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FINAL BASIC ASSESSMENT REPORT

**PROPOSED NEW GOLELA SUBSTATION
AND TWO ASSOCIATED 132 kV TURN-IN
LINES FROM THE EXISTING MKUZE-
PONGOLA- 132 kV POWERLINE**

Report No : 12722-Basic Assessment Report 2

Submitted to:

Department of Environmental Affairs
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Pretoria
0001

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION (GOLELA SUBSTATION)

Has a specialist been consulted to assist with the completion of this section?

✓ YES	NO
-------	----

If YES, please complete the form entitled “Details of specialist and declaration of interest” for the specialist appointed and attach in Appendix I.

1 PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Background and Context

Eskom Distribution - KwaZulu-Natal Operating Unit (KZN OU), has been upgrading the electricity infrastructure on the Makhathini Flats in northern KwaZulu-Natal over the last 2 years.

A 132kV power line and substation is required to tee-off the existing Mkuze-Pongola 132kV power line. This substation will need to be located close to the intersection of the N2 with the road leading to the Golela border post with Swaziland and will be required to accommodate the electrical load for the proposed developments within the vicinity of the border post.

Construction and operation of the above 132 kV powerlines and Golela substation is subject to a Basic Assessment (BA) in terms of Section 14 of the National Environmental Management Act, No 107 of 1998 (NEMA), as amended. In fulfilment of this requirements, Eskom has appointed Zitholele Consulting to act as the independent environmental assessment practitioner and to undertake the BA process.

This project’s BAR is being conducted simultaneously with the Pongola Candover 132kV second power line due to the proximity and overlap of their respective study areas.

Project Description

This proposal, as part of the electrification of the greater Makhathini area, includes the following principal activities for which authorisation is sought.

- **Activity 3:** Location of a new 132/22kV substation approximately 1km north-east of the intersection of the N2 and the secondary road to the Golela border post
- **Activity 4:** Location of two 500 m wide, 15 km long corridors for the construction of two 132 kV tee-off powerlines from the Mkuze-Pongola 132kV powerline to provide supply to and from the proposed Golela Substation.

Although the BA for all the above activities has been conducted simultaneously due to the overlapping study areas, the results of the BA will be reported in two separate but linked Basic Assessment Reports (BAR) covering the above activities as follows:

- **Basic Assessment Report 1** (accompanying this report):
Activities 1 and 2 – Proposed new Pongola- Candover 132kV Powerline and associated modifications to the existing Pongola substation and Candover switching station.
- **Basic Assessment Report 2** (This Report):
Activities 3 and 4 – proposed new substation near Golela and two 132 kV Powerlines from the existing 132 kV Pongola Candover powerline to the substation.

Study Area

The study area where the proposed Golela substation and 132 kV Turn-In power lines are to be located lies approximately 20 km due east of Pongola in the vicinity of the intersection of the N2 National Road to the Golela Border Post with Swaziland and the R29 to Pongola. The study area falls within the uPhongolo Local Municipality area which forms part of the Zululand District Municipality in the northern parts of KwaZulu-Natal. The study area is currently dominated by Nature/Game Reserves and agricultural lands consisting of sugarcane, bananas and other fruit orchards. **(See Locality Plan in Appendix A.1).**

Golela Substation

The proposed Golela 132/22kV stepdown substation will have a footprint of roughly 100 x 100m. The associated infrastructure to be constructed will include:

- Perimeter Fence: The perimeter of the site will be fenced to ensure the safety of the site and the surrounding people and animals.
- Terracing and foundations: The site will be terraced if needed and foundations will be constructed in line with substation foundation requirements.
- Circuit breakers: For disconnection under no-load condition for safety, isolation and maintenance.
- 8 feeder bays for a potential 5 X 22kV woodpole power lines to exit the substation will be constructed



Figure 1: Typical Photo of a similar sized Substation

Substations are designed and constructed in the following sequence:

- Identification of alternative sites
- Survey of the sites
- EIA input into site selection and obtaining relevant permits.
- Design of substation
- Establishment of a construction camp, vegetation clearance and construction of an access road.
- Erection of Fencing
- Construction of terrace and foundations
- Assembly and erection of equipment
- Rehabilitation of disturbed areas
- Testing and commissioning.
- Continued maintenance.

132 kV Turn-In Powerlines

The proposed 132 kV power line will consist three conductors covered by a thinner shield wire capable of distributing 132kV, connected by a series of pylons.



Figure1: Views of the existing power line.

Servitude Clearance Requirements

High voltage power lines require a large clearance area for safety precautions. The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) provides for statutory clearances.

Table 1: Electrical Clearance Specifications (Eskom)

Clearances	Minimum Clearance Distance (m)
Ground clearance	6.3
Building structures not part of power line	3.8
Above roads and in townships, proclaimed roads	7.5
Telecommunication lines	2.0

Table 2: Minimum Clearance Chart for Power lines from Roads (132 kV – KZN Region)

National Roads: any part of structure greater than 60m , from road reserve boundary
KZN Main Roads: (any part of structure) greater than 35m from centre line of road or 15m from road fence
KZN District roads: (any part of structure) 20m from central line of the road

Access

Access is required during both the construction and operation/maintenance phases of the power line' life cycle. Where possible, existing access roads and tracks will be used to gain access to construction sites and the servitude. Where no access roads/tracks exist, the access points and roads will be negotiated with the relevant landowner, and are to be established during the construction phase. Access roads will enable the transportation of construction material as well as construction teams to the site and facilitate maintenance activities once the power line has been constructed.

Foundations

The type of terrain encountered, as well as the underlying geotechnical conditions as well as the pylon type required determines the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions). Foundations will be mechanically excavated where access to the site is readily available. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

Towers

The pylons (towers) can be located approximately 300m to 400m apart on level ground, but the span length can be increased up to 1300m when crossing valleys and depending on the terrain.

Two steel lattice tower structures are proposed to be used:

- (273A, 273E) Guyed Suspension Tower;
- Self-supporting Tower (255C).

The pylon footprints for these towers range from between 0.36m² and 2.35m² depending on the structure that is used. The pylon also differs in structure to accommodate increased strain when a bend is made in the power line.

The pylons will be approximately 18m high (which varies depending on terrain) and require a 36m wide servitude i.e. 18m either side of the centre line of the power line.

Drawings and photographs of the proposed pylons to be used are presented in **Appendix A2**.

Approval is sought for a corridor 500m wide for the power line to allow for deviations within the approved corridor once a final route has been negotiated with landowners.

Power line Design, Construction and Operation Activities**Design Phase Activities**

- environmental survey of study area
- selection of alternative power line corridors and substation sites
- Determination of technically feasible alternatives:
- EIA input into route selection and obtaining government authorisation
- Negotiation of final line route and servitude with affected landowners
- Route survey and **Corridor walk-down**: To ensure that all site specific sensitivities are avoided. During this process the exact co-ordinates of the proposed towers will be established.
- Final design of line and placement of towers

Construction Phase Activities

The construction phase for the proposed project will include the following activities post-authorisation:

- **Construction Camps**: Construction camps will be sited in areas where least disturbance to potentially sensitive environments will be caused.
- **Batching Plants**: If Readymix concrete is not available, small mobile batching plants will have to be established in the area close to the power line.
- **Access**: Access will have to be created to allow for large construction vehicles to get onto the proposed servitude.
- **Vegetation clearance**: A 36m (18m on either side of the power line) servitude is required for the proposed 132kV power line. Trees and shrubs will be cleared where required along the entire length of the servitude (the vegetation will also be maintained by Eskom in the operational phase of the project).
- **Surveying, pegging and soil nominations**: During construction the route will be surveyed, pegged and the soil nominations undertaken for each of the potential pylon foundations.
- **Pylon footings**: Foundations will be laid for the footings of the pylons. . The first step is the excavation of the pylon foundations, the reinforcing thereof and finally the concreting of the foundations. The equipment required to excavate the foundations can be manual labour, a TLB or in the case of hard rock – a drill rig will be required. The concrete will have to be transported via concrete trucks to the required locations.
- **Steelwork structures**: The towers will be erected in piece-meal; that is to say in segments. After the

foundations and footings have been installed the construction team will transport the various steel parts of the towers to the site and start erection of the pylons. This process again requires a lot of manual labour and often mobile cranes are used to assist with the erection of the towers.

- **Stringing:** Once the towers have been erected, cables will be strung between the towers. Once stringing and tensioning is complete the line is considered constructed, where after it will be tested prior to being commissioned.
- **Rehabilitation of disturbed areas and protection of erosion sensitive areas**
- **Testing and commissioning**

The construction phase for the proposed project will take, at most, 60 months to complete (from the time Environmental Authorisation has been received).

Operational Phase Activities

During the operational and maintenance phase of the project, Eskom requires access to the servitude for maintenance activities which may include repairs and replacement of various hardware on the towers and the conductor and in very rare cases, repairs to the foundations. .

Decommissioning Phase Activities

- The physical removal of the power line infrastructure would entail the reversal of the construction process.
- A rehabilitation programme would need to be agreed upon with the landowners (if applicable) before being implemented.
- Materials generated by the decommissioning process will be disposed of according to the Waste Hierarchy i.e. wherever feasible, materials will be reused, then recycled and lastly disposed of. Materials will be disposed of in a suitable manner, in a suitably licensed facility.

All of the aforementioned decommissioning activities would be subject to a separate Environmental Authorisation process at the appropriate time.

Expansion of the existing Pongola Substation and Candover Switching Station

This expansion of these two facilities will involve expanding the foundation of the substation and the erection of additional bays to take in the new line:

- Expansion of fence line
- Construction of terrace and foundations
- Assembly and erection of new bays
- Rehabilitation of disturbed areas
- Testing and commissioning

Overview of Environmental Features of the Study Area

The topography of the study area is predominantly rolling hills, but relatively high escarpments traverse the study area from north to south. Game farms and cattle farms, game reserves and some sugar cane are the predominant land uses in the study area. The vegetation consists of Zululand Lowveld and Northern Zululand Bushveld and is very dense in the central and south eastern portions of the study area. The mountainous terrain and dense vegetation generally coincide and will impose access constraints and difficulties. According to the local municipalities IDP for the uPhongolo Area some important conservation areas require careful management in the unfolding development pattern. These include; Pongolapoort dam and nature reserve, Bivane Dam, Ithala Nature reserve; the area surrounding Magudu and the Mkuze river as well as the area between the R66 and the N2 Roads.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544, 18 June 2010 Item 10(i) The construction of facilities or infrastructure for the transmission and distribution of electricity (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kV.	<ul style="list-style-type: none"> Construction of new 132kV (loop in loop out) transmission lines from the existing Pongola Candover 132 kV powerline to the proposed new Golela substation Construction of the proposed new substation near Golela
GN R.544, 18 June 2010 Item 11(xi) The construction of infrastructure or structures within a watercourse or within 32m of a watercourse.	The power line structures may have to be placed within 32 m of a water course/wetland, where unavoidable.
GN R.544, 18 June 2010 Item 22(ii) The construction of access road outside urban areas where no reserve exists and where the road is wider than 8 m.	<ul style="list-style-type: none"> Temporary access roads for the construction of the power lines and associated infrastructure may be required. Such roads may exceed the 8m threshold to make allowance for heavy vehicles used in construction. Construction of a new permanent designed road to access the proposed Golela substation from the N2
GN R.544, 18 June 2010 Item 26 Any process or activity identified in terms of Section 53(1) of NEM: Biodiversity Act, 2004	The Pongola area is known for it's environmental sensitivity. This requirement will only apply if such sensitive areas may be affected.
GN R.546, 18 June 2010 Item 3(a)	Towers for Eskom telecommunication will have to be constructed at the substation site. Towers will likely be in excess of 15m depending on the location of the substation and surrounding terrain.
GN R.546, 18 June 2010 Item 4(a)	Eskom will have to construct an access roads 6m or more wide for the construction and maintenance of the proposed power line and substation.
GN R546 18 June 2010 Item 13 (a) (c) ii The clearance of an area of 1 hectare or more of vegetation where 75 % or more of the vegetative cover constitutes indigenous vegetation.	Clearing vegetation along the power line servitude will likely occur and will exceed 1 ha in totality.

