

## ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

### For the proposed 400kV Transmission line between Duvha power station (Witbank) in the Mpumalanga Province and a planned substation to be known as Janus in Limpopo Province

February 2003

*This document serves to inform the public about the regulatory process followed for an environmental impact assessment as well as to provide technical details with regards to the proposed activity.*

#### PROJECT DESCRIPTION

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##### Background Information

Electricity can not be stored and therefore needs to be generated and delivered at the instant that it is needed. Electrical supply constitutes a complex system of generation facilities, substations and transmission lines. The low cost of coal makes it economical for high voltage lines to transmit power from the power stations located in the Mpumalanga coalfields over long distances, to major substations in the areas where it is needed. Spare generation capacity is currently available in the system supplied by the coal-fired power stations in Mpumalanga. From substations the voltage is reduced for distribution to industry, business, homes etc.

##### Location

**Janus Substation Site:** Sekhukhuneland area of the Limpopo Province.

**Transmission line:** A distance of 230 km in a north easterly direction from Duvha power station to the proposed Janus substation site.

Boundaries of the study area:

South - Duvha power station

East - Arnot-Merensky/Arnot-Simplon-Merensky power lines

West - Duvha-Loskop Dam-Olifants River

North - Merensky-Witkop power line

The area falls in the Middelburg, Groblersdal, Belfast and Lydenburg magisterial districts of the Mpumalanga Province and the Nebo and Sekhukhuneland districts of the Limpopo Province. The substation site and servitude corridor options indicated on the attached map were selected based on technical feasibility studies and are not final.

##### The need

Due to substantial development in the Steelpoort area, electricity demands have increased. Consequently the capacity of the network is being over utilised and may collapse should the issue not be addressed as a matter of urgency. The network can not adequately cater for its loads if one line is out of service, making maintenance of lines difficult. Eskom is thus planning to reinforce the power supply to the area, which will:

- stabilise the voltage in the area;
- provide capacity for future load growth;
- improve network capacity by increasing the voltage collapse limit; and
- improve the reliability of supply to Janus substation since the line is sourced from a different power station than the other lines.

This line will be the third high voltage power line to address the need in the Steelpoort area. The options for the optimisation of the existing infrastructure have been studied and it has been concluded that the construction of a new line is required.

### **Alternatives considered for addressing the need**

Five alternatives were considered (listed below) and the construction of a new transmission line (option 5) proved to be the option that could sufficiently and adequately address the need in the long term since optimisation of the current system would only alleviate problems in the short term.

1. The “do nothing” option.
2. Demand side management.
3. A new generation system.
4. Upgrade of existing transmission lines by using bigger conductors.
5. Construct a new 400 kV transmission line between Duvha power station and Janus substation.

### **Objectives of the project**

- Meet the projected electricity demand due to economic growth.
- Optimise existing infrastructure.
- Minimise cost.
- Minimise an adverse environmental impact.

### **Schedule for the project**

The new transmission line will only become operational once the load growth and demand exceed the supply. The necessary servitudes however are to be secured timeously.

### **Technical requirements for the substation site**

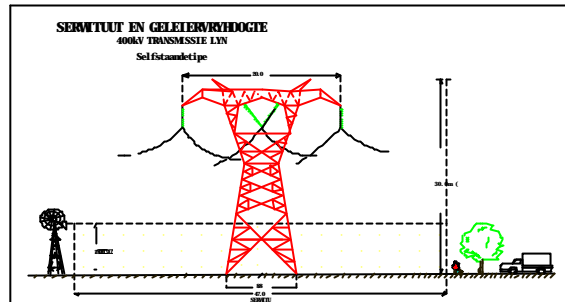
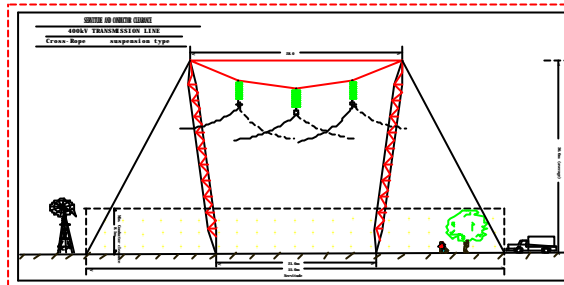
- Centrally situated in relation to the load centre to minimise line lengths when supplying loads.
- Located south of the existing Merensky-Witkop 400kV power line to avoid line crossings.
- A large enough area should be available to accommodate the final 36 hectares (600m X 600m).
- Enough space around the site ( $\pm$  1 km) to allow connection of future lines to the substation without line crossings.
- Acceptable soil type and depth from a geotechnical point of view.
- Suitable ground slope for storm water drainage and earthwork requirements.
- Located close to existing government roads to allow easy access.

