Eskom	Standard	

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1. Introduction

Due to the nature and extent of its operations, Eskom has an impact on the environment, requiring a systematic approach to environmental management. Eskom's environmental commitment continues to be to lead and instil a culture of environmentally responsible behaviour across Eskom to maintain our license to operate and reduce our environmental impact and footprint. Further, Eskom's commitment includes mainstreaming biodiversity considerations in the business both strategically and operationally.

Eskom activities that have an impact on biodiversity include the following:

a) Interaction of wildlife with electrical equipment and infrastructure leading to electrocution of wildlife and/or collisions of birds leading to a decline in protected/Red Data species

b) Introduction of and/or existing alien invasive species

c) Habitat fragmentation, degradation, and loss due to the linear servitudes

d) Vegetation/site clearance for new projects

e) Maintenance of servitudes through vegetation management impacts (the cutting of protected trees without an applicable permit, erosion, and land degradation). The removal of excess trees and vegetation leads to loss of indigenous, protected vegetation and decline of faunal habitat. It, furthermore, increases Eskom's carbon footprint, which contributes to climate change, negatively affecting the ecosystems in and surrounding servitudes.

f) Contamination of surface water and groundwater resources through chemical and oil spills, illegal dumping of waste, leaching of waste, and coal stockpiles.

Eskom has recognised the importance of managing its impacts on biodiversity in light of current organisational pressures (financial, managing investor relations, governance) and therefore shall ensure that in the planning, construction, operation, maintenance and decommissioning of its activities, measures are in place to limit the impact of its infrastructure, land-use and use of other resource on biodiversity, whilst complying with all applicable laws standards, guidelines and policies. Eskom will strive towards minimising the impact of its activities on ecosystems and where reasonably possible, enhance ecosystem services through responsible land management practices.

Eskom's position on managing biodiversity impacts shall be based on compliance to the globally recognised mitigation hierarchy i.e.

1) Assess and rate the significance of the impact:-
    a. to avoid the impact;
    b. if an impact cannot be avoided, then to minimise and reduce the impact;
    c. when an impact does occur, this shall be mitigated and rehabilitated; and
    d. as a last resort, the option of an offset shall be considered should any negative residual impacts of high significance be demonstrated, in consultation with the Biodiversity Centre of Excellence and the Environmental Steering Committee.

Eskom shall as part of its environmental management system, develop and monitor indicators to measure its impact on biodiversity. This measurement will be achieved in the context of the asset life-cycle process and includes the sourcing of all resources needed for Eskom's business activities:

a. Planning (feasibility studies and design) of existing and new infrastructure
b. Construction of infrastructure
c. Operation and maintenance of infrastructure
d. Decommissioning of infrastructure

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of the standard is to provide minimum requirements, position statements, control mechanisms and legal requirements for all biodiversity related impacts during all phases of the asset life cycle. .

In addition to the objective of biodiversity and ecosystem services management, this standard recognises that Eskom must ensure the safe mechanical and electrical operation of infrastructure and must fulfil it's legal, business, social, and environmental obligations.

2.1.2 Applicability

This standard shall apply throughout Eskom Holdings SOC Limited and its divisions, subsidiaries, and entities in which Eskom has a controlling interest, including identified contractors, suppliers, and service providers of Eskom where significant biodiversity impacts and risks may occur.

Where Eskom has influence in entities and/or operations, including instances where Eskom may have contractors, this standard will be applied in those areas directly under the control of Eskom, and due process will be followed to influence the entity or operation to comply with the requirements of this standard.

2.1.3 Effective date

This standard will be effective from date of authorisation.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed hereunder:

2.2.1 Normative

[1] The National Environmental Management Act, 1998 (Act 107 of 1998) (As amended)

[2] The National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act 10 of 2004) (As amended)

[3] The National Environmental Management: Protected Areas Act (NEM:PAA), 2003 (Act 59 of 2003) (As amended)

[4] The National Water Act, 1998 (Act 36 of 1998)

[5] NEM: Biodiversity Act: GNR 255 of 2015 –Threatened Or Protected Species Regulations

[6] NEM: Biodiversity Act: GNR 598 of 2014 – Alien and Invasive Species Regulations

[7] Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (and relevant regulations)

[8] National Forests Act, 1998 (Act 84 of 1998) and the Notice of Protected Tree Species under the National Forests Act of 1998 (Gazette 30253 No 817, 7 September 2007)

[9] Eskom SHEQ Policy (32-727)

[10] Eskom Land and Biodiversity Policy (32-736)

[11] Environmental Incident Management Procedure (240-133087117)

[12] Vegetation Management and Maintenance within Eskom land, Servitudes and rights of way Standard (240-70172585).

