

1 INTRODUCTION

Eskom Holdings SOC Limited (Eskom), as South Africa's public electricity utility, generates, transmits and distributes electricity throughout South Africa. Eskom's principal generation technology is pulverised coal with approximately 90% of its current generating capacity lying in coal-fired power stations. One such power station is the Majuba Power Station (hereafter referred to as "Majuba"), which lies to the south-east of Standerton (near Amersfoort) within the Pixley Ka Seme Local Municipality (**Figure 1.1**) which falls within the Gert Sibande District Municipality of the Mpumalanga Province. The first of Majuba's generating units was commissioned in the 1990's and the last in 2001.

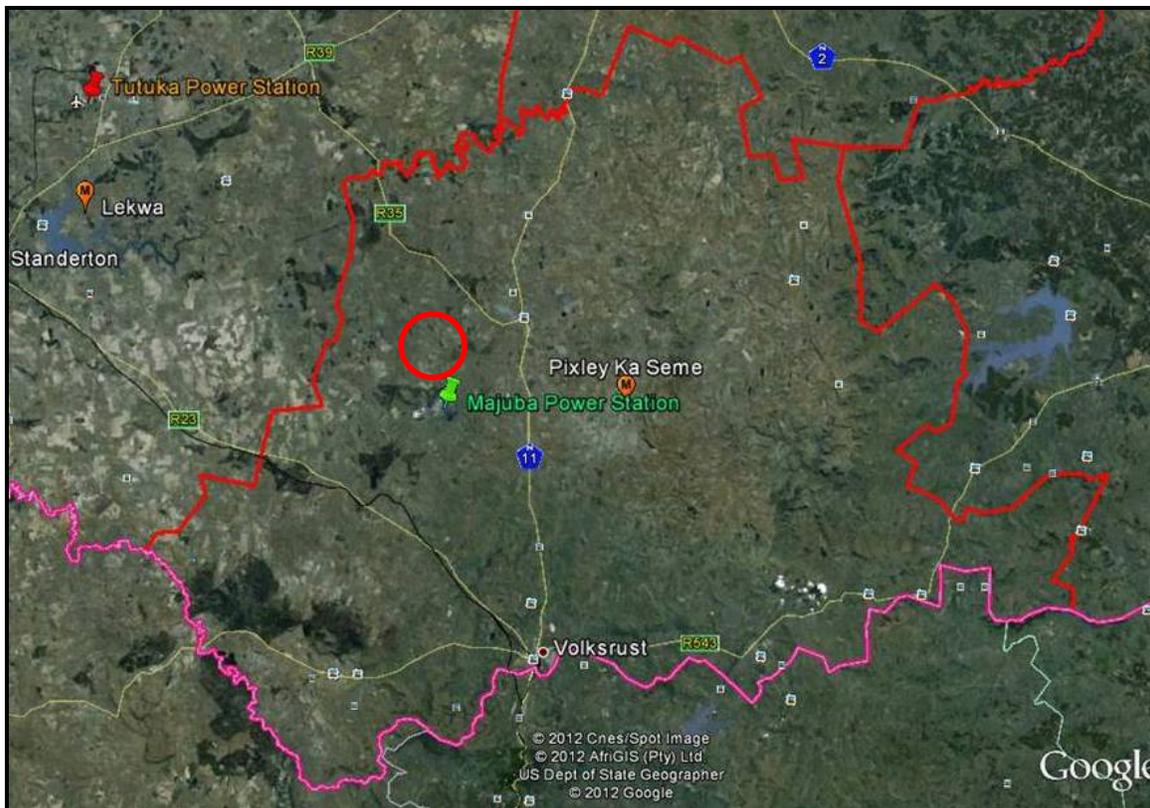


Figure 1.1: Location of Majuba Power Station within the Pixley Ka Seme Local Municipality

Majuba uses dry methods of ash disposal. The process involves ash being transported from the power station terrace to the ash disposal facility by means of a conveyor and stacker system. The ash handling currently occurs in two independent phases, handling ash on terrace to a centralised loading system at a transfer house. The ash overland conveyor transfers the material off terrace to the ash disposal facility. The ash is disposed by two stacker methods the parallel frontstacking method and the Radial frontstacking method.

Majuba is planning to pro-actively align its continued ash disposal activities with the requirements of the waste licensing process.

In terms of the Environmental Impact Assessment Regulations, Eskom required the services of an independent environmental consultant to conduct the necessary Environmental Impact Assessment (EIA) process, for obtaining an integrated environmental authorisation from the relevant authorities.

Lidwala Consulting Engineers (SA) (Pty) Ltd (Lidwala) was appointed as the Environmental Assessment Practitioner (EAP) and has been commissioned by Eskom to undertake the licencing process, as per the National Environmental Management Act (No. 107 of 1998) and the National Environmental Management Waste Act (No. 59 of 2008). Details of all the relevant role-players, including the expertise of Lidwala to carry out the required procedures, have been included in **Chapter 2** of this document.

