



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

14/12/16/3/3/1/1426

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, 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, 2014 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 **08 December 2014**. 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 in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

YES

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**

Osalus Energy (Pty) Ltd (Registration No: 2013/087811/07) is proposing the construction and operation of a **new 132 kV power line** for the connection to the Eskom grid of the proposed **East Solar Park: DEA Ref. 14/12/16/3/3/2/664** - applicant: **Osalus Energy**.

Two power line corridors were proposed in the Background Information Document and in the Draft BAR:

Corridor 1 to the **Eskom Hotazel substation**: the proposed 132 kV power line will be approximately **4.5 km long** and will run parallel to the existing **Eskom "Hotazel - Heuningvlei" 132 kV power line**.

Farm portions crossed by Corridor 1: Reminder of the Farm Est 270, Farm Kipling 271, Remainder of the Farm Hotazel 280.

Corridor 2 to the new **Eskom Umtu substation**: the proposed 132 kV power line will be approximately **8.8 km long** and will run parallel to the existing **Eskom "Hotazel - Heuningvlei" 132 kV power line (for 2.8 km) and to the Eskom "Hotazel - Umtu" 132 kV power line (for 6.0 km)**.

Farm portions crossed by Corridor 2:

Reminder of the Farm Est 270, Farm Kipling 271, Remainder of the Farm Hotazel 280, Farm Umtu 281, Remainder of the Farm Olive Pan 282.

Following the outcomes of the Public Participation Process and the discussions between Osalus Energy and the mining companies which own the properties potentially affected by the two corridors, **Corridor 1 resulted to be preferred corridor**, while Corridor 2 is not required anymore.

The best connection solution, for the technical, land use and environmental point of views, is to **use only Corridor 1** to connect the East Solar Park to **the Eskom Hotazel substation as well as to the Eskom "Hotazel - Umtu" 132 kV power line**, in order to help Eskom to supply the existing and future loads arising from:

- **Kalagadi Manganese Mine**, supplied from the Eskom Umtu substation;
- **Hotazel mine**, supplied from the Eskom Hotazel substation;
- **Gloria Mine**, supplied from the Eskom Hotazel substation;
- **N' Chwaning mine**, supplied from the Eskom Klipkop substation via the Eskom Hotazel and Umtu substations;
- **Wessels mine**, supplied by the Eskom Wessels substation via the Eskom Hotazel and Umtu substations.

The East Power Line will connect the East Solar Park to the Eskom Hotazel substation and to the Eskom “Hotazel - Umtu” 132 kV power line by means of:

- **Circuit 1** to the **Eskom Hotazel substation**, 4.5 km south of the planned location of East Solar Park (*Corridor 1*); and
- **Circuit 2** to the **Eskom “Hotazel - Umtu” 132 kV power line**, 2.8 km south-west of the planned location of the East Solar Park (*Corridor 1*).

In this first section (2.8 km) the East Power Line will be a **double circuit** (Circuits 1 and 2 mounted on the same monopole structures).

After 2.8 km, Circuit 2 will be connected to the Eskom “Hotazel - Umtu” 132 kV power line, crossing Corridor 1 and running parallel to the southern boundary of Farm Kipling 270. **A new switching station (0.3 ha footprint)** will be established on the southern boundary Farm Kipling 270, in Corridor 1, next to Eskom “Hotazel - Umtu” 132 kV power line. Eskom “Hotazel - Umtu” 132 kV power line will loop in and out of 132 kV bus bar of the switching station through two sections of 132 kV line 50 m long (loop-in loop-out connection).

From the new switching station, East Power Line will go South to the Hotazel substation as **single circuit** (Circuit 1) (3 conductors mounted on the same monopole structures).

Please refer to the drawing of the Appendix A:

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station showing the preferred connection solution.

The layout and location of the switching station are detailed in the drawing of the Appendix C: ***EAPL_05_r0 Switching station***

Proposed 132 kV power line will run - within Corridor 1 - over the following properties:

- **Remaining Extent of the Farm East No. 270, Kuruman RD**, (project site of East Solar Park);
- **Farm Kipling No. 271, Kuruman RD**;
- **Remaining Extent of Farm Hotazel No. 280, Kuruman RD** (where the Eskom Hotazel substation is located);

Located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape Province.

Site location: Surveyor-general 21 digit site code:

C	0	4	1	0	0	0	0	0	0	0	0	0	2	7	0	0	0	0	0	0
C	0	4	1	0	0	0	0	0	0	0	0	0	2	7	1	0	0	0	0	0
C	0	4	1	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0

The new power line will consist of a series of **steel or aluminium monopole structures**

supporting the electrical cables and a communication cable, to be installed approximately 200 - 260 m apart. The proposed structures will be between 18 m and 25 m high and the basement of each pole will have a footprint of approximately 0.6 m². Please refer to the drawing of the **Appendix C**:

EAPL_03_r0 Steel monopole structure - single circuit

EAPL_04_r0 Steel monopole structure - double circuit

The power line servitude will be **36 m wide** (18 m from each side of the centre line); **2 alternative alignments** have been proposed within the Corridor 1 (Preferred). At this stage, the preferred alignment is the Alignment No. 1 (western side of the Corridor 1), because it will cross existing Eskom lines in two points, while the Alignment No. 2 (eastern side of the Corridor 1) would cross existing Eskom lines in three points. From the environmental point of view, the two alignments are equivalent being both parallel (western side and eastern side) to the same Eskom power line.

Anyway the final alignment will be finalized in consultation with Eskom and the landowners and may be a combination of the 2 alignments, within the Corridor 1.

Please refer to the drawing of the Appendix A:

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station

showing the two alignments within the Corridor 1.

A **new access road (dirt road)** will be constructed within the power line servitude, for the construction activities. This dirt road will be approximately **5 m** wide. In correspondence of the turning points, the road reserve will be up to **14 m** in order to allow the transportation of abnormal loads (steel monopoles).

The construction phase will last approximately **5 months** and will involve a **team of 10 to 15 people**. Monopole structures installation will not require the establishment of a permanent construction site, but will be done step-by-step, in order to only affect small stretches of corridor and for a short time.

The site preparation will consist of the clearing of the power line servitude; vegetation removal will be done only within the servitude, for the minimum width required by the installation activities and by the Eskom security rules: the vegetation should not interfere with the high-voltage cables.

The proposed 132 kV power line may be built and/or operated by **Osalus Energy** and/or by **Eskom**.

The proposed power line may be owned and/or operated by Eskom Distribution, this will depend on the Eskom grid code in relation to the IPP's (Independent Power Producers) and on the Connection Agreement to be finalized prior to or simultaneously with conclusion of the PPA (Power Purchase Agreement) in respect of the options of retaining ownership of the connection works once completed.

In order to develop the power line, Osalus Energy must undertake an **Environmental Basic Assessment process** and acquire Environmental Authorization from the National Department of Environmental Affairs (DEA), in consultation with the *North Northern Cape Department of Environment and Nature Conservation (DENC)*, under the terms of the EIA Regulations, 2014 published on 4 December 2014 in terms of Section 24(5) and 44 of the National Environmental Management Act (NEMA, Act No. 107 of 1998).

The project has been registered under the **DEA Ref. 14/12/16/3/3/1/1426**.

The independent Environmental Assessment Practitioner (EAP) which has been appointed for the undertaking of the detailed environmental studies in compliance with the EIA Regulations, 2014 is **AGES (Pty) Ltd**.

