ENVIRONMENTAL IMPACT ASSESSMENT
OMGEWINGSIMPAKSTUDIE

for the proposed / vir die voorgestelde

# Gamma-Grassridge

## 765 kV Transmission Power Lines (X2)

## 765 kV Transmissie Kraglyne (X2)

**Background Information Document & Invitation to Participate**

This Background Information Document is aimed at introducing the Environmental Impact Assessment for the Gamma-Grassridge 765 kV Transmission Power Lines (X2) to key stakeholders and the general public.

**Agtergrondsinligtingsdokument & Uitnodiging om deel te neem**

Hierdie Agtergrondsinligtingsdokument is daarop gemik om die Omgewingsimpakstudie vir die Gamma-Grassridge 765 kV Transmissie Kraglyne (X2) aan sleutelbelanghebbendes en die algemene publiek bekend te stel.

**May 2006 / Mei 2006**

ACER (Africa)

www.eskom.co.za/eia

Eskom

## Introduction

Most of the electricity supply to the Eastern and Western Cape areas is provided by coal-fired power stations in Mpumalanga. The transmission network is approaching its peak operational capacity.

To meet the current and future electricity demand in the greater Eastern and Western Cape areas, Eskom Transmission is proposing to strengthen its network by constructing new 765 kV transmission power lines. Construction of the power lines will start from Secunda, in Mpumalanga, to Port Elizabeth in the Eastern Cape at an approximate distance of 1 300 km.

By the year 2010 the existing network capability in the Eastern Cape will be exhausted and the first of two new 765 kV transmission lines will have to be operational to satisfy the load required by the Coega Industrial Development Zone (IDZ). Based on the projected load forecast the second 765 kV transmission power line will be required by approximately 2012.

For purposes of environmental authorisation, the transmission power line projects have been divided into four sections (Figure 1), with four separate environmental applications being submitted to the relevant environmental authorities, and each requiring a separate Record of Decision (ROD). These sections are as follows:

- Section 1: Secunda (Zeus) to Dealesville (Perseus)
- Section 2: Dealesville (Perseus) to De Aar (Hydra)
- Section 3: De Aar (Hydra) to Victoria West (Gamma)
- **Section 4: Victoria West** (Gamma) **to Port Elizabeth** (Grassridge)

This EIA deals with Section 4.

## Environmental Impact Assessment

The construction of a transmission power line is a listed activity in terms of the Environment Conservation Act 1989 (Act 73 of 1989). Regulations pursuant to the Environment Conservation Act require Eskom to undertake an Environmental Impact Assessment (EIA) to obtain environmental authorisation for the proposed activity.

Eskom Transmission has appointed ACER (Africa) Environmental Management Consultants (ACER) as the Independent Environmental Consultant to undertake the EIA for the Gamma - Grassridge 765 kV Transmission Power Lines (x 2). The findings of the EIA will be considered by the National Department of Environmental Affairs and Tourism (DEAT) with recommendations from the Eastern Cape Department of Economic Affairs, Environment and Tourism, the Western Cape Department of Environmental Affairs and Development Planning, and the Northern Cape Department of Tourism, Environment and Conservation. After considering the findings of the EIA, DEAT will issue a Record of Decision that either authorises the proposed project (conditional or unconditional) or not.

## Inleiding

Die meeste van die elektrisiteittoevoer na die Oos- en Wes-Kaapgebiede word deur steenkoolkragstasies in Mpumalanga voorsien. Die transmissienetwerk kom nader sy spitsbedryfskapasiteit.

Om die huidige en toekomstige vraag na elektrisiteit in die groter Oos- en Wes-Kaapgebiede te voorsien, beoog Eskom-Transmissie om sy netwerk te versterk deur nuwe 765 kV transmissie kraglyne op te rig. Die konstruksie van die kraglyne sal vanaf Secunda in Mpumalanga begin tot by Port Elizabeth in die Oos-Kaap ('n afstand van ongeveer 1 300 km).

Die bestaande netwerkkapasiteit in die Oos-Kaap sal teen die jaar 2010 uitgeput wees en die eerste van die twee nuwe 765 kV transmissielyne sal in werking moet wees om in die aanvraag van die Coega-nywerheidsontwikkelingsone te voorsien. Gebaseer op die geprojekteerde lasberaming sal die tweede 765 kV transmissie kraglyn teen ongeveer 2012 benodig word.