1.1 Need and Justification for the Project

Eskom's core business is the generation, transmission and distribution of electricity throughout South Africa. Electricity by its nature cannot be stored and must be used as it is generated. Therefore electricity is generated according to supply-demand requirements. The reliable provision of electricity by Eskom is critical to industrial development and other poverty alleviation initiatives in the country.

The Majuba power station is a major stabilising link to South Africa's network and produce $\pm 9\%$ of South Africa's electricity supply. Majuba is Eskom's only power station that is not linked to a specific mine and it receives its coal from various sources. The power station is running out of space for ash disposal and in order for the station to be able to continue with the generation of electricity it requires an area for the continuous disposal of the ash for the remaining life of station.

Majuba Power Station, envisages the continuation of dry ash disposal for the remaining life of the power station (i.e. for the next approximately 46 years). Prior to the promulgation of Environmental laws such as the Environment Conservation Act, Eskom purchased a portion of land which they envisaged for the disposal of ash for the life of the Station. As part of its planning processes, Eskom developed designs for the ash disposal facility on the originally identified portion of land, which were approved internally, and commenced with ash disposal as soon as the first bit of coal was burnt and electricity generated (in the 1990s). With the promulgation of the environmental laws such the National Environmental Management

Waste Act, Act 59 of 2008, in particular, Eskom would like to pro-actively align its continued ashing activities with the requirements of the waste licensing processes.

1.2 Project Background

The proposed continuous development is an ash disposal facility with the following specifications:

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- Capacity of airspace of 190 million m³ (existing and remaining); and
- Required Ground footprint 800ha: 15-60 year – proposed, including pollution control canals and dams).

The process involves ash being transported from the power station terrace to the ash disposal facility by means of a conveyor and stacker system. The ash handling currently occurs in two independent phases, handling ash on terrace to a centralised loading system at a transfer house. The ash overland conveyor transfers the material off terrace to the ash disposal facility.

The ash disposal facility structure consists of three layers of ash, at two levels or tiers (upper and lower tier):

- A stabilising layer of ash, at an average of 15m above natural ground creating the first ash stacker level (Lower tier)
- A volume of ash varying from 15 m to 45 m placed above the first tier forms the second ash stacker level (Upper tier).
- A final back stack layer of 12m is placed above the second tier

This ash disposal facility shall be able to accommodate the ashing requirements of the power station for the next 46 years, to 2060 (this is based on an annual ash production rate of 3.579 million tonnes). In order to ensure that the EIA allowed for a robust and legislated environmental process, all land within a radius of 12km was assessed in order to identify potential alternative sites for locating the proposed continuous ash disposal facility, and its associated infrastructure (refer to **chapter 7**).

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 and in GN 921 of the National Environmental Management: Waste Act (NEMWA) require environmental authorisation and a waste management license, respectively, before they can proceed.

As mentioned above, Eskom has appointed Lidwala as the EAP to manage the application and to undertake the independent environmental studies together with a team of specialists. Through this process Lidwala and the relevant specialists identified and assessed all potential environmental impacts associated with the proposed Project. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations, in order to provide the relevant authorities with sufficient information to make a decision regarding the granting of an integrated environmental authorisation.

The environmental studies followed a three-phased approach in accordance with 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) i.e.:

- Phase 1: Application phase
- Phase 2: Environmental Scoping Study phase (including a screening assessment and the Plan of Study for EIA); and
- Phase 3: Environmental Impact Assessment phase

The Environmental Scoping Study identified potential sites and/or site combinations, and identified and evaluated potential environmental impacts and issues associated with all aspects of the proposed project. This Environmental Impact Assessment now evaluates and assesses these impacts in terms of their significance, provides mitigation to those impacts and recommends the most feasible site. In terms of the EIA Regulations, *feasible and reasonable* alternatives have been discussed within the Scoping Study.

1.3 Summary of the EIA Process

1.3.1 EIA Process

The EIA process is controlled through Regulations published under the Government Notice No. R. 543 and associated guidelines promulgated in terms of Chapter 5 of the National Environmental Management Act (Act 107 of 1998).

The EIA process as legislated in terms of NEMA and NEMWA is shown diagrammatically in **Figure 1.2**.

1.3.2 Application Phase

The Application Phase consisted of completing the appropriate application form (in this case an integrated application in terms of NEMA and NEMWA) by the EAP and the proponent as well as the subsequent submission and registration of the Project with the competent authority. The National Department of Environmental Affairs (DEA) has been confirmed as the competent authority, in conjunction with commenting authorities Department of Water Affairs (DWA), as well as the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET).

The Integrated Application form was submitted to DEA on **20 August 2012**. The EIA reference number allocated to this integrated application is **14/12/16/3/3/3/53**. In addition to the EIA reference number a NEAS Reference number (**DEA/EIA/0001417/2012**) was also allocated. These reference numbers are to appear on all official correspondence with the authorities regarding this project.