With the aim of identifying and assessing all potential environmental impacts related to the development as well as suggesting possible mitigation measures and alternatives, AGES has appointed specialist sub-consultants to compile detailed reports and to study the activities necessary for the assessment of the specific impacts related to their field of expertise.

AGES and the other specialist consultants are in a position of independency from Osalus Energy; therefore they are not subsidiaries or affiliated to the latter. AGES and the specialist consultants have no secondary interest connected with the development of this project or of other projects which may originate from the authorization of the project.

The characteristics, the technology and the extent of the East 132 kV Power Line is defined and evaluated in this Basic Assessment Report (BAR) and its appendices.

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

Listed activity as described in GN R.983, 984 and 985 of 4 December 2014	Description of project activity that triggers listed activity
<p>GN R.983 Item 11</p> <p><i>The development of facilities or infrastructure for the transmission and distribution of electricity -</i></p> <p><i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</i></p>	<p>The East Power Line will be a new 132 kV power line connecting the East Solar Park to the Eskom Hotazel substation and to the Eskom “Hotazel - Umtu” 132 kV power line by means of:</p> <ul style="list-style-type: none"> • the Circuit 1 to be connected the Eskom Hotazel substation; and • the Circuit 2 to be connected to the Eskom “Hotazel - Umtu” 132 kV power line, via a new switching station necessary for the loop-in loop-out connection. <p>Circuit 1 will be approximately 4.5 km long and will run parallel to the existing Eskom “Hotazel - Heuningvlei” 132 kV power line within the Corridor 1</p> <p>Circuit 2 will be approximately 2.8 km long and will run parallel to the existing Eskom “Hotazel - Heuningvlei” 132 kV power line within the Corridor 1.</p> <p>A new switching station (0.3 ha footprint) will be established on the southern boundary Farm Kipling 270, within the Corridor 1, next to the Eskom “Hotazel - Umtu” 132 kV power line. The Eskom “Hotazel - Umtu” 132 kV power line will loop in and out of the 132 kV bus bar of the switching station through two sections of 132 kV line 50 m long (loop-in loop-out connection).</p> <p>For the first 2.8 km, up to the switching station, the monopole structures will host a double circuit (Circuits 1 and 2 on the same monopole structures).</p> <p>After the switching station, the East Power Line will be a single circuit (only Circuit 1).</p> <p>The proposed 132 kV power line will run over the following properties:</p> <ul style="list-style-type: none"> • Remaining Extent of the Farm East No. 270, Kuruman RD (Corridor 1, Circuits 1 and 2) • Farm Kipling No. 271, Kuruman RD (Corridor 1, Circuits 1 and 2) • Remaining Extent of Farm Hotazel No. 280, Kuruman RD (Corridor 1, only Circuit 1) <p>All the affected farm portions are <u>outside urban areas</u>, within the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape Province.</p>
<p>GN R.983 Item 24</p> <p><i>The development of –</i></p> <p><i>(ii) a road with a reserve wider than 13,5m, or where no reserve exists where the road is wider than 8m.</i></p>	<p>A new access road (dirt road) will be constructed within the power line servitude, for the construction activities. This dirt road will be approximately 5 m wide. In correspondence of the turning points, the road reserve will be up to 14 m in order to allow the transportation of abnormal loads (steel monopoles).</p>

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 Appendix 1 (3)(h), Regulation 2014. 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.

a) Site alternatives

In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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.

Please refer to the Appendix J: Geo-graphical co-ordinates of the Corridors 1 & 2, alignments 1 & 2 and switching station

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 of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
<p>The new power line will consist of a series of steel or aluminium monopole structures supporting the electrical cables and a communication cable, to be installed approximately 200 - 260 m apart. The proposed structures will be between 18 m and 25 m high and the basement of each pole will have a footprint of approximately 0.6 m².</p> <p>The power line servitude will be 36 m wide (18 m from each side of the centre line); the alignment has been assessed within the proposed corridor routes.</p> <p>An access road may be constructed within the power line servitude, for construction and maintenance activities.</p>
Alternative 2
<p>The new power line may be built as wood poles (e.g. H-poles). This technology is not used anymore by Eskom for power lines at 132 kV, because of the shorter lifetime of the wood poles (in respect of steel poles). Furthermore, the new steel monopole structure has been conceived with the aim of <u>reducing the risk of electrocution for avifauna</u>, thanks to the position of the cables.</p>

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Corridor 1 (preferred)
<p>The East Power Line will connect the East Solar Park <u>to the Eskom Hotazel substation and to the Eskom “Hotazel - Umtu” 132 kV power line</u> by means of:</p> <ul style="list-style-type: none"> • the Circuit 1 to the Eskom Hotazel substation; • the Circuit 2 to the Eskom “Hotazel - Umtu” 132 kV power line via a switching station. <p>For the first 2.8 km, up to the switching station, the monopole structures will host a double</p>

circuit (Circuits 1 and 2 on the same poles).

After the switching station, the East Power Line will be a single circuit (only Circuit 1).

Please refer to the drawing of the Appendix A:

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station

showing the preferred connection solution.

The layout and location of the switching station are detailed in the drawing of the Appendix C: ***EAPL_05_r0 Switching station***

Corridor 2 (not preferred)

Two power line corridors were proposed in the Background Information Document and in the Draft BAR:

Corridor 1 as described above.

Corridor 2 to the new **Eskom Umtu substation**: the proposed 132 kV power line will be approximately **8.8 km long** and will run parallel to the existing **Eskom “Hotazel - Heuningvlei” 132 kV power line (for 2.8 km) and to the Eskom “Hotazel - Umtu” 132 kV power line (for 6.0 km).**

Farm portions crossed by the Corridor 2: Reminder of the Farm Est 270, Farm Kipling 271, Remainder of the Farm Hotazel 280, Farm Umtu 281, Remainder of the Farm Olive Pan 282.

Following the outcomes of the Public Participation Process and the discussions between Osalus Energy and the mining companies which own the properties potentially affected by the two corridors, **the Corridor 1 resulted to be preferred corridor**, while the Corridor 2 is not required anymore.

In particular, Kudumane Manganese Resources (Pty) Ltd indicated that they are currently assessing the feasibility of a **new manganese mine** to be located on the western side of the Farm Kipling 271 and/or on the Farm Umtu 281. Indeed they are the holders of prospecting rights over these two farms and have already applied for mining rights. The Corridor 2, as well as the existing Eskom “Hotazel - Umtu” 132 kV power line, are potentially affecting the future mine. The Corridor 1, parallel to the Eskom “Hotazel - Heuningvlei” 132 kV power line, will not interfere with any current and future mining activities.

From the environmental point of view, the Corridor 1 is preferable being shorter (4.5 km instead of 8.8 km) and it doesn't affect the Gamagara Spruit and related riparian habitat.

