

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED NEW COAL-FIRED POWER STATION IN THE LEPHALALE AREA, LIMPOPO PROVINCE

BRIEFING PAPER

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WHAT DOES THIS DOCUMENT TELL YOU?

This document aims to provide you, as an interested and/or affected party (I&AP), with background information regarding a new power station project proposed by Eskom Holdings Ltd, as well as provide information regarding the Environmental Impact Assessment (EIA) to be undertaken. It further indicates how you can become involved in the project, receive information, or raise issues, which may concern and/or interest you. The sharing of information forms the basis of the public participation process and offers you the opportunity to become actively involved in the project from the outset. Public participation plays an important role in the undertaking of an EIA, as input from I&APs ensures all potential issues are considered within the study.

WHAT IS THE NEW POWER STATION PROJECT?

In order to be able to adequately provide for the growing electricity demand, Eskom propose to construct a new power station with a maximum capacity of 4 800 MW in Lephalale (previously Ellisras) in the vicinity of the existing Matimba Power Station. Currently the project name for the new proposed power station is Matimba B, but the name will be changed should the project be approved. The power station will be coal-fired, and source coal from local coalfields.

WHY IS A NEW COAL-FIRED POWER STATION NEEDED: A NATIONAL PERSPECTIVE

The South African Energy Policy (Dec 1998) published by the Department of Minerals and Energy (DME) identifies five key objectives:

- Increasing access to affordable energy services
- Improving energy sector governance
- Stimulating economic development
- Managing energy-related environmental impacts
- Securing supply through diversity.

In order to meet these objectives and the developmental and socio-economic objectives in South Africa, the country needs to optimally use the available energy resources. The DME performs Integrated Energy Planning to identify future energy demand and supply requirements. The National Electricity Regulator (NER) performs National Integrated Resource Planning to identify the future electricity demand and supply requirements.

Similarly, Eskom continually assesses the projected electricity demand for and supply of electricity through the Integrated Strategic Electricity Plan (ISEP) process. Through these processes, the most likely future electricity demand based on long-term Southern African economic scenarios is forecasted, and provides the framework for Eskom and South Africa to investigate a wide range of supply and demand-side technologies and options.

These planning processes identified that South Africa will require additional 'peaking electricity generating capacity' by 2007 (i.e. power station technology designed specifically to generate electricity during periods of very high demand for electricity) and additional 'base load electricity generating capacity' by 2010 (i.e. power station technology designed specifically to generate electricity continuously), depending on the electricity demand growth rate.

These planning processes also identified that South Africa will be dependent on coal for electricity generation for many years into the future. The NER drew the following conclusion in their National Integrated Resource Plan (NIRP): "Options for diversification are insufficient to meet all of the forecast demand for electricity over the next 20-year planning horizon. Coal-fired options are still required for expansion during this period." (ref NER NIRP2 available on the NER website www.ner.org.za).

A number of new coal-fired power stations will be required to be constructed within the planning period in order to be able to adequately provide for the growing electricity demand.

NEED FOR THE PROPOSED NEW COAL-FIRED POWER STATION IN LEPHALALE

Screening and feasibility studies undertaken by Eskom identified the Waterberg Coalfields, Limpopo Province as the most viable option for the siting of a new coal-fired power station. Criteria used by Eskom in determining the most viable siting option included:

- the availability and accessibility of primary resources required for the operation of the power station, such as coal and water,
- the ability of the new power station to connect to the existing Eskom network/grid,
- environmental acceptability
- lowest cost of production.

The Lephalale area in the vicinity of the existing Matimba Power Station ranked as the most favourable site for the establishment of a new coal-fired power station due to *inter alia*:

- land availability in close proximity to the primary coal source,
- the properties of the coal in the area are well known due to the experience acquired through the existing Matimba Power Station,
- competitive coal prices, and
- the availability of alternative ash disposal options.

WHAT DOES THE PROJECT ENTAIL?

The project includes the establishment of a new coal-fired power station in the Lephalale area. The power station may ultimately have a maximum installed capacity of up to 4800 MW, but the first phase will be approximately half that installed capacity. The exact output will depend on the specification of the equipment installed and the ambient operating conditions. The footprint of the proposed new power station is still to be determined through final engineering and design, but would be approximately 700 ha for the power plant and associated plant (terrace area), and an additional approximate 500 - 1000 ha for ashing facilities (ash disposal options are currently being investigated).

