction (SCR). Address funding availability, regulatory approvals, and technical feasibility.
- d. Build on NTCSA's ongoing initiatives by refining the roadmap for the Transmission Development Plan, ensuring grid stability and establishing an energy trading platform while addressing funding and regulatory requirements.
- e. Enhance current training programs to upskill employees in operating and maintaining environmental technologies. Collaborate with external training providers and leverage internal expertise to strengthen workforce competence.
- f. Continue to strengthen the compliance framework governing environmental strategy implementation. This includes governance committees, adherence to regulations, permit management, and robust reporting mechanisms.
- g. Build on existing risk management practices to identify potential challenges, develop contingency plans, and maintain a proactive approach to environmental management.
- h. Deepen engagement with technology suppliers, research institutions, and government agencies to support environmental initiatives through partnerships and knowledge-sharing efforts.
- i. Maintain and enhance transparency regarding the environmental strategy. Provide regular updates to stakeholders, engage with communities, and establish feedback mechanisms to drive continuous improvement.

- j. Strengthen systems for continuous monitoring of environmental performance, creating a feedback loop to refine and adapt the strategy based on emerging insights, regulatory changes, and environmental conditions.

## **6.2 Strategic outcomes**

The Environmental Strategy reinforces Eskom's commitment to addressing its environmental challenges and leveraging opportunities for sustainability. By optimising existing initiatives, Eskom will:

- a. Strengthen its role as a responsible corporate citizen.
- b. Align with international best practices and sustainable development goals.
- c. Advance toward achieving net-zero emissions by 2050.

Through the successful execution of this strategy, Eskom will not only meet regulatory requirements but also lead the energy sector in sustainable transformation and environmental stewardship.

## **6.3 Divisional environmental overview**

Each division has a divisional Environmental Plan that aligns with this Environmental Strategy which includes its environmental aspects, contributions, objectives, initiatives, and key performance areas to ensure comprehensive management and alignment with the strategic environmental goals.

### **6.3.1 Generation overview**

The Generation Division's outlines a roadmap to address the current energy crisis while transitioning towards a cleaner and more sustainable energy system. This transition will be pursued within the bounds of financial, environmental, and social sustainability, in support of South Africa's economic growth objectives. Given that the division's operations rely heavily on non-renewable resources such as land, water, coal, and air, its environmental performance remains a key strategic focus to ensure compliance, reduce its environmental footprint, and support Eskom's core value of Zero Harm to people and the environment. Key environmental aspects are aligned with the division's strategic objectives and Eskom's overall Environmental Strategy.

### **6.3.2 Key elements of the Generation Environmental Plan:**

- a. The Generation division's activities have a significant environmental impact, mainly due to heavy reliance on non-renewable resources and emissions from coal-fired plants. The plan

prioritises minimising this environmental footprint by adopting emission reduction technologies, improving water management, and exploring alternatives to coal.

- b. The JET Strategy emphasises fairness, equity, and inclusivity in the transition from traditional fossil-fuel-based systems to cleaner and more sustainable alternatives. Through the Repurposing and Repowering (R&R) Plan, Eskom aims to revitalise ageing power stations, creating value-adding opportunities for communities, workers, and the broader economy.
- c. The decoupling of R&R projects from the immediate shutdown of coal plants enables Eskom to pursue new projects and socio-economic initiatives before coal stations are decommissioned.
- d. The JET Strategy aligns closely with national objectives to reduce greenhouse gas (GHG) emissions, promote job creation through reskilling, and stimulate economic growth. This transition plan aims to leverage South Africa's ageing coal fleet by transforming these assets into hubs for renewable energy projects and sustainable economic activities.
- e. The decision to decommission ageing, cost-inefficient coal-fired plants is driven by their declining reliability, uneconomical maintenance costs, and contribution to load shedding. The first successful decommissioning was at Komati Power Station, which was shut down on 31 October 2022. The repurposing of Komati, supported by concessional funding from the World Bank, will serve as a model for similar projects across the fleet.
- f. The Komati Project includes three core activities:
  - i. Safely shutting down and dismantling (decommissioning) outdated equipment.
  - ii. Introducing renewable energy projects (repowering) such as solar PV, battery storage, and microgrids to replace the lost generation capacity.
  - iii. Supporting impacted workers and communities through reskilling, alternative livelihoods, and economic development initiatives.
  - iv. Due to ongoing energy security challenges, Eskom has reviewed its initial 2035 shutdown schedule for the coal fleet. The revised scenario proposes that the following power stations will continue operating until March 2030: Camden; Hendrina; Arnot; Grootvlei, and Kriel. Tutuka will operate for its full design life of 50 years, reflecting a strategic decision to balance energy security needs with environmental commitments.
- g. The plan includes a decoupling approach for R&R projects, ensuring that new projects are launched in parallel with ongoing coal operations to maintain energy stability and support community transitions before final shutdowns.
- h. The Generation Divisional strategy reflects Eskom's commitment to a Just Energy Transition that balances energy security, affordability, and sustainability. By systematically repurposing

and repowering coal-fired stations, the strategy aims to extend the economic value of these assets while reducing environmental impacts and supporting South Africa's broader decarbonisation goals. The approach prioritises fair treatment of affected workers and communities, alignment with national development objectives, and maintaining energy supply stability during the transition period.

#### **6.4 National Transmission Company South Africa (NTCSA) Overview**

The National Transmission Company South Africa (NTCSA) SOC Limited, a wholly-owned Eskom Holdings SOC subsidiary, is responsible for South Africa's electricity transmission network. NTCSA's mandate is to provide a reliable and efficient transmission network, system operations, and energy market services in South Africa and designated electricity markets.

NTCSA is responsible for ensuring the reliability, efficiency, and sustainability of the transmission network, system operations, and energy market services in South Africa and designated electricity markets. To achieve its mandate, NTCSA has established three core Strategic Objectives:

- I. to provide a reliable and sustainable interconnected power system, focusing on maintaining and expanding its transmission infrastructure to support a stable and resilient interconnected power system,
- II. An inclusive electricity market that aims to create an inclusive and competitive electricity market that allows for diverse market participation and supports the integration of renewable energy and,
- III. A financially sustainable business ensuring long-term financial viability is essential to support infrastructure investments, operational efficiency, and market development.

##### **6.4.1 NTCSA Business Model and Key Activities**

NTCSA's business model encompasses a broad range of products and services, which include:

- a. Managing and expanding the physical transmission infrastructure.
- b. Ensuring real-time system reliability and grid stability (system operations).
- c. Procuring electricity from various generators to ensure consistent supply.
- d. Facilitating cross-border electricity international trading to optimise regional energy resources.
- e. Establishing and managing an inclusive energy market to enable transparent trading and efficient resource allocation.
- f. Planned infrastructure expansion and maintenance.

Over the next five years, NTCSA plans to maintain, refurbish, and expand its operating asset base to enhance the reliability of the transmission network. Key expansion targets include:

- 170 Transformers: Upgrading and adding transformers to improve grid stability and accommodate growing demand.
- 14,000 km of high voltage (EHV) transmission lines: Extending the transmission network to support energy transition and enable efficient delivery of electricity across South Africa.

#### **6.4.2 NTCSA Environmental Performance and KPIs**

NTCSA's plan includes a focus on environmental sustainability whereby key performance indicators are designed to monitor and ensure compliance with environmental legislation, and standards while maintaining operational efficiency. Key environmental aspects include and are aligned with NTCSA's strategic objectives and Eskom's overall Environmental Strategy.