The best connection solution, for the technical, land use and environmental point of views, is to **use only Corridor 1** to connect the East Solar Park to **the Eskom Hotazel substation as well as to the Eskom “Hotazel - Umtu” 132 kV power line.**

e) **No-go alternative**

The no-go alternative is the option of not establishing the East 132 kV Power Line, **infrastructure associated with the East Solar Park**. If the East 132 kV Power Line is not developed, the East Solar Park (DEA Ref. 14/12/16/3/3/2/664 - applicant: Osalus Energy) will not be able to be connected to the Eskom grid, therefore the solar project will not be established. The environment will remain in its current state (*status quo*). Therefore:

A) The environmental benefits - in terms of **air quality** - associated with the establishment of the proposed renewable energy generation facility (solar photovoltaic plant) will not be achieved. The electrical energy (electricity) generated by the proposed East Solar Park will reduce the quantity of pollutants and greenhouse gases emitted into the atmosphere. The reduced amount of pollutants and greenhouse gases corresponds to the emissions that would have been generated by a thermal power plant using fossil fuels for producing the same quantity of energy that can be produced by the proposed renewable energy project (solar photovoltaic plant).

B) This will not create any new employment opportunities and the anticipated **economic benefits** of the solar project will accrue to the study area.

The benefits related to the establishment of a renewable energy power plants are for example analysed in detail in the REFIT Regulatory Guideline published by NERSA (March 2009):

- **Enhanced and increased energy security:** renewable energy plays an important role in terms of power supply, improving grid strength and supply quality and contemporarily reducing transmission and distribution costs and losses.
- **Resource economy and saving:** the energy production by coal fired plants consumes a significant amount of water, this amount of water could instead be saved if a renewable energy facility like the proposed one is put in operation.(the Energy White Paper envisages that the implementation of its targets will determine water savings approximately 16.5 million kilolitres). This will be beneficial on the large scale for the water conservation measures that the country is currently undertaking.
- **Support of new technologies and new industrial sectors:** the development and establishment of renewable energy power plants contribute to the growth of new technologies and new industrial sectors with benefits for its economy.
- **Exploitation and capitalization of South Africa's renewable resources:** with the aim of increasing energy security.
- **Employment creation and career opportunities:** the construction and operation of a renewable energy power plant contributes to job creation and new career opportunities.
- **Pollution reduction:** the use of renewable energy resources decreases the demand and the dependence from coal and oil for electricity generation.
- **Contrast to Global warming and climate mitigation:** the development of renewable energy contributes to reduce global warming through the reduction of greenhouse gas (GHG) emissions.
- **Protection of natural foundations of life for future generations:** the development and establishment of renewable energy power plants offers the opportunity of consistently reducing the risks related to climate change caused by CO₂ and CO emissions, therefore preserving life for future generations.
- **Acceptability to society and community:** the use of renewable energy is largely accepted by society and community as a mean to reduce pollution concerns, improve human health and wellness, protect the environment, the ecosystem and climate;
- **Commitment to and respect of international agreements:** in particular in light of the possible commitment to the Kyoto Protocol.

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

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 A1¹ **SWITCHING STATION**

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

±3,000 m²
m ²
m ²

or, for linear activities:

Alternative:

Alternative A1 **CORRIDOR 1 to Hotazel DS**

Alternative A2 **CORRIDOR 2 to Umtu DS**

Alternative A3 (if any)

Length of the activity:

±4,500 m
±8,800 m
m

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

Alternative:

Alternative A1 **CORRIDOR 1 to Hotazel DS**

Alternative A2 **CORRIDOR 2 to Umtu DS**

Alternative A3 (if any)

Size of the site/servitude:

4.5 km x 32 m = ±162,000 m²
8.8 km x 32 m = ±317,000 m²
m ²

4. SITE ACCESS

Does ready access to the site exist?

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

YES	
	m

Describe the type of access road planned:

A new access road (dirt road) will be constructed within the power line servitude, for the construction activities. This dirt road will be approximately **5 m** wide. In correspondence of the turning points, the road reserve will be up to **14 m** in order to allow the transportation of abnormal loads (steel monopoles).

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.

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

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).

Please refer to the Appendix A:

Regional Map

Satellite Map

EAPL_00_r2 Locality Map: Proposed Corridors 1 & 2 and switching station

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station

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.

Please refer to the Appendix A:

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station

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 DWS);
- 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.

Please refer to the Appendix A:

Vegetation Map

Sensitivity Map

EAPL_01_r1 Corridors 1 & 2 and sensitivity

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.

Please refer to the Appendix B: Photos of the corridors 1 & 2

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.

Please refer to the Appendix C:

EAPL_03_r0 Steel monopole structure (single circuit)



EAPL_04_r0 Steel monopole structure (double circuit)




EAPL_05_r0 Switching station



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?	YES		Please explain
<p>The establishment of a power line (linear activity) doesn't require any change of land use / rezoning of the properties crossed by the power line. The land use rights will remain "Agriculture".</p> <p>Being a power line servitude wider than 15 m, the servitude should be approved by the Department of Agriculture, Forestry & Fisheries (DAFF) in terms of Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970) unless the power line is owned by Eskom.</p>			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
<p>The establishment of a solar park and associated power line is in line with the Northern Cape Spatial Development Framework. The Northern Cape PSDF supports sustainable development, to enhance human well-being and environmental integrity through the efficient and just use of available (solar) resources.</p> <p>The proposed power line will be used to connect the proposed East Solar Park to the existing ESKOM electricity network. The PSDF confirms that renewable energy sources (e.g. wind, solar thermal, biomass, and domestic hydroelectricity generation) are to comprise 25% of the province's energy generation capacity by 2020 and therefore the envisaged project will meet these policies and goals of the PSDF.</p>			
(b) Urban edge / Edge of Built environment for the area	YES		Please explain
<p>The East 132 kV Power Line will be built <u>outside</u> urban areas. The line will therefore be situated outside the urban edge or built environment of the nearest town of Hotazel. The consent of the Department of Agriculture, Forestry and Fisheries (DAFF) will be obtained in terms of Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970) for the registration of the power line servitude, being a power line servitude wider than 15 m - unless the power line is owned by Eskom.</p>			

<p>(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?).</p>	<p>YES</p>		<p>Please explain</p>
<p>The Spatial Development Framework (SDF), 2012 of the Joe Morolong Local Municipality has three main nodes where relatively higher economic activity takes place, namely Vanzylsrus, Hotazel and Blackrock. The proposed East Solar Park <u>and associated infrastructure (East 132 kV Power Line)</u> are situated near Hotazel and Blackrock. It is stated in the SDF that investment should be focused on these areas to expand the node into a more diverse economic centre. It is mentioned that a replacement economic activity should be found when the mineral resources are depleted for Hotazel and Blackrock. The proposed renewable energy project will contribute towards meeting this goal by introducing new economic activity and job opportunities to the area.</p> <p>The SDF furthermore outlines Spatial Planning Categories. Spatial Planning Category F involves <i>Surface infrastructure and Buildings, i.e. all surface infrastructure and buildings, including roads, railway lines, power lines, communication structures, etc.</i></p> <p>The Sub-Category: F(i) includes <i>Renewable Energy Structures</i>: These include any wind turbine or <u>solar photovoltaic apparatus</u>, or grouping thereof, which captures and converts wind or solar radiation into energy for commercial gain irrespective of whether it feeds onto an electricity grid or not. It includes any appurtenant structure or any test facility which may lead to the generation of energy on a commercial basis.</p> <p>Development Guidelines for Sub-Category: F(i) states that "<i>all surface infrastructure and buildings that are required for sustainable socio-economic development and resource use must be undertaken in accordance with site specific design and planning guidelines. All industry must be regulated and managed in accordance with sustainability standards (e.g. ISO 14001)</i>".</p> <p>The East Solar Park and the associated <u>East 132 kV Power Line</u> will comply with the international standards and regulations for photovoltaic power plants.</p> <p>The proposed solar park and associated East 132 kV Power Line, situated nearby Hotazel and Blackrock, will aid the Municipality in the upliftment of these areas. It will a sustainable form of land development and will be developed in compliance with the Development Guidelines stipulated under Sub-Category F(i) of the SDF. The proposed Solar Park and power line will comply with the SDF of the Joe Morolong Local Municipality.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>	<p>YES</p>		<p>Please explain</p>
<p>The East 132 kV Power Line will not interfere with any approved Structure Plan of the Joe Morolong Local Municipality. As stated, it will be in line with the prevailing SDF of the Joe Morolong Local Municipality which is the primary strategic planning document applicable to land use in the Municipal area.</p>			

