

## **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 Holdings SOC Limited initiated a study to investigate possible alternatives and solutions to address the long term reliability and improvement of the existing 400kV Gas Insulated System substation (GIS) at Koeberg Nuclear Power Station in the Western Grid. The study also included the future long term 400/132kV transformation requirements at Koeberg substation.

Eskom Holdings Limited 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 responded to Eskom’s invitation to submit proposals by proposing to conduct the above-mentioned services. Lidwala SA was appointed as their independent Environmental Assessment Practitioner (EAP) and has been commissioned by Eskom Holdings Limited 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 scoping report is prepared according to NEMA Regulation 543 Section 28: Contents of scoping reports.

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

Koeberg Nuclear Power Station is the only nuclear power station in Africa. It boasts the largest turbine generators in the Southern Hemisphere and is the most southerly-situated nuclear power station in the world. Being a nuclear power station, it is vital that the

reliability of the electrical infrastructure associated with this power station is never compromised. The station is also critical for grid stability in the Cape.

The Koeberg 400 kV GIS busbar is due for refurbishment. It has been in operation for almost 30 years; over 8 failures related to post insulators since commissioning has been experienced. The biggest concern with these types of failures is that they result in long duration outages. To maintain the reliability of this system, life extension interventions need to be carried out. Areas of concern have been identified by the GIS equipment specialist team which needs to be addressed in the immediate future.

The Koeberg GIS bus duct system is based on the ABB (manufactures) GIS technology that was designed for very long busbars. The original equipment manufacturer (OEM) has since discontinued the use of GIL technology based egg insulators citing amongst other reasons; difficulty in fabricating the insulators, reliability concerns and difficulty to repair.

The installed 400/132 kV transformation at Koeberg Substation is 2 x 250 MVA. The load forecast indicates that the firm capacity of 250 MVA will be exceeded in the year 2022. There is also no space for additional 132 kV feeder bays at Koeberg Substation to accommodate future requirements for new lines.

It is for the aforementioned reasons that a new 400/132kV substation (Weskusfleur Substation) is proposed in the vicinity of the existing Koeberg Substation to:

- Improve the existing 400kV reliability
- Cater for load growth on the 132 kV network for the 20-year horizon.
- Prevent overloading of existing 400kV busbar
- Replace 30 year old technology/equipment

To improve the reliability of Koeberg MTS, several options were investigated and the option to build a new 2x250MVA, 400/132kV substation in the vicinity of the existing Koeberg GIS substation was the preferred one. The main activities may include:

- Build a new 2x250MVA; 400/132kV substation
- Construct the new 400kV busbar with space capability of 3x250MVA, 400/132kV transformation;
- Equip new 2x250MVA, 400/132kV transformers;
- Re-route the Gen transformers to the new 400kV busbar;
- Re-route the outgoing 400kV feeders; as follows-
  - Reroute Acacia-Koeberg 400kV Line 1
  - Reroute Acacia-Koeberg 400kV Line 2
  - Reroute Ankerlig-Koeberg 400kV Line 1
  - Reroute Ankerlig-Koeberg 400kV Line 2
  - Reroute Koeberg-Muldersvlei 400kV Line 1

- Reroute Koeberg-Stikland 400kV Line 1
- Re-route the outgoing 132kV feeders; as follows-
  - Reroute Ankerlig-Koeberg 132kV Line 1 to accommodate new 2x500kV line servitudes of 45m each
  - Reroute Blaauwberg-Koeberg 132kV Line 1
  - Reroute Dassenberg-Koeberg 132kV Line 1
  - Reroute Dassenberg-Koeberg 132kV Line 2
  - Reroute Duine-Koeberg 132kV Line 1
- Divert the 400kV Ankerlig Sterrekus line around the yard's position to minimize line crossings;
- Temporary storage of large volumes of transformer oil on site to be deposited into transformers;
- Temporary storage of any hazardous chemical substances to be used during the construction phase;
- The clearance of vegetation as a result of the construction of the substation and associated infrastructure;
- Decommissioning some of the existing substation infrastructure and lines.

## **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 Western Cape Department of Environmental Affairs and Development Planning (DEA&DP).