Vir die doeleindes van omgewingsmagtiging is die transmissiekraglynprojekte in vier seksies (Figuur 1) ingedeel, met vier afsonderlike omgewingsaansoeke wat aan die betrokke owerhede voorgelê word. 'n Afsonderlike Rekord van Besluit (RVB) word dus vir elk van die seksies benodig. Hierdie seksies is soos volg:

- Seksie 1: Secunda (Zeus) na Dealesville (Perseus)
- Seksie 2: Dealesville (Perseus) na De Aar (Hydra)
- Seksie 3: De Aar (Hydra) na Victoria West (Gamma)
- **Seksie 4: Victoria West (Gamma) na Port Elizabeth (Grassridge)**

Hierdie OIS handel oor Seksie 4.

## Omgewingsimpakstudie

Die oprigting van 'n transmissie kraglyn is 'n gelyste aktiwiteit ingevolge die Wet op Omgewingsbewaring, 1989 (Wet 73 van 1989). Regulasies kragtens die Wet op Omgewingsbewaring vereis dat Eskom 'n Omgewingsimpakstudie (OIS) moet onderneem om omgewingsmagtiging vir die voorgestelde aktiwiteit te verkry.

Eskom-Transmissie het ACER (Africa) Environmental Management Consultants (ACER) as die Onafhanklike Omgewingskonsultant aangestel om die OIS vir die Gamma-Grassridge 765 kV transmissie kraglyne (X2) te onderneem. Die bevindings van die OIS sal deur die Nasionale Departement van Omgewingsake en Toerisme (DEAT) met aanbevelings van die Oos-Kaapse Departement van Ekonomiese Sake, Omgewing en Toerisme, die Wes-Kaapse Departement van Omgewingsake en Ontwikkelingsbeplanning en die Noord-Kaapse Departement van Toerisme, Omgewing en Bewaring oorweeg word. Na oorweging van die OIS bevindinge, sal DEAT 'n RVB uitreik wat die voorgestelde projek (voorwaardelik of onvoorwaardelik) sal magtig, al dan nie.

## Public Participation Office
**Contact Details**

## Publieke Deelname Kantoor
**Kontakbesonderhede**


Bongi Shinga, Suzette Hattingh or/of June Mottram
ACER (Africa)
Environmental Management Consultants
P O Box/Posbus 503, Mtunzini, 3867
Tel: 086 010 4958 (only pay a local call fee/betaal slegs die koste van 'n plaaslike oproep)
Fax/Faks: 035 340 2232
E-mail/E-pos: eskomGG@acerafrica.co.za


## Your participation in the EIA process

Your issues and comments will help to focus the EIA and enhance decision-making. Issues raised will be captured in the project database and presented in an Issues and Response Report. The Issues and Response Report will be distributed with the Scoping and Environmental Impact Reports to ensure that DEAT has full knowledge of these issues and can check that the issues have been considered during the EIA investigations.

## U deelname in die OIS-Proses

U kwessies en kommentaar sal help om die OIS te fokus en besluitneming te verbeter. Kommentaar wat geopper word, sal in die projekdatabasis aangeteken word en in 'n Kommentaar & Terugvoerverslag saamgestel word. Die Kommentaar & Terugvoerverslag sal met die Omvangs-bepaling- en Omgewingsimpakverslae versprei word om seker te maak dat die Departement van Omgewingsake en Toerisme ten volle ingelig is oor die kwessies en kan kontroleer of die kwessies gedurende die OIS-ondersoeke aangespeek is.

**Background Information Document & Invitation to Participate**
**Agtergrondsinligtingsdokument & Uitnodiging om deel te neem**

## Invitation to participate

Public participation is a legal requirement within an EIA. Anyone who is interested in or affected by the proposed project has a right to participate. For this proposed project, please make use of the following opportunities:

- Study the information made available in this Background Information Document, in letters, at meetings, on the website (www.eskom.co.za/eia) and in the Draft Scoping and Environmental Impact Reports.
- Attend the workshops to obtain further project information, interact with the Project Team, and/or raise issues and concerns.
- Attend Focus Group Meetings, which will be held with various stakeholder groups to discuss the proposed project. Should you wish to participate in a meeting closer to your area pleas contact the Public Participation Office.
- Register as an Interested and Affected Party in order to receive future project information and/or formally record issues and concerns.
- Complete the comment sheet and return either by hand, mail, fax or e-mail.
- Visit Eskom's website (www.eskom.co.za/eia) to register, view information and/or submit comment.
- Contact the Public Participation Office to obtain further project information and/or raise issues and concerns.