<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>Please explain</p>
<p>There are no EMF's adopted by the Department in this area.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	<p>YES</p>		<p>Please explain</p>
<p>Not applicable</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>Please explain</p>
<p>The establishment of a power line (linear activity) doesn't require any change of land use / rezoning of the properties crossed by the power line. The proposed solar park and associated East 132 kV Power Line, situated nearby Hotazel and Blackrock, will aid the Municipality in the upliftment of these areas. It will be a sustainable form of land development and will be developed in compliance with the Development Guidelines stipulated under Sub-Category F(i) of the SDF. The proposed Solar Parks and power line will comply with the SDF and IDP of the Joe Morolong Local Municipality.</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>Please explain</p>
<p>The proposed 132 kV power line will connect the East Solar Park to <u>the Eskom Hotazel substation as well as to the Eskom “Hotazel - Umtu” 132 kV power line</u>, in order to help Eskom to supply the existing and future loads arising from:</p> <ul style="list-style-type: none"> • the Kalagadi Manganese Mine, supplied from the Eskom Umtu substation; • the Hotazel mine, supplied from the Eskom Hotazel substation; • the Gloria Mine, supplied from the Eskom Hotazel substation; • the N’ Chwaning mine, supplied from the Eskom Klipkop substation via the Eskom Hotazel and Umtu substations; • the Wessels mine, supplied by the Eskom Wessels substation via the Eskom Hotazel and Umtu substations. <p>Farm portions in the Hotazel area are mainly used for farming and manganese mining purposes, as:</p> <ul style="list-style-type: none"> • the Assmang mine on Portion 1 of the Farm Gloria 266; • the Assmang mine on the Farm N’ Chwaning 267; • the Hotazel mine, on the Farm Hotazel 280; • the Kalagadi Manganese mine, on the Farm Olive Pan 282. <p>The proposed solar parks will assist the Eskom grid to meet the high energy demand related to the mining activities conducted in the area. Furthermore, being a renewable energy plant which doesn’t generate greenhouse gases - it will assist to compensate the greenhouse gas emissions arising from these mining activities.</p> <p>The local generation in the Hotazel area by means of e.g. new solar plants like the East Solar Park will help Eskom to meet the increase of the local supply demand without the urgent need of huge interventions on the network aimed to import the energy from other provinces / areas. Furthermore, the electricity tariff proposed by Eskom to the mines may be reduced wherever the energy is produced locally at a competitive price (this is also the aim of the East Solar Park).</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>Please explain</p>
<p>The East 132 kV Power Line will not require specific services or additional capacity.</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>NO</p>	<p>Please explain</p>
<p>The East 132 kV Power Line is not addressed in the infrastructure planning of the Municipality. The proposed power line will not have any implication on the municipal infrastructure planning as it will link directly with the Eskom grid.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>		<p>Please explain</p>
<p>The East 132 kV Power Line will form part of the proposed East Solar Park project that will participate in the Renewable Energy Independent Power Producers (IPP) Procurement Programme issued by the National Department of Energy of the Republic of South Africa.</p>			
<p>8. 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>Please explain</p>
<p>The location of the East 132kV Power Line is particularly relevant in view of the position of existing Eskom power lines running to the Hotazel and Umtu substations. The proposed corridors were selected in order to limit the impact on the land and environment <u>by using existing power line corridors already traversing the land.</u></p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>		<p>Please explain</p>
<p>Since the East 132 kV Power Line will follow existing Eskom power lines running to the Hotazel substation, the impact on the land and environment will be limited. To add a new power line to the existing Eskom line along the same route constitutes the lowest intrusive option in terms of present and future land uses of the affected properties.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>		<p>Please explain</p>
<p>The East 132 kV Power Line will assist in the connection of the proposed East Solar Park to the Eskom Hotazel substation and Eskom "Hotazel - Umtu" 132 kV power line. The proposed solar park will aid the Municipality in the upliftment of the Hotazel and Blackrock areas and contribute towards the establishment of a sustainable land development with limited impact on the land and environment.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>		<p>NO</p>	<p>Please explain</p>
<p>The project relates to a power line only, <i>i.e.</i> the East 132 kV Power Line. In itself it will not create a precedent, but the association with the East Solar Park could give room for other similar developments in the local municipal area of Joe Morolong Municipality.</p>			

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES		Please explain
<p>The owners of the land crossed by the proposed East 132 kV Power Line could be affected. These owners have been consulted for consent to permit the registration of the relevant power line servitudes to be registered over the affected properties.</p> <p>It should be taken into account that the properties crossed by the power line belong to mining companies (Assmang and Hotazel Manganese Mines). These mines will benefit from the solar projects because the energy will be delivered to the Eskom Hotazel substation which currently supplies electricity to the mines.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
<p>The East 132 kV Power Line is situated outside the urban edge of Hotazel.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	Please explain
<p>Osalus Energy, the applicant of the proposed power line, is a private company incorporated in South Africa. The East 132 kV Power Line will form part of the proposed East Solar Park project that will participate in the Renewable Energy Independent Power Producers (IPP) Procurement Programme issued by the Department of Energy of the Republic of South Africa.</p>			

15. What will the benefits be to society in general and to the local communities?	Please explain
<p>The East 132 kV Power Line will form part of the East Solar Park project. This project will contribute towards the national and local economies through civil contractor work, labour and building materials, which will be required on the projects site.</p> <p>A share of approximately 40% of total CAPEX (investment costs) will be sourced from within e the country. Raising of the capital to finance the installation of solar electricity generation facility represents a significant benefit for the South African economy. Approximately 50% of the operational costs will have a local economic return (mostly for staff remuneration and maintenance work by local sub-contractors), creating a positive economic impact for 25-30 years.</p> <p>During the operational phase, the solar project will require a permanent staff approximately 35/40 people. This impact will be very beneficial for Joe Morolong Local Municipality, especially in view of the current high unemployment rate and the need to development an economic alternative for the mining sector. Staff remuneration, maintenance equipment and consumables are likely to be the primary operational expenses.</p> <p>Additional benefits to the local municipality will be in the form of rates and taxes that will accrue to the local municipality as well as company tax that will accrue to the national government. The Solar Park project will furthermore have socio-economic benefits through:</p> <ol style="list-style-type: none"> 1. job creation; 2. local content, increasing local manufacturing; 3. helping rural development and involving communities; 4. education and the development of skills for local people; 5. enterprise development through the promotion of and packages for new entrants; and 6. socio-economic development. <p>The East Solar Park project will comply with the Economic Development Requirements, as requested by the REIPP Procurement Programme, issued on 3rd August by the DoE. This economic development programme identifies needs of the surrounding communities in order to have a positive socio-economic impact. In particular, <u>Osalus Energy is required to identify a Local Community for the purpose of entering into a partnership for the solar project (and associated power line).</u></p>	