2 FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Please Note

The alternatives are named as follows:

Substation Alternatives

- Golela 1 – Southern Site
- Golela 2 – Northern Site

Powerline Alternatives

- Alternative A1 – Western Corridor
- Alternative A2 – Eastern Corridor

SUBSTATION ALTERNATIVE SITES

a) Substation Site alternatives

Alternative Golela 1 (preferred alternative): Southern Site A1 or S1?		
Description	Lat (DDMMSS)	Long (DDMMSS)
This alternative is located 400 m to the east of the N2 where it intersects with the road to Golela and to the south of the Golela Road. The terrain is relatively flat and the vegetation is degraded somewhat.	27°21'53.10"S	31°49'25.64"E
Alternative Golela 2: Northern Site		
Description	Lat (DDMMSS)	Long (DDMMSS)
This alternative is located approximately 1.2 km to the east of the N2 where it intersects with the road to Golela and to the north of the Golela Road. The terrain is relatively flat and surrounded by gentle hills to the west becoming steeper to the east. The site is well vegetated and is located in a private game reserve.	27°22'20.09"S	31°49'12.83"E

Refer to **Appendix A1** for the Locality Plan and Aerial Plans and the co-ordinates of the corners of the alternative sites.

ALTERNATIVE POWERLINE CORRIDORS

a) Corridor alternatives

In the case of linear activities:

Alternative:

Alternative A1 – Western Corridor (preferred)

- Starting point of the activity

Latitude (S):

Longitude (E):

- Middle/Additional point of the activity

- End point of the activity

27° 25' 13.64" S	31° 48' 38.04" E
27° 23' 46.58" S	31° 49' 02.36" E
27° 22' 09.57" S	31° 49' 18.58" E

Alternative A2 – Eastern Corridor

• Starting point of the activity	27° 24' 47.33" S	31° 50' 19.98" E
• Middle/Additional point of the activity	27° 23' 16.08" S	31° 50' 02.20" E
• End point of the activity	27° 22' 09.57" S	31° 49' 02.36" E

Refer to **Appendix A4** for the **aerial plan** showing the alternative corridors and for the co-ordinates taken every 250 m for each linear alternative and the Locality Plan.

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

b) Lay-out alternatives

SUBSTATION LAYOUT ALTERNATIVES

Alternative sites: Golela 1 and Golela 2:		
Description	Lat (DDMMSS)	Long (DDMMSS)
The design of substations is standard and according to engineering best practices. No layout alternatives were considered.		

c) Technology alternatives

SUBSTATION TECHNOLOGY ALTERNATIVES

Alternative technologies to the use of a substation have not been considered as this technology is considered the most appropriate technology, and has been specifically designed for the existing environmental conditions and terrain as specified by Eskom Specifications and best international practice.

POWERLINE TECHNOLOGY ALTERNATIVES

Alternative 1 (preferred alternative) – Double- and Multi-circuit Overhead Powerline

Where sensitive environmental features are identified, and there is sufficient justification to Eskom, Eskom will consider the use of double circuit (attaching two 132 kV lines on one structure) or multi-circuit (attached a 132kV line onto a 22kV structure) to minimize impacts. In this proposal, the various landowners have requested this that the double circuit option be implemented due to the lack of sufficient space for the required servitude for two single circuit overhead powerlines.

However, the use of double circuit or multi-circuiting has a number of technical disadvantages:

- that faults or problems on one line may mean that the other line is also disabled during maintenance, and this will affect supply.
- Installation of the multi-circuit or double circuit lines requires breaking the existing circuit, and in cases where the existing affected line is a radial feed, the end capacity may be disrupted.

Larger and taller towers as well as more towers are required for double- and multi-circuit lines.

Alternative 2 – Single Circuit Overhead Powerline

The use of single circuit overhead powerlines to distribute electricity is considered the most appropriate technology and has been designed over many years for the existing environmental conditions and terrain as specified by Eskom Specifications and best international practice. Based on all current technologies available, single circuit overhead powerlines are considered the most environmentally practicable technology available for the distribution of power. This option is considered appropriate for the following reasons:

- More cost effective installation costs
- Less environmental damage during installation
- More effective and cheaper maintenance costs over the lifetime of the powerline

Alternative 3 – Underground Cabling

Underground cabling of high voltage powerlines over long distances is not considered a feasible or environmentally practicable alternative for the following reasons:

- Underground cabling will incur significantly higher installation and maintenance costs
- It is more difficult and takes longer to isolate and repair faults on underground cables.
- Underground cables require a larger area to be disturbed during construction and maintenance operations and hence have a bigger environmental disturbance footprint.

Underground cabling requires the elimination of more area when it comes to agriculture and other compatible

land uses as the entire servitude become available for use as opposed to just the area around the towers.

d) Other alternatives – Tower Design Alternatives

Alternative 1 (preferred alternative) – Lattice Towers
<p>The steel lattice towers provide the following advantages over the other tower types available:</p> <ul style="list-style-type: none"> • Enables multipath earthing which enhances the overall electrical performance of the powerline. • Is visually less obtrusive than the mono-pole options • Is more practicable than other options i.e. more cost effective and more practical to construct and maintain. • Is safer to work on than the monopole and wood pole structures. <p>Photos and drawings of the lattice towers are presented in Appendix A2.</p>
Alternative 2 – Steel Monopoles
<p>The steel monopole is considered less suitable than the steel lattice towers for the following reasons:</p> <ul style="list-style-type: none"> • Is visually more intrusive than the lattice towers. • Is more expensive than the lattice towers • Requires more steel than the lattice towers • Is more difficult to erect • Is not as safe to work on as the lattice towers
Alternative 3 – Woodpoles
<p>Woodpole structures are only used in extreme circumstances where a visual impact needs to be avoided. Wood pole structures may be cheaper to produce and to construct, but they have one tenth of the lifespan of the metal counterparts and are far more susceptible to weather conditions which makes them less efficient and practicable. The woodpole structures are also more susceptible to being burnt by veld fires and deforming with height.</p>

e) No-go alternative

The 'No Go' alternative in the context of this project implies that the power line would not be constructed. If this substation and powerline do not go ahead, the negative environmental impacts which have been identified if it does go ahead would not occur. However, if the substation and turn-in lines are not constructed and commissioned, the Golela region would continue to be negatively affected by an inadequate and unreliable supply of electricity (basic service) which would inhibit any future development in the Golela development node

and would jeopardise the success of the regions Integrated Development Plans and Spatial Development Frameworks, all of which identify the lack of electrical services as inhibitors to future development and quality of life. Therefore, the need for stable and reliable power supply to meet current and future demand will likely outweigh the potential negative impacts to the surrounding environment. It is thereby concluded that the “No-go” option is not a viable or acceptable option, and should therefore be discounted.

Paragraphs 3 – 13 below should be completed for each alternative.

Please note: Paragraphs 3 – 13 are completed first for the alternative substation sites and then for the alternative powerline corridors

SUBSTATION ALTERNATIVE SITES

SUBSTATION ALTERNATIVE SITES

3 PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative S1 (preferred) – Golela 1 – Southern

Site

Alternative S2 – Golela 2 – Northern Site

Size of the activity:

± 10 000 m ²
± 10 000 m ²

b) Indicate size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative S1 (preferred) – Golela 1 – Southern

Site

Alternative S2 – Golela 2 – Northern Site

Size of the site/servitude:

± 10 000 m
± 10 000 m

4 SITE ACCESS

Alternative S1: Golela 1 – Southern Site

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	✓NO
140 – 200 m	

Alternative S2: Golela 2 – Northern Site

Does ready access to the site exist?

YES	<input checked="" type="checkbox"/> NO
170 - 400 m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

The access road will be a formalised G5 gravelled road with properly compacted sub-base and roadside drainage.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5 LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

See Appendix A.1 : 12722-Substation LocalityMap-Rev1-5May2013.pdf

6 LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

See Appendix A.2: 12722-Detailed Site Plan and Aerial Plan

7 SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

See Appendix A.5 : 12722-SensitivityMap-Rev1-5May2013.pdf

8 SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

See Appendix B

9 FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

See Appendix C

10 ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?			
Alternative A1 (Preferred) – Golela 1 Southern Site	YES	✓NO	Please Explain
This proposed site is located on degraded land that is currently zoned for agriculture.			
Alternative A2 – Golela 2 Northern Site	YES	✓NO	Please Explain
This proposed site is located on land that is located within a private game reserve.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	✓YES	NO	Please explain
The KwaZulu Natal Provincial Spatial Development Framework has identified that one of the primary Provincial Growth and Development Strategies is to grow the economy and that growing the economy is reliant on the provision of reliable and affordable services by government. Such services include, amongst others, the provision of electricity. If electricity cannot be provided the economic potential of the province will not be realised. The KZN PSDF recognises that electricity supply is under stress in the province and that this is hindering development in all sectors.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
Not Applicable.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	✓YES	NO	Please explain
The uPhongola IDP has identified that one of its main developmental challenges is the poor to non-existent physical infrastructure to deliver basic services such as electricity to the expanded areas, predominantly those areas located outside the boundaries of the former TLC. Both the IDP and SDF have identified that electrification within the Local Municipality is one of the Lead Projects for the region and that one of the limitations is the lack of electrical capability in the region along with a decent distribution network.			
(d) Approved Structure Plan of the Municipality	✓YES	NO	Please explain
The approved Structure Plan of the municipality has identified that tourism and agriculture are major economic development potentials in the region and that the development of these sectors without reliable electricity supply will be hindered. This plan has also identified Golela as a secondary development node in the region and acknowledged that increased electrical capacity will be required to support this objective.			

<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The approval of this application will not compromise the integrity of the Environmental Management Framework for the area.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>uPhongolo Local Municipality Tourism Management Plan also highlights the need for better electrification in the region to enhance the tourism potential</p>			
<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>One of the objectives of the uPhongolo IDP is to provide infrastructure and basic services to the expanded areas predominantly outside the former TLC boundaries and this project will assist in achieving that objective in the next 2 – 5 years.</p>			
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The uPhongola SDP has identified Golela as a secondary development node in the region and acknowledged that increased electrical capacity will be required to support this objective, therefore the establishment of the substation in this area can be viewed as a societal priority.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The substation will not require municipal services. The Proponent will be responsible for the design and construction of required services and the access road.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>Not Applicable - This project is an infrastructure upgrade project for Eskom and does not impact on the infrastructure planning of the municipality.</p>			

7. Is this project part of a national programme to address an issue of national concern or importance?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
Electricity shortage, the growing demand for electricity and the need to provide basic services to all communities is a national concern and priority.			
8. Alternative S1: Golela 1 – Southern Site Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
In terms of the land available to develop a substation for the purposes of supplying electricity to Golela, this site is considered favourable as it is located along the N2 National Road to Pongola. This stretch of the National Road is already characterised by some ribbon development not in keeping with the surrounding game reserve land use. It is likely that this ribbon development increase as the border post activity from Golela increases and hence the substation in this position is more likely to be compatible with future landuse in this location than any other available location in the area.			
8. Alternative S2: Golela 2 – Northern Site Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Please explain
This site is located in a private game reserve area and if developed on this site, it will constitute the first development of a semi-industrial nature in this area. The substation in this location is not considered favourable compatible landuse in context of the surrounding landuse.			
9. Alternative S1: Golela 1 – Southern Site Is the development the best practicable environmental option for this land/site?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
This site is located adjacent to the N2 and adjacent to land that is used for sugarcane farming. The site is itself degraded due to previous farm activities which have since been abandoned. The establishment of a substation on this site will not degrade the current environmental condition of this area.			
9. Alternative S2: Golela 2 - Northern Site Is the development the best practicable environmental option for this land/site?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Please explain
This site is located in a private game reserve area and the establishment of substation is not considered the best practicable environmental option for this land.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
The negative impacts of the development are all of low significance following mitigation and the main benefit of the development i.e. improved reliability of electrical supply and increased supply to the Golela region resulting in economic growth and alleviation of poverty is of high significance.			

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	✓ NO	Please explain
The upgrade of electrical supply is not for profit gain, but is to provide essential services to an area and hence will not set a precedent. Additional upgrades will only occur in the region if the demand for the basic service requires it.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	✓ NO	Please explain
The property for the substation will be secured through a willing landowner principal (similar to willing buyer willing seller principal). No relocation of people will be required. This process has followed an extensive stakeholder consultation process and therefore no juristic or natural person's right will be adversely affected.			
13. Alternative S1: Golela 1: Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	✓ No	Please explain
In terms of the land available to develop a substation for the purposes of supplying electricity to Golela, this site is considered favourable as it is located along the N2 National Road to Pongola. This stretch of the National Road is already characterised by some ribbon development not in keeping with the surrounding game reserve land use. It is likely that this ribbon development increase as the border post activity from Golela increases and hence the substation in this position is more likely to be compatible with future landuse in this location than any other available location in the area.			
13 Alternative S2: Golela 2: Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	✓ YES	NO	Please explain
This site is located in a private game reserve area and if developed on this site, it will constitute the first development of a semi-industrial nature in this area. The substation in this location is not considered favourable compatible landuse in context of the surrounding landuse.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	✓ YES	NO	Please explain
This Project in support of the following SIPS: <ul style="list-style-type: none"> • SIP 9: Electricity Generation to support socio-economic development. • SIP 10: Electricity Transmission and Distribution for all. 			
15. What will the benefits be to society in general and to the local communities?	Please explain		
The potential benefit of the proposed Golela Substation lies in the stimulation of the local economy of Golela town through the increased supply of reliable electricity to the town which has been ear marked as a Secondary Development Node and is a major border node on the transport route between KwaZulu-Natal and Swaziland. Furthermore there will be some employment benefits during the construction phase of the project.			