## Will the proposed transmission lines affect you?

The main settlements and towns, which are situated close to the different alternative power line corridors include: Aberdeen, Baroe, Glenconner, Graaf Reinet, Jansenville, Kirkwood, Kleinpoort, Klipplaat, Mount Steward, Murraysburg, Oatlands, Pearston, Steytlerville, Uitenhage, Verster and Wolwefontein.

The District Municipalities potentially affected include Cacadu, Central Karoo and Pixley kaSeme.

The Local Municipalities include Baviaans, Camdeboo, Ikwezi, Murraysburg, Sundays River Valley and Ubuntu.

The proposed transmission power line corridors mostly pass through privately owned farms. Organised agricultural organisations within the study area are, therefore, potentially affected.

Importantly, although the transmission lines traverse a large area, numbers of farms potentially affected are expected to be considerably less than the above listing of towns, settlements, and municipalities.

## Uitnodiging om deel te neem

Openbare deelname is 'n wetlike vereiste binne 'n OIS. Enigeen wat in die voorgestelde projek belangstel of wat daardeur geaffekteer word, het die reg om deel te neem. Maak asseblief van die volgende geleenthede vir die voorgestelde projek gebruik:

- Bestudeer die inligting wat in hierdie Agtergrond-inligtingsdokument, in briewe, by vergaderings, op die webwerf (www.eskom.co.za/eia) en in die Konsep Omvangsbepalings- en Omgewingsimpakverslae beskikbaar gestel is.
- Woon die werkswinkels by om verdere projekinligting te verkry, met die Projekspan te beraadslaag en/of kwessies en besorgdhede te opper.
- Woon Fokusgroepvergaderings by, wat met verskillende belanghebbendegroepe gehou sal word om die voorgestelde projek te bespreek. Indien u aan 'n vergadering nader aan u gebied wil deelneem, tree asseblief met die Openbare Deelname Kantoor in verbinding.
- Registreer as 'n Geïnteresseerde & Geaffekteerde Party om toekomstige projekinligting te ontvang en/of kwessies en belange formeel te registreer.
- Vul die kommentaarblad in en stuur dit of per hand, pos, faks of e-pos terug.
- Besoek Eskom se webwerf (www.eskom.co.za/eia) om te registreer, inligting te besigtig en/of kommentaar in te dien.
- Tree met die Openbare Deelname Kantoor in verbinding om bykomende projekinligting te verkry en/of kommentaar en belange te opper.

## Sal die voorgetelde transmissie kraglyne u affekteer?

Die vernaamste nedersettings en dorpe wat na aan die verskillende alternatiewe kraglynkorridors gelee is, sluit Aberdeen, Baroe, Glenconner, Graaf-Reinet, Jansenville, Kirkwood, Kleinpoort, Klipplaat, Mount Steward, Murraysburg, Oatlands, Pearston, Steytlerville, Uitenhage, Verster en Wolwefontein in.

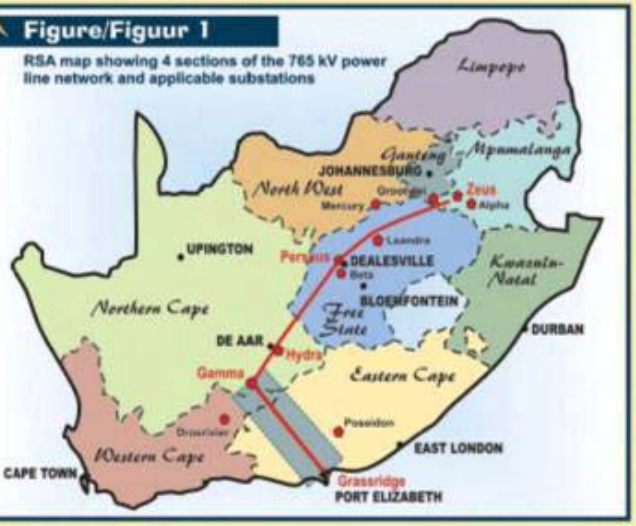
Die Distriksmunisipaliteite wat moontlik geaffekteer word, sluit Cacadu, Sentrale Karoo en Pixley kaSeme in. Die Plaaslike Munisipaliteite sluit Baviaans, Camdeboo, Ikwezi, Murraysburg, Sundays River-vallei en Ubuntu in.

