Environmental Impact Assessment

Background Information Document & Invitation to Participate

Mbewu - Isundu 2x400kV Power Line Project

February 2011

Introduction & Background

In order to meet the growing demand for electricity in KwaZulu-Natal, Eskom proposes the construction of 2x400kV new transmission lines from the proposed Mbewu substation near Pietermaritzburg to the proposed Isundu substation near Empangeni. This project is part of the KZN Strengthening Programme and it will strengthen electrical supply and improve service quality and reliability to the greater parts of Pinetown and Empangeni as well as the rapidly growing area between the two centres.

In terms of the National Environmental Management Act (No. 107 of 1998) the proposed development triggers activities that may significantly impact on the environment. As a result Eskom requires environmental authorization from the competent authority, the Department of Environmental Affairs (DEA) in collaboration with the KwaZulu Natal Department of Agriculture, Environmental Affairs and Rural Development (DAEARD) to commence with development.

Aurecon South Africa (Pty) Ltd has been appointed by Eskom as the independent environmental consultants to undertake the Environmental Impact Assessment (EIA) study required by the competent authority. The process will investigate if there are any potential significant positive and negative impacts, and make recommendations to mitigate negative impacts associated with the construction of 2x400kV transmission lines. The study will include the investigation of three potential corridors for the transmission line.

It will also provide an opportunity for the public and key role players to give input and participate in the process, as well as for specialist input on specific aspects.

aurecon

This assessment is being conducted on behalf of Eskom Holdings Limited

PURPOSE OF THE DOCUMENT

The purpose of this document is to provide background information to the proposed project and to obtain comments and contributions from stakeholders with regards to potential environmental impacts – which includes (but is not limited to): ecological, social, economic, tourism, aesthetic.

You are invited to register as an Interested and Affected Party (I&AP) and to assist us in identifying possible impacts of the proposed development on the environment and to make suggestions for mitigation and/or alternatives.

Please complete the enclosed reply sheet and forward it to the address provided below:

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Aurecon

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Pretoria 0001

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Tel: **(012) 427 2972**

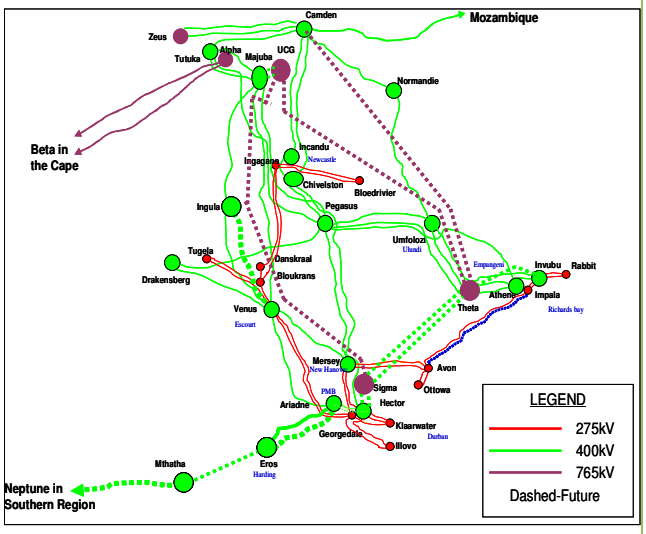
Attention: Ms Dineo Kwili

E-mail:

dineo.kwili@af.aurecongroup.com

Need & Desirability

In order to alleviate current and future network constraints under N-1 contingency (the loss of one of the Transmission lines) in KwaZulu-Natal, it is proposed that a 765kV ring must be built to reinforce the network. The proposed plan as indicated in the figure below consists of 765kV lines from the generation pool in Mpumalanga, two lines to the Empangeni area and one line to the Pinetown area. It is also proposed to construct 400kV link between Empangeni and Pinetown 765kV networks.