16. Any other need and desirability considerations related to the proposed activity?	Please explain
N/A	
17. How does the project fit into the National Development Plan for 2030?	Please explain
The National Development Plan for 2030 has a vision that South Africa will have an energy sector that promotes economic growth and development through adequate investments in energy infrastructure and the provision of quality energy services.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
This proposed Golela substation development has been adequately assessed by competent Environmental Assessment Practitioners and discipline specialists. All potential impacts that may have a significant impact on the receiving environment have been identified and adequately assessed as required by the NEMA 2010 EIA regulations and mitigation measures developed and the impact significance reassessed. The conclusions of the environmental impact assessment have been concisely summarised to adequately inform decision-making by the competent authority. A comprehensive Public Participation Process was also undertaken, which conformed to requirements in Chapter 6 of the Environmental Impact Assessment Regulations. Further all Interested and Affected Parties will be given ample time to review and comment on all documents and reports and the affected landowners will be empowered to be able to state their concerns and issues adequately.	

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The primary objective of the project is to assist in the provision of stable electricity supply to the Northern Zululand region of KwaZulu-Natal, and specifically to the border town of Golela. The provision of a stable electricity supply with spare capacity will encourage future development in the area and will potentially improve the economic situation through job creation.

The social, economic and environmental impacts have been identified and rated by the EAP with the assistance of numerous specialists.

The environmental impact of substations is well understood and the design and sites selected for this development have been chosen to reduce visual impacts, impacts on cultivated land and impact on avifauna.

A heritage survey, surface water and wetlands assessment as well as an ecological study were also undertaken as part of the basic assessment process and recommendations made by all the specialists for inclusion in the EMPr.

Two alternative sites were identified and assessed as part of the Basic Assessment and a site was found to be more environmentally suitable than the other based on ranking the significance of each aspect identified by the relevant specialist.

The Environmental Basic Assessment was advertised and members of the public were given the opportunity to register as I&AP as described in Section C: public participation and the issues and responses report (**Appendix E**).

Most of the negative impacts associated with the project will occur during the construction phase. Where negative impacts are unavoidable they will be mitigate according to stipulations in the EMPr. Those impacts that could be addressed during the design phase have been identified and the mitigations recommended will form part of the design. The impacts of the proposed substation on wetlands and sensitive vegetation have been will be reduced in the siting of the substation sites.

Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise the potential negative impacts. The use of potentially polluting substances will be managed according to requirements in the EMPr. The EMPr will hold the developer responsible for any unnecessary negative impacts of the development on the environment.

The EMPr will include a rehabilitation plan and the cost to of rehabilitation required due to pollution or unnecessary environment degradation resulting from the activity will be the responsibility of the developer.

11 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa (Act 108 of 1996)	The Constitution paves the way for the protection of the natural environment and heritage resources through the recognition of the right to a health and safe environment.	South African Government	1996
National Environmental Management Act (Act No 107 of 1998)	NEMA is the key environmental management legislation and states in s2(4)(k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment.	National and Provincial Department of Environmental Affairs	1998
National Heritage Resources Act (Act No 25 of 1999)	Under section 38(1) of the NHRA any person who intends to develop land must notify the responsible heritage resources agency of its intention. The responsible heritage resources authority may require a heritage impact assessment where substations are being proposed	South African Heritage Resources Agency/AMAFA	1999
Environmental Impact Assessment Regulations (GN R543-546 of 2010)	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	National and Provincial Department of Environmental Affairs	2010
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study site.	National and Provincial Department of Environmental Affairs And Ezemvelo KZN Wildlife	2004

BASIC ASSESSMENT REPORT

National Environmental Management: Protected Areas Act (Act 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed substation sites are located in or near to a non-statutory protected area.	National and Provincial Department of Environmental Affairs And Ezemvelo KZN Wildlife	2003
National Forests Act (Act 84 of 1998)	The development of the proposed project may result in damage or destruction of a tree under the National Forests Act	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
National Veld and Forest Fires Act (Act 101 of 1998)		Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Promotion of Access to Information Act (Act No 2 of 2000)		National Department of Environmental Affairs	2000
National Water Act (Act No. 36 of 1998)	Water abstraction?	Department of Water Affairs	1998
Conservation of Agricultural Resources Act (Act No 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	Department of Agriculture	1983
Occupational Health and Safety Act (Act No 85 of 1993)	The OHS Act governs and ensures the protection of employees in the workplace. A number of permanent and contract skilled and semi-skilled workers will be involved in the construction of the different aspects of the project.	Department of Labour	1993

	<p>Their appointment and work periods will be subject to the provisions of the OHSA.</p> <p>This act and its regulations also govern the design and operation of electrical substations.</p>		
Electricity Regulations Act (Act No 4 of 2006)	<p>This act establishes a national regulatory framework for the electricity supply industry; and provides for licences and registration as the manner in which generation, transmission, distribution, reticulation, trading and the import and export of electricity are regulated. The erection of new electricity distribution infrastructure is thus regulated in terms of this act.</p>	National Energy Regulator of South Africa	2006
National Energy Act (Act no 34 of 2008)	<p>The Act allows for the regulation and maintenance of security of energy supply in South Africa. The act empowers the energy regulator to invest in the maintenance of energy infrastructure, which includes the installation of electrical infrastructure in area where the grids is operating at near maximum</p>	South African National Energy Development Institute	2008
National Environmental Management: Waste Act (Act No 59 of 2008)	<p>Requires sustainable integrated waste management and implementation of the waste hierarchy.</p>	Department of Environmental Affairs	

12 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

✓YES	NO
$\pm 6 \text{ m}^3$	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

Waste generated during the construction phase will be collected in designated areas, in facilities designed to safely store the waste. Waste separation for reuse and recycling will take place. Once sufficient volumes of waste have been collected, or once a month, whichever occurs first, the waste will be taken on a purpose built vehicle to the nearest suitably licensed waste facility. Receipts / waybills will be obtained from the facility for record purposes.

Where will the construction solid waste be disposed of (describe)?

General waste will be disposed of at a municipal landfill.

Will the activity produce solid waste during its operational phase?

YES	<input checked="" type="checkbox"/> NO
6 m ³	

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

Waste generated during the construction phase will be collected in designated areas, in facilities designed to safely store the waste. Waste separation for reuse and recycling will take place. Once sufficient volumes of waste have been collected, or once a month, whichever occurs first, the waste will be transported to the nearest suitably licensed/acceptable solid waste disposal facility waste facility. Receipts / waybills will be obtained from the facility for record purposes. An Integrated Waste Management Plan for this project is presented in Appendix J.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Pongola or Mkuze Landfills.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Pongola and Mkuze Landfills

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, what estimated quantity will be produced per month?

m ³	
----------------	--

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, provide the particulars of the facility:

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A

E-mail:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

<input checked="" type="checkbox"/> YES	NO
---	----

If YES, is it controlled by any legislation of any sphere of government?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

Construction Phase: Noise control regulations and SANS 10103: Short term noise impacts are anticipated during the construction phase of the project relating to the operation of heavy machinery. It is however anticipated that the noise will be localised and contained within the construction site. The applicant must adhere to the relevant provincial noise control legislation (if any) as well as SANS 10103. Working hours should be restricted to 07h00 to 18h00 Monday to Friday excluding public holiday.

Operational phase: A corona can be produced from water droplets forming on the conductor coming into the substation and crackling noise being formed from the breakdown of air molecules. (Eskom GFS 0009 Revision 2 Document, May 2004)

13 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

<input checked="" type="checkbox"/> Municipal Construction Phase	Water board	<input checked="" type="checkbox"/> Groundwater Construction phase	River, stream, dam or lake	Other	The activity will not use water
---	-------------	---	----------------------------	-------	---------------------------------

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

20 000 litres	
YES	<input checked="" type="checkbox"/> NO

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14 ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The entire substation design and operations has been optimised over the years to prevent or reduce energy losses at the substation and hence is considered to be energy efficient.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

POWERLINE CORRIDORS

ALTERNATIVE POWERLINE CORRIDORS

15 PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1 (preferred) – **Western Corridor**

Alternative A2 – **Eastern Corridor**

Length of the activity:

± 6 700 m
± 6 400 m

b) Indicate size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred) – **Western Corridor**

Alternative A2 – **Eastern Corridor**

Size of the site/servitude:

(90 m wide) 603 000 m ²
(90 m wide) 576 000 m ²

16 SITE ACCESS

Alternative A1 – Western Corridor

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	✓NO
± 1000 m	

Alternative A2 – Eastern Corridor

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	✓NO
± 3 600 m	

Describe the type of access road planned:

Both Alternatives A1 (Western Corridor) and A2 (Eastern Corridor) - New access roads to gain access for construction will be required along portions of both corridors. Access in the form of an informal single car-width driven track will be required along the entire length of the powerline and also at various points accessing the servitude from public roads and other existing tracks. Typically for the construction of powerline, access is generally created by simply repetitive passes of the construction vehicles along the servitude and along the same tracks to create a rough driveable track. However, often cutting thick bush to a width of 6 – 8 m and destumping may be required. At some tower positions and along the servitude, it may be necessary to cut routes using a bulldozer or TLB over rough terrain to permit access for large construction vehicles. Dongas may need to be filled, rocks removed, trees destumped and temporary stream crossings constructed to create access.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Refer to **Appendix A.1 for the aerial photograph depicting those sections of the proposed corridors that will require the construction of access roads through major earthworks i.e. 12722-Access Map –Rev 0-7Aug2013**

17 LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

See Appendix A.1 : 12722-LocalityMap-Rev1-5May2013.pdf

18 LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

See Appendix A.1: 12722-LocalityMap-Rev1-5May2013.pdf

19 SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

See Appendix A.5 : 12722-SensitivityMap-Rev1-5May2013.pdf

20

21 SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

See Appendix B

22 FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

See Appendix C

23 ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

20. Is the activity permitted in terms of the property's existing land use rights?			
Both Alternatives	YES	✓NO	Please Explain
If the powerline is constructed in either corridor, the powerline will pass through lands that are agricultural or open space, game farms and proclaimed nature reserve where no registered servitude exists and hence a servitude will have to be registered to permit the construction of the powerline. The landuse will however remain unchanged.			
21. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	✓YES	NO	Please explain
The KwaZulu Natal Provincial Spatial Development Framework has identified that one of the primary Provincial Growth and Development Strategies is to grow the economy and that growing the economy is reliant on the provision of reliable and affordable services by government. Such services include, amongst others, the provision of electricity. If electricity cannot be provided the economic potential of the province will not be realised. The KZN PSDF recognises that electricity supply is under stress in the province and that this is hindering development in all sectors.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
Not Applicable – Linear servitude outside built environment.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	✓YES	NO	Please explain
The uPhongola IDP has identified that one of its main developmental challenges is the poor to non-existent physical infrastructure to deliver basic services such as electricity to the expanded areas, predominantly those areas located outside the boundaries of the former TLC. Both the IDP and SDF have identified that electrification within the Local Municipality is one of the Lead Projects for the region and that one of the limitations is the lack of electrical capability in the region along with a decent distribution network.			

(d) Approved Structure Plan of the Municipality	✓YES	NO	Please explain
The approved Structure Plan of the municipality has identified that tourism and agriculture are major economic development potentials in the region and that the development of these sectors without reliable electricity supply will be hindered.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	✓YES	NO	Please explain
The approval of this application will not compromise the integrity of the Environmental Management Framework for the area, especially if the northern corridor is approved as this route is already developed for power distribution and hence not impact further on any environmental management frameworks.			
(f) Any other Plans (e.g. Guide Plan)	✓YES	NO	Please explain
uPhongolo Local Municipality Tourism Management Plan also highlights the need for better electrification in the region to enhance the tourism potential			
22. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	✓YES	NO	Please explain
One of the objectives of the uPhongolo IDP is to provide infrastructure and basic services to the expanded areas predominantly outside the former TLC boundaries and this project will assist in achieving that objective in the next 2 – 5 years.			
23. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	✓YES	NO	Please explain
The motivation for these turn-in lines is to provide electricity to the proposed new substation near Golela with the ultimate aim of increasing the supply capacity to the developmental node of Golela. Without these new 132 kV powerlines, it will not be possible for the region to achieve the electrification and economic objectives as has set in the IDP.			
24. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	✓YES	NO	Please explain
The power lines do not need any municipal services other than access roads for maintenance of the power line; and the site is easily accessible via existing roads. The Proponent will be responsible for the design and construction of required access roads.			