- a. Managing vegetation within servitudes and right-of-ways to minimise ecological impact.
- b. Implementing measures to reduce wildlife collisions and electrocutions on transmission lines.
- c. Preventing and managing potential oil spills from transformers and substations.
- d. Ensuring safe disposal and recycling of hazardous and non-hazardous materials generated during operation, maintenance and expansion activities.
- e. Enabling transition to a low-carbon electricity system and transforming operations, i.e., addressing the business's carbon footprint, minimising transmission losses on the network, and building resilience to the future risk of climate change.
- f. Optimising water use in operations and minimising the impact on local water resources.
- g. By strictly adhering to the KPIs, NTCSA aims to minimise its environmental footprint while ensuring the stability and resilience of the national power grid.

The NTCSA Environmental Plan reflects its critical role in maintaining and expanding the national transmission infrastructure to support South Africa's energy transition. Through focused investments in network expansion, effective system operations, and the development of an inclusive energy market, NTCSA is positioned to contribute significantly to the country's energy security and sustainability objectives. Ensuring environmental compliance and integrating sustainable practices into all aspects of transmission operations will be key to achieving these goals.

#### **6.5 Distribution overview**

Distribution is mandated to power economic growth by providing reliable electricity and related energy services to its customers sustainably and efficiently. As a core division within

Eskom's structure, Distribution adapts to the evolving energy landscape by embracing advanced technologies to enhance operational efficiencies and environmental performance.

### **6.5.1 Distribution Business Model and Key Activities**

- a. The primary focus of Distribution is to ensure a consistent and dependable supply of electricity to its customers, supporting economic development and the growth of industrial, commercial, and residential sectors. The division aims to leverage innovative technologies to optimise service delivery, reduce operational costs, and enhance system efficiency.
- b. Distribution seeks to integrate sustainability principles across its operations, reducing its environmental footprint through responsible resource use and sustainable practices.
- c. Key initiatives include improving energy efficiency, reducing emissions, and enhancing waste and water management strategies.
- d. To remain competitive and responsive to the changing energy sector, distribution will implement smart grid technologies, automated systems, and advanced data analytics to monitor, control, and optimise electricity distribution. These technologies will also support the integration of renewable energy sources and contribute to a more resilient and flexible power distribution network.

### **6.5.2 Distribution of environmental performance and KPIs**

Distribution's plan includes a focus on environmental sustainability whereby key performance indicators are designed to monitor and ensure compliance with environmental legislation, and standards while maintaining operational efficiency. Key environmental aspects include and are aligned with the division's strategic objectives and Eskom's overall environmental strategy.

- a. Emissions management, reduction in greenhouse gas (GHG) emissions from distribution activities to implement measures to minimise emissions through energy-efficient technologies and cleaner energy sources. Drive eMobility initiatives by replacing the distribution fleet with EVs and roll-out of EV charging infrastructure.
- b. Energy efficiency, percentage improvement in energy efficiency across the distribution network to reduce energy losses and optimise electricity delivery to customers.
- c. Vegetation and land use management, the number of hectares of servitudes maintained with minimal ecological disturbance to manage vegetation in servitudes to prevent service disruptions while preserving biodiversity.

- d. Waste management, percentage of waste recycled or safely disposed of in compliance with environmental regulations to minimise waste generation and promote recycling and reuse of materials.
- e. Water use and efficiency, and reduction in water consumption across operational facilities to implement water-saving technologies and practices to reduce usage and manage water resources sustainably.
- f. Climate change and adaptation.
- g. Stakeholder engagement and compliance, including the number of successful engagements and compliance with environmental regulations to ensure continuous stakeholder involvement and maintain compliance with environmental laws and standards.

Distribution is positioned to be a key driver of economic growth by providing reliable and sustainable electricity services while minimising its environmental impact. By adopting cutting-edge technologies and aligning with environmental best practices. Distribution aims to enhance efficiency, support sustainability goals, and meet the evolving needs of its customers and stakeholders.

## **6.6 Eskom Rotek Industries (ERI) overview**

ERI was established to play a strategic role in the electricity industry to support the electricity value chain, from providing primary energy and supporting power station operations to delivering power to customers. This is addressed in the ERI's mandate to "provide mission-critical, strategic, and commercial lifecycle services to Eskom's businesses and other selected players within the energy industry profitably and sustainably".

This goal is pursued within the framework of sustainability and operational efficiency, ensuring compliance with environmental standards and maintaining best practice benchmarks.

### **6.6.1 ERI Business Model and Key Activities**

- a. Eskom Rotek Industries is committed to reducing electricity costs to support industrial and commercial competitiveness, thereby contributing to national economic growth. The subsidiary aims to optimise operational efficiencies and minimise overhead costs by streamlining its electricity supply chain and leveraging technological innovations.
- b. Maintenance of core assets, including turbines, generators, transformers, and switchgear.

- c. Management of critical resources, including coal, ash, diesel, and water.
  - d. Logistical solutions for movement (and haulage) of key assets.
  - e. Construction of new fixed assets, including rail, roads, power lines and substations.
- I. Ensuring a consistent and resilient electricity supply across generation, transmission, and distribution networks is important for ERI's mandate. The plan focuses on improving infrastructure reliability, reducing downtime, and ensuring energy security for business operations.
  - II. ERI integrates environmental management into its core activities, ensuring that electricity production and supply align with sustainability standards. The division emphasises reducing environmental impact through energy efficiency, emissions management, and resource conservation.

### **6.6.2 ERI's environmental performance and KPIs**

ERI's plan includes a focus on environmental sustainability whereby key performance indicators are designed to monitor and ensure compliance with environmental legislation, and standards while maintaining operational efficiency. Key environmental aspects include and are aligned with the subsidiary's strategic objectives and Eskom's overall Environmental Strategy.

- a. Environmental Impacts: management of environmental impacts in various product groups and at various sites through risk management processes and environmental management systems.
- b. Climate change and adaptation: Management of climate change impacts on ERI through the risk management process and alignment with Eskom Environmental Disaster Contingency and Climate Plans.
- c. Emissions: facilitating, maintaining, and monitoring compliance with the AEL and record of decisions.
- d. Resource conservation: compliance with legislation through monitoring and management of impact on water sources in Rosherville.
- e. Waste Management: compliance with waste management practices through monitoring of waste disposal processes and compliance of service providers through internal assessments
- f. Environmental Compliance: achievement of legal compliance through monitoring of compliance to the legislative requirement using audits, system assessments and adherence to contractual obligations.

## **6.7 Risk and Sustainability (R&S) Environmental Management Overview**

The Risk and Sustainability's mandate is to direct, coordinate and monitor a safe, sustainable and high-quality business environment where the organisation can thrive and achieve our objectives and goals. This will be accomplished through functional leadership and oversight in the areas of occupational health and safety, environment management, climate change and sustainable development, integrated risk and resilience management and quality management, in support of Eskom's vision. The Risk and Sustainability (R&S) Environmental Management is responsible for improving the overall sustainability of Eskom by addressing key environmental challenges and ensuring alignment with Eskom's strategic objectives. R&S plays a functional leadership role in supporting Eskom's commitment to environmental stewardship by integrating risk management and sustainability principles into all business operations. This approach ensures that Eskom not only complies with environmental regulations but also advances its long-term goal of becoming an environmentally sustainable utility.

### **6.7.1 R&S Functional Leadership Model and Key Activities**

- a. R&S ensures that the environmental management initiatives are closely aligned with Eskom's Corporate Plan and the broader Environmental Strategy.
- b. The business unit is tasked with providing strategic direction, level-one policies, procedures, and guidance to support environmental initiatives across Eskom's divisions and its subsidiaries.
- c. The R&S BU identifies, evaluates, and manages environmental risks associated with Eskom's operations. This includes advising on divisional contingency plans and risk mitigation strategies to prevent environmental incidents and ensure business continuity.
- d. A proactive risk management approach is adopted to address both immediate and long-term environmental risks, enhancing Eskom's resilience and sustainability performance.
- e. R&S supports Eskom in achieving its sustainability objectives by driving initiatives focused on resource conservation, emissions reduction, waste, water management, biodiversity and ecosystem protection.
- f. The business unit champions the integration of sustainability principles into corporate governance and operational practices, ensuring that environmental considerations are embedded in decision-making processes.
- g. R&S establishes a robust compliance framework to ensure that Eskom complies with all related environmental laws and regulations. This includes monitoring compliance with environmental permits, conducting audits, and managing regulatory reporting.
- h. R&S provides oversight and assurance to maintain environmental compliance across all divisions.

