

TERMS OF REFERENCE TO:

Determine the species diversity and distribution of terrestrial invertebrates at the Ingula Pumped Storage Scheme and Nuclear-1 EIA sites

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1. INTRODUCTION

In many countries, including South Africa, economic growth and social needs are resulting in substantially greater energy demand, even taking into account continuing and accelerated energy efficiency improvements. Electricity demand is growing faster than overall energy supply. The South African Government is currently targeting a six percent (%) economic growth, which is equivalent to an average increase of four % in electricity demand. Eskom is currently experiencing increasing demand in excess of four %. Thus there is a requirement for more than 40 000 Megawatts (MW) of new electricity generating capacity over the next 20 years in South Africa.

This additional generational capacity could emanate from a variety of energy sources, for example coal, liquid fuels, gas turbines, natural gas, uranium (nuclear), hydro and pumped storage schemes, wind and solar energy. Eskom evaluates all energy sources available to South Africa in determining an optimum mix for electricity generation based on the demand. Eskom has subsequently undertaken the proposal to build a Nuclear Power Station to add to the energy mix and is currently underway with the construction of a Pumped Storage Scheme.

Ingula Pumped Storage Scheme

The Ingula Pumped Storage Scheme (IPSS) is situated approximately 25km northeast of Van Reenen, straddling the escarpment of the Low Berg on the boundary of the Free State and Kwa-Zulu Natal. The proposed upper reservoir is on a tributary of the Wilge River, which flows into the Vaal River. The proposed lower reservoir is on the headwaters of the Klip River, a tributary of the Tugela River.

The Environmental Impact Assessment (EIA) for the IPSS commenced in early 1998, resulting in the Minister of Environmental Affairs and Tourism authorising the scheme in December 2002. Construction of the scheme was initiated in mid 2005.

Currently, Eskom is constructing the upper storage dam in the Bedford-Chatsworth Wetland as well as the lower storage dam in the Braamhoek Spruit.

The need for the proposed studies regarding invertebrates arose through a requirement to complete the baseline database for the Ingula site as per the Record of Decision and to add value towards an application for proclamation of a Nature Reserve as recommended by Ezemvelo KwaZulu Natal Wildlife.

Nuclear-1 EIA

The proposed Nuclear Power Station the completion of a number of specialist studies to fulfil the requirements of the Environmental Impact Assessment. Through the public participation process, the need for further more comprehensive specialist investigation on invertebrates was articulated at all the alternative sites. These sites include Duynfontein (near the present Koeberg), Bantamsklip (east of Pearly Beach) and Thyspunt (between Oyster Bay and St. Francis Bay).

2. SCOPE OF SERVICES

The aim of the study is to provide the necessary information on the extent to which terrestrial invertebrates occur on the Ingula site and Nuclear 1 alternative sites, in terms of species diversity and distribution. These studies will advise Eskom in proclamation of the Nature Reserve at Ingula PSS, and for the completion of the Environmental Impact Assessment process for Nuclear 1.

2.1 Develop an understanding of the terrestrial invertebrates on the Eskom Ingula Property and the Nuclear-1 EIA sites with respect to species diversity and distribution.

The following will need to be completed:

- Quantitative biodiversity surveys for the seasonal diversity of invertebrate species for Ingula PSS (the lower and upper sites), and also noting key elements of habitats relevant to invertebrate conservation for the three Nuclear-1 proposed sites (Duynefontein, Bantamsklip and Thyspunt);
- The distribution of the invertebrate species collected, with associated GIS maps;
- An invertebrate species taxonomic collection/s suitable for museum distribution;
- A photographic record of all species collected;
- Recording of any sightings and/or evidence of existing butterflies, ants, fruit chafer beetles, dung beetles and arachnids (mainly mygalomorph spiders and scorpions) of any other invertebrates that are necessary to be incorporated in the study.
- An evaluation of the conservation importance and significance of the site with special emphasis on the current status of threatened invertebrate species.
- Literature investigation of possible species that may occur on the individual sites.
- Integration of the literature investigation and field observations to identify potential ecological impacts that could occur as a result of the development.
- Integration of literature investigation and field observations to make recommendations to reduce or minimise impacts
- Integration of literature surveys and field observations to inform the choices between the proposed alternative sites (Duynefontein, Bantamsklip, Thyspunt).