<p>25. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>This project is an infrastructure upgrade project for Eskom and will assist in the development of the municipal infrastructure planning.</p>			
<p>26. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>Electricity shortage, the growing demand for electricity and the need to provide basic services to all communities is a national concern and priority.</p>			
<p>27. Alternative A1 – Western Corridor Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>In the instance of the Western Corridor alternative, follows the edges of agricultural land over most of its length i.e. the lands has been subject to a relatively high level of anthropogenic activity and will follow the edge of another linear servitude for approximately 2 km of its 6.7 km length. 69% of the route is land under agriculture</p>			
<p>27. Alternative A2 – Eastern Corridor Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES</p>	<p>✓NO</p>	<p>Please explain</p>
<p>There are currently no linear servitudes associated with this proposed alignment and the nearly entire line traverses through Game Farms or Nature reserves – up to 69 % of this servitude falls within “conservation areas” hence this route will be considered less favourable for the construction of powerlines may not be considered favourable land use by the landowners and by organisations such as WESSA and Ezimvelo-KZN Wildlife.</p>			
<p>28. Alternative A1 – Western Corridor Is the development the best practicable environmental option for this land/site?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>In the instance of the Western Corridor alternative, follows the edges of agricultural land over most of its length i.e. the lands has been subject to a relatively high level of anthropogenic activity and will follow the edge of another linear servitude for approximately 2 km of its 6.7 km length. 69% of the route is land under agriculture</p>			

28. Alternative A2 – Eastern Corridor Is the development the best practicable environmental option for this land/site?	YES	✓NO	Please explain
This proposed alignment traverses mostly over game farm or nature reserve land and hence is not the best practicable environmental option for this area, especially if an alternative route is available.			
29. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	✓YES	NO	Please explain
The negative impacts of the development are all of low significance following mitigation for both corridors and the main benefit of the development i.e. improved reliability of electrical supply and increased supply to the region resulting in economic growth and alleviation of poverty is of high significance.			
30. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	✓NO	Please explain
The upgrade of electrical supply is not for profit gain, but is to provide essential services to an area and hence will not set a precedent. Additional upgrades will only occur in the region if the demand for the basic service requires it.			
31. Will any person's rights be negatively affected by the proposed activity/ies?	YES	✓NO	Please explain
The servitude will be secured through a willing landowner principal (similar to willing buyer willing seller principal). No relocation of people will be required. All process have followed a stakeholder consultation process and therefore no juristic or natural person's right will be adversely affected.			
32. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	✓NO	Please explain
This is a linear activity that will be located outside the defined "urban edge" and is considered an isolated activity that will not encourage further urban development along its servitude or in association with its servitude.			
33. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	✓YES	NO	Please explain
This Project in support of the following SIPS: <ul style="list-style-type: none"> • SIP 9: Electricity Generation to support socio-economic development. • SIP 10: Electricity Transmission and Distribution for all. 			
34. What will the benefits be to society in general and to the local communities?	Please explain		
The potential benefit of the proposed powerline to the Gelela area lies in the stimulation of the local economy (specifically tourism and agriculture) through the supply of reliable electricity to improve service delivery to all sectors. Furthermore there will be some employment benefits during the construction phase of the project.			

35. Any other need and desirability considerations related to the proposed activity?	Please explain
36. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The National Development Plan for 2030 has a vision that South Africa will have an energy sector that promotes economic growth and development through adequate investments in energy infrastructure and the provision of quality energy services.</p>	
37. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
<p>This proposed 132 kV powerline development has been adequately assessed by competent Environmental Assessment Practitioners and discipline specialists. All potential impacts that may have a significant impact on the receiving environment have been identified and adequately assessed as required by the NEMA 2010 EIA regulations and mitigation measures developed and the impact significance reassessed. The conclusions of the environmental impact assessment have been concisely summarised to adequately inform decision-making by the competent authority. A comprehensive Public Participation Process was also undertaken, which conformed to requirements in Chapter 6 of the Environmental Impact Assessment Regulations. Further all Interested and Affected Parties will be given ample time to review and comment on all documents and reports and the affected landowners will be empowered to be able to state their concerns and issues adequately.</p>	

38. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The primary objective of the project is to provide increased stable electricity supply to the Golela development node. The provision of a stable electricity supply with spare capacity will encourage future development in the area and will potentially improve the economic situation through job creation.

The social, economic and environmental impacts have been identified and rated by the EAP with the assistance of numerous specialists.

The environmental impact of power lines is well understood and the tower structures selected for this development have been chosen to reduce visual impacts, impacts on cultivated land and impact on avifauna.

A heritage survey, surface water and wetlands assessment as well as an ecological study were also undertaken as part of the basic assessment process and recommendations made by all the specialists for inclusion in the EMPr.

Three alternative corridors were identified and assessed as part of the Basic Assessment and a single corridor route was found to be more environmentally suitable than the other two based on ranking the significance of each aspect identified by the relevant specialist.

The Environmental Basic Assessment was advertised and members of the public were given the opportunity to register as I&AP as described in Section C: public participation and the issues and responses report (Appendix E).

Most of the negative impacts associated with the project will occur during the construction phase. Where negative impacts are unavoidable they will be mitigate according to stipulations in the EMPr. Those impacts that could be addressed during the design phase have identified and the mitigations recommended will form part of the design. The impacts of the proposed powerline on wetlands and sensitive vegetation will be reduced by on site placement of towers to avoid placing them in wetland areas or in sensitive vegetation.

Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise the potential negative impacts. The use of potentially polluting substances will be managed according to requirements in the EMPr. The EMPr will hold the developer responsible for any unnecessary negative impacts of the development on the environment.

The EMPr will include a rehabilitation plan and the cost to of rehabilitation required due to pollution or unnecessary environment degradation resulting from the activity will be the responsibility of the developer.

24 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa (Act 108 of 1996)	The Constitution paves the way for the protection of the natural environment and heritage resources through the recognition of the right to a health and safe environment.	South African Government	1996
National Environmental Management Act (Act No 107 of 1998)	NEMA is the key environmental management legislation and states in s2(4)(k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment.	National and Provincial Department of Environmental Affairs	1998
National Heritage Resources Act (Act No 25 of 1999)	Under section 38(1) of the NHRA any person who intends to construct a powerline or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention. The responsible heritage resources authority may require a heritage impact assessment where powerlines are being proposed	South African Heritage Resources Agency/AMAFA	1999
Environmental Impact Assessment Regulations (GN R543-546 of 2010)	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	National and Provincial Department of Environmental Affairs	2010
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study	National and Provincial Department of Environmental Affairs And KZN Ezimvelo Wildlife	2004

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	site.		
National Environmental Management: Protected Areas Act (Act 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed alternative routes runs through a non-statutory protected area.	National and Provincial Department of Environmental Affairs And KZN Ezimvelo Wildlife	2003
National Forests Act (Act 84 of 1998)	The development of the proposed project may result in damage or destruction of a tree under the National Forests Act	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
National Veld and Forest Fires Act (Act 101 of 1998)		Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Promotion of Access to Information Act (Act No 2 of 2000)		National Department of Environmental Affairs	2000
National Water Act (Act No. 36 of 1998)	This Act provides for the protection and management of water resources. A Water Use Licence Application is made to authorise water use activities pertaining to the altering of the bed and banks of a watercourse and diverting the flow of water in a watercourse. A WULA may be required on this project for the construction of tower structures within 500m of a watercourse.	Department of Water Affairs	1998
Conservation of Agricultural Resources Act (Act No 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the	Department of Agriculture	1983

	receiving environment.		
Occupational Health and Safety Act (Act No 85 of 1993)	The OHSA governs and ensures the protection of employees in the workplace. A number of permanent and contract skilled and semi-skilled workers will be involved in the construction of the different aspects of the project. Their appointment and work periods will be subject to the provisions of the OHSA. This act and its regulations also govern the design and operation of powerlines.	Department of Labour	1993
Electricity Regulations Act (Act No 4 of 2006)	This act establishes a national regulatory framework for the electricity supply industry; and provides for licences and registration as the manner in which generation, transmission, distribution, reticulation, trading and the import and export of electricity are regulated. The erection of new electricity distribution infrastructure is thus regulated in terms of this act.	National Energy Regulator of South Africa	2006
National Energy Act (Act no 34 of 2008)	The Act allows for the regulation and maintenance of security of energy supply in South Africa. The act empowers the energy regulator to invest in the maintenance of energy infrastructure, which includes the installation of electrical infrastructure in area where the grids is operating at near maximum	South African National Energy Development Institute	2008
National Environmental Management: Waste Act (Act No 59 of 2008)	Requires sustainable integrated waste management and implementation of the waste hierarchy.	Department of Environmental Affairs	

25 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
--	------------------------------------

If YES, what estimated quantity will be produced per month?

± 6 m ³

How will the construction solid waste be disposed of (describe)?

<p>Waste generated during the construction phase will be collected in designated areas, in facilities designed to safely store the waste. Waste separation for reuse and recycling will take place. Once sufficient volumes of waste have been collected, or once a month, whichever occurs first, the waste will be transported to the nearest suitably licensed/acceptable solid waste disposal facility waste facility. Receipts / waybills will be obtained from the facility for record purposes. A Integrated Waste Management Plan for this project is presented in Appendix J</p>

Where will the construction solid waste be disposed of (describe)?

<p>General waste will be disposed of at a municipal landfill.</p>

Will the activity produce solid waste during its operational phase?

YES	<input checked="" type="checkbox"/> NO

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

<p>N/A</p>

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

<p>Pongola or Mkuze landfills.</p>

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

<p>Pongola and Mkuze Landfills</p>

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, what estimated quantity will be produced per month?

m ³	
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Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, provide the particulars of the facility:

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A

E-mail:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	<input checked="" type="checkbox"/> NO
-----	--

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

<input checked="" type="checkbox"/> YES	NO
YES	<input checked="" type="checkbox"/> NO

If YES, is it controlled by any legislation of any sphere of government?

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

Construction Phase: Noise control regulations and SANS 10103: Short term noise impacts are anticipated during the construction phase of the project relating to the operation of heavy machinery. It is however anticipated that the noise will be localised and contained within the construction site. The applicant must adhere to the relevant provincial noise control legislation (if any) as well as SANS 10103. Working hours should be restricted to 07h00 to 18h00 Monday to Friday excluding public holiday.