Die voorgestelde transmissiekraglynkorridors loop meestal deur plase wat in privaat besit is. Georganiseerde landbou-organisasies binne die studie-area word dus moontlik geaffekteer.

Dit is belangrik om daarop te let dat ofskoon die transmissielyne oor 'n groot gebied loop, dit verwag word dat die aantal plase wat moontlik geaffekteer sal word heelwat minder as die gelyste dorpe, nedersettings en munisipaliteite behoort te wees.

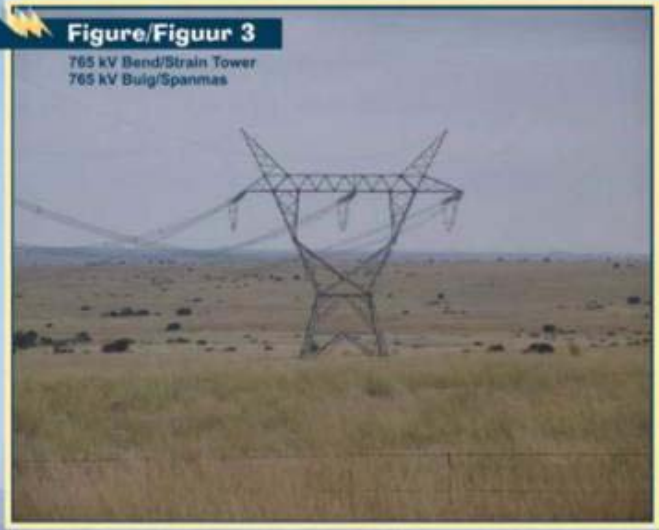
## Figure/Figuur 1

RSA map showing 4 sections of the 765 kV power line network and applicable substations