### **Technical requirements for servitude corridors**

- Wide strips of land of approximately 1 to 2 km to accommodate the width of the corridors.
- Minimise servitude lengths within the constraints of existing land use.
- Minimise number of angles along the line and reduce the magnitude of those angles.
- Conform to characteristics and requirements of the proposed tower types in terms of servitude width (55m) and ground clearance (8.1m).
- Minimise physical impact by following parallel to existing power lines.
- Avoid crossing over major existing power lines.
- Ensure alignment follows appropriate terrain for the tower and soil conditions for the foundations in terms of geotechnical suitability and costs.
- Appropriate access roads for construction and maintenance.
- Avoid extensive rock outcrops, rugged terrain, hills, mountains, active clay soil, marshy and flooding areas, potential unstable side-slope terrain, eroded and unstable areas.
- Other issues to consider include aerodrome statutory safety zones, agricultural lands under irrigation, sugar cane fields, large water bodies, open cast mining, shooting ranges, crossing points with roads and railway lines, human settlements, conservation areas, ecological sensitive areas, historically sensitive areas, scenic areas, indigenous vegetation, etc.

## Towers to be used

Tower type	Cross-rope suspension tower	Self-supporting strain tower
Heights	36m	30m
Basal areas	48 X 23m (1 104m <sup>2</sup> )	10 X 10m (10 m <sup>2</sup> )
Outside conductor separation	7 – 8m	
Span between towers	465m	
Min conductor ground clearance	8.1m	3.8m



## ENVIRONMENTAL MANAGEMENT

For the activity of establishing a transmission line and a substation Eskom requires environmental authorisation according to Regulation 1182 under the Environment Conservation Act (Act 78 of 1989). EIMS has been appointed by Eskom as the independent consultant to conduct the Environmental Impact Assessment (EIA) and the National Department of Environmental Affairs and Tourism (DEAT) will act as the lead agent.

Eskom is looking for an option that is economically and technically feasible but does not compromise the environment or rights of the people of South Africa. Therefore the impact on the environment will be considered in every respect and an effort will be made to minimise these impacts by putting in place the appropriate mitigation or management measures. Special consideration will be given to aspects which are known to be of concern in projects such as these and therefore the following specialist studies will be undertaken as part of the study:

- Botany (vegetation) – David Hoare
- Archaeology and Cultural History – Dr. Johnny Van Schalkwyk
- Tourism – Adriaan Rall
- Avifauna (Birdlife) – Chris van Rooyen
- Social Impact Assessment – Afrosearch & Naledi Development

## PUBLIC PARTICIPATION PROCESS

In order to afford interested and affected parties (I&APs) the opportunity to become involved and part of the process, an extensive public participation process will be followed. During this process I&APs can raise their issues or concerns.

- **Identification of interested and affected parties:** November 2002 to March 2003. I&APs to be identified will include people possibly being affected by the activity such as residents, owners of land, local businesses etc. as well as people having an interest in either the activity or the environment. The public notification process will also assist in the identification of I&APs.
- **Public notices:** February 2003. Public notices provide an official announcement of an intent to undertake an activity. Public notices will be used to draw the attention of I&APs and request their input. An attempt will be made to reach all segments of the affected community. This will include newspaper advertisements, public announcements (radio), placement of notices, establishment of an internet site and community interviews.

- **Public meetings:** 24 and 25 February 2003. During the public consultation, the EIA process will be explained. Information on Eskom operations and background to the project will be provided. The public will be encouraged to provide input into the project, make comments, raise issues and concerns etc.
- **Reporting and feedback:** Once registered as an I&AP, you will receive regular updates on upcoming events, progress, applications, mitigation measures and corrective action planned. A feedback meeting will also be organised. The scoping report will be available to I&APs for their comments/review for a period of one month.
- **Submission of report to authorities:** March 2003. A scoping report will be submitted to the DEAT.

#### **COMMENTS OR CONCERNS**

Should you wish to be registered as an interested and/or affected party (I&AP), receive more information and regular updates or if you have any questions / concerns / issues to be raised, please complete the attached response sheet and contact:

Environmental Impact Management Services (EIMS)  
P O Box 2083  
Pinegowrie  
2123  
Tel: (011) 789-7170  
Fax: (011) 787-3059  
E-mail: [andrews@eims.co.za](mailto:andrews@eims.co.za)  
Contact Person: Andrew Smith or Paulette Jacobs  
Reference: A24-16-3-397  
Web address: [www.eskom.co.za/eia](http://www.eskom.co.za/eia)

# OMGEWINGSIMPAKSTUDIE PROSES

## Die voorgestelde 400kV transmissielyn tussen Duvha kragstasie (Witbank) in Mpumalanga Provinsie en 'n beplande substasie genaamd Janus in die Limpopo Provinsie

Februarie 2003

*Hierdie dokument is ter inligting vir die algemene publiek saamgestel en verskaf inligting aangaande die proses vereis deur wetgewing vir omgewingsimpakstudies sowel as tegniese inligting i.v.m die voorgestelde aktiwiteit. 'n Verkorte weergawe word verskaf in Afrikaans. Vir meer besonderhede verwys ook asseblief na die Engelse weergawe.*

### PROJEKBESKRYWING

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#### Agtergrond

A.g.v. die lae koste van steenkool is dit ekonomies om hoë volt kraglyne te gebruik om elektrisiteit vanaf kragstasies oor lang afstande te gelei na substasies in die gebiede waar die elektrisiteit benodig word. Vanaf substasies word krag afgeskaal en versprei na industrieë, huise ens.