Operational phase: A corona can be produced from water droplets forming on the conductor and crackling noise being formed from the breakdown of air molecules. (Eskom GFS 0009 Revision 2 Document, May 2004)

26 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

<input checked="" type="checkbox"/> Municipal Construction Phase	Water board	<input checked="" type="checkbox"/> Groundwater Construction phase	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

20 000 litres

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES	<input checked="" type="checkbox"/> NO
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If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

27 ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The entire powerline design has been optimised over the years to prevent or reduce energy losses between the point of generation and use and hence is considered to be energy efficient.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

YES	✓NO
-----	-----

If YES, please complete the form entitled “Details of specialist and declaration of interest” for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Kwa Zulu- Natal
District Municipality	District 26
Local Municipality	Uphongolo
Ward Number(s)	14
Farm name and number	See Appendix D1
Portion number	See Appendix D1
SG Code	See Appendix D1

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

See **Appendix D1** for Property Description List and Property Boundary Map for all the alternative Corridors

Current land-use zoning as per local municipality IDP/records:

Agriculture and Open Space

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? **Not for any of the alternatives.**

YES	<input checked="" type="checkbox"/> NO
-----	--

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative A1 – Western Corridor:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
	<input checked="" type="checkbox"/> 10% of corridor	<input checked="" type="checkbox"/> 80% of corridor	<input checked="" type="checkbox"/> 10% of corridor			

Alternative A2 – Eastern Corridor:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
		<input checked="" type="checkbox"/> 37% of corridor			<input checked="" type="checkbox"/> 40% of corridor	<input checked="" type="checkbox"/> 23% of corridor

See Appendix D2 for Topography Map for both Corridors

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

Alternative A1 – Western Corridor:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input checked="" type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

Alternative A2 – Eastern Corridor:

2.1 Ridgeline	<input checked="" type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input checked="" type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

See Appendix D2 for Topography Map for both Corridors

1. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative A1:		Alternative A2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	✓NO	YES	✓NO	YES	NO
Dolomite, sinkhole or doline areas	YES	✓NO	YES	✓NO	YES	NO
Seasonally wet soils (often close to water bodies)	✓YES	NO	✓YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	✓NO	YES	✓NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	✓NO	YES	✓NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	✓NO	YES	✓NO	YES	NO
Any other unstable soil or geological feature	YES	✓NO	YES	✓NO	YES	NO
An area sensitive to erosion	YES	✓NO	YES	✓NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

2. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Alternative A1- Western Corridor

✓Natural veld - good condition ^E 31% of Corridor	Natural veld with scattered aliens ^E	Natural veld with heavy infestation ^E with alien	Veld dominated by alien species ^E	Gardens
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Sport field	<input checked="" type="checkbox"/> Cultivated land 69% of Corridor	Paved surface	Building or other structure	Bare soil
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Alternative A2- Eastern Corridor

<input checked="" type="checkbox"/> Natural veld - good condition^E 78% of Corridor	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	<input checked="" type="checkbox"/> Cultivated land 22% of Corridor	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

See **Appendix D3** for Ecological Report for both Corridors and Land Use Map

3. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Alternative A1 – Western Corridor

Perennial River	<input checked="" type="checkbox"/> YES	NO	UNSURE
Non-Perennial River	<input checked="" type="checkbox"/> YES	NO	UNSURE
Permanent Wetland	<input checked="" type="checkbox"/> YES	NO	UNSURE
Seasonal Wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE
Artificial Wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE
Estuarine / Lagoonal wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE

Alternative A2 – Eastern Corridor

Perennial River	<input checked="" type="checkbox"/> YES	NO	UNSURE
Non-Perennial River	<input checked="" type="checkbox"/> YES	NO	UNSURE
Permanent Wetland	<input checked="" type="checkbox"/> YES	NO	UNSURE
Seasonal Wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE
Artificial Wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE
Estuarine / Lagoonal wetland	YES	<input checked="" type="checkbox"/> NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Alternative A1: Western Corridor

The Western Corridor traverses across 3 non-perennial, intermittently inundated, seasonally saturated channelled valley-bottom streams and one perennial River re: Pongola River.



Plate 1: Aerial View of Proposed Crossing of the Pongola River

Alternative A2: Eastern Corridor

The Eastern Corridor traverses across 5 non-perennial, intermittently inundated, seasonally saturated channelled valley-bottom streams, one dam and the Pongola River.



Plate 2: Aerial view of the proposed crossing over the Pongola River

The surface water specialist study is presented in Appendix D3.

4. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Alternatives A1 – Western Corridor

✓ Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	✓ Agriculture
Retail commercial & warehousing	Old age home	✓ River, stream or wetland
Light industrial	Sewage treatment plant ^A	✓ Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	✓ Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

Alternatives A2 – Eastern Corridor

✓Natural area	✓Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	✓Agriculture
Retail commercial & warehousing	Old age home	✓River, stream or wetland
Light industrial	Sewage treatment plant ^A	✓Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	✓Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	✓Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

The maps showing the Landuse for both corridors is presented in Append D3. The Map showing the Conservation Areas associated with both corridors is presented in Appendix D3.

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	✓NO
Core area of a protected area?	YES	✓NO
Buffer area of a protected area?	✓YES	NO
Planned expansion area of an existing protected area?	YES	✓NO

Existing offset area associated with a previous Environmental Authorisation?	YES	✓NO
Buffer area of the SKA?	YES	✓NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

A map showing the **Protected/Conservation** areas in the region relatives to all 3 Alternative Corridors is presented in **Appendix A6**.

5. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	✓NO
	Uncertain	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A specialist was appointed to undertake a heritage site survey of the alternative corridors. The **Heritage Report** is presented in **Appendix D6**. The report identified a number of potential heritage sites located within or close to each alternative corridors. However, the sites are not extensive and if identified prior to tower siting and final line alignment, these sites can be avoided.

Will any building or structure older than 60 years be affected in any way?	YES	✓NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	✓NO
If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.		

6. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to the 2012- 2013 uPhongolo IDP, an estimation of 52.18% of the entire population is economically active . Only 26.61% of this population group is employed which means that the unemployment rate is as high as 73.39% for the area.

Economic profile of local municipality:

The economy of uPhongolo is largely based on agricultural activities and tourism. Construction work is periodic construction work. The local economy is further characterised by the absence of

beneficiation strategies. Raw products are transported to other industrial centres for further processing and this result in the erosion of the job creation potential of the area. The Public Sector remains the dominant provider of employment opportunities. This has a significant economic impact to the small number of employees in this sector. The informal sector is, however, expanding, primarily based on the taxi industry, informal financial services and taverns (uPhongolo IDP 2012-2013).

Level of education:

In 2007, 22.41% of the total adult population in the Municipality had no formal education, whilst a further 39.23% only had some primary education. Only 3.73% of the adult population had higher education (Census, in the 2012- 2013 uPhongolo IDP) .

b) Socio-economic value of the activity

Please note that the figures below are for the combined construction and operation of both the substation and the 132 kV Turn-in powerlines

What is the expected capital value of the activity on completion?	R 52,062,200.33
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	<input checked="" type="checkbox"/> YES NO
Is the activity a public amenity?	<input checked="" type="checkbox"/> YES NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	± 50 - 100
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Eskom BEE and affirmative action policies' will be enforced
How many permanent new employment opportunities will be created during the operational phase of the activity?	± 2 - 5
What is the expected current value of the employment opportunities during the first 10 years?	R unknown

What percentage of this will accrue to previously disadvantaged individuals?

Eskom BEE and affirmative action policies' will be enforced

7. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

SUBSTATION ALTERNATIVE SITES

Both Alternatives Sites

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	✓Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

- b) **Indicate and describe the habitat condition on site**

Alternative S1: Golela 1 - Southern Site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	%	
Near Natural (includes areas with low to moderate level of alien invasive)	%	

plants)		
✓ Degraded (includes areas heavily invaded by alien plants)	90%	The area that has been identified for this site is land that has been under agriculture previously. Some indigenous species have returned but the overall condition of the veld is very poor.
✓ Transformed (includes cultivation, dams, urban, plantation, roads, etc)	10%	This site is bordered by active agricultural lands to the north and west and the N2 to Golela forms the northern boundary of the site.

Alternative S2: Golela 2 - Northern Site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
✓ Natural	100%	The vegetation on site comprises typical species associated with the Zululand Lowveld.
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Alternative S1: Golela 1 - Southern Site

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	✓ Least Threatened	YES	✓NO	UNSURE	YES	✓NO	YES	✓NO

Alternative S2: Golela 2 - Northern Site

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	✓Vulnerable							
	Least Threatened							
		YES	✓NO	UNSURE	YES	✓NO	YES	✓NO

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Alternative S1: Golela 1 - Southern Site

The southern site is located in an area where the spatial information provided by SA National Biodiversity Institute (SANBI) indicate that the area is dominated by Zululand Lowveld which is considered “vulnerable” in terms of their conservation status.

However, this site does not show significant biodiversity of species associated with Zululand Lowveld as the land has been subjected to agriculture and road development pressure for a number of years.

Alternative S2: Golela 2 - Northern Site

The northern site is located within the boundaries of a private game reserve/farm in an area where the spatial information provided by SA National Biodiversity Institute (SANBI) indicate that the area is dominated by Zululand Lowveld which is considered “vulnerable” in terms of their conservation status.

Zululand Lowveld

Zululand Lowveld is an acacia dominated woodland with a number of vegetative forms including *closed canopy* tending towards *thicket*, as well as *open woodland*. Where lower lying, poorly drained soils occur, primarily to the east and north of the area, *Acacia xanthophloea* can form the dominant vegetative consocieties, with *Phoenix reclinata* and *Gymnosporia senegalensis* being common, particularly following disturbance of the land. This vegetation unit is the dominant vegetation form within the study area and dense, closed canopy areas are located centrally within the study area. Also common to the site is *Dichrostachys cinerea*, *Euclea divinorum* and *Acacia nigrescens* which form dense stands where burning or overgrazing has been prolific. Open woodland forms comprising of low canopy cover and sporadic clustering of woody species which include *Acacia karoo*, *Bolusanthus speciosa* and *Sclerocarrya birrea* is notable, particularly to the west and south of the study area (Fig. 5). Open pure grassland patches, with occasional woody specimens are also apparent within the study areas, where *Themeda triandra*, *Panicum maximum* and *Pdeustem* prove to be dominant.

The vegetation on this site can be considered to be representative of the Zululand Lowveld ecosystem.

The **Ecological Report** is presented in **Appendix D3**.

- a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

132 kV TURN-IN POWERLINE ALTERNATIVE CORRIDORS

Both Alternatives Corridors

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	✓Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

- b) Indicate and describe the habitat condition on site

Alternative A1: Western Corridor

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
✓Natural	31%	This veld can be described as Zululand Lowveld, but the species biodiversity has been impacted on by anthropogenic activity nearby.
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants)	%	
✓Transformed (includes cultivation, dams, urban, plantation, roads, etc)	69%	A fair extent of this proposed servitude is under cultivation to either sugarcane or fruit orchards.

Alternative A2: Eastern Corridor

Habitat Condition	Percentage of habitat	Description and additional Comments and Observations
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	condition class (adding up to 100%)	(including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
✓Natural	63%	The vegetation on site comprises typical species associated with the Zululand Lowveld and this natural vegetation is undisturbed with a good species biodiversity representation.
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants)	%	
✓Transformed (includes cultivation, dams, urban, plantation, roads, etc)	37%	The transformed portion of this servitude is currently under sugarcane.

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Alternative A1: Western Corridor

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	✓Least Threatened							

Alternative A2: Eastern Corridor

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	✓Vulnerable							
	Least Threatened							

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Alternative A1: Western Corridor

The Western Corridor is located in an area where the spatial information provided by SA National Biodiversity Institute (SANBI) indicate that the area is dominated by Zululand Lowveld which is considered “vulnerable” in terms of their conservation status.

However, along most of this servitude, the land has been transformed by anthropogenic activities and large sections are under sugarcane or fruit cultivation this site does not show significant biodiversity of species associated with Zululand Lowveld as the land has been subjected to agriculture and road development pressure for a number of years.

Alternative A2: Eastern Corridor

The Eastern Corridor is primarily located within the boundaries of private game reserves in an area where the spatial information provided by SA National Biodiversity Institute (SANBI) indicate that the area is dominated by Zululand Lowveld which is considered “vulnerable” in terms of their conservation status.

Zululand Lowveld

Zululand Lowveld is an acacia dominated woodland with a number of vegetative forms including *closed canopy* tending towards *thicket*, as well as *open woodland*. Where lower lying, poorly drained soils occur, primarily to the east and north of the area, *Acacia xanthophloea* can form the dominant vegetative consociations, with *Phoenix reclinata* and *Gymnosporia senegalensis* being common, particularly following disturbance of the land. This vegetation unit is the dominant vegetation form within the study area and dense, closed canopy areas are located centrally within the study area. Also common to the site is *Dichrostachys cinerea*, *Euclea divinorum* and *Acacia nigrescens* which form dense stands where burning or overgrazing has been prolific. Open woodland forms comprising of low canopy cover and sporadic clustering of woody species which include *Acacia karoo*, *Bolusanthus speciosa* and *Sclerocarya birrea* is notable, particularly to the west and south of the study area (Fig. 5). Open pure grassland patches, with occasional woody specimens are also apparent within the study areas, where *Themeda triandra*, *Panicum maximum* and *Pdeustium* prove to be dominant.

The vegetation along this servitude, outside of the areas that are under cultivation, can be considered to be representative of the Zululand Lowveld ecosystem.

SECTION C: PUBLIC PARTICIPATION

1 ADVERTISEMENT AND NOTICE

Publication name	a. Natal Mercury b. The Zululand Observer c. Vryheid Herald	
Date published	a. 22/02/2012 b. 24/02/2012 c. 24/02/2012	
Site notice position	Latitude	Longitude
	See Appendix E1.	
Date placed	10-12 August 2012	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

Copies of the **advertisements** placed in the newspapers and photographed locations of the **site notices** are presented in **Appendix E1**.

2 DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Please see Appendix E2 for a complete list of the Key Stakeholders .		

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

Proof of **Notification of Key Stakeholders** is presented in **Appendix E2**.