### **6.7.2 R&S Environmental KPIs**

The KPIs are designed to monitor progress across the divisions to improve environmental performance and support the achievement of Eskom's sustainable development goals. Key Environmental aspects include:

- a. Environmental risk identification and mitigation, percentage of identified environmental risks with effective mitigation strategies in place to ensure all priority environmental risks are assessed and addressed to prevent adverse environmental impacts.
- b. Compliance with environmental legislation and, the number of compliance incidents related to environmental permits and regulations to achieve zero compliance incidents by maintaining rigorous oversight and implementing corrective actions where required.
- c. Resource efficiency and conservation, reduction in water, energy, and material usage across all divisions and subsidiaries to implement resource efficiency measures to minimise environmental footprint and promote sustainable resource use.
- d. Emission and waste reduction, the percentage reduction in emissions and hazardous waste generated to implement waste management and emission reduction technologies to achieve compliance and reduce environmental impact.
- e. Sustainability initiatives, the number of sustainability projects implemented and their impact on environmental performance, to drive continuous improvement through sustainability initiatives, improving Eskom's role as an environmentally responsible utility.
- f. Stakeholder engagement and transparency, the number of stakeholder engagements and environmental disclosures and reporting to maintain transparent communication with stakeholders on environmental performance and sustainability initiatives.

The Risk and Sustainability (R&S) Environmental Management is a cornerstone in ensuring Eskom's commitment to environmental sustainability. By focusing on risk management, legislative compliance, and strategic alignment, R&S supports Eskom's goal of reducing its environmental footprint and achieving long-term sustainability. Through targeted KPIs and continuous improvement initiatives, R&S will improve Eskom's resilience, promote sustainability, and position the company as a leader in environmental stewardship.

## 7. ENVIRONMENTAL, SOCIAL, AND GOVERNANCE AND THE ECONOMY CIRCULAR ECONOMY

The Environmental, Social, and Governance (ESG) Plan and the adoption of a circular economy approach are integral to Eskom’s environmental strategy, promoting sustainable development by addressing environmental impacts, promoting social responsibility, and ensuring robust governance practices while creating economic value through resource efficiency and waste minimisation. Global stakeholders, particularly investors, are increasingly prioritising environmental, social, and governance (ESG) performance in their decision-making processes. Eskom has integrated ESG considerations into its Integrated and Sustainability Reports to highlight non-financial risks and opportunities and underscore its commitment to sustainability and responsible business practices.

### 7.1 Environmental, social, and governance

Eskom aims to demonstrate adherence to ESG principles through targeted initiatives, policies, and strategies that address environmental impact, social responsibility, and governance practices. The emphasis on integrating ESG into its operational framework will align Eskom’s commercial and socio-economic responsibilities. By embedding ESG principles into its core operations, Eskom aims to create long-term value, support environmental preservation, enhance societal well-being, and promote a sustainable business model that guarantees resilience and longevity. The ongoing integration of ESG practices will contribute to Eskom’s recognition as a sustainable and responsible utility and reinforce its commitment to creating a positive impact for future generations.

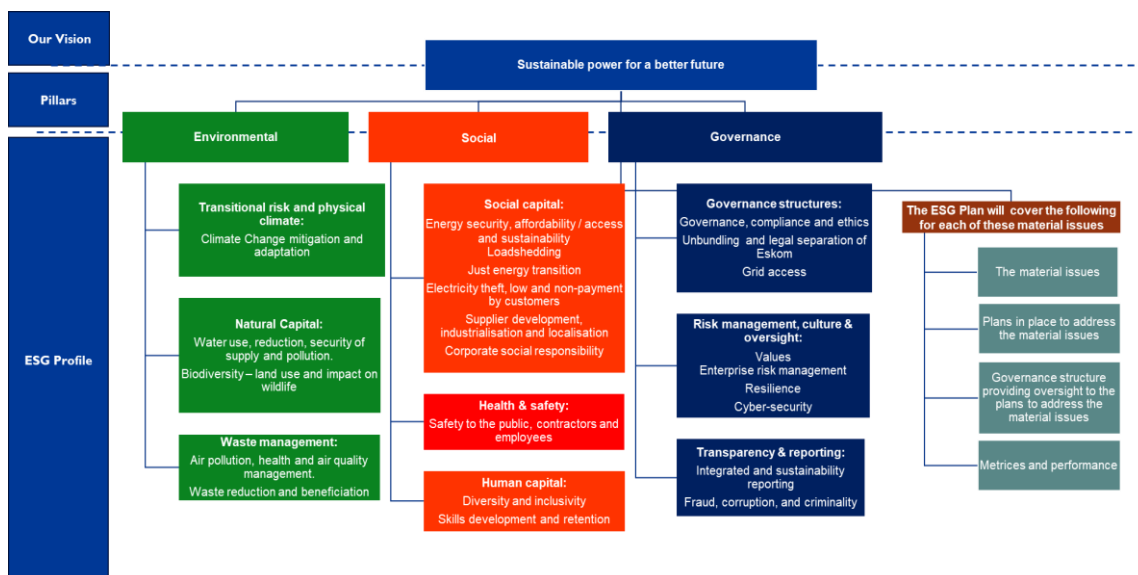


FIGURE 8: THE ESG OVERVIEW

## 7.2 Benefits of robust ESG practices

- a. Improved financial performance: Effective ESG practices lead to better resource management, cost savings, and operational efficiencies.
- b. Enhanced risk management: Proactively identifying and mitigating ESG risks reduces the potential for adverse financial, environmental, and social impacts.
- c. Enhanced brand reputation: Demonstrating a commitment to sustainability, social responsibility, and good governance strengthens the company's public image.
- d. Improved access to capital: A strong ESG profile can attract more investors and lower the cost of capital.
- e. Improved employee engagement and retention: Implementing ESG initiatives promotes a positive work environment, aiding in talent retention and attraction.
- f. Innovation and competitive advantage: ESG promotes innovation by encouraging sustainable business models and practices that can differentiate Eskom in the market.

For this strategy, compliance with the environmental **“E” component of ESG** will be prioritised. It represents an increased commitment to confronting and alleviating environmental consequences and opportunities. Environmental performance is one of the most significant challenges for Eskom. The challenges relate to:

- Reducing environmental footprint by managing water use, emissions, and natural resource conservation to align with sustainable development goals.
- Implementing initiatives that empower local communities while minimising environmental risks.
- protecting employee health and safety through enhancing environmental health and safety strategies and initiatives.

Environmental performance is measured through key ESG metrics or indicators to monitor and report on its performance of significant environmental aspects against agreed environmental objectives or targets in the following areas:

- Ambient air quality: Monitor and control emissions to minimise health impacts.
- Water use and pollution prevention: Optimise water use and prevent contamination from releases.
- Biodiversity management: Protect, restore and improve ecosystems impacted by operations.
- Waste management: Implement circular economy principles to manage waste in line with the waste hierarchy.
- Environmental compliance: Maintain full compliance with environmental permits, licensing, and regulatory requirements.