[13] Contractor Specification for Vegetation management services on Eskom networks (240-52456757)

[14] Eskom Biodiversity Implementation Plan (240-125346322)

[15] Environmental Offset Briefing Note (ENV19-L007)

2.2.2 Informative

[1] ISO 14001 Environmental Management System

[2] ISO 9001 Quality Management Systems

[3] NEM: Biodiversity Act: GNR 1002 of 2011 - National list of ecosystems that are threatened and in need of protection

[4] National Biodiversity Strategy and Action Plan (2005)

[5] National Biodiversity Framework (2008)

[6] National Protected Area Expansion Strategy (2008)

[7] National Spatial Biodiversity Assessment (2011)

[8] Provincial Acts, Ordinances and Guidelines in terms of land-use planning and conservation

[9] Spatial Planning and Land Use Management Act (16 of 2013) (SPLUMA)

[10] South African Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy Facilities

2.3 Definitions

2.3.1 Alien Species: Species or genotypes, which are not indigenous to the specific site and the surrounding area including hybrids and genetically altered organisms.

2.3.2 Avifauna (l): Birds of a specified region, habitat or geological period/time.

2.3.3 Biological diversity: The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems (also shortened to “biodiversity”). Biodiversity includes the number, abundance and composition of genotypes, populations, species, functional types and landscape units within a given system.

2.3.4 Biodiversity Offset: Biodiversity offsets defined as measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people’s use and cultural values associated with biodiversity. (BBOP, 2009)

2.3.5 Conservation: Management of human use of the biosphere to yield the greatest benefit to present generations while maintaining the potential to meet the needs and aspirations of future generations; this includes sustainable use, protection, maintenance, rehabilitation, restoration and the enhancement of the natural environment.

2.3.6 Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

2.3.7 Ecosystem services: The direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly human survival and quality of life. Ecosystem services can be categorized in four main types:

- Provisioning services are the products obtained from ecosystems such as food, fresh water, wood, and medicines.
- Regulating services are defined as the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- Habitat services highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools.
- Cultural services include non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values.

2.3.8 Game: Wild animals located within an area for recreational purposes.

2.3.9 Listed activity: means an activity identified in any notice published by the Minister of MEC in terms of section 24D (1)(a) of the NEMA as a listed activity or specified activity.

2.3.10 Mitigation: The act of decreasing or reducing the impact of electrical infrastructure on birds and other or fauna through the implementation of technology to prevent or reduce the risk of injury to, or mortalities of fauna.

2.3.11 Monitoring: The collection and analysis of repeated observations or measurements to evaluate change in status, distribution or integrity in order to track the impacts of directed management implemented to achieve a stated management objective.

2.3.12 Ornithological: Relating to the study of birds.

2.3.13 Retrofitting: To install or fit a device or system for use on existing infrastructure to prevent wildlife interactions.

2.3.14 Wildlife: Refers to mammals, reptiles, avifauna, wild-game, non-domesticated animals, marine and freshwater fish. Note this definition is extracted as is from the Environmental Incident Management Procedure (240-133087117) in line with the Eskom Environmental Incident recording process.

2.3.15 Biodiversity incident: An incident, due to Eskom's activities, products or interaction with Eskom infrastructure that result in the mortality, injury and/or destruction of wildlife and/or vegetation (flora) and/or ecosystems. Note: Phenomena, associated with Eskom activities, which result in mortality and/or injury by way of: electrocution, collisions with Eskom infrastructure, fire caused by Eskom, malnutrition, disease, vehicle accidents and predation due to lack of applicable Eskom control but exclude biological aging and natural predation.

2.4 Abbreviations

Abbreviation	Explanation
DEFF	Department of Environmental Affairs Fisheries and Forestry
DESD	Distribution environmental screening document (Distribution Division)
EIA	Environmental impact assessment
ESC	Environmental Steering Committee (Eskom)
EMPr	Environmental management programme
IBA	Important Bird Areas
NEMA	National Environmental Management Act
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
ToR	Terms of reference
OU	Operating Unit
BU	Business Unit

2.5 Roles and Responsibilities

2.5.1 The responsible Business Unit environmental managers shall be accountable for the implementation of this standard through the framework of the ISO 14001 Environmental Management System with the identification and management of relevant biodiversity-related aspects and impacts applicable to their activities.