3 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p>Potential for proposed new powerline to have a direct negative impact on portions of the Pongola Game Reserve (Registered as a Nature Heritage Site No 127). Concerned about the potential impact that the project will have on the Natural Heritage Site registration and the game ranching and ecotourism industry.</p>	<p>These issues have been noted and have been assessed as part of this Basic Assessment. The findings are reported on in this report under the specialist studies and in the final Environmental Impact Assessment section.</p>
<p>The area is one which is not densely populated suggesting that there are areas of ecological value which would need to be considered.</p>	<p>following specialists were appointed to carry out the investigations:</p> <ul style="list-style-type: none"> • Sustainable Development Projects CC – Ecological Assessments including avifauna, vegetation and terrestrial fauna • Jones & Wagener – Surface Water, Wetlands and visual assessments • PGS Heritage and Grave Relocation Services – Archaeology and Heritage assessments • Zitholele Consulting – Landuse Mapping' <p>Their terms of reference were to assess the impacts of the proposed 132 kV Powerline on each of the proposed routes and to make a recommendation regarding which would be the most suitable route for the construction of a 132 kV powerline. This BAR clearly records those findings.</p>
<p>Spoornet raised issues concerning the crossing of the railway line and requested notification of the proposed crossing points.</p>	<p>None of the proposed powerline corridors will cross over the Spoornet railway line.</p>
<p>Maintenance of the powerline and substation has to be improved and this needs to be addressed in the EMP.</p>	<p>The maintenance of these facilities has been included in the EMP. Eskom must make a commitment to complying with the requirements as stated in the EMP. If Eskom does not comply with the EMP, the effected parties have the legal right to report to the Department of Environmental Affairs.</p>
<p>Landowners with existing 22 kV powerlines traversing their properties have indicated that they frequently experience electrical surges</p>	<p>A technical response from Eskom to this issue is awaited from Eskom</p>

which blow out the plug sockets in the house.	
Landowners with 22 kV powerlines across their properties indicated that they experienced issues with the Eskom maintenance crews poaching and wounding of animals by these crews. Stated that Eskom must notify the landowners whenever Eskom wanted to access the properties,	The issue is noted and has been included in the EMP for the proposed new powerline. Landowners must open criminal cases when they believe that Eskom maintenance crews have committed a crime on their properties.
Existing 22 kV powerlines have fallen down frequently (sic) and are a danger to animals and humans.	The issue of regular and timeous maintenance will be included in the EMP. However, incidences of force majeure cannot always be avoided.
Eskom tariffs currently are very high and how will the new powerline affect these tariffs?	The construction of the proposed new powerline will not specifically affect the Eskom tariffs. These tariffs are set at a National level in consultation with the National Energy Regulator.
Powerline routes should adhere to farm boundaries.	Wherever it is practicably possible, the alignment of the proposed new powerline will adhere to farm boundaries. This requirement be included in the EMP.
The issue of a fully cleared servitude was raised. Landowner requested that wherever possible trees be kept in the existing servitude and are only trimmed to maintain the safe clearance distances. The possibility for visual screening can be investigated.	Eskom has a substantial Bush Clearing procedure which allows for such clearing to occur under 132 kV powerlines.
Accessing game farms during hunting season.	The issue of hunting and conflict with line construction and line maintenance has been taken into account and ways of planning construction around maintenance around these periods will form part of the EMP.
The issue of compensation for the 132 kV servitude across the effected properties was raised.	Once a final line route has been approved, the Eskom negotiators will meet with each of the affected landowners to negotiate compensation. Standard formulae and procedures are in place for this negotiation process and will be made available to the affected landowners.

Numerous small aircrafts fly in the area and would need to be notified of the existence of a new powerline.	Notification of pilots about the new powerline will be form part of the operational requirements of the EMP. Certain sections of the powerline will be fitted with aircraft warning spheres.
Human settlements should be taken into consideration when planning the routes.	Noted. Wherever possible, the design team of new powerlines avoids human settlement.
How will the powerline affect cattle grazing?	Grazing land will be diminished only by the footprint area of the towers. Grazing in the remainder of the servitude can continue as normal.
The possibility for an underground powerline should be investigated and if that is feasible then that would work better.	The use of underground cables for the powerline has been investigated as an alternative to the overhead powerlines as part of this assessment. However, underground cabling has not proved to be a practicable solution for 132 kV powerlines.
Maintenance and access to the existing powerline will have a separate agreement to the new powerlines. This needs to be aligned so that maintenance agreements are consistent.	Noted and will be included in the Operational EMP for the proposed new powerline.
The powerline has a negative visual and aesthetic impact which will affect tourism. The Pongola Game Reserve is a protected site and will be incorporated into the future development of a larger transfrontier project.	This issue has been noted and has been imparted to the specialists to incorporate into the specialist studies.
There needs to be mitigation measures dealing specifically with vulture breeding. The Pongola Nature Reserve is run by KZN Wildlife and can assist with this.	Ezemvelo KZN Wildlife will be requested to have input into this process and into including mitigation measures for Vulture protection in the final EMP.

4 COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

The I&AP Comment and Response Report is presented in **Appendix E3**.

5 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Water Affairs (DWA)	Mr Thys Badenhorst	(031) 336-2783	(031) 307-7279	BadenhorstT@dwa.gov.za	Chief Director: KZN Region Department of Water Affairs (DWA) P O Box 1018 DURBAN 4000
Department of Co-operative Governance & Traditional Affairs	Sipho Buthelezi	(034) 312-5380			Department of Co-operative Governance & Traditional Affairs (KZN) Private Bag X9078 PIETERMARITZBURG 3200
Department of Economic Development and Tourism	Ms Carol Coetzee	(033) 264-2500	(033) 264-2580	mthembus@kznded.gov.za	Head of Department Economic Development and Tourism Private Bag X9152 PIETERMARITZBURG 3201
Zululand District Municipality	Mr Johannes de Klerk	(035) 874-5500	(035) 874-5589/91	mm@zululand.org.za	Municipal Manager Zululand District Municipality Private Bag X76 ULUNDI3838
Ezemvelo KZN Wildlife	Ms Dinesree Thambu	(033) 845-1425	(033) 845-1499	thambud@kznwildlife.com	Principal Conservation Planner Ezemvelo KZN Wildlife P O Box 13053 CASCADES 3202
uPhongolo Local Municipality	Mrs F Jardim	(034) 413-1223	(034) 413-1223	mm@uphongola.org.za	Municipal Manager uPhongolo Local Municipality P O Box 191 PONGOLA 3170
Department of Agriculture, Forestry and Fisheries	Mr Makhosi Mdamba	(035) 780-6700	(035) 789-0662	Makhosi.Mdamba@kzndae.gov.za	Department of Agriculture, Forestry and Fisheries (KZN) 65 Victor Street DUNDEE

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

The proof of notification of Authorities and Organs of state is presented in **Appendix E4..**

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6 CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

A list of registered I&APs is included in **Appendix E5.**

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

Copies of correspondence and meetings are included in **Appendix 6.**

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Note: The impact assessment section is divided into the Substation Alternatives followed by the alternative powerline corridors.

SUBSTATION SITES.

PLANNING AND DESIGN PHASE

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Heritage Sites	Direct impacts: Damage to heritage and archaeological sites as a result of position of the substation.	L-	M-	Select site least likely to impact on heritage sites. Appoint heritage specialist at design phase to assist with identification of site	L-	L-
	Direct impacts: Damage to heritage sites and archaeological sites as a result of the alignment of access roads.	M-	M-	Use specialist to identify any heritage sites along preferred access road alignment. Ensure road sited away from any heritage. If sites are located in the vicinity ensure they are clearly demarcated prior to construction.	L-	L-
Avifauna	Direct impacts: Interference with bird flight paths and increased potential for bird collisions.	M-	M-	Select site least likely to impact on avifaunal flight paths. Appoint avifaunal specialist to assist with specific location of site.	L-	L-
	Direct impacts: Bird electrocutions	L-	M-	Ensure site layout and structure design are optimum for deterring bird activity and preventing electrocutions. Also ensure that suitable bird repelling structure, such as bird guards are considered in the design.	L-	L-
Social and Socio-economic	Direct impacts: Loss of agricultural land due to area occupied by substation	L-	L-	Avoid placement in crop lands directly wherever possible. This can be readily achieved for both sites.	L-	L-
	Direct Impacts: Negative visual and “sense of place’ impact on tourism venues primarily consisting of nature/game reserves with lodge accommodation.	L-	M-	Select site least likely to impact on tourist activities.	L-	M-
Vegetation	Direct impacts: Increased potential for loss of indigenous vegetation due to position of substation.	L-	H-	Select site least likely to impact negatively on indigenous vegetation.	L-	H-
	Direct impacts: Increased potential for loss of species biodiversity due to position of the substation.	L-	H-	Where possible locate substation on site least likely to impact on indigenous vegetation biodiversity.	L-	H-
	Direct Impacts: Increased potential for loss of rare or endangered species due to position of the substation.	L-	M-	Where possible locate substation on site least likely to impact on rare or endangered species. Ensure specialist	L-	M-

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
				undertakes study of chosen site to identify, rescue and remove rare and endangered species.		
Visual	Direct Impacts: Increased potential for visual impacts based on location of the substation.	M-	M-	Place substation back from the edge of any road routes. Ensure substation not positioned on elevated slope. Leave indigenous vegetation in place around the substation where possible to provide screening	L-	M-
Ecological	Direct Impacts: Increased potential for habitat transformation due to inappropriate siting of the substation.	M-	H-	Select site least likely to impact on the natural ecology. Maintain construction footprint as small as possible.	L-	M-
	Direct Impacts: Increased potential for impact on terrestrial fauna due to inappropriate aligning of the powerline.	L-	H-	Select site least likely to impact on terrestrial fauna.	L-	M-
Conservation Areas	Direct Impacts: Increased potential for impact on conservation areas due to inappropriate siting of the substation.	L-	H-	Select site least likely to introduce new impact in previously non-impacted conservation areas. Maintain construction footprint as small as possible.	L-	M-
Landuse:	Direct Impacts: Introduction of a non-compatible landuse into an area due to inappropriate alignment of the powerline.	L-	M-	Select site least likely to introduce new incompatible landuse into new areas	L-	M-
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand.	H+	H+	Increased, stable power supply to the Golela development node will assist with improving economic development in the region, alleviating poverty and assist with provision of basic services to all - HIGH POSITIVE IMPACT	H+	H+