It is envisaged that the proposed power station will utilise a range of technologies pertaining to cooling, combustion and pollution abatement. The environmental studies that are required to be undertaken will assist in determining these. The power station would be a zero liquid effluent discharge station, and would monitor emissions to air on a continuous basis.

The power station would source coal from the local coalfields, and it would be delivered to the power station via conveyor. An estimated 7 million tonnes per year of coal is required in order to supply the proposed power station.

• **Candidate Sites for Selection:**

In terms of the site selection study undertaken by Eskom, four candidate sites have been identified as potentially feasible sites for the construction of the power station (terrace) and will be evaluated by means of the environmental scoping study. The four sites are located on the following farm portions (see locality plan).

- * Farm Appelvlakte 448 LQ: The farm is owned by Kumba Resources (Grootegeluk Mine), and is currently used for game farming. The farm has a total extent of ~882 ha, although a portion of the farm is occupied by slimes dams operated by Kumba Resources, rendering ~704 ha as utilisable area.
- * Farm Nelsonskop 464 LQ: The farm is owned by Kumba Resources (Grootegeluk Mine), and is presently used for game farming. The farm is ~848 ha in extent, with a portion occupied by a sewage works, rendering 660 ha as utilisable area.
- * Farm Naauwontkomen 509 LQ: The farm is owned by Kumba Resources (Grootegeluk Mine), and is currently utilised in a breeding programme. The farm is ~807 ha in extent, however is bisected by a road dividing the property into two smaller portions.
- * Farm Eenzaamheid 687 LQ: The farm is privately-owned and is currently used for cattle farming. The farm is ~930 ha in extent, however is bisected by a road dividing the property into two smaller portions.

A further four farms have been identified for investigation for proposed ancillary infrastructure such as ashing facilities, should the additional area be required. The four sites are located on the following farm portions (see locality plan).

- * Farm Droogheuevel 447 LQ: The farm is situated adjacent to the Farm Appelvlakte. The farm is privately-owned and is currently used for game farming. The farm is ~1 270 ha in extent.
- * Farm Zongezien 467 LQ: The farm is situated adjacent to the farm Nelsonskop. The farm is currently owned by Eskom, and is used for cattle and game farming by a tenant. The farm is ~1 200 ha in extent.
- * Farm Kuipersbult 511 LQ: The farm is situated adjacent to the farm Naauwontkomen. The farm is privately-owned and utilised primarily for cattle farming. The farm is ~1052 ha in extent.
- * Farm Kromdraai 513 LQ: The farm is situated adjacent to the farm Eenzaamheid. The farm is privately-owned and is currently utilised for cattle farming. The farm is ~ 922 ha in extent.

• **Technology alternatives:**

The proposed power station would be a dry-cooled station, which is less water intensive than stations utilising conventional cooling systems (i.e. proposed to utilise <0,2 litres of water per unit sent out). The use of dry-cooled technology is necessitated as a result of the limited water availability in the area, and it is not negotiable. Appropriate technology alternatives have been investigated by Eskom from a technical and economic feasibility perspective through pre-feasibility studies. The preferred technology will be nominated based on the findings of Eskom's feasibility studies (technical and economic).

In terms of combustion technology, the proposed new station, like the existing Matimba Power Station, will be of the pulverised fuel (PF) variety. Coal is first pulverised, then blown into a furnace where it is combusted at high temperatures. The resulting heat is used to raise steam, which drives a steam turbine and generator. Recent advances in technology such as the possibility of using a higher efficiency combustion process (i.e. supercritical combustion) will result in the new station's thermal efficiency being up to 40% (compared to approximately 34% of older power stations), resulting in less coal required to be burned to produce the same amount of energy.

WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT?

