

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
PROPOSED STEELPOORT PUMPED-STORAGE SCHEME
AND ASSOCIATED INFRASTRUCTURE
Background Information Document (BID)

September 2006

WHAT DOES THIS DOCUMENT TELL YOU?

This document aims to provide you, as an Interested and Affected Party (I&AP), with background information regarding the Environmental Impact Assessment (EIA) for the construction and operation of a pumped storage scheme proposed by Eskom Holdings Ltd (Eskom) in the Steelpoort area. 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 and concerns are considered within the study.

WHAT IS THE STEELPOORT PUMPED STORAGE SCHEME PROJECT?

As part of its assessment of a range of electricity supply options, Eskom is proposing a Pumped Storage Scheme in the Steelpoort area. It is anticipated that the proposed scheme will generate approximately 1500 MW of electricity.

The proposed scheme consists of the following components: an upper and a lower reservoir, an underground power house complex and associated waterways that link the reservoirs; as well as ancillary works such as roads, transmission lines and other associated infrastructure.

WHY IS THE PROJECT NEEDED?

The Department of Minerals and Energy's National Integrated Resource Plan projects that the current growth in electricity demand would require that additional electricity generation capacity would be required by approximately 2007, with further base load generating capacity required by 2010.

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 South African Government, through the Department of Minerals and Energy (DME), the National Energy Regulator of South Africa (NERSA) and Eskom are required to address what can be done to meet these electricity needs both in the short- and long term.

The DME performs Integrated Energy Planning (IEP) to identify future energy demand and supply requirements. The NERSA performs National Integrated Resource Planning (NIRP) to identify the future electricity demand and supply requirements. Similarly, Eskom continually assesses the projected electricity demand and supply through a process called the Integrated Strategic Electricity Plan (ISEP).

Through these assessment and planning processes, the most likely future electricity demand based on long-term Southern African economic scenarios is forecasted, and provides the framework for South Africa and Eskom to investigate a wide range of supply and demand-side technologies and options. Eskom's ISEP provides strategic projections of supply-side and demand-side options to be implemented in order to meet these long-term load forecasts.

The demand for electricity in South Africa has grown, on average, at more than 4% per year over the past few years, with a concomitant reduction in the surplus generating capacity. The DME, NERSA and Eskom planning processes all indicate that South Africa will require an additional 5 000 MW of electricity within the next 5 years, consisting of both base load¹ electricity generating capacity and peaking electricity generating capacity². The planning processes also indicate that new base load capacity will be required by approximately 2010 and new peaking capacity from 2007. In 2004, the South African Cabinet took the decision that Eskom will build approximately 70% of the new capacity required in South Africa. The balance is expected to come from Independent Power Producers (IPPs).

Hence as part of the increased electricity supply plan, Eskom is proposing a 1500 MW pumped storage scheme in the Steelpoort area which will provide peaking capacity. Bohlweki Environmental has been appointed by Eskom as an independent environmental consultants to undertake an Environmental Impact Assessment (EIA) process for the proposed new facility.

HOW DOES A PUMPED STORAGE SCHEME WORK?

The scheme's upper and lower reservoirs will be interconnected by enclosed tunnel systems. Hydroelectric turbine generating units will be situated underground in the tunnel system and will be used to pump water from the lower reservoir to the upper elevated reservoir during low demand periods.

Water released from the upper reservoir to the lower reservoir during peak periods will pass through the turbine generating units, thereby providing the kinetic energy to drive

¹ "Base load electricity generating capacity" refers to power station technology designed specifically to generate electricity continuously for all hours of the day and night (*i.e.* 24 hours per day).

² "Peaking electricity generating capacity" refers to power station technology designed specifically to generate electricity during periods of very high demand for electricity, normally on weekday mornings around 07:00 to 09:00 and weekday evenings around 18:00 to 20:00.

the units. In this manner electricity is generated, which is then used to supplement other generating units on the national grid, such as coal fired power stations, during periods of peak demand.