2.5.2 The Eskom Environmental Manager shall establish mechanisms to ensure an Eskom coordinated and aligned approach to biodiversity management and shall ensure that issues relating to biodiversity performance are monitored and recorded. All areas of the organisation shall report on biodiversity issues.

2.6 Process for Monitoring

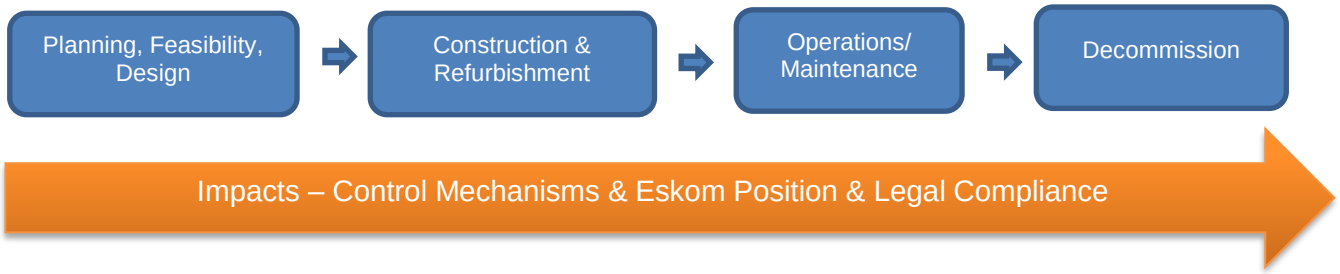
Assurance and monitoring of the implementation of this standard shall be through the framework of ISO 14001 Environmental Management System. The BU is responsible for its own monitoring known as Level 1 reviews and/or self-assessments. Compliance with the requirements of this standard shall be conducted through Level 2 reviews in accordance with the Environmental Management: Review Guideline ENV19-R007.

2.7 Related/Supporting Documents

Refer to Normative References

3. Biodiversity Management in the Eskom Asset Life Cycle

Biodiversity and ecosystem services management shall occur throughout Eskom's asset life cycle as illustrated in the Figure below..



The tables below are intended to illustrate Eskom's biodiversity impacts encountered during each phase of the asset's life cycle. To address such impacts control mechanisms and Position statements are documented for organisational implementation.

3.1 Planning Phase – feasibility studies and design (new infrastructure and refurbishment)

During the Planning phase, the feasibility studies, planning processes and environmental impact assessments result in the selection of sites, routes, design, and technology.

Table 1: Planning Phase – Impacts and Control Mechanisms

Impacts	Control Mechanisms
• Incorrect site/ route selection, resulting in inappropriate land use impacting biodiversity and ecosystem services. • Incorrect technology, process and configuration, and infrastructure design options, resulting in harmful resource use and impacts on biodiversity e.g. the use of wildlife unfriendly infrastructure that could lead to wildlife mortalities. • Organisational impact: Inadequate adherence to the mitigation hierarchy and/or evaluation of the significance of residual impacts resulting in the inclusion of offset requirements in authorisations, permits, licenses	• Governance processes related to project decision-making must ensure compliance with all applicable legislative requirements, Eskom's Land and Biodiversity Policy, Eskom's Biodiversity Standard, all applicable biodiversity governance documentation and ISO 14001 requirements. • Environmental screening during pre-feasibility stage. This must be a formalised mechanism as part of the planning process. Master planning for all divisions must utilise strategic environmental assessments, Environmental Management Frameworks, Bioregional Plans and Dx project screening using DESD and the DEFF Environmental Screening Tool. • Renewable projects must utilise the Bird and Bat guidelines and consider the need for pre-construction monitoring to determine baseline bird activity. • Execution of basic assessments or scoping/EIA based on the National Environmental Management (NEMA) – EIA Regulations requirements. • Compilation of the EMPr in accordance with the Generic Environmental Management Programme template, Government Gazette 42323 • Applicable excerpts from the Eskom's Land and Biodiversity Policy, Eskom's Offset position paper, Eskom's Biodiversity Standard and other applicable biodiversity governance documentation shall be written into ToR of EIA consultants.

	• A pre-determination of the possibility of offset requirement must be completed as prescribed in the Environmental Offset Briefing Note. • Maps of IBAs and high risk bird-sensitive environments shall be established, maintained and incorporated during project screening. • A register of designs for "wildlife-friendly" power line structures shall be established by Envirotek. It shall be maintained and implemented and monitored throughout the asset lifecycle.