A number of potential environmental impacts associated with the project have been identified. As part of the EIA, these potential impacts will be assessed through the following specialist studies:

Specialist Study	Organisation
Impacts on surface & groundwater	Groundwater Consulting Services (GCS)
Impacts on ecology & flora	Bathusi Environmental Consulting (BEC)
Impacts on terrestrial fauna	Bathusi Environmental Consulting (BEC)
Impacts on soils & agricultural potential	Agricultural Research Council: Institute for Soil, Climate and Water
Heritage Impact Assessment	National Cultural History Museum
Impacts on air quality	Airshed Planning Professionals
Noise impacts	Jongens Keet and Associates
Impacts on land use	Plan Practice
Impacts on the social environment	Afrosearch
Impacts on tourism	SIVEST
Visual impact assessment	MetroGIS
Traffic impact assessment	Goba Mohlali Keeve Steyn

As part of the Scoping Study, desk-top specialist studies will identify potential issues which require further investigation within the EIA phase. More detailed studies on potentially significant impacts will be investigated within the EIA phase of the project for each aspect. Input from the public through the public participation process provides valuable input in the identification of issues requiring investigation within this EIA process.

The Environmental Scoping Study will highlight areas that should be avoided in order to minimise potential impacts, and evaluate the alternative sites for the new coal-fired power station and the ancillary infrastructure. The Scoping Study will recommend the most favourable alternative site for the power station and the most favourable alternative for the ancillary infrastructure for further investigation in the Environmental Impact Assessment phase.

WHY ARE ENVIRONMENTAL STUDIES NEEDED?

In terms of the Environmental Impact Assessment (EIA) Regulations, Eskom Holdings Ltd requires authorisation from the National Department of Environmental Affairs and Tourism (DEAT) for the undertaking of the proposed project. In order to obtain authorisation for this project, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations.

An Environmental Impact Assessment (EIA) is an effective planning and decision-making tool. It allows the environmental consequences of a proposed project to be identified and managed through the planning process. Eskom Holdings Ltd has appointed Bohlweki Environmental, as independent consultants, to undertake environmental studies to identify and assess all potential environmental impacts associated with the proposed project. As part of these environmental studies, all I&APs will be actively involved through a public participation process. The environmental studies will follow a two-phased approach:

- Phase 1: Environmental Scoping Study (ESS)
- Phase 2: Environmental Impact Assessment (EIA)

The ESS will evaluate the identified terrace and ancillary infrastructure location alternatives, and will recommend the most favourable options for further investigation in the Environmental Impact Assessment phase. Comments and inputs from I&APs during the EIA process are encouraged in order to ensure that all potential impacts are being considered within the ambit of the study.

PUBLIC PARTICIPATION PROCESS

It is important that relevant I&APs are identified and involved in the public participation process from the outset of the project. To ensure effective public participation, the process includes the following steps:

- STEP 1: Advertise the EIA Process (local & national press)
- STEP 2: Register I&APs and key stakeholders on the database (on-going)
- STEP 3: Consultation with and transfer of information to I&APs through consultation, public meetings, focus group meetings and key stakeholder workshops
- STEP 4: Record all comments, issues and concerns raised by I&APs within an issues trail, which will form an integral part of EIA Reports
- STEP 5: Invite I&AP comment and input on the draft Scoping and EIA reports (30-day comment period)

HOW CAN YOU GET INVOLVED?

1. By responding (by phone, fax or e-mail) to our invitation for your involvement which has been advertised in local & national newspapers.
2. By mailing or faxing the attached comment form to Bohlweki Environmental.
3. By attending the meetings to be held during the course of the project. Should you register as an I&AP you will be invited to attend these meetings. The meeting dates will also be advertised in local newspapers.
4. By telephonically contacting consultants if you have a query, comment or require further project information.

5. By reviewing the draft Scoping and EIA Reports within the 30-day review periods.

If you consider yourself an I&AP for this proposed project, we urge you to make use of the opportunities created by the public participation process to become involved in the process and provide comment, or raise those issues and concerns which affect and/or interest you, or about which you would like more information. Your input into this process forms a key part of the environmental studies and we would like to hear from you to obtain your views on the proposed project.

By completing and submitting the accompanying response form, you automatically register yourself as an I&AP for this project, and ensure that your comments, concerns or queries raised regarding the project will be noted.

Comments and Queries

Direct all comments, queries or responses to:

Bohlweki Environmental

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Ingrid Snyman or Ashlea Strong

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