INTRODUCTION CHAPTER 1

In order to evacuate the power from the new Medupi Power Station (near Lephalale), to support the upsurge in demand for the Platinum group metals in the Mokopane area, and to improve the reliability of electricity supply to the Polokwane area, Eskom Transmission is proposing the introduction of the Mokopane Integration project. This project includes the construction of the following components:

- A **new transmission substation** on a site near Mokopane.
- **Two 400 kV transmission power lines** running in parallel looping in and out of one of the existing Matimba-Witkop 400kV transmission lines (i.e. two lines in parallel for a distance of up to 10 km) in order to integrate the new substation into the transmission system or grid.
- **Two new 765 kV transmission power lines in parallel** between the Delta Substation (a new substation to be located near the Medupi Power Station) and the existing Witkop Substation (near Polokwane), as follows:
  - A new 765kV transmission power line between the Delta Substation and the new Mokopane Substation (a distance of approximately 150 km); and a new 765kV transmission power line between the new Mokopane Substation and the Witkop Substation (a distance of approximately 60 km).
  - A new 765kV transmission power line between Delta Substation and the Witkop Substation (a distance of approximately 200 km).
- **Associated works** to integrate the new transmission power lines and substation into the Transmission grid (such as access roads, communication tower, etc) and accommodate the new lines at existing substations (such as the construction of new feeder bays within the existing Witkop substation site).

The **nature and extent of the proposed substation and turn-in lines and the extension of the Witkop Substation**, as well as potential environmental impacts associated with its construction, operation and decommissioning are **evaluated in a separate Draft Scoping Report (Reference Number 12/12/20/1187)**.

The **nature and extent of the proposed 765kV transmission power lines**, as well as potential environmental impacts associated with its construction, operation and decommissioning are **evaluated in this Draft Scoping Report (Reference Number 12/12/20/1140)**.

1.1. Project Overview and Purpose

Eskom Holdings Ltd is responsible for the provision of reliable and affordable power to its consumers in South Africa. Electricity cannot be stored and therefore must be used as it is generated. Electricity is generated in accordance with supply-demand requirements. In South Africa, thousands of kilometres of high voltage transmission lines (i.e. 765kV or 400kV transmission lines) transmit this power, which is mainly generated at the power stations located within Mpumalanga and Limpopo provinces, to Eskom's major substations. At these major substations, the voltage is reduced, and distributed to smaller substations all over the country through distribution lines (i.e. 132kV, 88kV or 66kV Distribution lines). Here the voltage is reduced and distributed to local substations, which distribute the power via numerous small lines (i.e. 22kV and 11kV lines) to local users. The power generated by Eskom can only be utilised from those points of supply which transform the power into a usable voltage.

If Eskom Transmission is to meet its mandate and commitment to supply the ever-increasing needs of end-users, it has to plan, establish and expand its infrastructure of transmission power lines on an on-going basis, in support of the generation processes. It is vital that transmission capacity keeps up with both electricity generation capacity and electricity demand.

Currently the existing Witkop substation close to Polokwane is the only nodal point within the broader Polokwane area that supports the platinum group metals' load growth. The load forecast for this group indicated a load shift towards the Mokopane area, which cannot be supplied from the Witkop substation alone as a result of thermal, voltage stability and spatial constraints. Eskom Transmission is therefore proposing the construction of the following:

» A new transmission substation on a site near Mokopane.
» Integration of the new substation into the transmission system by looping in and out of one of the existing Matimba-Witkop 400kV transmission lines (i.e. two lines in parallel for a distance of approximately 10 km).
» Associated works to integrate the new substation into the Transmission grid (such as access roads, communication tower, etc).

In addition, in order to accommodate the new 765kV transmission lines proposed to be constructed from the new Medupi Power Station in the Lephalale area, Eskom Transmission is proposing the construction of new feeder bays within the existing Witkop substation site.

Technically feasible alternative substation sites have been identified for investigation within the EIA process (refer to Figure 1.1).

Figure 1.1: Locality map indicating the proposed alternative substation sites identified for investigation in the EIA process

Through the EIA process, a preferred substation site and turn-in line routes will be nominated for consideration in the decision-making process by the National Department of Environmental Affairs and Tourism (DEAT), as competent authority for this project. Should the project be authorised by the DEAT, Eskom will enter into a negotiation process with each affected landowner. The negotiation process is independent of the EIA process, and will be undertaken directly by Eskom Transmission.

1.2. Requirement for an Environmental Impact Assessment Process

The proposed Mokopane Integration Project is subject to the requirements of the Environmental Impact Assessment Regulations (EIA Regulations) published in terms of Section 24(5) of the National Environmental Management Act (NEMA, No 107 of 1998). This section provides a brief overview of EIA Regulations and their application to this project.

NEMA is national legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. The National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this project. An application for authorisation has been accepted by DEAT (under Application Reference number **12/12/20/1187**). Through the decision-making process, DEAT will be supported by the Limpopo Department of Economic Development, Environment and Tourism (DEDET).

The need to comply with the requirements of the EIA Regulations ensures that decision-makers are provided the opportunity to consider the potential environmental impacts of a project early in the project development process, and assess if environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project.

In terms of sections 24 and 24D of NEMA, as read with Government Notices R385 (Regulations 27–36) and R387, a Scoping and EIA are required to be undertaken for this proposed project as it includes the following activities listed in terms of GN R386 and R387 (GG No 28753 of 21 April 2006):.