### 7.3 Reporting and alignment with global standards

The reporting frameworks outlined in this strategy are directly linked to the divisional environmental plans, ensuring comprehensive tracking and evaluation of progress. Each division has a divisional environmental plan that aligns with the Eskom Environmental Strategy, including its environmental aspects, contributions, objectives, initiatives, and key performance areas (KPA)s. These plans provide the foundation for managing and aligning divisional efforts with the strategic environmental objectives.

Eskom's ESG reporting is aligned with the following international frameworks ensuring that reporting is transparent, comparable, and aligned with global best practices, enabling stakeholders to assess its environmental and social performance accurately.

- a. International Financial Reporting Standards (IFRS 1 and 2)
- b. Global Reporting Initiative (GRI)
- c. United Nations Sustainable Development Goals (SDGs)
- d. United Nations Guiding Principles
- e. Task Force on Climate-Related Financial Disclosure (TCFD)
- f. Carbon Disclosure Project (CDP)

As outlined in **Section 8.1**, each division is required to monitor and report on KPAs to support Eskom's strategic environmental objectives. The reporting frameworks in this section are designed to integrate these KPAs into a cohesive system for tracking progress, ensuring that divisional actions contribute effectively to corporate environmental goals. These reporting frameworks serve to:

- a. Track and monitor divisional performance KPIs against environmental objectives and key initiatives.
- b. Ensure accountability and align reporting processes across divisions, ensuring consistent feedback into the corporate governance structures.
- c. Enable Integration and connect divisional actions with broader organisational targets, reinforcing the link between strategic objectives and operational execution.

By linking divisional environmental plans with reporting frameworks, the strategy ensures that progress on key initiatives and outcomes is effectively measured, evaluated, and reported, promoting alignment across all levels of the organisation.

## **7.4 Circular economy**

The circular economy model is central to Eskom's strategy as it aims to minimise waste and significantly improve waste management practices, optimise, and ensure efficient resource utilization, and reduce environmental impact. By transitioning from the current traditional linear "take-make-dispose" model to a circular economy, Eskom can reduce the costs and environmental footprint of its operations while unlocking new economic opportunities and ensuring long-term sustainability.

## **7.5 Circular economy principles in Eskom's operations**

The circular economy emphasises maximising the lifecycle of resources through reducing/designing out waste, reusing, recycling, and repurposing materials. For Eskom, this means transforming by-products such as ash from coal-fired power stations into value-added products and establishing partnerships for sustainable natural resources provision and waste management solutions. This approach not only mitigates environmental liabilities but also generates additional revenue streams.

## **7.6 Key initiatives and current progress**

### **7.6.1 Ash beneficiation and sales**

- Eskom has established ash sales contracts with multiple off-takers and is currently selling ash from seven power stations.
- By expanding existing contracts and developing new markets for ash, Eskom is leveraging its by-products to support sustainable construction and manufacturing industries.

### **7.6.2 New applications for ash**

Eskom is continuously exploring new uses for ash in line with the 2020 DFFE Notice (dated February 2020, the Department of Forestry, Fisheries and the Environment (DFFE) promulgated a "*Notice indicating the exclusion of certain waste streams or portions of waste streams from the definition of waste for beneficial use*" that excludes certain waste streams from the definition of waste, thereby simplifying regulatory compliance for beneficial use.

Eskom continues to explore innovative ways to utilise ash generated from its operations, contributing to sustainability and waste reduction. A flagship example is the Kusile Road Project, which showcases the potential for large-scale, internal ash utilisation in infrastructure development.

### **7.6.3 Current and potential applications include**

- a. Cement and concrete production: Using ash as a substitute for cement in concrete, significantly reduces the environmental impact of traditional cement manufacturing.
- b. Bricks and block making: Incorporating ash in the production of building materials, promoting sustainable construction practices.
- c. Geopolymers: Developing sustainable alternatives to conventional construction materials using ash, supporting eco-friendly infrastructure solutions.
- d. Road construction: Utilising ash as a filler or stabiliser in road building projects, as demonstrated by the Kusile Road, which highlights the scalability and environmental benefits of ash in infrastructure applications.
- e. Mine backfilling and rehabilitation: Using ash for soil amelioration, rehabilitation of disturbed areas, and mine backfilling.
- f. Acid mine drainage treatment: Leveraging ash's chemical properties to neutralise acidic water in mining operations.
- g. Metal and mineral extraction: Extracting valuable metals and minerals from ash.
- h. Zeolite production: Converting ash into zeolites for use in water treatment and industrial applications.
- i. Mineral fibre production: Producing mineral fibres for insulation and other applications.
- j. Soil amelioration: Using ash to enhance soil quality for agricultural or land rehabilitation purposes

The above initiatives demonstrate Eskom's commitment to leveraging by-products for sustainability, aligning with principles of the circular economy and supporting environmental performance goals.

### **7.6.4 Ongoing research and innovation**

- a. Eskom is conducting extensive research on ash applications for zero-cement concrete, road construction, and other innovative uses to further increase the value and utilisation of ash.
- b. Current ash utilisation projects include using ash for liner development at ash disposal facilities and mine rehabilitation.

### **7.6.5 Regulatory support for ash utilisation**

The 2020 DFFE Notice (dated February 2020, the Department of Forestry, Fisheries and the Environment (DFFE) promulgated a "*Notice indicating the exclusion of certain waste streams or portions of waste streams from the definition of waste for beneficial use*") has created a favourable

regulatory environment for Eskom to expand its ash utilisation without needing complex licensing processes, thereby promoting more widespread adoption of circular economy practices.

## **7.7 Benefits of the Circular Economy Approach**

While ash remains the primary focus for waste beneficiation, Eskom recognises the importance of broadening its scope to include other waste materials as part of its commitment to a circular economy approach. By diversifying waste beneficiation efforts, Eskom aims to optimise resource use, minimise environmental impact, and unlock new economic opportunities ensuring sustainability efforts while contributing to a more resilient and adaptive business model aligned with circular economy principles.

### **7.7.1 The circular economy approach provides several benefits, including:**

#### **a. Environmental benefits**

- I. Minimizing waste sent to landfills and reducing pollution and environmental impact through innovative reuse and recycling initiatives.
- II. Leveraging by-products and waste materials (optimise resource use) across diverse applications to maximise value and efficiency.
- III. By substituting waste material for raw materials (industrial symbiosis), Eskom helps conserve natural resources and reduces the environmental impact of resource extraction.

#### **b. Economic benefits**

- I. Creating new markets (economic opportunities) and industries around waste-derived products, driving job creation and economic growth.
- II. The sale and beneficiation of ash create additional revenue streams, contributing to Eskom's financial sustainability.
- III. Reduced waste disposal costs and reduced material procurement expenses for industrial partners.
- IV. Reducing operational and disposal costs by converting waste into valuable resources.

#### **c. Social benefits**

- I. Expanding the circular economy model can generate employment opportunities in new industries, such as ash beneficiation and product development.
- II. Circular economy projects can be aligned with community development initiatives, promoting local skills and economic resilience.

## **7.8 Strategic outlook and future plans:**

To fully integrate the circular economy into its operations, Eskom will:

- a. Expand existing ash utilisation projects and explore new markets for circular products.
- b. Engage with regulatory bodies, industry partners, and research institutions to support innovation and the commercialisation of new ash applications.
- c. Position itself as a leader in sustainable construction by supplying ash-based materials for eco-friendly building and infrastructure projects.
- d. Establish internal policies and standards to guide circular economy practices across all divisions and subsidiaries.

By adopting approaches, Eskom can contribute to resource conservation, reduce its environmental footprint, and create sustainable economic opportunities for its operations and surrounding communities. Embracing circular economy practices can be of benefit not only environmentally, but also economically and socially including a strategic lever for building a more resilient and sustainable future for Eskom.