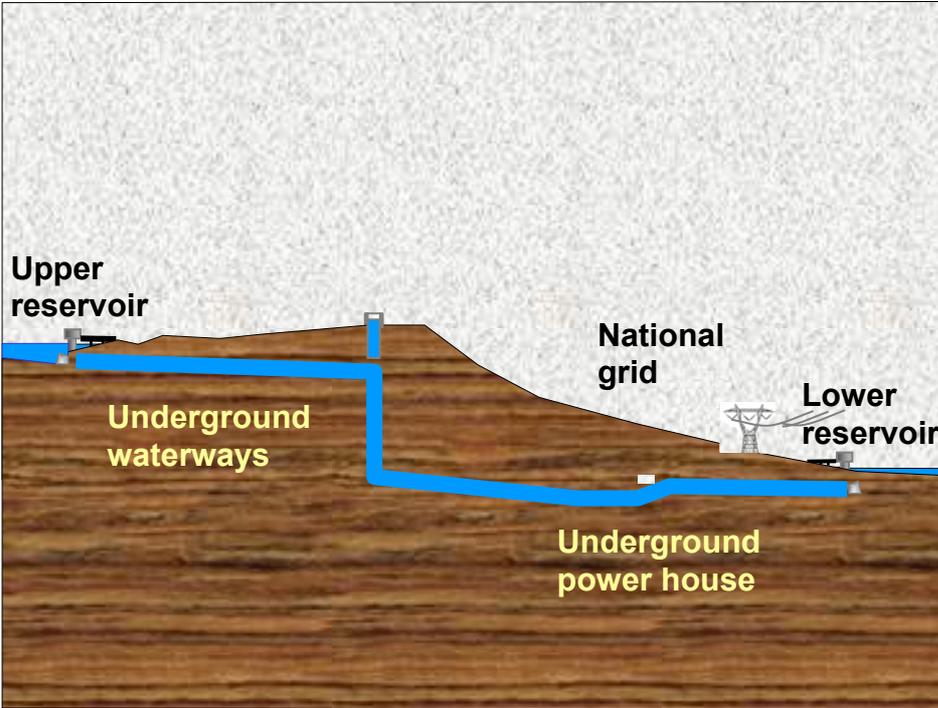


Figure 1: Schematic showing a cross-section of a typical pumped storage scheme

Although pumped storage sites are nett users of electricity - they are a valuable addition to electricity supply systems. Their value is in their ability to store electricity for use at later times of peak demands. Additionally, these stations can be started up within a short period of time to generate electricity.

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 Environmental Scoping Study (ESS), specialist studies will identify potential issues, which require further investigation within the EIA phase.

Specialist Study	Organisation
Landuse, proclamation and claims	Bohlweki Environmental
Geology, Soils, Agricultural Potential land capability	ARC-ISCW
Surface and groundwater resources	GCS
Wetland	SiVEST Selatile Moloi
Air Quality	Stewart Scott International
Terrestrial vegetation fauna and ecology	Bathusi Environmental Consultants

Specialist Study	Organisation
Landuse, proclamation and claims	Bohlweki Environmental
Heritage Impact Studies	National Cultural History Museum
Tourism Potential	SiVEST Selatile Moloji
Noise impacts	Jongens Keet and Associates
Social Impact Assessment	MaterQ Research
Visual Impact	Metro GIS
Transportation and Traffic Impact Studies	Goba Consulting Engineers & Project Management

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 studies commenced with an Environmental Screening exercise (undertaken by BKS), which recommended a site, Site A, as feasible for locating and operating the SPSS, with the least environmental impacts. Where information gaps were identified certain specialist studies were conducted. The information contained in the ESI will be validated as part of the Environmental Scoping Study. The scoping phase will be followed by a comprehensive Environmental Impact Assessment.

WHY ARE ENVIRONMENTAL STUDIES NEEDED?

In terms of the Environmental Impact Assessment (EIA) Regulations Government Notice R. 386 and No. R. 387 of 2006 published in terms of Section 24(5) read with Section 44 of the National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998), Eskom requires authorization from the National Department of Environmental Affairs and Tourism (DEAT) for the undertaking of the proposed project as it includes activities listed under Regulation 386 and 387, which may have a detrimental effect on the environment, which has the effect that a Scoping and EIA Application, as prescribed in Regulations 27 to 36 (Scoping and EIA Process – Regulation 387) of the Environmental Impact Assessment Regulations (Regulation 385), will have to be submitted. Due to the nature and location of the project, DEAT will be the lead authority, while both the Limpopo (LEDET) and Mpumalanga (MDALA) Department of Environmental Affairs will be consulted as key stakeholders in the EIA process.

An Environmental Impact Assessment (EIA) is an effective planning and decision-making tool, which allows for the potential environmental consequences of a proposed project to be identified, mitigated and managed through the planning process. Eskom has appointed Bohlweki Environmental, as independent environmental assessment practitioner, hereafter referred to as "the 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 registered I&APs will be actively involved through a public participation process. The environmental studies will follow a three-phased approach:

- Phase 1: Environmental Scoping Study (ESS)
- Phase 2: Environmental Impact Assessment (EIA)
- Phase 3: Environmental Management Plan (EMP)

The ESS will evaluate the identified alternative sites, 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 register and become 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 newspaper and a national paper)
- STEP 2: Identify and encourage I&APs and key stakeholders to register on the database (on-going)
- STEP 3: Consultation with and transfer of information to I&APs through this briefing paper, 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 the local newspaper and a national paper.
2. By completing and 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 addressed.