## Figure/Figuur 3

765 kV Bend/Strain Tower
765 kV Buig/Spanmas

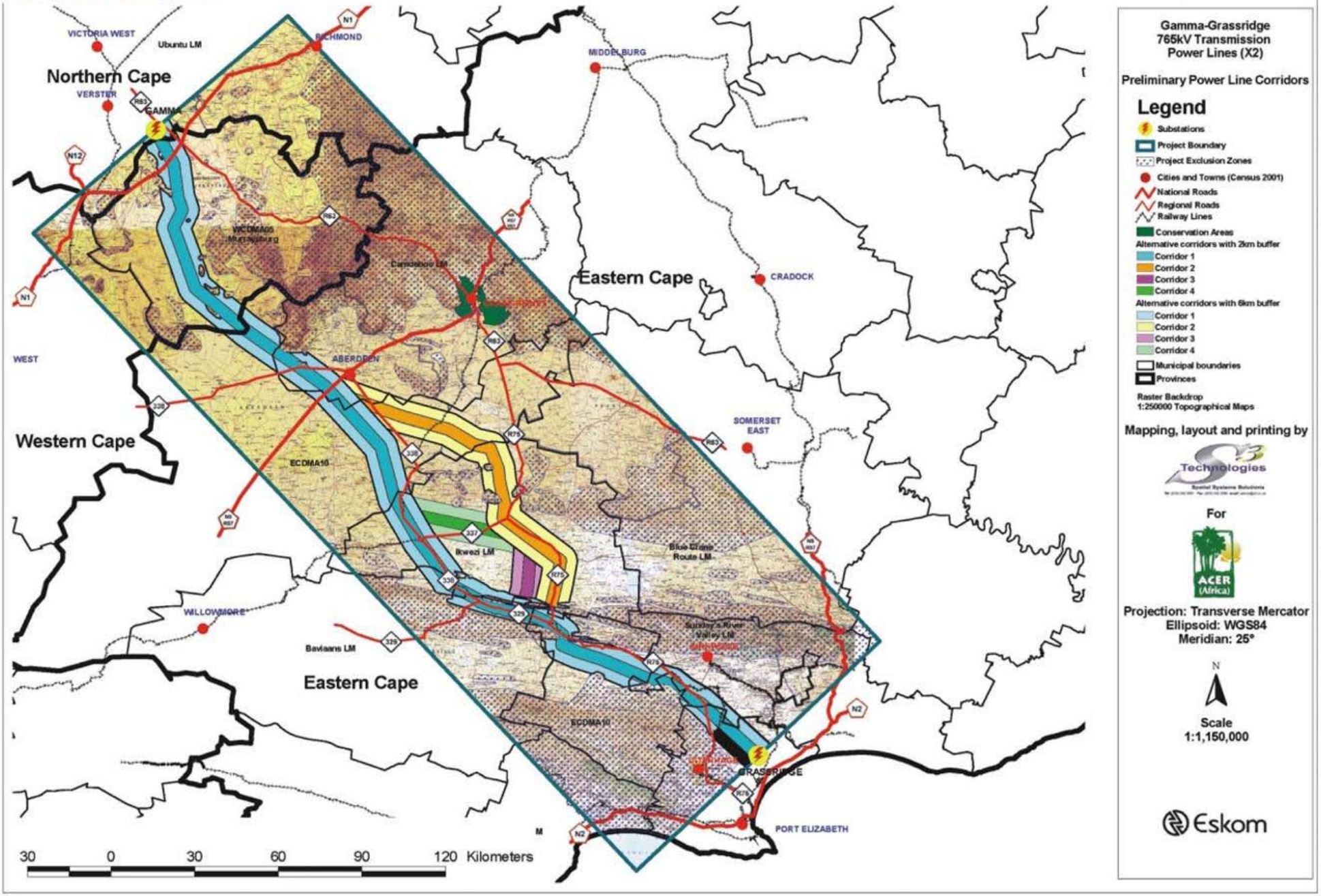


## Proposed EIA Programme/Voorgestelde OIS-prgram

| | 2006 | | | | | | | | | 2007 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
| Application for authorisation<br>Aansoek vir magtiging | ✓ | | | | | | | | | | |
| Plan of Study for Scoping<br>Studieplan vir Omvangsbepaling | ✓ | | | | | | | | | | |
| Review of Plan of Study for Scoping by Authorities<br>Hersiening van Studieplan vir Omvangsbepaling deur Owerhede | ✓ | | | | | | | | | | |
| Project announcement<br>Aankondiging van projek | | ✓ | | | | | | | | | |
| Identification of issues during Scoping<br>Identifisering van kwessies gedurende Omvangsbepaling | | ✓ | ✓ | ✓ | | | | | | | |
| Drafting of Scoping Report<br>Formulering van Omvangsbepaling Verslag | | | | ✓ | | | | | | | |
| Distribution of Draft Scoping Report for comment<br>Verspreiding van Konsep Omvangsbepalings Verslag vir kommentaar | | | | ✓ | | | | | | | |
| Submission of Final Scoping Report to DEAT<br>Inhandiging van Finale Omvangsbepaling Verslag aan DEAT | | | | | ✓ | | | | | | |
| Submit Plan of Study for EIA<br>Inhandiging van studieplan vir OIS | | | | | ✓ | | | | | | |
| Specialist studies<br>Spesialistestudies | | | | | | ✓ | ✓ | ✓ | | | |
| Compilation of Environmental Impact Report<br>Opstel van Omgewingsimpakverslag | | | | | | | | ✓ | ✓ | | |
| Distribution of Environmental Impact Report for public review<br>Verspreiding van Omgewingsimpakverslag vir openbare hersiening | | | | | | | | | ✓ | ✓ | |
| Submission of Environmental Impact Report to DEAT<br>Inhandiging van Omgewingsimpakverslag aan DEAT | | | | | | | | | | | ✓ |
| Record of Decision<br>Rekord van Besluit | | | | | | | | | | | |
| Appeal period<br>Appel tydperk | | | | | | | | | | | |

**Figure/Figuur 2**

Study area map with alternative power line corridors
Kaart van die studiegebied met alternatiewe kraglynkorridors




Gamma-Grassridge
765kV Transmission
Power Lines (X2)

Preliminary Power Line Corridors

**Legend**

- Substations
- Project Boundary
- Project Exclusion Zones
- Cities and Towns (Census 2001)
- National Roads
- Regional Roads
- Railway Lines
- Conservation Areas

Alternative corridors with 2km buffer
- Corridor 1
- Corridor 2
- Corridor 3
- Corridor 4

Alternative corridors with 6km buffer
- Corridor 1
- Corridor 2
- Corridor 3
- Corridor 4