## 8 KEY PERFORMANCE AREAS (MEASUREMENT AND MONITORING)

Key Performance Areas (KPAs) and Key Performance Indicators (KPIs) have been established to ensure effective implementation of the environmental strategy. These KPAs and KPIs will be the basis for measuring and monitoring environmental performance and progress against Eskom's strategic environmental objectives. The KPIs will be integrated into Eskom's Corporate Plan and monitored on a regular basis through a formal reporting process to maintain alignment, transparency, and accountability.

### 8.1 Key Performance Areas (KPAs)

Each division is required to establish, monitor, and report on Key Performance Areas (KPAs) to ensure alignment with Eskom's strategic environmental objectives. This approach enables effective measurement of performance and continuous improvement across all operational activities. Table 1 serves as a guideline for divisional KPIs, ensuring consistency and clarity in reporting.

These divisional KPAs must align with the reporting frameworks outlined in **Section 7.3**, which provide a structured approach to tracking, evaluating, and improving environmental performance. The linkage between these frameworks and KPAs ensures that divisional reporting feeds seamlessly into Eskom's overarching governance and compliance structures, reinforcing accountability and strategic alignment.

TABLE 1: KEY PERFORMANCE AREAS (*GUIDELINE*)

Key Performance Area (KPA)	Key performance indicator (KPI)	Measure	Frequency
<b>Environmental legal compliance</b>	Number of compliance incidents related to environmental laws, permits, and regulations	Zero compliance incidents to demonstrate adherence to all environmental legislation and regulations	Monthly, quarterly and annual assessment and reporting
<b>Emissions reduction</b>	Percentage reduction in CO <sub>2</sub> , SO <sub>x</sub> , NO <sub>x</sub> and particulate emissions across operations	Annual reduction targets in line with emission abatement plans and regulatory requirements	Particulate matter (Monthly), CO <sub>2</sub> , SO <sub>x</sub> , NO <sub>x</sub> (annually)
<b>Water use and efficiency</b>	Reduction in freshwater usage and specific	Achieve target reductions in water	Monthly, quarterly and annual review,

	water consumption per unit of production	usage through implementation of water-saving initiatives and alternative water sources	monitoring and reporting
<b>Waste management</b>	Percentage of waste recycled, reused, or safely disposed of in compliance with regulations	Achieve target recycling rates and minimise waste sent to landfills	Quarterly and annual review, monitoring and reporting
<b>Ecosystem and biodiversity protection</b>	Number of biodiversity initiatives implemented and hectares of land restored or protected	Compliance with biodiversity management plans and implementation of ecosystem restoration projects	Quarterly updates on project status and outcomes
<b>Stakeholder engagement and community impact</b>	Number of stakeholder engagements related to environmental projects and initiatives	Ensure meaningful engagement with communities, NGOs, and regulatory authorities	Quarterly engagement reports and impact assessments
<b>Environmental risk management</b>	Percentage of identified environmental risks with effective treatment plans	All significant risks should have active mitigation strategies in place	Quarterly risk review, monitoring and reporting of treatment plans
<b>Sustainability initiatives and project implementation</b>	Number of sustainability initiatives/projects completed and their environmental impact (e.g., emissions reduction, resource savings).	Monitor the implementation and success of sustainability initiatives/projects to ensure they contribute to Eskom's strategic goals	Quarterly progress updates and impact evaluation.
<b>Training and capacity building</b>	Percentage of employees trained in environmental management and sustainability practices.	Develop and implement training programs to build internal capacity for effective environmental management.	Quarterly monitoring of training programs and employee participation

## 8.2 Formal reporting and integration

All KPIs will be formally reported on a monthly/quarterly and annual basis through structured reporting mechanisms, ensuring that environmental performance is continuously monitored, assessed, and communicated to relevant stakeholders. The KPIs will be incorporated into Eskom's Corporate Plan, enabling all-inclusive performance management and strategic alignment. By focusing on these KPAs and KPIs, Eskom will be able to monitor progress, identify areas for improvement, and ensure that the environmental strategy effectively contributes to the organisation's long-term sustainability goals.

TABLE 2: ESKOM'S ENVIRONMENTAL MANAGEMENT STRATEGY KPAs AND KPIs FOR THE PERIOD 2024/25 TO 2029/30

KPA	KPI	Actual FY2024	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
Air quality	Relative particulate emissions (kg/MWhSO)	0.79	0.35	0.35	0.35	0.30	0.25	0.20
Water use	Specific water use (l/kWh/SO)	1.43	1.38	1.38	1.37	1.30	1.25	1.20
Atmospheric emission licence compliance	Atmospheric emission licence (AEL) compliance (%)	80.5	90	90	90	90	90	90
Environmental compliance	Environmental legal contravention incidents	68	N/a	N/a	N/a	N/a	N/a	N/a
	Failure of business systems (FBS)	7	0	0	0	0	0	0
Biodiversity management	Red data mortalities	258	208	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.

### **8.3 Assumptions for the environmental strategy**

The successful implementation of Eskom's environmental strategy is based on several key assumptions about its current business environment and strategic outlook. These assumptions address Eskom's ability to effectively manage environmental, social, and governance (ESG) risks and opportunities while supporting South Africa's broader Just Energy Transition (JET) goals and achieving net-zero emissions by 2050.

#### **8.3.1 Key assumptions**

- a. Eskom's Environmental, Social, and Governance (ESG) Plan will ensure coordinated efforts in managing material environmental, social, and governance risks and opportunities. The environmental focus areas include addressing material climate-related risks, implementing a robust governance framework to manage these risks, executing strategic plans, and monitoring progress through well-defined KPIs.
- b. Climate-related aspects, including mitigation of greenhouse gas emissions, adaptation to climate impacts, and alignment with global climate commitments, are addressed in the Eskom Climate Change Strategy.
- c. This strategy ensures Eskom is positioned to manage climate-related risks proactively while leveraging opportunities for sustainability and operational resilience, further supporting the environmental objectives of reducing Eskom's environmental footprint and positioning it as a sustainable utility.
- d. Eskom will continue to play a fundamental role in supporting the country's JET Strategy, promoting a renewables-dominant power system by 2050. This alignment will drive the strategic shift towards cleaner energy and support the nation's long-term sustainability goals.
- e. Eskom assumes that its applications for postponements or exemptions from the minimum emission standards (MES) will be approved, allowing for continued operations while transitioning to compliant technologies.
- f. Increasing the share of renewable energy generation will reduce not only CO<sub>2</sub> emissions but also SO<sub>x</sub> and NO<sub>x</sub> emissions, contributing to overall environmental performance improvement.

- g.** Eskom will execute the Generation Divisional Shutdown Plan for its coal-fired power stations, leading to significant reductions in particulate matter (PM), SO<sub>x</sub>, NO<sub>x</sub>, and other coal-related pollutants.
- h.** A net-zero power sector by 2050 will decrease water consumption, aligning with environmental goals.
- i.** Existing technologies and operations will, at times, result in non-compliance with emission and water use license requirements. Mitigation plans will be developed accordingly.
- j.** Reducing Eskom's water consumption will release valuable resources for productive economic sectors such as agriculture, supporting broader economic and environmental objectives.:
- k.** Deterioration in water quality in the short term may negatively impact power plant operations, requiring adaptive strategies for maintaining plant efficiency and compliance.
- l.** The planned legal separation of divisions will be completed, enabling each entity to focus on its specific mandates and align with the overarching Eskom's environmental strategy.
- m.** The technical performance of power station plants is expected to improve, enhancing operational efficiency and reducing environmental impacts.
- n.** Expansion of ash and gypsum beneficiation projects and backfilling of mined areas will reduce environmental risks and contribute to sustainable waste management practices.
- o.** Existing waste disposal facilities may pose increased risks to Eskom's environmental compliance, requiring innovative solutions to enhance lifespan, capacity, and adherence to regulatory standards.
- p.** Achieving environmental objectives and targets will result in Eskom being recognised as an environmentally responsible and sustainable electricity utility by stakeholders, improving its
- q.** The implementation of red data bird and other wildlife mitigation measures will be effective in significantly reducing bird mortalities and ensuring the quality of supply.
- r.** Research projects will prioritise impacts on NTCSA infrastructure to minimise outages and ensure continuity of supply while protecting endangered and vulnerable species.
- s.** The expected benefits of emission offset initiatives will be realised in targeted areas, contributing to improved public health and local air quality.