16. Any other need and desirability considerations related to the proposed activity?	Please explain
<p>The most important economic benefit is likely to be the experience that will be gained with regard to solar electricity generation in Northern Cape Province and in South Africa, considering that this forms part of a national strategic plan.</p> <p>The project will also make a contribution towards reducing the carbon emissions per unit of electricity generated in South Africa, albeit very small to start with.</p> <p>The project is in harmony with the surrounding land uses and will contribute towards:</p> <ul style="list-style-type: none"> • The generation of “green energy” which could reduce South Africa’s dependency on coal generated energy and the impact of such energy sources on the bio-physical environment; • Positive marketing of the Joe Morolong Local Municipality as a development area for renewable energy sources; • Creation of employment opportunities with benefit for unemployed individuals within local communities, also in compliance with the Government’s new “green economy” growth path; • Skills development and capacity building during the life of the facility; • Local procurement for general materials, goods and services (catering and security) and for maintenance works by local sub-contractors; • The increase of permanent security personnel to complement the overall safety and security situation in the area. 	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The proposed East 132 kV Power Line will form part of the East Solar Park project. This project - whether selected by the Department of Energy under the REIPP Procurement Programme - will fit into the National Development Plan for 2030. The Plan states that South Africa should invest in and help exploit the wide range of opportunities for low-carbon energy from hydroelectric and other clean energy sources in Southern Africa, procuring at least 20000 MW of renewable electricity by 2030, importing electricity from the region, decommissioning 11,000 MW of ageing coal-fired power stations and stepping up investments in energy-efficiency. The proposed Solar Park Project will contribute towards the goal for the National Development Plan.</p>	
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>	
<p> </p>	
<p>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</p>	
<p> </p>	

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:

National Legislation	Sections applicable to the proposed project
Constitution of the Republic of South Africa (Act no. 108 of 1996)	<ul style="list-style-type: none"> • Bill of Rights (S2) • Rights to freedom of movement and residence (S22) • Environmental Rights (S24) • Property Rights (S25) • Access to information (S32) • Right to just administrative action (S33)
Fencing Act (Act no. 31 of 1963)	<ul style="list-style-type: none"> • Notice in respect of erection of a boundary fence (S7) • Clearing bush for boundary fencing (S17) • Access to land for purpose of boundary fencing (S18)
Conservation of Agricultural Resources Act (Act no. 43 of 1983)	<ul style="list-style-type: none"> • Prohibition of the spreading of weeds (S5) • Classification of categories of weeds & invader plants and restrictions in terms of where these species may occur (Regulation 15 of GN R0148) • Requirement and methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R0148)
Environment Conservation Act (Act no. 73 of 1989)	<ul style="list-style-type: none"> • National Noise Control Regulations (GN R154 dated 10 January 1992)
National Water Act (Act no. 36 of 1998)	<ul style="list-style-type: none"> • Entrustment of the National Government to the protection of water resources (S3) • Entitlement to use water (S4) - Schedule 1 provides the purposes which entitle a person to use water (reasonable domestic use, domestic gardening, animal watering, firefighting and recreational use) • Duty of Care to prevent and remedy effects of water pollution (S19) • Procedures to be followed in the event of an emergency incident which may impact on water resources (S20) • Definition of water use (S21) • Requirements for registration of water use (S26 and S34) • Definition of offences in terms of the Act (S151)
National Forests Act (Act no. 84 of 1998)	<ul style="list-style-type: none"> • Protected trees
National Environmental Management Act (Act no. 107 of 1998)	<ul style="list-style-type: none"> • Definition of National environmental principles (S2): strategic environmental management goals and objectives of the government applicable within the entire RSA to the actions of all organs of state, which may significantly affect the environment • NEMA EIA Regulations (GN R543, 544, 545, 546, & 547 of 18 June 2010) • new NEMA EIA Regulations 2014 (GN R. 982, 983, 984, 985 of 4 December 2014) • Requirement for potential impact on the environment of listed activities to be considered, investigated, assessed and reported on to competent authority (S24 - Environmental Authorisations)

	<ul style="list-style-type: none"> • Duty of Care (S28): requirement that all reasonable measures are taken in order to prevent pollution or degradation from occurring, continuing and recurring, or, where this is not possible, to minimise and rectify pollution or degradation of the environment • Procedures to be followed in the event of an emergency incident which may impact on the environment (S30)
National Heritage Resources Act (Act no. 25 of 1999)	<ul style="list-style-type: none"> • SAHRA, in consultation with the Minister and the MEC of every province must establish a system of grading places and objects which form part of the national estate (S7) • Provision for the protection of all archaeological objects, paleontological sites and material and meteorites entrusted to the provincial heritage resources authority (S35) • Provision for the conservation and care of cemeteries and graves by SAHRA, where this is not responsibility of any other authority (S36) • List of activities which require notification from the developer to the responsible heritage resources authority, with details regarding location, nature, extent of the proposed development (S38) • Requirement for the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites for promotion of tourism (S44)
National Environmental Management: Biodiversity Act (Act no. 10 of 2004)	<ul style="list-style-type: none"> • Provision for the MEC for Environmental Affairs/Minister to publish a list of threatened ecosystems and in need of protection (S52) • Provision for the MEC for Environmental Affairs/Minister to identify any process or activity which may threaten a listed ecosystem (S53) Provision for the Member of the Executive Council for Environmental Affairs/Minister to publish a list of: critical endangered species, endangered species, vulnerable species and protected species (S56(1) - see Government Gazette 29657 • Three government notices have been published up to date: GN R150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R151 (Lists of critically endangered, vulnerable and protected species) and GN R152 (Threatened Protected Species Regulations)
National Environmental Management: Air Quality Act (Act no. 39 of 2004)	<ul style="list-style-type: none"> • Provision for measures in respect of dust control (S32) • Provision for measures to control noise (S34)
National Environmental Management: Waste Management Act (Act no. 59 of 2008)	<ul style="list-style-type: none"> • Waste management measures • Regulations and schedules • Listed activities which require a waste licence
Northern Cape Nature Conservation Act (Act No. 9 of 2009)	<ul style="list-style-type: none"> • Indigenous flora protected under this act • No hunting to take place without a permit
Occupational Health and Safety Act (Act No. 85 of 1993)	<ul style="list-style-type: none"> • Health and safety of all involved before and after construction must be protected.