ESKOM POSITION STATEMENTS: PLANNING PHASE

1. Eskom will evaluate the potential of existing servitudes and Eskom-owned land for their potential reuse for new infrastructure.
2. All planning-related activities shall be subjected to environmental assessments, which must take biodiversity-related impacts, and the possibility of offset requirements and bioregional and spatial planning into consideration.
3. Limit the biodiversity impact within ecologically sensitive areas including but not limited to protected areas, Critical biodiversity areas (CBA's) nature reserves and national parks by undertaking an appropriate environmental assessment. No new infrastructure shall be built in "important bird areas" (IBAs) and/or bird-sensitive environments as identified through the Eskom-EWT strategic partnership and the Eskom Pro-active Bird Mitigation Strategy, without prior engagement with the appropriate environmental NGO stakeholders (for example, BLSA, EWT, WWF, etc.).
4. No new infrastructure shall be built in "critical biodiversity areas", as defined in the bioregional plans (as gazetted), without prior engagement with the relevant stakeholders (for example, SANBI, DEFF, SANParks, etc.) and licensed appropriately
5. All designs of new power lines and supporting infrastructure for power generation must be evaluated for the risk they could pose to wildlife, and no design that has a high risk, or a record of it causing mortalities to wildlife, shall be implemented. Design standards will be reviewed as and when required to ensure continuous improvement on bird mortality reduction.
6. Biodiversity research should be undertaken to support the identified organisational needs and risks.
7. All applicable renewable projects, as determined by the level of risk, will be preceded by a bird and bat pre-construction monitoring phase.

3.2 Construction Phase (including refurbishment)

Construction activities that could result in the establishment of infrastructure located on sites and routes that could impact biodiversity.

Table 2: Construction Phase – Impacts and Control Mechanisms

Impact	Control Mechanisms
• Site/route establishment, resulting in land use impacting existing biodiversity. • Inappropriate technology, process and configuration, and infrastructure establishment, resulting in wasteful resource use and infrastructure impacting biodiversity and ecosystem services. • The above will result in water and land contamination, soil erosion, land degradation, species and habitat displacement; and uncontrolled fires.	• Governance processes related to project decision-making must ensure compliance with Eskom's Land and Biodiversity Policy, , Standard, Vegetation Management Standard, Technical Instructions, and any additional applicable biodiversity governance documentation and ISO 14001 requirements. • Approved EMPr to be implemented and monitored.

ESKOM POSITION STATEMENTS: CONSTRUCTION PHASE

1. No project shall be allowed to proceed with wildlife unfriendly infrastructure as identified by the mandated committee Envirotek.
2. All construction-related activities must be implemented according to an authority approved EMPr. The EMPr must align to the minimum requirements of Government Gazette Number 42323, Generic EMPr's, 22 March 2019 and must contain measures to manage biodiversity-related impacts.
3. The EMPr shall be complied with, monitored and reported on.

3.3 Operational Phase

Operational practices that could result in land use and resource usage/ abstraction.

Table 3: Operational Phase – Impacts and Control Mechanisms

Impact	Control Mechanisms

• Operational and/or maintenance activities resulting in or leading to biodiversity impacts including:
  • contamination of land, surface or groundwater,
  • soil erosion;
  • land degradation;
  • wildlife mortalities or displacement;
  • habitat destruction and wildlife interactions (collisions and electrocutions); and
  • Un-controlled fires.
• Legal compliance of game management (acquisition of permits)
• Genetic integrity of game (e.g. inbreeding)
	• Governance processes related to project decision-making must ensure compliance with Eskom's Land and Biodiversity Policy, Eskom's Biodiversity Standard, applicable biodiversity governance documentation and ISO 14001 requirements.
	• Implementation of approved biodiversity related technical bulletins and instructions.
	• Vegetation management shall be managed in accordance with the National Vegetation Management Commodity Strategy, The Vegetation Management and Maintenance Standard and the Contractor Specification For Vegetation Management Services On Eskom Networks
	• Reporting and management of wildlife interactions shall be in accordance with Environmental Incident Management Procedure
	• Implementation and monitoring of an authority and Eskom-approved EMPr, Alien Invasive Species Control Plan, Nature Reserve Management Plan, Game Management Plan
	• Monitoring and compliance to any permits or licences

ESKOM POSITION STATEMENTS: OPERATING PHASE

1. All infrastructure must be monitored for potential biodiversity impacts during maintenance.

2. All infrastructure that has the potential to impact wildlife (electrocution and collisions) must be identified, reported, and assessed, and appropriate mitigation measures must be implemented.