These assumptions form the foundation for the strategic planning and execution of Eskom's environmental strategy, guiding decision-making and ensuring alignment with long-term sustainability objectives. By accounting for these assumptions, Eskom aims to mitigate potential risks, capitalise on opportunities, and ensure effective strategy implementation.

Table 3 outlines the initiatives ensuring alignment with the two strategic objectives: 1) Reduction of the environmental footprint, and 2) Position of Eskom as an environmentally sustainable

organisation, supported by clear measures, initiatives, and assigned responsibilities. Each division and subsidiary will establish how these initiatives will be achieved in the short, medium, and long term.

Table 3: Reduction of the environmental footprint

Strategic objectives	Measures	Initiatives	Responsibility
<b>Reduction of the environmental footprint</b>	Compliance, emissions and relative emissions, water use and specific water use, waste disposal, and red data bird mortalities	Implement the emission reduction plan.	Generation
		Implement the water, biodiversity, and waste plans.	Divisions and subsidiaries
		Monitor the progress of implementation of the projects aimed at improving compliance.	Divisions and subsidiaries
		The divisions are to assess the effectiveness and adequacy of the measures and initiatives put in place to improve the level of compliance.	Divisions and subsidiaries
		Implement the zero-liquid effluent discharge philosophy and any other legislated provisions.	Generation
		Implement proactive and reactive red data bird and other wildlife mitigation measures.	NTCSA and Distribution
	Achieve a reduction in emissions as per the emission reduction plan and	Reduce emissions. Decrease greenhouse gases.	Generation

	CO2 in line with the commitments in the JET Strategy.		
	Influence research direction by identifying key projects to address operational challenges by 2026.	Identify strategic projects.	Divisions and subsidiaries
	Reduce freshwater usage by 10% annually.  Implement site-specific water management plans.	Eliminate contamination of water resources by 20%.	Divisions and subsidiaries
	Put measures in place to mitigate the red data mortalities (reduce by 10% annually) until 2026.	Reduce red data mortalities.	NTCSA and Distribution
<b>Position Eskom as an environmentally sustainable organisation.</b>	Develop the environmental framework and plan as part of the Eskom environmental, social, and governance (ESG) framework and plan by 2025.	Align Eskom with international best practices in ESG to reduce the impact on the environment and society.	Divisions and subsidiaries

	Implement smart (digitised) internal reporting at 20% by 2025.		
	Improve stakeholder confidence to address the reputational risk associated with environmental performance and compliance across the organisation.		
	Conduct a skills gap analysis to determine the level of environmental shortages/pipelining by 2026.	Achieve compliance with all environmental skills requirements.	Divisions and subsidiaries

#### 8.4 Stakeholder Engagement and Advocacy Plan

To successfully implement the Environmental Management Strategy, Eskom recognises the importance of engaging a diverse range of internal and external stakeholders. This proactive engagement will ensure alignment, build support, and facilitate the effective execution of environmental initiatives. The Advocacy Plan, along with a focused communication strategy, will guide interactions with key stakeholders to achieve Eskom’s strategic environmental objectives.

##### 8.4.1 Key stakeholder groups

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

TABLE 4: INTERNAL STAKEHOLDERS

<b>Eskom Board and Subsidiary Boards</b>	Secure buy-in from the current and future boards to align strategic environmental priorities across legally separated entities.
<b>Eskom Executive Management Committee (Exco)</b>	Drive strategic alignment and resource allocation for environmental projects.
<b>Divisional Management Committees/Board</b>	Ensure division-specific implementation of the environmental strategy.
<b>Eskom Management</b>	Embed environmental considerations into day-to-day operations and decision-making.
<b>Eskom Environmental Practitioners</b>	Leverage technical expertise to achieve environmental objectives and compliance.
<b>Organised Labour</b>	Engage with unions to ensure alignment on environmental initiatives and worker safety.
<b>Contractors, Service Providers, and Consultants</b>	Ensure third-party alignment with Eskom's environmental goals and compliance requirements.

TABLE 5: EXTERNAL STAKEHOLDERS

<b>The Public</b>	Promote public awareness and support for Eskom's environmental efforts.
<b>Landowners/Users/Farmers</b>	Collaborate on land use, servitudes, and biodiversity management.
<b>Regulatory Authorities</b>	Engage with the Department of Electricity and Energy (DEE), DFFE, DWS, heritage agencies, and other authorities to ensure regulatory compliance and support.
<b>Industry Associations</b>	Share best practices and contribute to the development of industry standards.
<b>Civil Society Organisations and NGOs</b>	Partner on community and environmental initiatives
<b>National, Provincial, District, Municipal, and Local Government</b>	Align environmental projects with broader governmental environmental strategies.

## 9 RISKS, TREATMENT PLANS, CONTINGENCY PLANS AND IMPLICATIONS OF ACTIVITIES

Eskom has identified several environmental risks across its divisions: Generation, NTCSA, Distribution, Risk and Sustainability and ERI, using its integrated risk management processes. Each risk has associated treatment and contingency plans to mitigate potential impacts. Addressing these risks is important to ensuring compliance, safeguarding Eskom's environmental and operational integrity, and aligning with strategic sustainability goals.

### 9.1 Key environmental risks and treatment plans

The identified environmental risks are categorised based on their relevance to specific divisions and their potential implications. Below is a high-level overview of the risk categories, treatment strategies, and contingency measures for Eskom:

#### 9.1.1 Compliance and Regulatory Risks

- a. **Risk:** Non-compliance with environmental regulations, permits, and licenses (e.g., water use licenses (WULs), atmospheric emission licenses (AELs)).
- b. **Implication:** Legal liability, financial penalties, reputational damage, and potential shutdowns.
- c. **Treatment Plan**
  - Strengthen compliance monitoring and management systems.
  - Conduct regular audits and gap assessments.
  - Improve plant performance to improve environmental compliance.
  - Enhance training for environmental practitioners.
- d. **Contingency Plan**
  - Establish a legal compliance task force to manage urgent compliance issues.
  - Develop corrective action plans for identified non-compliance areas.

#### 9.1.2 Emissions and Air Quality Risks

- a. **Risk:** Exceedances in particulate matter (PM), SO<sub>x</sub>, and NO<sub>x</sub> emissions, including ozone-depleting substances due to outdated technology and operational inefficiencies.
- b. **Implication:** Negative health impacts on surrounding communities, increased regulatory scrutiny, and operational disruptions.
- c. **Treatment Plan**
  - Implement emission abatement technologies (e.g., *flue gas desulphurisation (FGD)*)
  - Develop a technology upgrade roadmap for high-impact plants.
  - Continue to drive the development of clean energy sources (*if there is no clean energy, GX is unable to reduce emissions*)

**d. Contingency Plan**

- Apply for regulatory postponements or exemptions where necessary.
- Deploy temporary emission control measures to minimise exceedances.

**9.1.3 Water use and availability risks.**

**a. Risk:** Overuse and contamination of water resources, leading to unsustainable water usage and impact on aquatic ecosystems.

**b. Implication:** Potential restrictions on water use, affecting plant operations, and conflicts with local communities over water access.

**c. Treatment Plan**

- Optimise water use through recycling and reuse initiatives.
- Develop site-specific water management plans.
- Invest in alternative water sources, such as treated mine water and greywater systems.