Guideline Documents	Sections applicable to the proposed project
South African National Standard (SANS) 10328, Methods for environmental noise impact assessments in terms of NEMA no. 107 of 1998	<ul style="list-style-type: none"> Impact of noise emanating from a proposed development may have on occupants of surrounding land by determining the rating level Noise limits are based on the acceptable rating levels of ambient noise contained in SANS 10103
Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads	<ul style="list-style-type: none"> The Guidelines outline rules and conditions related to transport of abnormal loads and vehicles on public roads and detailed procedures to be followed for the grant of exemption permits

Policies and White Papers	Sections applicable to the proposed project
The White Paper on the Energy Policy of the Republic of South Africa (December 1998)	<ul style="list-style-type: none"> The White Paper supports investment in renewable energy initiatives, such as the proposed solar power plant project
The White Paper on Renewable Energy (November 2003)	<ul style="list-style-type: none"> The White Paper outlines the Government's vision, policy, principles, strategic goals and objectives for the promotion and the implementation of renewable energy in South Africa
Integrated Resource Plan (IRP1) Integrated Resources Plan 2010-2030 (IRP 2010).	<ul style="list-style-type: none"> The first Integrated Resource Plan (IRP1) was released in late 2009. Subsequently the DoE decided to undertake a detailed process to determine South Africa's 20-year electricity plan, called Integrated Resources Plan 2010-2030 (IRP 2010). The IRP1 and the IRP 2010 outline the Government's vision, policy and strategy in matter of the use of energy resources and the current status of energy policies in South Africa. In particular, the IRP 2010 highlights the necessity of commissioning 1200 MW with solar PV technology by the end of 2015.
Request For Qualification and Proposals For New Generation Capacity under the IPP Procurement Programme(3 August 2011)	<ul style="list-style-type: none"> The IPP Procurement Programme, issued on 3rd August 2011 by the DoE, envisages the commissioning of 3725 MW of renewable projects (1450 MW with Solar photovoltaic technology) capable of beginning commercial operation before the end of 2017. The Department of Energy has already announced the intention to procure an additional 3,600 MW of renewable energy projects by 2020 (DOE Media Statement of 12 December 2014).
Equator Principles (July 2006)	<ul style="list-style-type: none"> The Equator Principles provide that future developments with total project capital costs of US\$10 million or more shall be financed only if socially and environmentally sustainable

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	<input checked="" type="checkbox"/>
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If YES, what estimated quantity will be produced per month?

200 m ³

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

During the construction phase, solid waste will mainly consist of vegetation material as a result of the clearing activity of the power line servitude. Other type of solid waste may be: wood from packaging, boxboards, expanded polystyrene. Vegetation material from clearing activity can be recycled to be re-used as organic fertilizer. Other solid wastes will be recycled as much as possible. Non-recyclable waste will be delivered to the closest landfill of the Municipality.

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

Osalus Energy will enter into an agreement with the Joe Morolong Local Municipality for the refuse at the nearby municipal refuse site. No refuse will be buried or incinerated on site.

Will the activity produce solid waste during its operational phase?

YES	<input checked="" type="checkbox"/>
0 - 20 m ³	

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

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

During the operational phase (25 - 30 years), solid waste will mainly consist of small amount of vegetation material as a result of the periodical clearing activity along the power line servitude (if required).

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

Registered landfill of the Joe Morolong Local Municipality

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

Not applicable

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?

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

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

	NO
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If YES, what estimated quantity will be produced per month?

0 m ³

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

	NO
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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?

	NO
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If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

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

The construction and operation of the power line will not entail the generation of liquid effluents. Due to the short timeframe of the construction works (5 months) and the limited number of workers involved (a team of approximately 10 - 15 people only), a temporary chemical toilet will suffice. During operation, the power line servitude will be inspected periodically in order to inspect the poles and to ensure that vegetation does not affect the cables.

c) Emissions into the atmosphere

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

	NO
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO
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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:

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d) Waste permit

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

	NO
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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?

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

	NO
YES	NO

Describe the noise in terms of type and level:

A power line and a switching station doesn't generate noise. In case of strong windy conditions, a slight noise (similar to a buzzing) can arise from small electrical discharges due to the ionization of the air. This phenomenon is called "corona discharge".

13. WATER USE

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

Municipal	Water board	Groundwater	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:

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.

	litres
	NO

14. ENERGY EFFICIENCY

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

The proposed activity (a power line associated with a solar project) is in its essence an attempt to contribute to the movement towards renewable energy sources i.e. sunlight.

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

Not applicable

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?

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	Northern Cape Province
District Municipality	John Taolo Gaetsewe District Municipality
Local Municipality	Joe Morolong Local Municipality
Ward Number(s)	NC451
Farm name and number	<ul style="list-style-type: none"> • Remaining Extent of the Farm East No. 270, Kuruman RD, (project site of the East Solar Park); • Farm Kipling No. 271, Kuruman RD; • Remaining Extent of the Farm Hotazel No. 280, Kuruman RD (where the Eskom Hotazel substation is located)
Portion number	
SG Codes	C0410000000027000000 C0410000000027100000 C0410000000028000000

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.

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

The farm portions crossed by the East 132 kV Power Line are located outside urban areas and zoned as "agricultural".

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? **NO**

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: CORRIDOR 1 to the Eskom Hotazel substation

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
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Alternative S2: CORRIDOR 2 to the Eskom Umtu substation

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
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Alternative S3 (if any):

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
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2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline	<input type="checkbox"/> NO	2.4 Closed valley	<input type="checkbox"/> NO	2.7 Undulating plain / low hills	<input type="checkbox"/> NO
2.2 Plateau	<input type="checkbox"/> NO	2.5 Open valley	<input type="checkbox"/> NO	2.8 Dune	<input type="checkbox"/> NO
2.3 Side slope of hill/mountain	<input type="checkbox"/> NO	2.6 Plain	<input checked="" type="checkbox"/> YES	2.9 Seafront	<input type="checkbox"/> NO
2.10 At sea	<input type="checkbox"/> NO				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:	Alternative S2:	Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Dolomite, sinkhole or doline areas	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Seasonally wet soils (often close to water bodies)	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Unstable rocky slopes or steep slopes with loose soil	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Dispersive soils (soils that dissolve in water)	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Soils with high clay content (clay fraction more than 40%)	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Any other unstable soil or geological feature	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> NO
An area sensitive to erosion	<input checked="" type="checkbox"/> YES	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> YES	<input type="checkbox"/> 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.

Please refer to the Appendix D6: Geo-technical Study Report

4. GROUND COVER

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).

Natural veld - good condition^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	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.

5. SURFACE WATER

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

Perennial River		NO	
Non-Perennial River	YES		
Permanent Wetland		NO	
Seasonal Wetland	YES		
Artificial Wetland		NO	
Estuarine / Lagoonal wetland		NO	

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

The **Corridor 2 (not preferred)** of the proposed power line will cross the **Gamagara Spruit** at the boundary between the farms Umtu 281 and Kipling 271, at 27° 12' 12" S ; 22° 55' 15" E.
 Two steel monopole structures may need to be installed within 32 metres of the wetland area associated with the Gamagara Spruit. The dirt road to be built within the power line servitude for the construction phase will cross the **Gamagara Spruit** at 27° 12' 12" S ; 22° 55' 15" E.

6. 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:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H

EAST 132 KV POWER LINE - FINAL BASIC ASSESSMENT REPORT

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)

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

The **Corridor 2 (not preferred)** will cross a railway line linking the Hotazel mine to the Assmang mine located on the Farm N' Chwaning 267. The railway is currently crossed by the Eskom Hotazel - Umtu 132 kV power line at the same crossing point. The railway will be crossed with an angle of 90°.

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:

The East 132 kV Power Line will connect the East Solar Park to the Eskom Hotazel substation and Eskom "Hotazel - Umtu" 132 kV power line, which supply the mines located on the farms Hotazel 280 and Olive Pan 282. The impact will be positive, because the solar park will help Eskom to meet the energy demand of the mines. The new power line servitude is not expected to interfere with the mining activities, considering that is planned to be adjacent to the existing Eskom power line servitude of the Eskom "Hotazel - Heuningvlei" 132 kV power line. Indeed to add a new power line to the existing Eskom line along the same route would constitute the lowest intrusive option in terms of present and future land uses on the affected properties.