CONSTRUCTION PHASE

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Heritage Sites	Direct impacts: Damage to or destruction of archaeological and heritage sites as a result of construction activities	L-	L-	Ensure all identified sites are clearly demarcated prior to construction and that all persons on site are sensitised to the issue and the significance. Stop work if new site exposed during construction. Notify relevant authorities.	L-	L-
Avifauna	Direct impacts: Disturbance of birds, damage to nests or nesting grounds	L-	L-	Demarcate areas where known nesting grounds are located. Sensitise employees to issue. Ensure all construction remains in footprint area. Ensure access roads clearly marked and adhered to.	L-	L-
Social and Socio-economic	Direct impacts: Damage to agricultural lands by construction activities.	L-	L-	Ensure all construction remains in agreed footprint area. Ensure access roads clearly marked and adhered to.	L-	L-
	Direct Impacts: Negative visual and “sense of place” impact on tourism venues primarily consisting of nature/game reserves with lodge accommodation as a result of construction activities.	L-	M-	Design and time construction activities in association with landowners to minimise the interference effects. Take note of hunting season requirements.	L-	L-
	Indirect Impacts: Loss of productivity due to interference with farming activities	L-	L-	Contractor to liaise with landowners to correlate farm activities with construction activities to ensure no interference.	L-	L-
	Cumulative impacts: Creation of temporary jobs during construction	M+	M+	Contractor to employ as many local labourers as is feasibly possible. Contractor to have skills development plans in place.	H+	H+
Vegetation	Direct impacts: Unnecessary loss of rare and endangered species due to bush clearing and access activities	L-	M-	Ensure specialist identifies presence of rare and endangered species prior to construction. Carry out search and rescue at all sites.	L-	L-
	Direct impacts: Unnecessary loss of indigenous vegetation due to bush clearing and access activities	L-	M-	Use existing access routes where possible. Ensure competent bush clearer appointed to clear alignments. Ensure only required clearing is undertaken. Ensure area to be cleared is properly and clearly demarcated.	L-	L-
	Direct Impacts: Uncontrolled vehicle access can result in unnecessary loss of indigenous.	M-	M-	Ensure access routes are planned, clearly demarcated and suitable for the vehicles that will be using them. Ensure drivers are sensitised and disciplined to the issue. Vehicle	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
				access through riparian or wetland system to be limited to pre-existing formal access only.		
	Direct Impacts: Control of invader species on site and access roads.	M+	M+	Ensure policies are strictly and consistently enforced through construction phase.	M+	M+
	Indirect Impacts: Bush clearing along servitude and access routes may increase the risk of invader species encroachment.	M-	M-	An invader species eradication and management plan must be developed for the construction phase and must be implemented consistently throughout construction phase	L-	L-
	Indirect Impacts: Vegetation removal can increase erosion potential	M-	M-	Stormwater cut-off drains must be implemented to prevent stormwater running across substation site.	L-	L-
	Indirect Impacts: Vegetation removal can result in the loss of topsoil	M-	M-	Topsoil removed from sites must be removed and stored for rehabilitation and protected from erosion during storage.	L-	L-
	Indirect Impacts: Hardening of soil surfaces by construction activities can prevent the revegetation of an area and promote erosion	M-	M-	All hardened surfaces will be ripped during the rehabilitation phase to assist with rapid vegetation re-establishment.	L-	L-
Ecological	Indirect Impacts: Construction activities will cause fragmentation of habitats during construction.	L-	M-	Must be limited by minimising clearance wherever possible; by ensuring good discipline of vehicle movements on site and staying on one track.	L-	M-
Noise	Direct Impacts: Operation of construction equipment and vehicles will increase noise levels	L-	L-	Ensure all vehicles and equipment are in good working order and within allowable noise ranges. Equipment exceeding allowable must be equipped with silencers or removed from site. Operations should occur during acceptable working hours. All noise complaints shall be recorded, investigated and rectified immediately. Construction camps and batching plants must be sited outside of conservation areas.	L-	L-
Air Pollution	Direct Impacts: Movement of vehicles will result in dust impacts	M-	M-	Dust suppression must be implemented. Vehicle speeds must be limited to slow speeds on gravel roads and tracks. Dust complaints must be recorded, investigated and addressed immediately.	L-	L-
Fires	Direct Impacts: Movement of vehicles through dry	M-	M-	No open fires will be permitted on site. Smoking may only	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
	grassland can cause fires. Work forces increase the risk of fire in an areas.			occur during controlled breaks at a designated smoking are with appropriate fire protection facilities. Long grass to be trimmed or flattened along access routes.		
Traffic	Direct Impacts: Construction will result in increased traffic flow in specific routes in the region which may impact on other users	M-	M-	Construction vehicle drivers must be considerate to all other road users at all times	L-	L-
	Indirect Impacts: Deterioration of public and private roads due to passage of construction vehicles.	L-	L-	Ensure vehicles are not overloads. Repair damage caused by construction vehicles to private roads immediately.	L-	L-
Operations	Direct Impacts: Spillage of hazardous substances into the natural environment	M-	M-	All vehicles and equipment must be in good working order. Equipment/vehicles with permanent leaks must be removed from site. Drip trays must be available with all vehicles and all areas where hazardous substances are being used. All hazardous materials must be stored in secured bunded areas.	L-	L-
	Direct Impacts: Poor waste management can cause environmental damage	L-	L-	An integrated waste management plan must be compiled during site establishment and must be implemented continuously throughout the construction phase.	L-	L-
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand.	H+	H+	The new 132 kV Powerline must be constructed to achieve this result in the region and to ensure the success and efficiency of all the other grid strengthening activities that are being planned in the region.	H+	H+
	Cumulative Impacts: Provision of temporary work opportunities and skills transfer.	H+	H+	Local persons should be employed for unskilled labour positions.	H+	H+

OPERATIONAL PHASE

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance		
		A1	A2			A1	A2	
Fires	Direct impacts: Ignition of veld due to conductor failure or flash overs	L-	L-		Regular substation inspections to ensure the integrity of the equipment.	L-	L-	
Avifauna	Direct impacts: Electrocutation of avifauna and collisions with the conductor	L-	L-		Ensure that all these structures remain in working order at all times. If an increase in bird strikes is observed, then bird diverter and bird guard placement may have to reviewed and improved.	L-	L-	
Site Maintenance	Direct Impacts: Overgrown site and associated electrical clearance problems	M-	M-		Eskom to ensure that the vegetation clearance occurs as per Eskom Policies.	L-	L-	
	Direct Impacts: Poor maintenance of access tracks results in erosion of these tracks.	M-	M-		Eskom to ensure that the access maintenance occurs as per Eskom Policies.	L-	L-	
	Direct Impact: Damage to transformers resulting in discharge of large volumes of transformer oil into the environment.	H-	H-		Eskom to ensure transformers are inspected regularly to ensure integrity of the equipment. All transformers to be banded as per legal requirements.	L-	L-	
	Indirect Impacts: Increase in invader species around the substation footprint.	M-	M-		Eskom to ensure that invader species control is maintained at all times along the access road and around the substation.	L-	L-	
Provision of electricity	Indirect Impacts: Faulting causing Loss of stable electricity supply i.e. outages which impacts negatively on businesses hospitals, schools etc.	L-	L-		Strict maintenance regime must be upheld to ensure faulting levels remain low.	L-	L-	
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply to the Golela Region	H+	H+					

NO GO OPTION

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Biophysical Environment	<i>Direct impacts:</i> Environment remains in the current status quo	L+	L+	No mitigation required		
Socio-Economic Environment	<i>Indirect impacts:</i> The current unreliable supply of electricity in the region and the lack of capacity to supply planned economic growth and delivery of basic services will negatively impact the socio-economic growth of the region resulting in failure of the Provincial, District and Local Municipalities to achieve the stated IDP targets and objectives.	H-	H-	Construct the proposed 132 kV powerline and the Golela substation.	H+	H+

The complete impact assessment is presented in **Appendix F**

132 kV DOUBLE-CIRCUIT POWERLINE

PLANNING AND DESIGN PHASE

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Heritage Sites	<i>Direct impacts:</i> Damage to heritage and archaeological sites as a result of position of the towers.	M-	M-	Select corridor and route within corridor least likely to impact on heritage sites. Appoint heritage specialist at design phase to assist with identification of sites and placement of towers. Avoid location of towers on or near heritage sites	L-	L-
	<i>Direct impacts:</i> Damage to heritage sites and archaeological sites as a result of the alignment of	L-	M-	Select corridor with least likelihood of impacting on heritage sites. Appoint specialist during planning and design phase	L-	L-

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
	access roads.			to identify all heritage sites along preferred alignment and access routes to alignment..		
Avifauna	Direct impacts: Interference with bird flight paths and increased potential for bird collisions with conductor.	L-	M-	Select corridor and route least likely to impact on avifaunal flight paths. Appoint avifaunal specialist to assist with specific location of towers within corridor to avoid flight paths. Ensure location of Bird diverters included in design phase.	L-	L-
	Direct impacts: Bird electrocutions	L-	M-	Ensure tower design and type is best for dissuading birds from roosting. Also ensure that suitable bird repelling structures, such as bird guards are considered in the design.	L-	L-
Social and Socio-economic	Direct impacts: Loss of agricultural land due to area occupied by the towers	L-	L-	Avoid placement in crop lands directly wherever possible. This can be readily achieved on all routes.	L-	L-
	Direct Impacts: Negative visual and "sense of place" impact on tourism venues primarily consisting of nature/game reserves with lodge accommodation.	L-	M-	Position towers in such a way to be sensitive to tourism venues. In the case of the northern corridor, keep tower positions in same alignment as existing tower positions. In case of the central and southern corridors, site towers out of view of lodges.	L-	M-
Vegetation	Direct impacts: Increased potential for loss of indigenous vegetation due to alignment of power line and position of towers.	L-	H-	Select corridor and route least likely to impact on vegetation. Where possible locate towers and alignment in areas of least dense vegetation	L-	M-
	Direct impacts: Increased potential for loss of species biodiversity due to alignment of powerline and position of towers	L-	M-	Where possible locate towers and alignment in areas identified as consisting of species typical and numerous in the area. Make use of specialist during alignment to do this.	L-	M-
	Direct Impacts: Increased potential for loss of rare or endangered species due to alignment of powerline and position of towers.	L-	M-	Use specialist to identify rare and endangered species and to assist in selecting corridor and aligning powerline within corridor to reduce potential for impact on rare endangered species.	L-	M-
Visual	Direct Impacts: Increased potential for visual impacts based on powerline alignment and position of the towers.	M-	M-	Where possible avoid placing towers against skyline views - keep towers below escarpments or hills to ensure visual obscuring.	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		M-	M-		L-	M-
Ecological	Direct Impacts: Increased potential for habitat transformation due to inappropriate aligning of the powerline.	M-	M-	Select corridor and route least likely to impact on vegetation. Where possible locate towers and alignment in areas of where habitat transformation has already occurred	L-	M-
	Direct Impacts: Increased potential for impact on terrestrial fauna due to inappropriate aligning of the powerline.	M-	M-		L-	M-
Conservation Areas	Direct Impacts: Increased potential for impact on conservation areas due to inappropriate aligning of the powerline.	M-	H-	Select corridor and route least likely to introduce new impact in previously non-impacted conservation areas .	L-	H-
Surface water and wetlands	Direct impacts: Potential for physical damage to water resources due to the alignment of the powerline and the position of the towers.	M-	M-	Use findings of specialist study to select corridor with least potential to impact on water sources and to assist in placement of the towers to avoid these features. Ensure wetland assessments undertaken to position towers outside required legal buffers.	L-	L-
Landuse:	Direct Impacts: Introduction of a non-compatible landuse into an area due to inappropriate alignment of the powerline.	L-	H	Select corridor and route least likely to introduce new incompatible landuse into new areas	L-	M-
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply to the Golela region.	H+	H+	The new 132 kV Powerline must be constructed to achieve this result in the region and to ensure the success and efficiency of all the other grid strengthening activities that are being planned in the region.	H+	H+

CONSTRUCTION PHASE

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Heritage Sites	Direct impacts: Damage to or destruction of archaeological and heritage sites as a result of construction activities	L-	L-	Ensure all identified sites are clearly demarcated prior to construction and that all persons on site are sensitised to the issue and the significance. Stop work if new site exposed during construction. Notify relevant authorities.	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
Avifauna	Direct impacts: Disturbance of birds, damage to nests or nesting grounds	M-	M-	Demarcate areas where known nesting grounds are located. Sensitise employees to issue. Ensure all construction remains in footprint area. Ensure access roads clearly marked and adhered to.	L-	L-
Social and Socio-economic	Direct impacts: Damage to agricultural lands by construction activities.	L-	L-	Avoid placement in crop lands directly wherever possible. This can be readily achieved on all routes.	L-	L-
	Direct Impacts: Negative visual and "sense of place" impact on tourism venues primarily consisting of nature/game reserves with lodge accommodation as a result of construction activities.	M-	M-	Design and time construction activities in association with landowners to minimise the interference effects. Take note of hunting season requirements.	L-	L-
	Indirect Impacts: Loss of productivity due to interference with farming activities	L-	L-	Contractor to liaise with landowners to correlate farm activities with construction activities to ensure no interference.	L-	L-
	Cumulative impacts: Creation of temporary jobs during construction	M+	M+	Contractor to employ as many local labourers as is feasibly possible. Contractor to have skills development plans in place.	H+	H+
Vegetation	Direct impacts: Unnecessary loss of rare and endangered species due to bush clearing and access activities	L-	L-	Ensure specialist identifies presence of rare and endangered species prior to construction. Carry out search and rescue at all sites.	L-	L-
	Direct impacts: Unnecessary loss of indigenous vegetation due to bush clearing and access activities	L-	M-	Ensure competent bush clearer appointed to clear alignments. Ensure only required clearing is undertaken. Ensure area to be cleared is properly and clearly demarcated.	L-	L-
	Direct Impacts: Bush clearing through riparian and riverine vegetation may result in unnecessary loss of riparian and riverine vegetation.	M-	M-	Bush clearing through these areas must be kept to a minimum and must permit access on foot only i.e. clearance of a narrow strip only and selective trimming for the purposes of maintaining electrical clearances.	L-	L-
	Direct Impacts: Uncontrolled vehicle access can result in unnecessary loss of indigenous and riparian vegetation.	M-	M-	Ensure access routes are planned, clearly demarcated and suitable for the vehicles that will be using them. Ensure drivers are sensitised and disciplined to the issue. Vehicle access through riparian or wetland system to be limited to	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
				pre-existing formal access only.		
	Direct Impacts: Control of invader species along servitude and access roads.	M+	M+	Ensure policies are strictly and consistently enforced through construction phase.	M+	M+
	Indirect Impacts: Bush clearing along servitude and access routes may increase the risk of invader species encroachment.	M-	M-	An invader species eradication and management plan must be developed for the construction phase and must be implemented consistently throughout construction phase	L-	L-
	Indirect Impacts: Vegetation removal can increase erosion potential	M-	M-	Bush clearing may only occur through cutting or trimming. No scalping or ploughing is permitted.	L-	L-
	Indirect Impacts: Vegetation removal can result in the loss of topsoil	M-	M-	Bush clearing may only occur through cutting or trimming. No scalping or ploughing is permitted. Topsoil removed from foundation sites or drum stations must be removed and stored for rehabilitation and protected from erosion during storage.	L-	L-
	Indirect Impacts: Hardening of soil surfaces by construction activities can prevent the revegetation of an area and promote erosion	M-	M-	All hardened surfaces will be ripped during the rehabilitation phase to assist with rapid vegetation re-establishment.	L-	L-
Ecological	Indirect Impacts: Construction activities will cause fragmentation of habitats during construction.	M-	M-	Must be limited by minimising clearance wherever possible; by ensuring good discipline of vehicle movements on site and staying on one track.	L-	L-
Surface water and wetlands	Direct impacts Physical damage to wetlands and streams through encroachment by construction activities	M-	M-	Ensure all wetlands and streams are identified and all access routes, laydown area, drum stations etc are not located within the buffer zones of these features.	L-	L-
	Direct Impacts: Bush clearing can result in increased stormwater run-off and erosion	M-	M-	Bush clearing may only be achieved through cutting - no scalping will be permitted. Destumping of trees on stream and river banks will not be permitted.	L-	L-
Noise	Direct Impacts: Operation of construction equipment and vehicles will increase noise levels	L-	L-	Ensure all vehicles and equipment are in good working order and within allowable noise ranges. Equipment exceeding allowable must be equipped with silencers or	L-	L-