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation or notice)	Description of listed activity
Government Notice R387 (21 April 2006)	1(l)	The construction of facilities or infrastructure, including associated structures or infrastructure, for the transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more
Government Notice R386 (21 April 2006)	12	The transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
Government Notice R386 (21 April 2006)	14	The construction of masts of any material of type and of any height, including those used for telecommunications broadcasting and radio transmission, but excluding (a) masts of 15m and lower exclusively used by (i) radio amateurs; or (ii) for lightening purposes (b) flagpoles; and (c) lightening conductor poles
Government Notice R386 (21 April 2006)	15	The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.
Government Notice R386 (21 April 2006)	16(a)	The transformation of undeveloped, vacant or derelict land to residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.
Government Notice R386 (21 April 2006)	7	The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres at any one location or site.
Government Notice R386 (21 April 2006)	1 (m)	The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including -

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation or notice)	Description of listed activity
		(i) canals; (ii) channels; (iii) bridges; (iv) dams; and (v) weirs

This report documents the scoping evaluation of the potential environmental impacts of the proposed construction, operation and decommissioning of the proposed Mokopane Substation and associated turn-in transmission power lines. This scoping assessment was conducted in accordance with the requirements of the EIA Regulations in terms of Section 24(5) of NEMA (Act No 107 of 1998).

1.3. Eskom's Planning Process and the Role of the Environmental Impact Assessment Process

Eskom Transmission's planning process is required to be based on anticipated load requirements, rather than immediate load requirements in order to timeously supply the anticipated increased demand in the country. This is due to the time-consuming process of acquiring the necessary permissions to construct such infrastructure from DEAT and the National Energy Regulator of South Africa (NERSA), servitude negotiations with landowners, and transmission power line design and construction.

The EIA process forms part of the initial planning process of a new substation and transmission lines. Substation site and transmission line route alternatives are identified (primarily based on technical feasibility), and the number of options are narrowed down based on environmental criteria through the EIA process. The findings of the EIA determine those areas in which impacts can be anticipated to be significant, and results in the nomination of a preferred site and transmission line route alternative for environmental authorisation (by DEAT), provided no environmental fatal flaws be identified to be associated with the proposed project.

1.4.1. Servitude Negotiation and the EIA Process

Transmission power lines (such as the turn-in lines associated with the substation) are constructed and operated within a servitude (55 m wide for 400kV lines) that is established along the entire length of the line. Within this servitude, Eskom Transmission registers a 'Right of Way' and has certain rights and controls that support the safe and effective operation of the line. The process of achieving the servitude agreement is referred to as the Servitude Negotiation Process, or

just the negotiation process. The negotiation process is undertaken directly by Eskom and is independent of the EIA process.

1.4. Objectives of the Scoping Study

The Scoping Phase of the EIA refers to the process of identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This is achieved through an evaluation of the proposed project, involving the project proponent, specialists with experience in EIAs for similar projects and in the study area, and a consultation process with key stakeholders that includes both government authorities and interested and affected parties (I&APs).

The main purpose of the Scoping Study is to focus the environmental assessment in order to ensure that only significant issues, and reasonable and feasible alternatives are examined.

In accordance with the EIA Regulations, the main purpose of the Draft Environmental Scoping Report is to provide stakeholders with an opportunity to verify that the issues they have raised to date have been captured and considered within the study, and to raise any additional key issues for consideration. The Final Scoping Report will incorporate all issues and responses prior to submission to the DEAT, the decision-making authority.

The Scoping Report consists of eight sections:

» **Chapter 1** provides background to the proposed Mokopane Integration project and the environmental impact assessment process
» **Chapter 2** provides an overview of the proposed project and the process followed in identifying reasonable and feasible alternatives
» **Chapter 3** outlines the process which was followed during the Scoping Phase of the EIA process
» **Chapter 4** provides a description of the environment which may be potentially affected by the proposed project
» **Chapter 5** provides an evaluation of the potential issues associated with the proposed project
» **Chapter 6** presents the conclusions and recommendations of the Scoping Study
» **Chapter 7** describes the plan of study for the EIA and describes the activities associated with the project
» **Chapter 8** provides a list of references and information sources used in undertaking this Scoping Study

1.5. Details of Environmental Assessment Practitioner and Expertise to conduct the Scoping and EIA

Savannah Environmental was established in January 2006, and benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Savannah Environmental staff have acquired considerable experience in environmental assessment and environmental management over the last 10 years, and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa. Strong competencies have been developed in project management of environmental EIA processes, as well as strategic environmental assessment and compliance advice, and the identification of environmental management solutions and mitigation/risk minimising measures.

Savannah Environmental has successfully completed various EIAs for transmission power lines, as well as EIAs for several substations, distribution power lines and power generation projects for Eskom Holdings Limited.

Jo-Anne Thomas and Karen Jodas, the principle authors of this draft Environmental Impact Assessment Report, are both registered Professional Natural Scientists (in the practice of environmental science) with the South African Council for Natural Scientific Professions. They have gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission projects through their involvement in related EIA processes over the past ten (10) years. They have successfully managed and undertaken EIA processes for other power transmission projects for Eskom Holdings Limited throughout South Africa. They are supported by John von Mayer. Curricula vitae for the Savannah Environmental project team consultants are included in Appendix A.

In order to adequately identify and assess potential environmental impacts, Savannah Environmental has appointed several specialist consultants to conduct specialist studies, as required. Details of these specialist studies are included in Chapter 3. The curricula vitae for the EIA specialist consultants are also included in Appendix A.