**d. Contingency Plan**

- Implement water conservation strategies during drought periods.
- Establish emergency water supply agreements with local municipalities.

**9.1.4 Waste management and hazardous materials risks**

**a. Risk:** Inadequate management of hazardous waste and ash, resulting in environmental contamination and legal contraventions.

**b. Implication:** Soil and groundwater pollution, increased liability, and long-term remediation costs.

**c. Treatment Plan:**

- Enhance waste management practices, including proper storage, handling, and disposal.
- Expand ash beneficiation projects to minimise waste.

**d. Contingency Plan:**

- Develop spill response and waste containment procedures.
- Establish partnerships for hazardous waste disposal.

**9.1.5 Biodiversity and Land Use Risks**

**a. Risk:** Negative impacts on biodiversity and ecosystems due to land development, vegetation control, and transmission line expansion.

**b. Implication:** Loss of biodiversity, habitat destruction, and reputational damage.

**c. Treatment Plan**

- Implement biodiversity management plans for high-risk sites.
- Adopt best practices for vegetation control to preserve ecological balance.

#### **d. Contingency Plan**

- Develop biodiversity offsets and restoration programs.
- Collaborate with conservation organisations to support ecosystem rehabilitation.

#### **9.1.6 Climate change and extreme weather risks**

**a. Risk:** Increased frequency and severity of extreme weather events (e.g., flooding, heatwaves) impacting infrastructure and operations.

**b. Implication:** Disruptions to electricity supply, damage to facilities, and increased maintenance costs.

#### **c. Treatment Plan**

- Conduct climate risk assessments for critical infrastructure.
- Implement infrastructure resilience upgrades (e.g., flood defences, heat-resistant equipment).

#### **d. Contingency Plan**

- Develop climate adaptation and disaster response plans.
- Establish early warning systems and emergency preparedness protocols.

#### **9.1.7 Social and Community Risks**

**a. Risk:** Opposition from local communities due to perceived or actual environmental and social impacts.

**b. Implication:** Project delays, increased conflict, and reputational damage.

#### **c. Treatment Plan:**

- Enhance community engagement and transparency.
- Develop social investment and community support programs.

#### **d. Contingency Plan:**

- Establish grievance redress mechanisms.
- Create community liaison offices for continuous dialogue.

#### **9.2 Monitoring, reporting, and continuous improvement**

All identified risks, treatment plans, and contingency measures will be monitored and reported through Eskom's integrated risk management framework. A formal process will ensure that risks are reviewed quarterly and corrective actions are taken promptly to mitigate emerging threats.

By proactively managing these environmental risks and implementing targeted treatment and contingency plans, Eskom can protect its operations, comply with regulatory requirements, and strengthen its reputation as a sustainable and responsible utility. This approach ensures that

Eskom is well-prepared to navigate the complex and dynamic environmental landscape while achieving its long-term sustainability objectives.

Each division and subsidiary is responsible for identifying and defining its risks, categorising them as P1, PII, or PIII based on severity, implementing appropriate treatment plans, and continuously monitoring and reporting these risks to the relevant governance structures.

### **9.3 Summary of current environmental risk and compliance status**

The environmental performance of several Eskom coal-fired power stations has been in non-compliance in terms of particulate emissions, water use, and overall environmental standards, resulting in a Priority 1 (P1) risk. 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 the licence to operate due to environmental non-performance and non-compliance with regulation/legislation, leading to plant shutdown and/or litigation”*.

By addressing the non-compliance challenges through technical upgrades, legal strategies, and stakeholder engagement, Eskom aims to mitigate the risk of losing its license to operate while supporting South Africa’s energy security and Just Energy Transition objectives.

## **ABBREVIATIONS**

### **Abbreviations**

<b>AEL</b>	Atmospheric emission licence
<b>BLSA</b>	BirdLife South Africa
<b>CSO</b>	Civil society organisation
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CoE</b>	Centre of excellence
<b>DEE</b>	Department of Electricity and Energy
<b>DEAC</b>	Distribution Environmental Advisory Committee
<b>DFFE</b>	Department of Forestry, Fisheries, and the Environment
<b>DPE</b>	Department of Public Enterprises
<b>DWS</b>	Department of Water and Sanitation
<b>EA</b>	Environmental authorisation
<b>EAL</b>	Eskom Academy of Learning
<b>EDCC</b>	Eskom Department of Environmental Affairs Co-ordinating Committee (EIA)
<b>EIA</b>	Environmental impact assessment
<b>ERI</b>	ESKOM Rotek Industries
<b>ESC</b>	Environmental Steering Committee
<b>ESG</b>	Environmental, social, and governance
<b>EWT</b>	Endangered Wildlife Trust
<b>Exco</b>	Executive Management Committee
<b>FBS</b>	Failure of business systems
<b>FGD</b>	Flue gas desulphurisation
<b>FY</b>	Financial year
<b>GEM</b>	Generation Environmental Management
<b>IRM</b>	Integrated risk management
<b>JET</b>	Just Energy Transition
<b>KPI</b>	Key performance indicator

<b>MES</b>	Minimum emission standards
<b>MMP</b>	Middle Management Programme
<b>MW</b>	Megawatt
<b>NO<sub>x</sub></b>	Nitrogen oxides
<b>PCB</b>	Polychlorinated biphenyls
<b>PESTEL</b>	Political, economic, social, technological, environmental, and legal (sphere)
<b>PM</b>	Particulate matter
<b>RACI</b>	Responsible, accountable, contributing, and informed
<b>RT&amp;D</b>	Research, Testing, and Development
<b>SES</b>	Social, ethics, and sustainability
<b>SHEQ</b>	Safety, health, environment, and quality
<b>SWMIP</b>	Strategic Water Management Implementation Plan
<b>SO</b>	Sent out
<b>SO<sub>2</sub></b>	Sulphur dioxide
<b>SOC</b>	State-owned company
<b>SOP</b>	Standard operational procedure
<b>TEOF</b>	NTCSA Environmental Operations Forum
<b>WML</b>	Waste management licence
<b>WUL</b>	Water use licence

## GLOSSARY

<b>Competent authority</b>	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.
<b>Energy sustainability</b>	The provision of reliable, affordable, and clean energy in a way that supports long-term economic growth and minimizes environmental impact.
<b>Environment</b>	The surroundings within which humans exist and that are made up of: <ul style="list-style-type: none"> <li>i. the land, water, and atmosphere of the earth;</li> <li>ii. micro-organisms and plant and animal life;</li> <li>iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and</li> <li>iv. the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.</li> </ul>
<b>Environmental sustainability</b>	The responsible management and conservation of natural resources to ensure ecological balance, minimise environmental degradation, and protect biodiversity for future generations
<b>Just Energy Transition</b>	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.
<b>Net zero by 2050</b>	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 will either absorb some residual emissions from the atmosphere or be offset by carbon credits.
<b>Sustainability (broad definition)</b>	The ability to meet the needs of the present without compromising the ability of future generations to meet their own needs, encompassing environmental, social, and economic dimensions.
<b>Sustainable development</b>	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 is brought about through visible and felt leadership, including the implementation of effective controls and practices.