The 400kV link between Empangeni and Pinetown is required as a contingency in case of a loss of one of the 765kV lines. These 400kV lines will also allow for possible future supply of load between the Empangeni and Pinetown areas.

The construction of approximately 160km of 2x Mbewu – Isundu 400kV lines is required. This BID forms part of the EIA for the proposed 2x400kV transmission lines. Commissioning of this project is planned for June 2015.

Project Description

Eskom proposes the construction of 2x400kV transmission lines of approximately 150 km from the new proposed Mbewu Substation to be located somewhere between New Hanover and Cato Ridge to the new proposed Isundu Substation near Empangeni. The construction will also include the development of two 400kV feeder bays at Mbewu Substation and two 400kV feeder bays at the Isundu Substation.

The line will pass through the following district municipalities;

- uMgungundlovu
- Ethekwini
- uThungula
- Illembe
- uMshwathi
- uMhlathuze
- Ntambanana
- uMlalazi
- Mandeni
- KwaDukuza
- Ndwedwe
- Maphumulo

The EIA will investigate three potential corridors for the transmission lines which are discussed below:

Proposed Corridor 1

Corridor 1 starts 2km North West of Wartburg and moves in an easterly direction along the existing 275kV power line. It continues and passes through several settlements and crosses the R614 several times. It crosses the Tugela River and further on moves through the outskirts of Izingeni and Sbhamu. The line moves through the University of Zululand and the more populated areas of Khandisa and Vulindela, where it then turns north west through sugar cane fields, cutting through the edges of Carsdale and Dondolo. From there on it moves further west where it ends 2.5km north west of the crossing of the R34 and ends at the proposed Isundu substation near Empangeni.

Proposed Corridor 1 Deviation 1

Corridor 1 deviation 1 starts 2km north west of Wartburg at the proposed Mbewu substation and moves in an easterly direction along the existing 275kV power line in the same manner as corridor 1. It continues and passes through several settlements and crosses the R614 several times. It crosses the Tugela River and Pandianager. It deviates from corridor 1 in a north westerly direction at Gingindlovu and continues north with the R66 as the center line and ends at Isundu substation near Empangeni.

Proposed Corridor 1 Deviation 2

Corridor 1 deviation 2 starts and extends in the same manner as corridor 1. It deviates from Corridor 1 near Empangeni where it turns in a north east direction and ends approximately 6 km from Empangeni.

Proposed Corridor 2

Corridor 2 runs from the proposed Mbewu substation near Cato Ridge, in an area known as the Valley of the Thousand Hills in a north easterly direction and crosses the R614. It then connects with the existing 275kV power line and crosses the R74 and the Tugela River. The corridor continues in an easterly direction passing through Gingindlovu with the R102 as the center line. It extends through several settlements and turns in a northerly direction at the University of Zululand and ends at the Isundu substation near Empangeni.

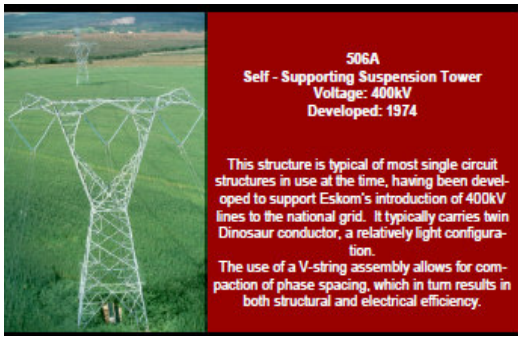
Proposed Corridor 3

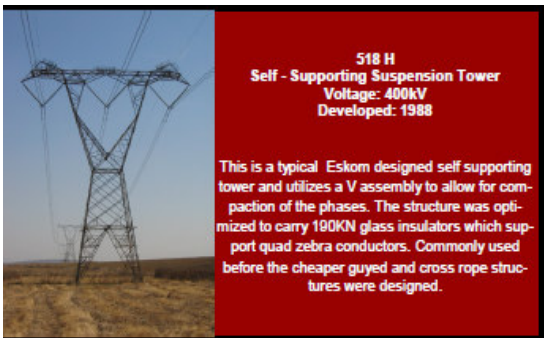
Corridor 3 stretches from Denge, a settlement in an area known as the Valley of the Thousand Hills. It moves north east where it crosses the Tugela River near KwaDendetu, through