Comments and Queries

Direct all comments, queries or responses to:

Bohlweki Environmental

 PO Box 11784, Vorna Valley, Midrand, 1686

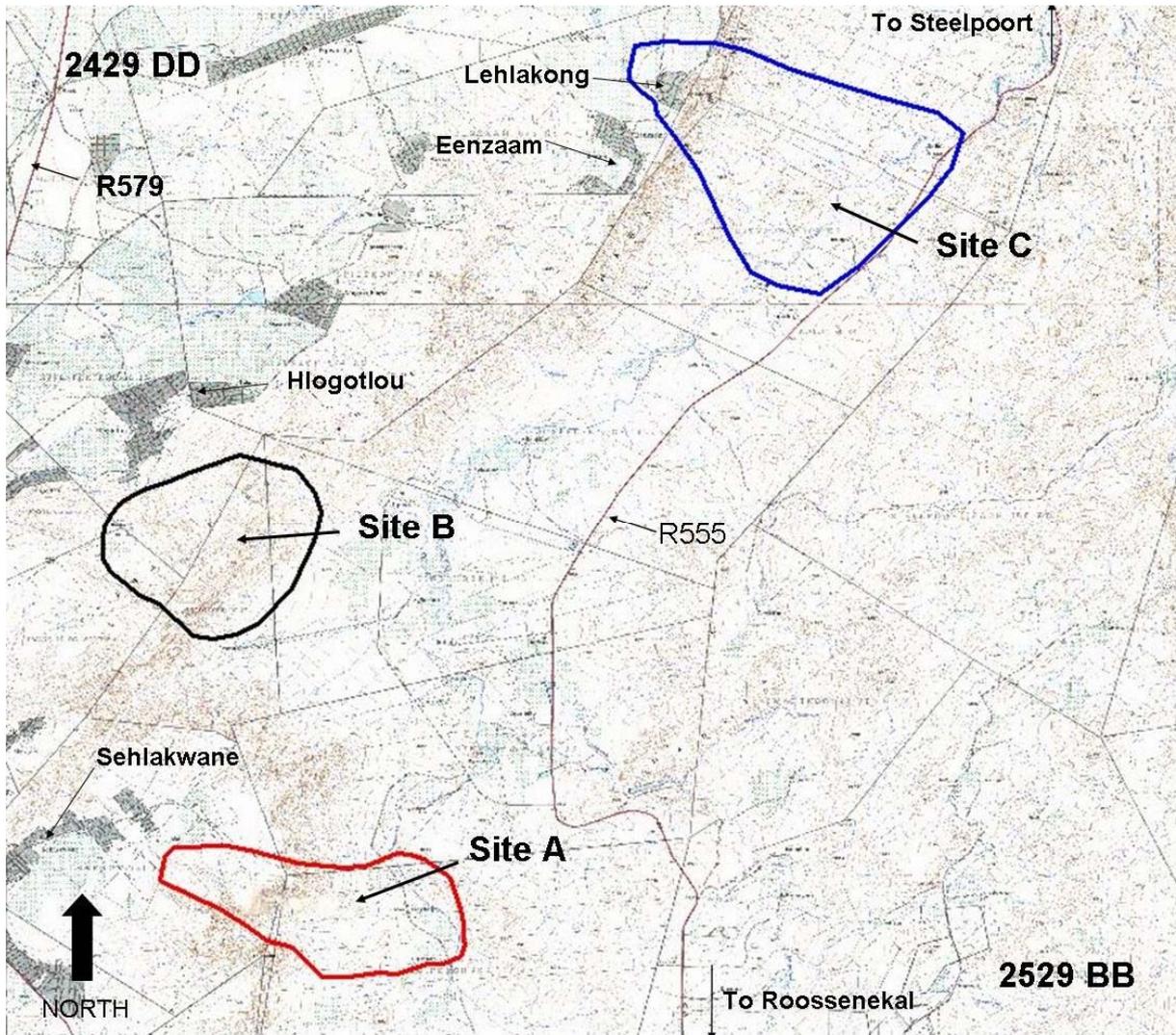
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Steelpoort Locality Map (1.50 000)