**APPENDICES: Business intelligence and environmental analysis**

**Exhibit 1: Summary of SWOT Analysis for Eskom’s Environmental Strategy**

STRENGTHS TO LEVERAGE	WEAKNESS TO ADDRESS
<ul style="list-style-type: none"> <li>○ strong compliance framework: comprehensive policies, standards, technical documents, and assurance audits.</li> <li>○ integration in business processes: embedded in operations and strategic reporting.</li> <li>○ visible and stable leadership: top management commitment and industry leadership.</li> <li>○ resilient organisation: proven capacity to adapt to changes.</li> <li>○ strategic stakeholder relationships: partnerships with key NGOs (EWT, BLSA, Middelpunt Wetland Trust).</li> <li>○ mechanisms for licence engagement: established processes for regulatory dialogue.</li> <li>○ ISO 14001:2015 certification: adherence to international environmental standards.</li> <li>○ experienced environmental practitioners: skilled professionals across divisions.</li> <li>○ environmental reserves: management of specific sites as nature reserves.</li> <li>○ intellectual property and research data: extensive historical databases and research outputs.</li> </ul>	<ul style="list-style-type: none"> <li>○ operational and technical deficiencies: poor performance in generation impacting water and air quality.</li> <li>○ environmental trade-offs: environmental priorities deprioritised in favour of cost-cutting.</li> <li>○ execution gaps: lack of disciplined implementation and inconsistent project delivery.</li> <li>○ increased legal non-compliance: the rising number of water and air regulation breaches.</li> <li>○ loss of key skills: inability to retain specialized environmental engineering talent.</li> <li>○ funding issues: insufficient allocation and ineffective use of available funding.</li> <li>○ silo mentality: internal divisions operating in isolation, hampering synergy.</li> <li>○ ageing infrastructure: high emissions due to deteriorating plant conditions.</li> <li>○ inadequate environmental reporting: poor data integrity and delayed reporting.</li> <li>○ leadership and accountability issues: lack of clear accountability and shifting responsibilities</li> </ul>
OPPORTUNITIES TO LEVERAGE	THREATS TO MITIGATE OR ACCEPT
<ul style="list-style-type: none"> <li>○ JET and green energy programs: drive</li> </ul>	<ul style="list-style-type: none"> <li>○ stringent legislation and regulatory</li> </ul>

<p>cleaner energy initiatives and reduce emissions.</p> <ul style="list-style-type: none"> <li>○ partnerships and beneficiation projects: further develop ash and gypsum use for sustainable applications.</li> <li>○ technological advancements: adoption of emission reduction, water treatment, and biomimicry solutions.</li> <li>○ circular economy adoption: implement resource efficiency and recycling to minimise waste.</li> <li>○ local development initiatives: invest in community-based projects and micro-businesses.</li> <li>○ reputation enhancement: position ESKOM as a leader in sustainability through effective messaging.</li> <li>○ focus on mine rehabilitation and decommissioning: address end-of-life liabilities with sustainable solutions.</li> <li>○ employee development: internal training to build expertise in environmental management.</li> <li>○ improved stakeholder engagement: strengthened communication channels and strategic partnerships.</li> </ul>	<p>pressure: increasing authority monitoring, enforcement, and potential criminal prosecution.</p> <ul style="list-style-type: none"> <li>○ political and social instability: leadership changes, conflicting messages, and community opposition.</li> <li>○ high environmental liabilities: costs associated with decommissioning and rehabilitation.</li> <li>○ climate change and extreme weather: operational disruptions and long-term climate risk.</li> <li>○ investor withdrawal from coal: reduced funding options due to shifting investor preferences.</li> <li>○ corruption and theft: syndicate activities and resource theft impacting operations.</li> <li>○ rising environmental costs: increased charges for waste management and water use.</li> <li>○ ageing global infrastructure: elevated costs of maintaining outdated facilities amidst fluctuating economic conditions.</li> </ul> <hr/>
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The PESTEL analysis highlights the external factors that influence Eskom's Environmental Strategy. The analysis considers political, economic, social, technological, environmental, and Legal factors that present both opportunities and challenges in the implementation of Eskom's strategic environmental objectives.

**Political factors:**

- a. Multiple regulatory bodies: Conflicting mandates among DFFE, DWS, DMRE, and DoE create complexities in compliance and strategic alignment.
- b. Government priorities and SOE expectations: Pressure on state-owned enterprises (SOEs) to meet state priorities, including green energy initiatives.
- c. International commitments: Alignment with international treaties (UN Global Compact, SDGs) shapes national policy and environmental mandates.
- d. State Support for Green Economy: The Government's backing for green economic agendas presents opportunities for alignment and funding.
- e. Impact of state capture: Historical governance issues affect policy implementation and trust in environmental oversight.
- f. Tariff and compliance issues: NERSA's role in tariff approvals impacts Eskom's financial sustainability; MES compliance poses operational challenges.

**Economic factors:**

- a. Green funding and incentives: Opportunities for leveraging green financing to support environmental initiatives.
- b. Cost of cleaner technologies: Reduction in renewable technology costs aids transition, but cleaner tech can be both a financial burden and a benefit.
- c. Environmental taxes and incentives: Carbon taxes and environmental levies add financial pressures but incentivise compliance and innovation.
- d. Resource competition and coal costs: Increased demand for coal drives up prices, complicating cost management.
- e. Economic competitiveness: The electricity mix impacts South Africa's global competitiveness and attractiveness for foreign direct investment.
- f. Electricity costs and economic impact: Rising electricity costs affect national economic performance and influence public perception.

**Social factors:**

- a. Energy security vs. health impacts: Tension between providing stable energy and addressing the health impacts of pollution.
- b. Public participation and activism: Environmental activists and public opinion shape project acceptability and compliance expectations.
- c. Social Inequity and Infrastructure Needs: High disparity in access to services put pressure on Eskom to deliver beyond electricity (e.g., roads, water supply).
- d. Competition for land use: Land rights and securing servitudes for transmission and generation projects can be contentious.
- e. Increasing distributed generation: Growth in residential-level distributed generation influences demand and grid management.
- f. Reputation management: Eskom's public image and reputation as a sustainable and responsible utility are critical.

**Technological factors:**

- a. Emerging green technologies: Opportunities for adopting mature green technologies, hybrid models, and water-efficient systems.
- b. Compliance challenges with legacy technologies: Existing technologies and assets are often non-compliant, requiring costly upgrades.
- c. Interest in small modular reactors (SMRs): The global push for SMRs presents new options for low-emission, water-efficient power.
- d. Nuclear energy: Consideration of nuclear as part of the energy mix due to low emissions and water use.
- e. Environmental implications of technological choices: Technology decisions must account for their broader environmental impacts.

**Environmental factors:**

- a. Climate change adaptation: Strategies needed to adapt to climate change and address operational vulnerabilities.
- b. Long-term environmental liabilities: Managing the legacy of coal mining, ash dumps, PCBs, and hazardous waste.
- c. Ecosystem services: Integrating environmental services into operational costs (e.g., water use, carbon sequestration).
- d. Accountability for extended environmental footprint: Environmental responsibilities extend to suppliers and customer impacts.

- e. Green movement influence: Increasing pressure from environmental groups shapes public perception and policy decisions.
- f. Resource constraints: Water and other resource shortages impact operational feasibility and environmental performance.

**Legal and regulatory factors:**

- a. Increasing legislative requirements: Stringent compliance standards, both locally and globally, demand rigorous environmental management.
- b. Personal and criminal liability: Senior management faces increased accountability for environmental breaches.
- c. Complex licensing environment: multiple authorisations are required, affecting project timelines and legal standing.
- d. International environmental standards: Alignment with global standards such as ISO 14001 and GRI frameworks is critical.
- e. Environmental taxes and levies: Rising environmental taxes (carbon tax, wastewater discharge) add operational costs.
- f. Insufficient waste management infrastructure: Limited availability of municipal waste management sites complicates waste compliance.

This PESTEL analysis provides a holistic view of the external environment that Eskom must navigate. It highlights the political complexities, economic pressures, social expectations, technological opportunities, environmental challenges, and legal constraints that shape the implementation of Eskom's environmental strategy. By addressing these factors, Eskom can strengthen its strategic approach to becoming a sustainable and environmentally responsible utility.