3. All Eskom-owned and/or -controlled land shall be managed through an EMPr and/or Alien Invasive Species Control Plan, Nature Reserve Management Plan, Game Management Plan.

4. In support of the South African biodiversity strategy, operations must consider, where reasonably possible, the various opportunities for maintaining and/or enhancing the biodiversity potential of Eskom-owned land (e.g. Research projects).

3.4 Decommissioning Phase

Plant decommissioning, removal of infrastructure from routes and sites and mine closure and rehabilitation methodologies have the potential to impact biodiversity.

Table 4: Decommissioning Phase – Impacts and Control Mechanisms

Impacts	Control Mechanisms
• Reclaimed habitat. • End state of land use in accordance with closure strategy	• Governance processes related to project decision-making must ensure compliance with Eskom's Land and Biodiversity Standard positions. • Execution of basic assessments or scoping/EIA based on the National Environmental Management (NEMA) – EIA Regulations. • Compliance with Eskom's Land and Biodiversity Policy and Eskom's Biodiversity Standard shall be written into ToR of EIA consultants. • Rehabilitation and remediation of contaminated land and waste dumps shall be done according to the NEMA: Waste Management Act No. 59 of 2008.

	• Compliance as per the Mineral and Petroleum Resources Development Act, section 60 (Closure Requirements).

ESKOM POSITION STATEMENTS: DECOMMISSIONING PHASE

1. All Eskom-owned or controlled land shall consider biodiversity-related aspects on the decommissioning of relevant infrastructure.

2. All decommissioning-related activities shall be subjected to an environmental assessment (if applicable), which must take biodiversity-related impacts as well as bioregional and spatial planning into consideration.

3. The environmental risk assessment component of the closure process will provide preferred options in relation to mitigating biodiversity impacts.

3.5 Biodiversity Management Key Performance Indicators (KPIs)

Eskom shall as part of its environmental management system, develop and monitor indicators to measure its impact on biodiversity. This measurement will be achieved in the context of the asset life-cycle process. Indicators support biodiversity management monitoring and reporting.

The biodiversity KPI's are linked to the high level activities of each phase of the asset life-cycle.

Table 5: Biodiversity Management KPI's

Phase of Asset Life Cycle	Prospective Indicators	KPI status	Frequency of Reporting
Planning	Number of legally required biodiversity offsets set as conditions of environmental authorisations.	Prospective	Annually
	Number of authorisations declined on account of biodiversity issues.	In development	Annually
	Number of awards received where planning has resulted in a positive contribution to biodiversity, resulting in Eskom receiving recognition.	Prospective	Annually
Construction	Number of legal contraventions related to biodiversity	Reported	Monthly
Operations	Number of wildlife and bird-unsafe structures identified (through incident investigations or proactive measures)	Prospective	Monthly
	Number of wildlife and bird-unsafe structures replaced.	Prospective	Bi-Annually
	Number of hectares of Eskom-owned land declared as protected area under NEMPA with an approved Management Plan.	Prospective	Annually
	Kilometres of power lines and number of pylons fitted with bird mitigation technologies.	Prospective	Bi-Annually
	Number of incidents reported and closed out within the target ranges applicable to Transmission and Distribution.	Reported	Monthly
	Number of wildlife and Red Data Bird Species mortalities	Reported	Monthly

Decommissioning	Number and size of areas rehabilitated in accordance to an approved EMPr.	Prospective	Annually
	Compliance with land use zoning. Rehabilitation in accordance with ecological reserve requirements for surface and groundwater systems.	Prospective	Annually

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Deidre Herbst	Eskom Environmental Manager
Rudi Kruger	Corporate Specialist: Environmental Management
Warren Funston	Manager: Biodiversity and Waste Centre of Excellence
ESC Members	Environmental Steering Committee members representing all divisions in Eskom

5. Revisions

Date	Rev.	Compiler	Remarks
August 2019	2	I Pillay	Mandatory Revision
May 2016	1	I Pillay	Mandatory Revision
June 2011	0	I Pillay	New Document

6. Development Team

The following people were involved in the development of this document:

Biodiversity Centre of Excellence

Mr Rudi Kruger

7. Acknowledgements

N/A