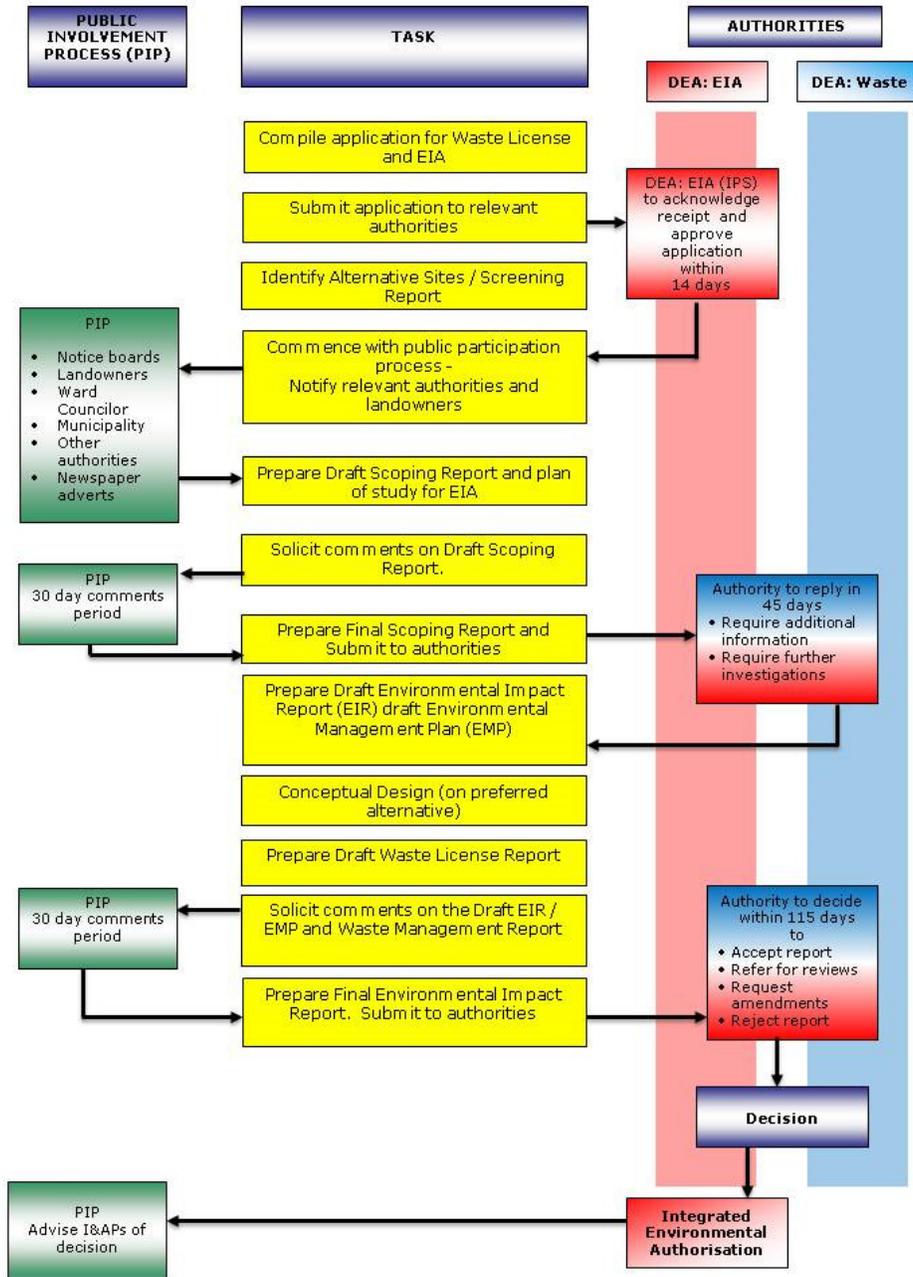


Figure 1.2: Environmental Impact Assessment Process for an Integrated Application

1.3.3 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 8 January 2013 together with the Final Plan of Study for Environmental Impact Assessment (POS for EIA). The Final Scoping Report and Plan of Study for EIA were accepted by the DEA on 20 March 2013. This letter has been included in **Appendix A**.

1.3.4 EIA or Assessment Phase

With the Final Scoping Report and the Plan of Study for EIA having been submitted and accepted by DEA the Project proceeded into the detailed EIA or Assessment Phase which involves more detailed specialist investigation.

During the EIA phase the Waste License application report was compiled along with the conceptual designs for the preferred site. These reports were also subjected to public review concurrently with the DEIR Report.

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;

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

This report is the FEIR.

1.4 Way Forward

The Draft EIR provided an assessment of all the identified key issues and associated impacts from the Scoping Phase. The report was distributed for public comment for a period of 40 calendar days. All comments on the Draft EIR were considered and a response provided thereto within the Comments and Response Report prior to submission of the Final EIA Report to the relevant authorities for decision-making.

Competent authorities such as the Department of Water Affairs (DWA) and Mpumalanga Department of Economic Development Environment and Tourism (MDEDET) will also need

to provide comments to DEA on the adequacy of the FEIR, and DEA will consider these comments prior to making a decision on the proposed continuous ash disposal facility for Majuba Power Station.