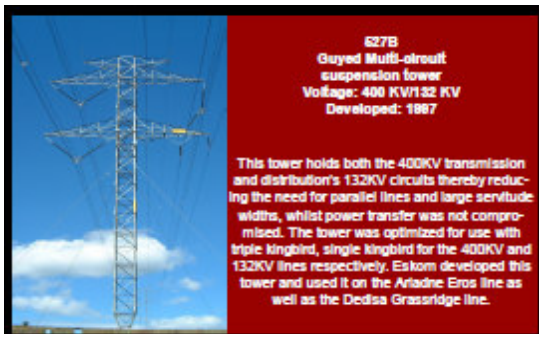
Mambane, crossing the R66, 12km south of Eshowe where it cuts through the Dengweni Forest Reserve just south of the Ngoye Forest Reserve. It's most northern tip ends 2km north of the R34.

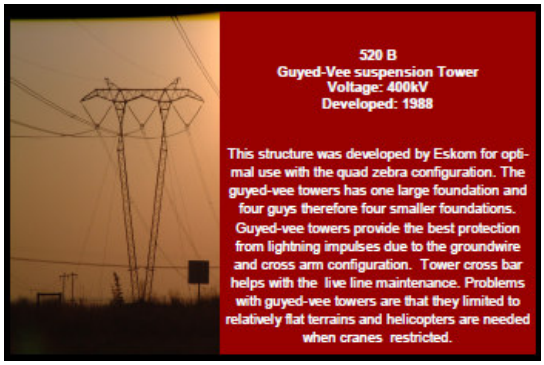
Proposed transmission lines

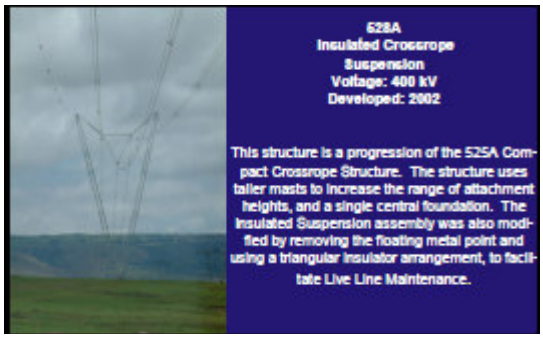
The proposed transmission lines will be built in accordance with the latest designs. The examples provided below show potential designs that could be used. The lines will require 80m wide servitude, 40m on each side.