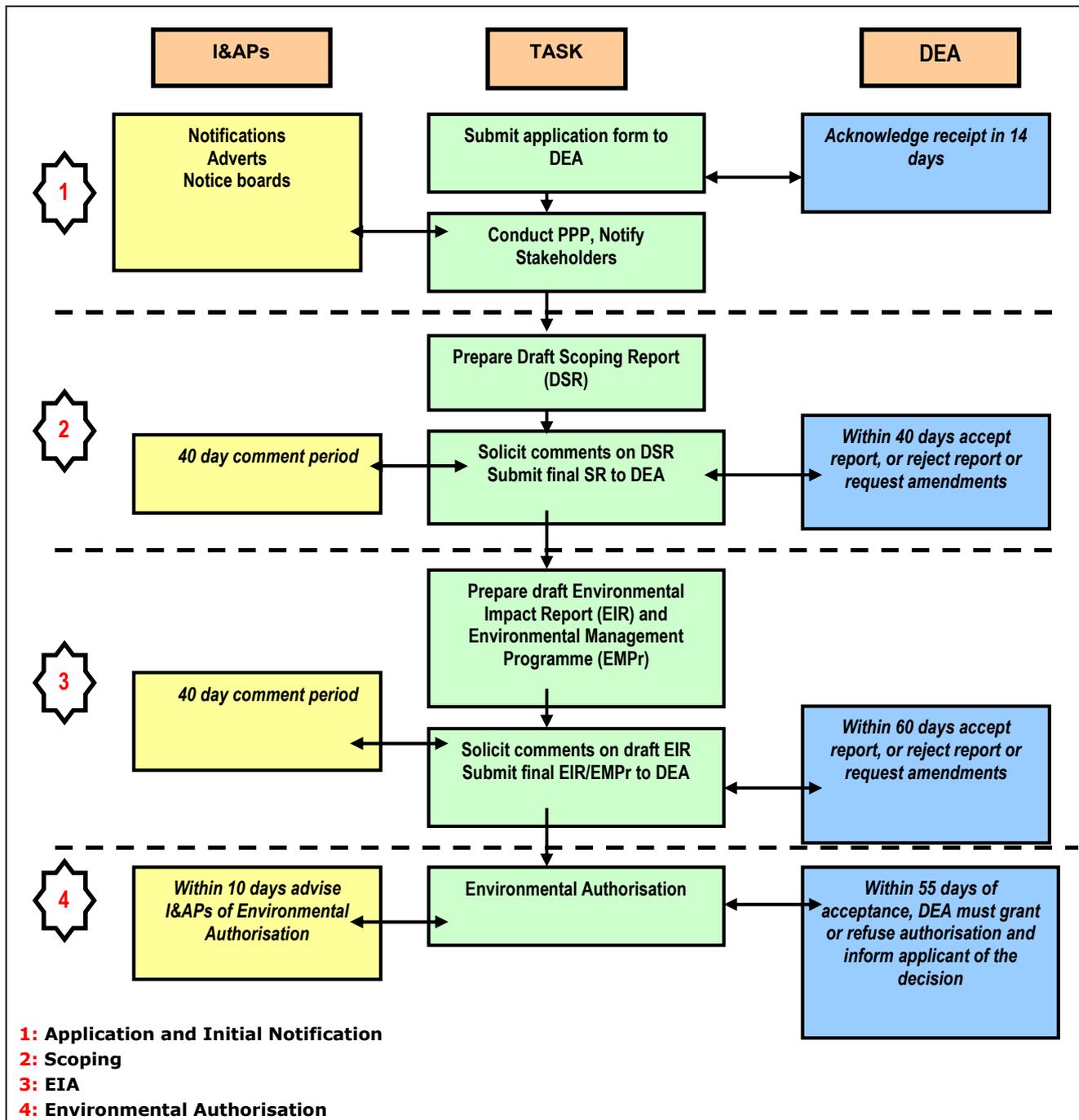
As mentioned above, Eskom has appointed Lidwala Consulting Engineers (SA) (Pty) Ltd as their independent EAP to manage the application and to undertake environmental studies together with a team of specialists. Through this process Lidwala EPS and the relevant specialists will identify and assess all 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 and appeal process as legislated in terms of NEMA is shown diagrammatically in **Figure 1.1**.

