

## **1 INTRODUCTION**

The Eskom Conversion Act, 2001 (Act No. 13 of 2001) establishes Eskom Holdings (SOC) Limited (Eskom) as a State Owned Enterprise (SOE), with the Government of South Africa as the only shareholder, represented by the Minister of Public Enterprises. The main objective of Eskom is to “provide energy and related services including the generation, transmission, distribution and supply of electricity, and to hold interests in other entities”.

Electricity cannot easily be stored in large quantities and in general must be used as it is generated. Therefore, electricity is generated in accordance with supply-demand requirements. Eskom Holdings (SOC) Limited (Eskom) is responsible for the provision of reliable and affordable power to South Africa. Eskom’s core business is the generation, transmission (transport), trading and retail of electricity. Eskom currently generates approximately 95% of the electricity used in South Africa. In terms of the Energy Policy of South Africa “energy is the life-blood of development”. The reliable provision of electricity is critical for industrial development and related employment and sustainable development in South Africa.

Eskom Transmission Division plan to strengthen the Northern Grid in the areas north of the Soutpansburg with a new 400kV powerline between the Tabor Main Transmission Substation and the newly approved Bokmakirie (Nzhelele) Substation.

Eskom therefore required the services of an environmental consultant to conduct the necessary Environmental Impact Assessment (EIA), to obtain environmental authorisation from the relevant authorities.

Lidwala Consulting Engineers (SA) (Pty) Ltd (Lidwala SA) was appointed as their independent Environmental Assessment Practitioner (EAP) and has been commissioned by Eskom to conduct the scope of work, including the EIA, as required by the National Environmental Management Act (Nr. 107 of 1998). Details of all the relevant role-players, including the expertise of Lidwala SA to carry out the required procedures, have been included in **Chapter 2** of this document. This EIA report is prepared according to NEMA Regulation 543 Section 31: *Environmental impact assessment reports*.

### **1.1 Need and Justification for the Project**

The Polokwane Customer Load Network (CLN), including the Tabor and Spencer power corridor, remains susceptible to voltage instability and is the weakest part of the Northern Grid network due to being operated beyond its reliability power transfer limit. In addition to this, the Polokwane CLN, i.e., Tabor and Spencer 275 kV and 132 kV network is susceptible to low voltages regardless the approved and commissioned network strengthening in year 2010 below:

- Tabor-Spencer 275 kV line, and

- 2nd 250MVA 275/132 kV transformer

Listed below is the approved 400 kV network re-enforcement in the Polokwane CLN which is expected for commissioning by the end of year 2012:

- Witkop-Tabor 400 kV line, and
- Tabor 500MVA 400/132 kV transformer.

The combined transformation capacity at Tabor and Spencer MTS end state of 846MW exceeds the installed and the approved transformation capacity of 712 MW. In addition to this, the low voltages and thermal constraints in the 132 kV Distribution network for both existing and planned network remains.

The Tabor and Spencer 275/132 kV transformation recorded peak in year 2010 was 280 MW and 210 MW, respectively. The exceeded Tabor 275/132 kV transformation firm will be restored once the Witkop-Tabor 400kV line and the 1st 500 MVA 400/132 kV transformer have been commissioned.

The Spencer 275/132 kV transformation firm capacity of 234 MW will be exceeded by 40 MW in year 2015. Therefore, compromising the network reliability by violating the set Grid Code N-1 transformation criteria.

The lengthy Tabor and Spencer 132 kV Distribution networks stretching 200 km from Polokwane to 50 km away from the Mussina border-post result in low voltages and thermal constraints during N-1 transformation and line contingencies in year 2011 and beyond.

The expected Tabor and Spencer 132 kV load growth is located 100km north of Tabor and 70 km from Spencer, therefore, the Transmission outreach constraint will cap the load growth.

Following the findings after an assessment of the Tabor and Spencer 400 kV, 275 kV and 132kV network constraints for the 20 year horizon, Grid Planning proposes the following:

- Establish 4 x 250 MVA 400/132 kV Nzhelele Main Transmission Station (MTS) (**this project**)
- Construct Tabor–Nzhelele 130 km 400 kV line (**this project**),
- Construct Borutho–Nzhelele 250 km 400 kV line (**being undertaken concurrently by Nzumbululo Heritage Solutions**), and
- Commission all the associated infrastructure by year 2017.

The proposed servitudes for the Tabor-Nzhelele and Borutho 400 kV lines are likely to be more challenging to acquire due to the Mapungubwe mountain range which the lines will have to be built through to feed into the Nzhelele MTS. However, the planned

commissioning date, i.e., 2017 take into account the EIA approval processes and challenges.

The above proposed network solution meets the 10 year Distribution load requirements in the Tabor and Spencer network area and it is also informed by the 20 year Transmission and Distribution load forecast in meeting the Transmission 20 year plan.