- Municipal boundaries
- Provinces

Raster Backdrop
1:250000 Topographical Maps

Mapping, layout and printing by

Technologies

For

ACER (Africa)

Projection: Transverse Mercator
Ellipsoid: WGS84
Meridian: 25°

N

Scale
1:1,150,000

Eskom

## Project Location

As part of the network strengthening programme, Eskom is proposing two new 765 kV transmission power lines from the Gamma Substation (to be constructed but for which a positive Record of Decision has been issued), situated south of Victoria West, to Grassridge Substation, situated north of Port Elizabeth (Figure 2). The direct distance between the Gamma and Grassridge Substations is 310 km. The two proposed transmission power lines cross three provinces, i.e. Eastern Cape, Western Cape and Northern Cape.

## Specialist Studies

The range of specialists selected for this study include people with expertise in land use and economic activities (e.g. agriculture, conservation, tourism), cultural heritage resources (e.g. archaeology), geology and soil conditions, avi-fauna and visual landscapes.

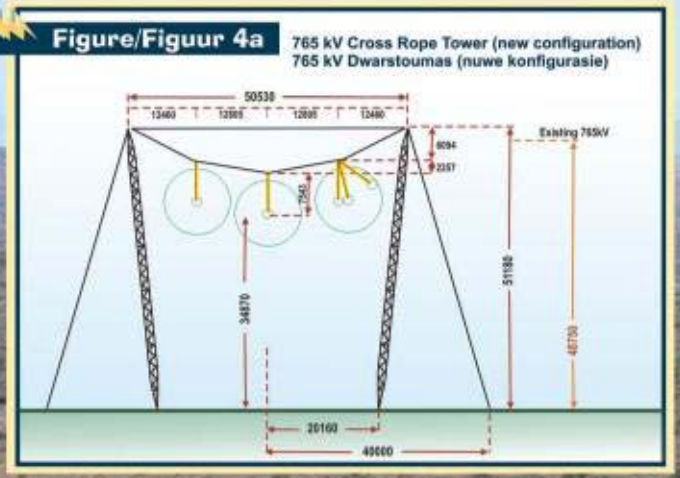
Issues identified during Scoping that require further investigation will be dealt with during the Impact Assessment phase.

## Infrastructure and servitude requirements for the 765 kV Transmission Power lines

The 2 x 765 kV transmission power lines will connect between the Gamma and Grassridge Substations.

- The height of the 765 kV steel towers is approximately 50-55 m.
- A cross rope tower design will be used (Figures 4 a&b).
- Strain towers will be used in bends greater than 3° and in difficult terrain (Figure 3).
- Each of the 2 x 765 kV transmission power lines will require a servitude width of 80 m, 40 m each side of the centre line of the transmission line. Therefore, if the two proposed transmission lines run side-by-side, the full extent of the servitude will be 160 m, with 80 m separating the two centre lines.
- The conductor ground clearance between towers is approximately 10.4 m.

**Figure/Figuur 4a** 765 kV Cross Rope Tower (new configuration)
765 kV Dwarstoumas (nuwe konfigurasie)




## Power line corridor selection (Figure 2)

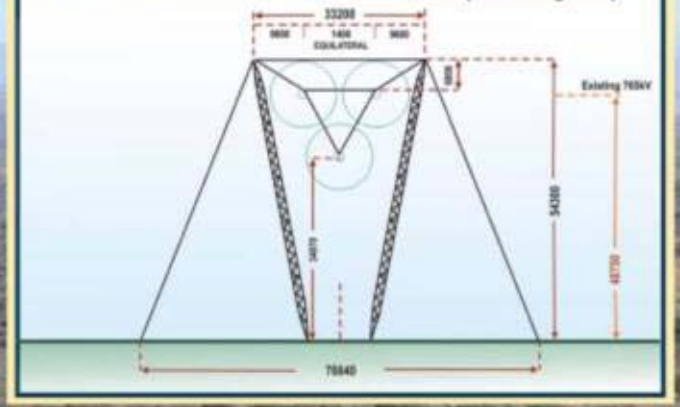
In March 2006, Eskom Transmission, the Environmental Authorities and ACER undertook a site visit to understand the receiving environment. Arising from this initial planning was the identification of technically and environmentally feasible transmission line corridors. It is important to note that the nature of the terrain through which the proposed transmission lines will pass is restrictive and the present corridor alternatives are considered most technically possible and least environmentally sensitive or intrusive. These corridors will be examined in more detail during scoping, and importantly, additional corridors may be added should they also prove to be technically and environmentally feasible.