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
				removed from site. Operations should occur during acceptable working hours. All noise complaints shall be recorded, investigated and rectified immediately. Construction camps and batching plants must be sited outside of conservation areas.		
Air Pollution	Direct Impacts: Movement of vehicles will result in dust impacts	L-	L-	Where sensitive environments are identified or complaints received dust suppression must be implemented. Vehicle speeds must be limited to slow speeds on gravel roads and tracks. Dust complaints must be recorded, investigated and addressed immediately.	L-	L-
Fires	Direct Impacts: Movement of vehicles through dry grassland can cause fires. Work forces increase the risk of fire in an areas.	M-	M-	No open fires will be permitted on site. Smoking may only occur during controlled breaks at a designated smoking are with appropriate fire protection facilities. Long grass to be trimmed or flattened along access routes.	L-	L-
Traffic	Direct Impacts: Construction will result in increased traffic flow in specific routes in the region which may impact on other users	L-	L-	Construction vehicle drivers must be considerate to all other road users at all times	L-	L-
	Indirect Impacts: Deterioration of public and private roads due to passage of construction vehicles.	L-	L-	Ensure vehicles are not overloads. Repair damage caused by construction vehicles to private roads immediately.	L-	L-
Operations	Direct Impacts: Spillage of hazardous substances into the natural environment	M-	M-	All vehicles and equipment must be in good working order. Equipment/vehicles with permanent leaks must be removed from site. Drip trays must be available with all vehicles and all areas where hazardous substances are being used.	L-	L-
	Direct Impacts: Poor waste management can cause environmental damage	L-	L-	An integrated waste management plan must be compiled during site establishment and must be implemented continuously throughout the construction phase.	L-	L-
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand.	H+	H+	The new 132 kV Powerline must be constructed to achieve this result in the region and to ensure the success and efficiency of all the other grid strengthening activities that are being planned in the region.	H+	H+

OPERATIONAL PHASE

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2
Fires	Direct impacts: Ignition of veld due to conductor failure or flash overs	L-	L-	Regular line inspections to ensure the integrity of the line.	M-	M-
Avifauna	Direct impacts: Electrocution of avifauna and collisions with the conductor	L-	L-	Ensure that all these structures remain in working order at all times. If an increase in bird strikes is observed, then bird diverter and bird guard placement may have to reviewed and improved.	L-	L-
Servitude Maintenance	Direct Impacts: Overgrown servitude and associated electrical clearance problems	M-	M-	Eskom to ensure that the vegetation clearance and line maintenance occurs as per Eskom Policies.	L-	L-
	Direct Impacts: Poor maintenance of access tracks results in erosion of these tracks.	M-	M-	Eskom to ensure that the access maintenance occurs as per Eskom Policies. Suggest cooperating with landowner to maintain access tracks.	L-	L-
	Indirect Impacts: Poor lock management on Eskom servitude gates exposes landowners to illegal trespassers and provides access to criminals and creates a poaching risk.	M-	M-	Eskom to ensure that the access maintenance servitude gates and locks occurs as per Eskom Policies. Suggest cooperating with landowner to maintain security.	L-	L-
Provision of electricity	Indirect Impacts: Faulting causing Loss of stable electricity supply i.e. outages which impacts negatively on businesses hospitals, schools etc.	L-	L-	Strict maintenance regime must be upheld to ensure faulting levels remain low.	L-	L-
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand	H+	H+			

NO GO OPTION

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		A1	A2		A1	A2

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance		Proposed mitigation	Post-Mitigation Significance	
		L+	L+			
Biophysical Environment	<i>Direct impacts:</i> Environment remains in the current status quo	L+	L+	No mitigation required		
Socio-Economic Environment	<i>Indirect impacts:</i> The current unreliable supply of electricity in the region and the lack of capacity to supply planned economic growth and delivery of basic services will negatively impact the socio-economic growth of the region resulting in failure of the Provincial, District and Local Municipalities to achieve the stated IDP targets and objectives.	H-	H-	Construct the proposed double circuit 132 kV powerline between the Pongola Mkuze 132 kV powerline and the proposed golela substataion.	H+	H+

The **complete impact** assessment for the 132 KV turn-ins presented in **Appendix F1**.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

2 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

In consideration of the specialist assessment reports of the preferred and alternative route options and the assessment of all identified impacts, this Environmental Assessment Practitioner has come to the following conclusions:

SUBSTATION SITES

Alternative S1: Golela 1 – Southern Site (preferred alternative)

Construction and maintenance of this alternative will be easier and with reduced environmental impacts than for the Alternative S2 – Northern Site for the following reasons:

- The southern site has already been degraded to some degree due to its proximity to agricultural lands.
- The species diversity on this site is considered less.
- The site is located outside of any of the private or public nature reserves
- Development of the site as a substation will not change the sense of place or the ecological status of the site significantly.
- Based on the impact assessment tables, which take all criteria into consideration, the average impact of constructing a new substation at the southern alternative site before mitigation is considered to be LOW (24 Significance points) and even LOWER (14 Significance points) after implementation of recommended mitigation measures.

Alternative S2: Golela 2 – Northern Site

Construction and maintenance of this alternative will have greater negative environmental impacts than for the Alternative S1 – Southern Site for the following reasons:

- This site is comparatively pristine in terms of its ecology.
- The species diversity on this site is considered greater.
- The site is located inside the boundaries of a private nature reserves
- Development of the site as a substation will change the sense of place or the ecological status of the site significantly.
- Based on the impact assessment tables, which take all criteria into consideration, the average impact of constructing a new substation at the southern alternative site before mitigation is considered to be MODERATE (54 Significance points) and remains MODERATE (37 Significance points) after implementation of recommended mitigation measures.

No-go alternative (compulsory)

The 'No Go' alternative in the context of this project implies that the power line would not be constructed. If this substation and powerline do not go ahead, the negative environmental impacts which have been identified if it does go ahead would not occur. However, if the substation and turn-in lines are not constructed and commissioned, the region would be Golela region would continue to be negatively affected by an inadequate and unreliable supply of electricity (basic service) which would inhibit any future development in the Golela development node and would jeopardise the success of the regions Integrated Development Plans and Spatial Development Frameworks, all of which identify the lack of electrical services as inhibitors to future development and quality of life. Therefore, the need for stable and reliable power supply to meet current and future demand will likely outweigh the potential negative impacts to the surrounding environment. It is thereby concluded that the "No-go" option is not a viable or acceptable option, and should therefore be discounted.

132 kV DOUBLE CIRCUIT POWERLINE

Alternative A1 – Western Corridor (preferred alternative)

Construction and maintenance will be easier and with reduced environmental impacts than for Alternatives A2 – Eastern Corridor for the following reasons:

- The Western Corridor will not require the construction of an entirely new access road through the study area.
- The Western Corridor will very little clearing of indigenous bush as it lies in areas that have already been altered to some degree by anthropogenic activity.
- Already existing access to most of this servitude on farm roads means that less indigenous bush will require clearing for the creation of access to the new servitude along the northern corridor.
- The placement of a powerline along a route where anthropogenic changes have already occurred to a large degree (comparatively) amount to the concentrating of negative ecological impacts at a spatial level rather than introducing new impacts on previously unencumbered points within the study area re: the Eastern Corridor.
- The Western Corridor generally offers well established and relatively well maintained access roads.
- The Western Corridor does not pass through any private or public nature reserves.
- Based on the impact assessment tables, which take all criteria into consideration, the average impact of constructing a new 132 kV powerline along the Western Corridor, before mitigation is considered to be LOW (28 Significance points) and even LOWER (18 Significance points) after implementation of recommended mitigation measures.

Alternative A2 – Eastern Corridor

Construction and maintenance will be easier and with reduced environmental impacts than for Alternatives A2 – Eastern Corridor for the following reasons:

- The Eastern Corridor will require the construction of an entirely new access road through the

- study area.
- The Eastern Corridor will require substantial clearing of indigenous bush as it lies nearly entirely within conservation areas.
 - Minimal existing access means that more indigenous bush will require clearing for the creation of access to the new servitude.
 - The placement of a powerline in a relatively pristine ecological area amounts to introducing impacts that did not exist previously in an area which can lead to some degradation in the ecological status of the area.
 - The Eastern Corridor passes nearly entirely through private or public nature reserves.
 - Based on the impact assessment tables, which take all criteria into consideration, the average impact of constructing a new 132 kV powerline along the Western Corridor, before mitigation is considered to be MODERATE (51 Significance points) and still MODERATE (35 Significance points) after implementation of recommended mitigation measures.

No-go alternative (compulsory)

The ‘No Go’ alternative in the context of this project implies that the power line would not be constructed. If this substation and powerline do not go ahead, the negative environmental impacts which have been identified if it does go ahead would not occur. However, if the substation and turn-in lines are not constructed and commissioned, the region would be Golela region would continue to be negatively affected by an inadequate and unreliable supply of electricity (basic service) which would inhibit any future development in the Golela development node and would jeopardise the success of the regions Integrated Development Plans and Spatial Development Frameworks, all of which identify the lack of electrical services as inhibitors to future development and quality of life. Therefore, the need for stable and reliable power supply to meet current and future demand will likely outweigh the potential negative impacts to the surrounding environment. It is thereby concluded that the “No-go” option is not a viable or acceptable option, and should therefore be discounted.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

✓YES	NO
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If “NO”, indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The EAP therefore recommends the following:

SUBSTATION SITE

The Preferred Alternative (S1): – Golela 1 - Southern Site as described in this Basic Assessment Report be authorised. In the opinion of the EAP, derived from specialist input, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level. Apart from the general mitigation measures included in the EMP, the following should form specific clauses in the authorisation:

- Planning of the substation must include means to screen the substation from the passing trade on the road through to the Golela border post.
- Input into how to divert birds away from the substation must be obtained by Ezimvelo KZN Wildlife to ensure adequate protection of vulture breeding in the area and the protection of all other bird species.

132 kV DOUBLE CIRCUIT POWERLINE

The EAP recommends that the Preferred Alternative (A1) – Western Corridor, located in the west of the study area, as described in this Basic Assessment Report, be authorised. In the opinion of the EAP, derived from specialist input, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level. Apart from the general mitigation measures included in the EMP, the following should form specific clauses in the authorisation:

- The proposed 132 kV Turn-In powerlines should be a double circuit line so that both Turn-Ins are accommodated on the same tower structures. This is required due to the lack of servitude space through agricultural lands.
- Micrositing of towers must occur in consultation with the affected landowners to ensure that their concerns are addressed as far as is practically possible.
- The EMP for the operation of the powerline must include specific access and bush clearing requirements as specified and agreed with each landowner by Eskom.
- Input into the siting of the towers and the use of bird diverters and bird guards must be obtained by Ezimvelo KZN Wildlife to ensure adequate protection of vulture breeding grounds in the area.

Is an EMPr attached?

✓YES	NO
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

BASIC ASSESSMENT REPORT

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

WARREN KOK

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F. APPENDICES

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility Illustrations

Appendix D: Specialist Reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist Declaration of Interest

Appendix J: Additional Information