## **1.2 Summary of the EIA Process**

In terms of the EIA Regulations published in Government Notice R543 of 2 August 2010 in terms of Section 24 (5) of the National Environmental Management Act (Act No. 107 of 1998), certain listed activities as set out in Government Notices R544, R545 and R546 require environmental authorisation before they can proceed. The process will also be done in consultation with the Limpopo Department of Economic Development, Environment and Tourism (LDEDET).

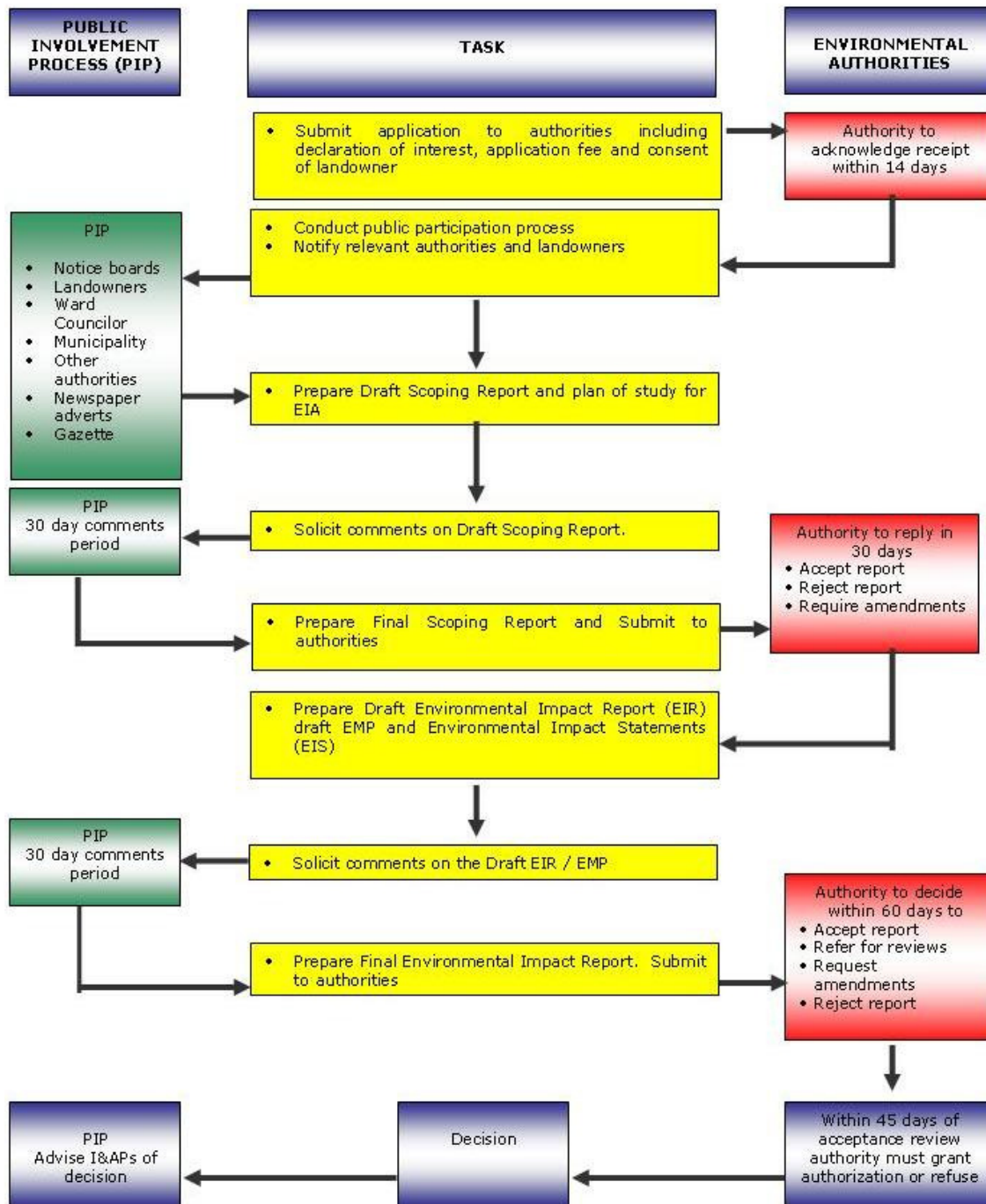
As mentioned above, Eskom has appointed Lidwala SA as their independent EAP to manage the application and to undertake environmental studies together with a team of specialists. Through this process Lidwala SA and the relevant specialists will identify and assess all potential environmental impacts associated with the proposed Project. In order to obtain authorisation for all aspects of this project, comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations.

The EIA process is controlled through Regulations published under the Government Notice No. R. 543, R. 544, R 545 and R. 546 and associated guidelines promulgated in terms of Chapter 5 of the National Environmental Management Act (Act 107 of 1998). There are three phases to the EIA process that are typically recognised:

- Application Phase;
- Scoping Phase; and
- EIA or Assessment Phase.