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:

Not applicable

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

Critical Biodiversity Area (as per provincial conservation plan)		NO
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

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

7. 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	

A low density Middle Stone Age occurrence consisting out of single formal tools and scattered debris was documented along the banks of the Gamagara River in the proposed **Corridor 2 (not preferred)**. (Site AGES-HZ280-SA01: S 27.202998° E 22.921680°). However, the site is of low scientific value due to the low lithic density and the general loss of context for the artefacts. Even though the impact on the site by the proposed activity is anticipated to be peripheral and permanent, the **significance** of the impact on the resource is considered to be **low** and this impact can be limited to a **negligible impact** by the implementation of mitigation measures (monitoring) for the sites, if / when required. As such, a careful watching brief monitoring process is recommended for development activities. Should any previously undetected surface of subsurface paleontological or archaeological material be exposed during development activities, all activities should be suspended and the archaeological specialist should be notified immediately.

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:

Since heritage resources of low significance have been documented in the proposed Corridor 2 (not preferred), no lasting impact on such resources is anticipated. No site-specific actions or any further heritage mitigation measures are recommended but the construction process should be monitored in order to avoid the destruction of previously undetected heritage remains. In the opinion of the Archaeologist who conducted the Heritage Impact Assessment (Appendix D5), the proposed East 132 kV Power Line may proceed from a culture resources management perspective.

Will any building or structure older than 60 years be affected in any way?
 Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?
 If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

	NO
YES	

The Draft BAR and the Heritage Impact Assessment (Appendix D5) has been submitted also to SAHRA for approval.

8. 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:

The strict unemployment rate in Joe Morolong Local Municipality was 39% according to the 2011 Census. Total employment amounted to 7,806 persons and 4,911 persons were recorded as unemployed. This compares with a strict unemployment rate of for the entire Northern Cape Province according to the Census. When the 2,041 discouraged work seekers are added, the unemployment rate rises to 58.7%, which is a critical level. This is the expanded definition of unemployment, but a more accurate reflection of the local unemployment situation. High unemployment is due to the fact that the local resource base is unable to create sufficient jobs for the labour force and because many unemployed persons do not have the skills required by the labour market.

Employment Indicators in Joe Morolong LM, 2011

Official employment status	2011
Employed	7 806
Unemployed	4 911
Strict Labour Force	12 717
Strict Unemployment Rate %	39
Discouraged work-seekers	6 199
Expanded Labour Force	18 916
Expanded Unemployment Rate %	58.7

Source: Statistics SA; Census 2011

Economic profile of local municipality:

Joe Morolong Local Municipality has a very small local economy with a net value of production of R907 million at current 2011 prices. This represented less than 1.4% of provincial² economic output. Incorporation of Hotazel and Vanzylsrus into this municipal area in May 2011 will have resulted in a moderate increase in the value of production.

Mining is by far the dominant sector in the local economy. Most of the direct mining value is derived from manganese, with six operating mines in close proximity on the manganese belt between Hotazel and Black Rock.

Trading is important, but will be limited to local demand due to the isolated geography of the local municipality. Agriculture, including game farming, is widely practiced, but the value of production is relatively low in comparison to the value of mining production. General government is small in comparison to this function in other municipalities. It is a reflection of the relatively small population and the low level of government services. This sector contributed 12.8% to Northern Cape provincial GDP in 2011.

² R65.8 billion at current prices in 2011

It is evident from the IDP document (2012-2016) that the local economy is unable to meet the aspirations of the local population for employment and sustainable livelihoods.

Production Structure of the Joe Morolong Local Economy (R'm at Current prices)

Sector	2009	2010	2011	2011%
Agriculture, forestry and fishing	23	21	22	2.4
Mining and quarrying	258	276	315	34.7
Manufacturing	37	35	37	4.1
Electricity, gas and water	48	55	60	6.6
Construction	8	10	12	1.3
Wholesale and retail trade, catering and accommodation	114	128	148	16.4
Transport, storage and communication	45	46	49	5.5
Finance, insurance, real estate and business services	58	66	70	7.7
Community, social and personal services	83	106	115	12.6
General government	72	77	79	8.7
Total	745	819	907	100

Source: Quantec, 2014

Level of education:

Almost 23% of people older than 20 years in Joe Morolong Local Municipality have had no schooling. Less than 14% have completed school and only 4% have a post school qualification, mostly diplomas. This reflects a much lower skills profile than for the rest of the Province and indicates the urgent need for elementary job creation.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	±15 million Rand
What is the expected yearly income that will be generated by or as a result of the activity?	0 R (130 million R / year from the Solar Parks)
Will the activity contribute to service infrastructure?	NO
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	10 to 15 people
What is the expected value of the employment opportunities during the development and construction phase?	1.5 million Rand over 5 months
What percentage of this will accrue to previously disadvantaged individuals?	80 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	0 person
What is the expected current value of the employment opportunities during the first 10 years?	1.5 million Rand
What percentage of this will accrue to previously disadvantaged individuals?	N/A

9. 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)**

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)	not applicable
				not applicable
				not applicable

- b) **Indicate and describe the habitat condition on 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	0 %	
Near Natural (includes areas with low to moderate level of alien invasive plants)	70 %	The Corridors 1 and 2 will run parallel and adjacent to existing Eskom power line servitudes. The natural vegetation has already been partially cleared within the Eskom servitudes.
Degraded (includes areas heavily invaded by alien plants)	0 %	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	30 %	The properties crossed by the Corridors 1 and 2 have been affected by two mines (Hotazel and Kalagadi Manganese), a railway, a township (Hotazel), several secondary roads, several Eskom power lines and the Eskom Hotazel and Umtu substations.

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.

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					
Only Corridor 2 - not preferred			NO		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)

The vegetation of the proposed development site falls within the south-eastern range of the Griqualand West Centre of Endemism (Van Wyk & Smith 2001). A centre of plant endemism is an area with high concentrations of plant species with very restricted distributions. Centres of endemism are important because it is these areas, which if conserved, would safeguard the greatest number of plant species. They are extremely vulnerable; relatively small disturbances in a centre of endemism may easily pose a serious threat to its many range-restricted species (Van Wyk & Smith 2001). The Griqualand West Centre (GWC) is one of the 84 African centres of endemism and one of 14 centres in southern Africa, and these centres are of global conservation significance.

The endemic and near-endemic species make up 2.2% of the total flora, and are mostly from the Asclepiadaceae, Euphorbiaceae and Mesembryanthemaceae families. Some of the endemics are edaphic specialists, adapted to lime-rich substrates.

Endemics and near-endemics include *Searsia tridactyla*, *Aloinopsis orpenii*, *Euphorbia planiceps*, *Euphorbia bergii*, *Lebeckia macrantha*, *Lithops aucampiae* subsp. *aucampiae* and *Tarchonanthus obovatus*.

The GWC of endemism is extremely poorly conserved, and is a national conservation priority.

The proposed development is planned on a landscape that varies from slightly undulating plains to moderately undulating terrain associated with dunes. The importance to survey the area as a whole to have a better understanding of the ecosystem and the potential impact of the development on the natural environment was identified as a key factor, and subsequently the property was completely surveyed. The farms in the area are currently managed as a livestock farms. The vegetation units on the site vary according to soil characteristics, topography and land-use. Most of the site is characterized by **microphyllous woodland** that varies in density and species composition. Corridor 2 bisects the Gamagara River. Vegetation units were identified and can be divided into 5 distinct vegetation units according to soil types and topography.