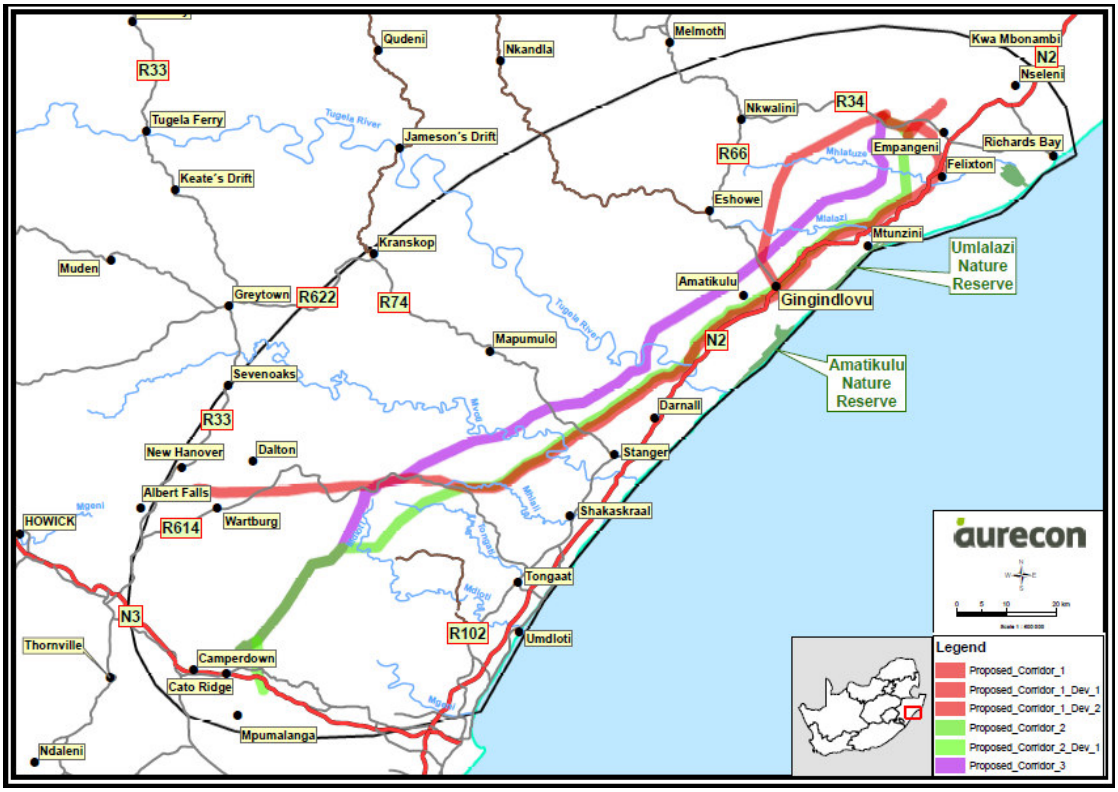


Figure 1: Map of Study Area

Presumed Impacts

Land Use- the proposed transmission lines are passing through large private owned land and communal land, which can subsequently disrupt farm operations and result in loss of productive land.

Land Use Management- Eskom requires access to the transmission lines and substation for operations and maintenance which may subsequently interfere with the operations of the farms.

Visual Impact- due to the varying landscape and vegetation types in certain areas the electric pylons, which are very tall structures and can be visually intrusive especially in sensitive areas such as nature reserves.

Heritage Resources- archeological and historical sites can be damaged during the construction and the maintenance of transmission lines.

Indigenous and Protected Species- construction and maintenance of the transmission lines may destroy animal and plant species or habitat. This is a major risk to species of conservation importance such as those in a nature reserve.

Electro-magnetic fields- exposure to electric and magnetic fields may be a risk to health in human settlements.

Social- the project will result in employment opportunities, including temporary opportunities for unskilled individuals from local communities. There will also likely be an injection into the local and regional economies, benefitting businesses and SMMEs. Due to Eskom safety standards and servitude requirements, relocation of houses and other assets may be necessary.

Economic- Employment opportunities, electricity for a growing KZN economy and a monetary injection into the area (as a result of the construction and purchasing of the servitude areas) by Eskom will result in positive economic impacts in the region. However, negative economic impacts may include the loss of productive farmland and a potential loss in yield as result of the power lines and servitude zones.

Tourism-The affected study area forms an important tourism link between the Greater Durban destination and the northern sections of KwaZulu-Natal with important attractions such as game/nature reserves, heritage sites and historical routes. The additional visual impact of such development may further degrade the tourism experience in the area. It may also impact negatively on future tourism planning and product development strategies within the affected areas.

Assessment of Alternatives

All suitable alternatives for the proposed transmission line will be assessed during the Scoping and the Assessment Phase which will require input from relevant authorities, affected landowners and, the public, the EIA team and the various specialists.

The following alternatives for satisfying the need for additional electrical infrastructure into the region were previously assessed.