The EIA process as legislated in terms of NEMA is shown diagrammatically in **Figure 1.1**.

The Environmental Scoping Study identified potential environmental impacts associated with all aspects of the proposed Project. This Environmental Impact Assessment now evaluates and assesses these impacts in terms of their significance. In terms of the EIA Regulations, *feasible and reasonable* alternatives have been discussed within the EIA Study (refer to **Chapter 4**).



**Figure 1.1:** Environmental Impact Assessment Process

**1.2.1 Application Phase**

The Application Phase consists of completing the appropriate application form by the Independent EAP and the proponent as well as the subsequent submission and registration of the Project with the competent authority. The DEA has been confirmed as the competent authority, in conjunction with commenting authorities DWA, as well as the LDEDET.

The Application form was submitted to DEA on **30 March 2012**. The DEA reference number allocated to this application is **14/12/16/3/3/2/317** and the NEAS Reference Number is **DEA/EIA/0001132/2012**. Both these reference numbers are to appear on all official correspondence with the authorities regarding this project.

### **1.2.2 Scoping Phase**

The scope of an environmental assessment is defined by the range of issues and alternatives to be considered, and the approach towards the assessment that will follow. The characteristics of a scoping exercise are as follows:

- It is an open process that involves the authorities, the proponent, stakeholders and I&APs;
- Feasible and reasonable alternatives are identified and selected for further assessment;
- Important characteristics of the affected environment are identified;
- Significant issues that are to be examined in the assessment procedure are identified; and
- It provides the basis for determining terms of reference for the assessment procedure.

At the end of the Scoping Phase a Scoping Report was compiled. As required by the EIA regulations, a Draft Scoping Report (DSR) was first compiled and availed to the public, which provided the public with an opportunity to comment prior to submission of the Final Scoping Report (FSR) to the authorities. The Final Scoping Report was submitted to the authorities on **24 August 2012** together with the Final Plan of Study for Environmental Impact Assessment (POS for EIA). The Final Scoping Report and POS for EIA were accepted by the DEA on **2 November 2012**. This letter has been included in **Appendix A**.

### **1.2.3 EIA or Assessment Phase**

With the Final Scoping Report and the PoS for EIA having been submitted to and accepted by DEA the Project can now proceed into its detailed EIA or Assessment Phase which involves specialist investigation.

Lidwala EPS produced a Draft Environmental Impact Report (EIR) after the completion of all the specialist studies. The Draft EIR was subject to public comment for a period of 40 days. The Draft EIR provided an assessment of all the identified key issues and associated impacts from the Scoping Phase.

#### *a) Draft Environmental Impact Report*

The Draft EIR contained, *inter alia*, the following:

- Contact details and expertise of the environmental assessment practitioner undertaking the EIA process (**Chapter 2**);
- A detailed description of the proposed activity (**Chapter 3**);
- A description of the need and desirability of the proposed activity (**Chapter 1 and 3**);
- A description of the ongoing public consultation process (**Chapter 6**);
- A comparative assessment of the feasible alternatives (**Chapter 4 and 9**);
- A description of the affected environment including a description of the affected properties (**Chapter 7**);
- An indication of the methodology used in determining the significance of potential environmental aspects (**Chapter 9**);
- A summary of the findings and recommendations of any specialist report or specialised processes (**Chapter 7, 8 and 9 as well as Appendices J to P**);
- An assessment of the impacts in terms of nature of the impact, extent, duration, intensity and probability (**Chapter 9**);
- An assessment of cumulative impacts (**Chapter 9**);
- The determination of the significance of the impacts (**Chapter 9**);
- A description of environmental management and mitigation measures (**Appendix E**);
- A description of assumptions, uncertainties and gaps in knowledge (in each Specialist study – **Appendices J to P**);
- An environmental impacts statement including a summary of the findings and a comparative assessment of the positive and negative implications of the Project activity and identified alternatives (**Chapter 10**);
- A draft Environmental Management Programme (EMPR) (**Appendix E**); and
- Copies of specialist reports and reports on specialized processes (**Appendices J to P**).

**This report is the Draft EIA Report.**

*b) Final EIR*

Once the Draft EIR was reviewed by Interested and Affected Parties, comments were collected and responded to and the report was amended accordingly and then finalised.

### **1.3 Way Forward**

This Draft EIR was distributed for public comment for a period of **40** calendar days. All comments on the document were considered and a response provided thereto within the Comments and Response Report (CRR) prior to submission of the Final EIR to the relevant authorities for decision-making.

It is anticipated that LDEDET will provide comment to DEA on the adequacy of the Final EIR, and DEA will consider these comments prior to making a decision. If the report is adequate then DEA will make a decision in terms of whether to grant an environmental authorisation or not.