#### Ligging

**Janus Substasie:** Sekhukhuneland (Twickenham/Hackney) in die Limpopo Provinsie.

**Transmissielyn:** In 'n noordoostelike rigting vanaf Duvha kragstasie in Mpumalanga tot by die beplande Janus substasie in die Limpopo Provinsie.

Die area is in die Middelburg, Groblersdal, Belfast en Lydenburg distrikte van Mpumalanga en Nebo en Sekhukhuneland van die Limpopo Provinsie. Die kaart dui alternatiewe aan wat die beste blyk uit 'n tegniese oogpunt maar die roetes is onderhandelbaar.

#### Noodsaaklikheid en voordele

A.g.v. die ontwikkeling in die Steelpoort area het die behoefte en aanvraag na elektrisiteit geweldig verhoog. Onderhoud van die lyne word bemoeilik aangesien die netwerk nie aan die lading kan voldoen indien lyne nie almal werk nie, en die kwessie moet dringend aangespreek word. Met die beplande infrastruktuur in plek sal die geskatte elektrisiteit aanvraag as gevolg van ekonomiese ontwikkeling bevredig kan word. Die nuwe lyn sal eers in werking tree wanneer die aanvraag die beskikbaarheid oorskry.

#### Tegnies

Sekere tegniese vereistes moet in ag geneem word vir die projek. Dit sluit in groottes van areas benodig vir infrastruktuur (substasie en torings), die ligging van die aanvraag gebied, spasio benodig om lynkruisings te verhoed, geotegniese aspekte, koste implikasies, padinfrastruktuur om onderhoud en konstruksie te vergemaklik, problematiese terrein, besproeiing, oopgroef myne, bewaringsgebiede, ens.

### OMGEWINGSBESTUUR

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Hierdie aktiwiteit vereis dat Eskom aansoek doen om omgewingsgoedkeuring (Regulasie 1182) van die Nasionale Departement van Omgewingssake en Toerisme. EIMS is aangestel deur Eskom as die onafhanklike omgewingskonsultant om hierdie aspek te hanteer.

Eskom is op soek na 'n opsie wat ekonomies en tegnies moontlik is maar nie die omgewing of die regte van Suid-Afrikaners negatief beïnvloed nie.

Die impak op die omgewing sal bestudeer word en bestuursmeganismes sal in plek geplaas word om negatiewe impakte tot 'n minimum te beperk. Aspekte van belang in sulke studies sal besondere aandag geniet en sluit in plantegroei, geskiedkundige waarde, toerisme, voëllewe en sosiale impakte.

## **PUBLIEKE DEELNAME**

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Partye wat geïnteresseerd is, of wat moontlik beïnvloed kan word deur die aktiwiteite, word die geleentheid gegun om betrokke te raak by die proses. Gedurende die proses kan u enige vrae, kommentaar, bekommernisse ens. aan die konsultant rig.

- Partye met belange by die proses, omgewing of aktiwiteit sal geïdentifiseer word vanaf November 2002 tot Maart 2003.
- In Februarie 2003 sal kennisgewings ens. geplaas word om die beplande aktiwiteit onder die publiek se aandag te bring en hulle insette en deelname te versoek. Dit sal insluit koerant advertensies, plaas van kennisgewings, aankondigings oor die radio en onderhoude met die gemeenskap.
- 24 en 25 Februarie 2003 sal publieke vergaderings gehou word. Die proses sal verduidelik word, agtergrond oor die projek en inligting aangaande Eskom se bedrywighede sal verskaf word.
- Gereelde terugvoer sal verskaf word aan persone wat geregistreer het. Dit sluit in 'n verdere vergadering en beskikbaarstelling van verslae en dokumente.
- Teen Maart 2003 sal 'n verslag van hierdie eerste fase ingehandig word by die owerhede.

### **NAVRAE EN KOMMENTAAR**

Indien u graag wil registreer om gereelde terugvoer te ontvang en/of u stem te laat hoor, vul asseblief die aangehegde vorm in en kontak:

Environmental Impact Management Services (EIMS)

Posbus 2083

Pinegowrie

2123

Tel: (011) 789-7170

Faks: (011) 787-3059

E-pos: [andrew@eims.co.za](mailto:andrew@eims.co.za)

Kontakpersone: Andrew Smith of Paulette Jacobs

Webwerf: [www.eskom.co.za/eia](http://www.eskom.co.za/eia)