This Environmental Scoping Study identifies and evaluates potential environmental impacts associated with all aspects of the proposed Project. In terms of the EIA Regulations, *feasible and reasonable* alternatives have been discussed within the Scoping 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 DEADP.

The Application form was submitted to DEA on **12 March 2013**. The DEA reference number allocated to this application is **14/12/16/3/3/2/508** and the NEAS Reference Number is **DEA/EIA/0001780/2013**. Both these reference numbers are to appear on all official correspondence with the authorities regarding this project. An amended application was also submitted to DEA on 18 July 2013 to account for the amended locality of alternative 4 and the associated properties affected.

### **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 is compiled. As required by regulation, a Draft Scoping Report (DSR) must first be compiled which provides the public an opportunity to comment prior to submission of the Final Scoping Report (FSR) to the authorities. **This report is the Final Scoping Report.**

#### *a) Draft Scoping Report*

The aim of the Draft Scoping Report is to document the outcome of the Scoping Phase. This report includes *inter alia*:

- Details of the proposed Project (**Chapter 3**);
- Details on alternatives for the proposed Project (**Chapter 4**);
- Contact details and expertise of the environmental assessment practitioner undertaking the scoping process (**Chapter 2**)

- Description of the key legislation and guidelines potentially applicable to the proposed activity (**Chapter 5**);
- A description of the receiving environment (**Chapter 7**);
- A register of Interested and Affected Parties (**Appendix D**);
- Details of the stakeholder engagement process conducted including a summary of issues raised through the process to date (**Chapter 6**);
- A description of the environmental issues and impacts associated with the proposed Project and alternatives which have been identified (**Chapter 8**);
- A description of the issues that require further investigation (**Chapter 8 and 10**);
- A description of the methodology to be used in the assessment of impacts (**Chapter 10**); and
- A **Plan of Study** (PoS) for the EIA which will include a description of the public participation process to be undertaken and terms of reference for the identified specialist studies required within the EIA phase (**Chapter 10**).

*b) Final Scoping Report*

Once the draft Scoping Report is reviewed by Interested and Affected Parties, comments were collected and responded to, the report has been amended accordingly (where required) and finalised for submission to the authorities.

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

Once the Final Scoping Report and the PoS for EIA have been submitted to and accepted by DEA the Project will proceed into its detailed EIA or Assessment Phase which involves specialist investigation.

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

*a) Draft Environmental Impact Report*

The Draft EIR would contain, *inter alia*, the following:

- Contact details and expertise of the environmental assessment practitioner undertaking the EIA process;
- A detailed description of the proposed activity;
- A description of the affected environment including a description of the affected properties;
- A description of the ongoing public consultation process;
- A description of the need and desirability of the proposed activity;

- An indication of the methodology used in determining the significance of potential environmental aspects;
- A comparative assessment of the feasible alternatives;
- A summary of the findings and recommendations of any specialist report or specialised processes;
- An assessment of the impacts in terms of nature of the impact, extent, duration, intensity and probability;
- An assessment of cumulative impacts;
- The determination of the significance of the impacts;
- A description of environmental management and mitigation measures;
- A description of assumptions, uncertainties and gaps in knowledge;
- 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;
- A draft Environmental Management Plan (EMP); and
- Copies of specialist reports and reports on specialised processes (if required).

*b) Final EIR*

Once the Draft EIR has been reviewed by Interested and Affected Parties, comments will be collected and responded to and the report will be amended accordingly and then finalised.

### **1.3 Way Forward**

The Draft Scoping Report was distributed for public comment for a period of 41 calendar days. All comments on the document were considered and a response thereto provided within the Comments and Response Report prior to submission of the FSR to the relevant authorities for consideration.

It is anticipated that DEA&DP will provide comment to DEA on the adequacy of the DSR, and DEA will consider these comments prior to making a decision on the adequacy of the report. If the report is adequate then DEA will instruct the EAP to continue on to the next phase of the EIA process.