Do Nothing

To maintain the status quo is the easy way out. By not taking any action, Eskom Transmission will not ensure firm supply into KZN and therefore violate the Grid Code (Transmission Licence). This would result in load shedding to protect the network from collapsing completely when one of the 400kV lines into KZN is out of service. Doing nothing will have a major impact on the economics of the region, as no new customers or load increase will be accommodated by the network. For this reasons this option is not preferred.

Demand side management

Demand Side Management (DSM) can generally be defined as the activities performed by the electricity supply utility, which are designed to produce the desired changes in the load shape through influencing customer usage of electricity and to reduce overall demand by more efficient use. These efforts are intended to produce a flat load duration curve to ensure the most efficient use of installed network capacity.

By reducing peak demand and shifting load from high load to low load periods, reductions in capital expenditure (for network capacity expansion) and operating costs can be achieved. Some of the basic tools are the price signals (such as time of use tariffs) given by the utility and direct load management. This option is practised to a certain extent, but it does not provide the required levels of electricity savings since customers participate on a voluntary base.

Construct of a second 400 kV Transmission power line between Venus and Ariadne substations

In addition to the 765kV ring in KZN, this option will sufficiently reinforce the present network, as it will result in the formation of a strong 400kV

network out of Venus substation into the Pinetown network. This alternative is definitely the most technically and economically viable. The need for increased capacity and the need for optimising existing infrastructure would be met.

The advantages with this option are as follows:

- It overcomes the voltage collapse problems.
- It will create a more flexible network since it allows evacuation of power out of Venus substation under loss of one of the 400kV lines. This will improve the overall reliability of the system, which will be of benefit to both Eskom and to all electricity users in the area.

The EIA process

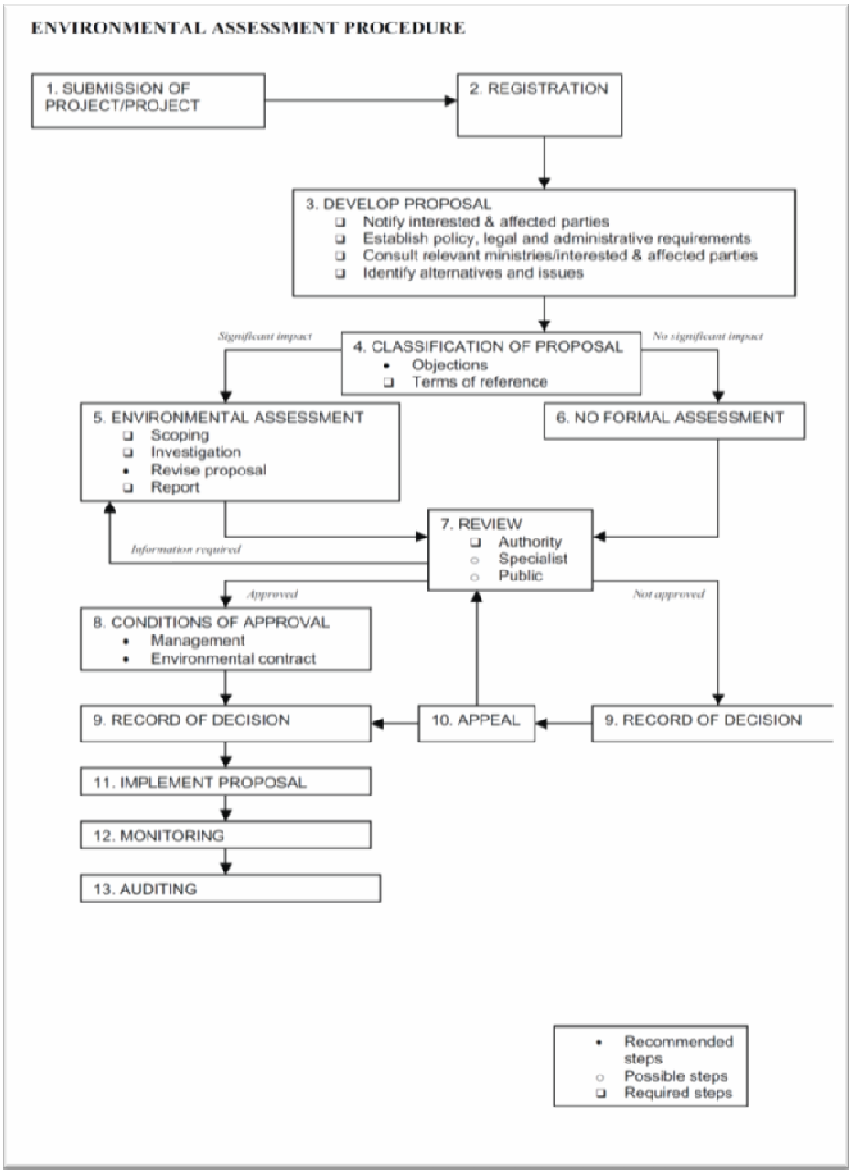
An EIA is a planning and decision-making process undertaken in terms of the National Environmental Management Act, No 107 of 2008 (NEMA) and Government Notices GNR 543, GNR 544, 545 and GNR 546 of 18 June 2010. The EIA process involves two parallel and integrated components:

i. A technical process to investigate technical information (scientific and technical studies, statistics or data). It identifies the potential negative and positive consequences of a proposed project or development at an early stage, and recommends ways to enhance positive impacts and to avoid minimise, or mitigate negative impacts. This information is conveyed in the form of a Scoping Report which is taken to the Impact Assessment phase and finally an Environmental Impact Report (EIR) is produced.

ii. A public participation process (PPP), which is a cornerstone of any EIA to ensure openness and transparency. It provides stakeholders with relevant information and allows opportunity for them to make valuable contributions to the project, in terms of their issues and concerns. The PPP will assist stakeholders to:

- Raise issues of concern and make suggestions for alternatives and enhanced benefits.
- Contribute local knowledge.
- Verify that their issues have been captured and considered by the technical investigations.
- Comment on the findings of the EIA Report.

The final EIA Report will be submitted to DEA for review. All I&APs will be informed of the final decision from DEA.



How can you be involved?

The purpose of an EIA is to provide the authorities with information that will allow them to make a decision on whether to give environmental clearance for the proposed project or not and, if yes, under which conditions. The contributions of stakeholders from all sectors of society assists informed decision-making. You are encouraged to participate and to submit any comments or information about the proposals, alternatives and impacts to consider that you feel may be useful to the EIA process. If you wish to register or comment, please complete the attached registration/comment sheet, write a letter (by post or fax) or email the public participation office (see information box for contact details).

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Environmental Impact Assessment **Mbewu - Isundu 400kV Transmission Power Line** **REGISTRATION AND COMMENT SHEET** **Inserted in the Background Information Document**	**CONTACTS:** AURECON Attention: Dineo Kwili PO Box 905 Pretoria 0001 South Africa Tel: +27-12-4272972; Fax +27 86 665 3273 Email: dineo.kwili@af.aurecongroup.com

Please complete and return to Dineo Kwili (details above right)

TITLE		**FIRST NAME**	
INITIALS		**SURNAME**	
ORGANISATION		**EMAIL**	
POSTAL ADDRESS			
		POSTAL CODE	
TEL NO		**FAX NO**	

Please **formally register me as an interested and affected party** so that I may receive further information and notifications during the EIA process. **(Please circle applicable box)**	**YES**	**NO**
I would like my notifications by	Letter (mail)	
	Email	
	Fax	

COMMENTS (please use a separate sheet if you wish)

I suggest that the following issues of concern be investigated in the EIA:

I suggest the following for the EIA process and / or the public participation process:

Any other comments:

Please ask the following of my colleagues/friends to register as an Interested and Affected Party for this basic EIA:

NAME	ORGANISATION	CONTACT DETAILS

THANK YOU FOR YOUR CONTRIBUTION