3. CLIENT'S OBJECTIVE

Eskom's objectives are to:

Develop an understanding of the extent to which terrestrial invertebrates occur on the Ingula site and Nuclear 1 sites, with respect to species diversity and distribution as well as assess the Nuclear-1 sites in relation to requirements to fulfil the Environmental Impact Assessment to inform the choice between the three Nuclear-1 alternative proposed sites.

4. GENERAL OVERVIEW

The Eskom Holdings Limited SHEQ (Safety, Health, Environment and Quality) Policy clearly indicates that, as a minimum, all legal and other requirements shall be adhered to. This refers inter alia to environmental authorisations and the conditions contained therein, and recommendations highlighted in all relevant specialist reports. It is thus incumbent upon Generation Environmental Management (GEM) to ensure compliance to these requirements, and to give assurance to the Divisional Executive, Capital Expansion Department and other stakeholders in terms of compliance.

Copies of the following documents have been included for information

- Record of Decision

5. THE CONSULTANT

The independent consultant shall execute as per the Client's Terms of Reference (TOR) and/or Scope of Work (SOW).

The Consultant must be appropriately accredited with a professional registration in the given field to undertake all activities.

6. DELIVERABLES

The proposed project will run for a period of one year during which time the following deliverables will be provided:

- Interim report detailing work completed on invertebrate species diversity and distribution
- Interim half yearly report detailing the assessment of the condition of the veld
- Monthly reports detailing any significant aspects of the project and progress to date
- Final Report detailing the methodology and results of the study as well as long term monitoring and mitigation strategies of impacting activities as per the findings of the study for management purposes
- All reports and CD's should be submitted to the designated Eskom recipients in triplicate
- Please note, the Ingula Pumped Storage Scheme analysis will be in separate reports to the Nuclear 1 EIA sites analysis as relevant to the above.

7. SPECIFICATION FOR THE DELIVERABLES

All reports submitted must be hardcopy and electronic format (PDF), as agreed with the Client. The number and format of reports and other deliverables in this regard will be discussed once the recommended consultant is appointed;

All mapping must be completed using ArcView GIS software or a suitably compatible package. All shape files to be submitted with relevant reports. Mapping to be completed to geographic reference WGS 84.

8. QUALITY ASSURANCE

The consultant shall ensure quality assurance and control consistently throughout the project. This includes aspects relating to report-writing, quality and integrity of reports, timeous submission of draft and final site-specific and summary reports, timeous submission of correct invoices and the general auditing process.

The timing of the submission of all reports will be agreed between Eskom and the recommended consultant

9. INVOICING

This will be subject to Eskom's conditions, in addition to the following specifications:

- The invoice will be used as a VAT invoice, therefore all relevant information, including the order number (45...number) must appear on the invoice.
- A monthly forecast rate of invoicing will be given to the Client, to assist with cash flow projections, etc.
- Invoices will only be considered payable by the Client upon the completion of a scheduled activity (as per the activity schedule). Details of the completed activity must be clearly specified according to the activity schedule.
- The price will include all travelling and subsistence costs, which should be identified as separate items.
- Applicable time periods will be reflected on the invoices.
- Acceptance by the Client representative of the quality of outputs is critical for payment purposes.
- VAT must be reflected as a separate item.
- Invoices are to be submitted to the Client or Client's Agent to the address in the Contract.
- The invoice will have attached a detailed breakdown of all applicable costs, including man-hours. Every invoice submitted must be accompanied by a relevant report/s.

10. THE PROGRAMME

The services will be rendered within the broad time-frames as specified in Section 6 (a period of one year, to include relevant seasons), or as agreed upon between the consultant/auditing company and the Client.

11. CONTRACTING

This is subject to conditions in the NEC: Professional Services Contract.

12. CONFIDENTIALITY

This is subject to Eskom's conditions on confidentiality, and the consultant will sign a Non-Disclosure Agreement form at tender clarification meeting.