All feasible corridors will be assessed during the EIA, with input from relevant authorities, Eskom, affected landowners, the public, other stakeholders and the EIA team, including specialists.

Once a preferred corridor has been selected, Eskom Transmission will negotiate an 80 m wide servitude (for each transmission power line) with the affected landowners, and compensation terms will be agreed upon.

**Figure/Figuur 4b**

765 kV Cross Rope Tower (new configuration)
765 kV Dwarstoumas (nuwe konfigurasie)




## Ligging van projek

As deel van die netwerkversterkingsprogram beoog Eskom twee nuwe 765 kV transmissie kraglyne vanaf die Gamma-substasie (wat nog opgerig moet word, maar waarvoor 'n positiewe RVB reeds uitgereik is) wat suid van Victoria-Wes gelee is, na die Grassridge-substasie wat noord van Port Elizabeth (Figuur 2) gelee is. Die regstreekse afstand tussen die Gamma- en die Grassridge-substasie is 310 km. Die twee voorgestelde transmissie kraglyne gaan oor drie provinsies, d.w.s. Oos-Kaap, Wes-Kaap en Noord-Kaap.

## Studies deur spesialiste

Die reeks spesialiste wat vir hierdie studie gekies is sluit deskundiges in grondgebruik en ekonomiese aktiwiteite (bv. landbou, bewaring, toerisme), kultuurerfenis-hulpbronne (bv. argeologie), geologie en grondtoestande, visuele landskappe en voëlkundiges, in.

Kwessies wat gedurende Omvangsbepaling geidentifiseer word en wat verdere ondersoek vereis, sal gedurende die gedetailleerde impakbeoordelingsfase hanteer word.

## Infrastruktuur- en servituutvereistes vir die 765 kV transmissie kraglyne

Die 2 x 765 kV transmissie kraglyne sal die Gamma- en die Grassridge-substasie verbind.

- Die hoogte van die 765 kV-staalmaste is ongeveer 50 m tot 55 m.
- 'n Dwarstou masontwerp sal gebruik word (Figure 4 a&b).
- Spanmaste sal in buigings groter as 3° en op moeilike terrein gebruik word (Figuur 3).
- Elkeen van die 2 x 765 kV transmissie kraglyne sal 'n servituutwydte van 80 m, 40 m aan albei kante van die middellyn van die transmissielyn, nodig hê. As die twee voorgestelde transmissielyne dus langs mekaar loop, sal die volle omvang van die servituut 160 m wees, met 80 m wat die twee middellyne skei.
- Die grondvryhoogte van die geleiers tussen maste is ongeveer 10.4 m.

## Keuse van kraglynkorridor (Figuur 2)

In Maart 2006 het Eskom-Transmissie, Omgewingsowerhede en ACER 'n terreinbesoek onderneem om 'n begrip van die ontvangomgewing te kry. Voortspruitend uit die aanvanklike beplanning was die identifisering van transmissielynkorridors wat vanuit 'n tegniese- en omgewingsoogpunt lewensvatbaar is. Dit is belangrik om daarop te let dat die aard van die terrein waardeur die voorgestelde transmissielyne sal loop, beperkend is en dat die huidige korridor-alternatiewe, die mees tegnies lewensvatbare en vanuit 'n omgewingsoogpunt die mins sensitiewe of steurende alternatiewe, is. Hierdie korridors sal tydens Omvangsbepaling in meer detail ondersoek word. Wat belangrik is, is dat bykomende korridors bygevoeg kan word indien dit blyk dat hulle ook uit 'n tegniese en omgewingsoogpunt lewensvatbaar is.

Alle lewensvatbare korridors sal gedurende die OIS beoordeel word met insette van die tersaaklike owerhede, Eskom, geaffekteerde grondeienaars, die publiek, ander belanghebbendes en die OIS-span, met inbegrip van spesialiste.

Sodra 'n voorkeurkorridor gekies is, sal Eskom-Transmissie 'n servituut met 'n wydte van 80 m (vir elke transmissiekraglyn) met die betrokke grondeienaars onderhandel, en sal daar oor vergoedingsvoorwaardes ooreengekom word.