The following vegetation units were identified during the survey.

- **Open *Acacia haematoxylon* woodland on deep Aeolian sand;**
- ***Acacia mellifera* thickets;**
- **Mixed *Acacia haematoxylon* – *Grewia flava* – *Acacia mellifera* low duneveld;**
- **Calcareous shrubveld associated with outcrop (only Corridor 2);**
- **Riparian woodland associated with Gamagara River (only Corridor 2).**

Taking cognizance of the data obtained from the field surveys, the following tree species occur in the area: namely ***Acacia haematoxylon* (Grey camel thorn)** and ***Acacia erioloba* (Camel thorn)**. A licence application should therefore be submitted to DAFF before any of these trees can be removed during construction.

Plant species are also protected according to the Northern Cape Nature Conservation Act (NCNCA), No. 9 of 2009. According to this Act, no person may pick, import, export, transport, possess, cultivate or trade in a specimen of a specially protected or protected plant species. The Appendices to the Act provide an extensive list of species that are protected, comprising a significant component of the flora expected to occur on site. Communication with Provincial authorities indicates that a permit is required for all these species, if they are expected to be affected by the proposed project.

The following protected plant species (geophytes) was found on site:

- ***Harpagophytum procumbens***
- ***Nerine laticoma***

Please refer to the Ecological Impact Assessment (Appendix D1) for a full description.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Stellalander	
Date published	8 April 2015	
Site notice position	Latitude	Longitude
Date placed	8 April 2015	

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

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
John Geeringh	Eskom Transmission	John.geeringh@eskom.co.za
Nondwe Nongauza	Eskom Distribution	NongauN@eskom.co.za

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.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p><u>Assmang notes 6.1 and 6.2:</u></p> <p>6.1 A company known as Kudumane Manganese Resources (Proprietary) Ltd ("KMR") is the holder of a prospecting right over the abovementioned property. KMR have applied for a mining right on said property.</p> <p>6.2 It is our understanding that KMR has not been informed of, or consulted with regard to, the erection of the power line under discussion. On the basis of this assumption we would advise, for purposes of avoiding a possible appeal against the issuing of an environmental authorisation for the power line, that you consult with KMR in relation hereto.</p>	<p><u>Osalus Energy clarifications 6.1 and 6.2:</u></p> <p>In March 2015 we had various discussions with other representatives in African Rainbow Minerals Limited (Messrs. Louis Meyer and Marius Herselman) regarding projects envisaged in the Hotazel area, such as:</p> <ol style="list-style-type: none"> Kipling Solar Park, proposed by Palus Energy on Your farm Kipling 271; Rhodes Solar Park, developed by Mira Energy; East Solar Park, developed by Osalus Energy; power line corridors related to the above-mentioned solar projects, including the power line linking the East and Kipling Solar Parks to the Eskom Hotazel and

	<p>Umtu substations, as described on the BID of the East Power Line distributed by AGES to the I&AP's in March 2015.</p> <p>After initial discussions with the above-mentioned representatives, we were informed to liaise with KMR in view of the prospecting and mining rights over the Farm Kipling 271. Therefore we contacted KMR directly to request their consent for the proposed Kipling Solar Park (proposed by Palus Energy on the Farm Kipling 271) and accompanying power line corridors. These corridors are the exact same corridors that relate to the East Solar Park. KMR have already granted their consent to the Kipling Solar Park (proposed on Your farm Kipling 271) and to the "Corridor 1" over the Farm Kipling 271. Please refer to the attached no objection letter granted by KMR on 28 October 2014.</p> <p>During a recent discussion with Osalus Energy, KMR indicated that they are currently assessing the feasibility of a new manganese mine to be located on the western side of the Farm Kipling 271 and/or on the Farm Umtu 281. The Corridor 2, as well as the existing Eskom "Hotazel - Umtu" 132 kV power line, are potentially affecting the future mine. The Corridor 1, parallel to the Eskom "Hotazel - Heuningvlei" 132 kV power line, will not interfere with any current and future mining activities.</p> <p>For these reasons, the Corridor 1 will be indicated as the preferred corridor in this Final BAR, while the Corridor 2 will be indicated as "not preferred" / not necessary anymore. Instead of building a power line up to the Eskom Umtu substation within the Corridor 2, The East Solar Park can deliver the energy to the Eskom "Hotazel - Umtu" 132 kV power line as well as to the Eskom Hotazel substation, only using the Corridor 1.</p>
<p><u>Assmang notes 6.3 and 6.4:</u> 6.3 The proposed solar farm and associated power line is situated within the Manganese Belt. 6.4 As such, the proposed power line may have the effect of sterilising a large portion of the minerals on the property if the size of the corridor, as well as the buffer prescribed by the Mine Health and Safety Act, No 29 of 1996, is taken into consideration.</p>	<p><u>Osalus Energy clarifications 6.3 and 6.4:</u> The Farm Kipling 271 is 2192 ha in extent. The proposed power line Corridor 1 is adjacent to existing Eskom servitudes; the new servitude required by the East Power Line will be 36 m wide. It means that the current buffer will be increased by only 36 m following the existing power lines.</p> <p>The Corridor 1 to the Eskom Hotazel substation is crossing the farm Kipling 271 for 2.73 km. The related servitude to be registered over Your farm within the Corridor 1 will be 10.4 ha. This servitude (10.4 ha) includes a small area (0.5 ha) required for the establishment of a new switching station next to the Eskom "Hotazel - Umtu" 132 kV power line. The Eskom "Hotazel - Umtu" 132 kV power line will loop in and out of the 132 kV bus bar of the switching station through two sections of</p>

	<p>132 kV line 50 m long (loop-in loop-out connection).</p> <p>Please refer to the attached draft servitude map (June 2015), for your comments and evaluations.</p>
<p><u>Assmang notes 6.5 to 6.7:</u></p> <p>6.5 We have noted that the Draft BAR on page 16 thereof states that the "...solar park is not expected to interfere negatively with the nearby activities". However, no mention is made of whether the impact of the power line on surrounding properties and/or mines have been taken into account.</p> <p>6.6 It is moreover noted that you have not conducted an economic study regarding the possible negative impacts of the power line on the surrounding properties and/or mines.</p> <p>6.7 Mining activities may include blasting, which may in turn have an adverse effect on the power line.</p>	<p><u>Osalus Energy clarifications 6.5 to 6.7:</u></p> <p>Please note that the purpose of the Basic Assessment is to assess the proposed power line corridors from the environmental point of view and suggest alternatives. In terms of potential impacts on avifauna and visual resources, the fact that the new power line will run parallel to existing lines constitutes the best option.</p> <p>A socio-economic impact assessment was not conducted in respect of the East Power Line, but it was conducted in respect of the East Solar Park and it was annexed to the EIA Report, under the Environmental Authorisation Process DEA Ref. 14/12/16/3/3/2/664.</p> <p>In addition to the environmental benefits associated with the production of "green energy" from a renewable source (solar), it should be taken into account that the East Solar Park and associated infrastructure will help Eskom to strengthen the existing network, thus increasing the energy supply to the local mines benefitting:</p> <ul style="list-style-type: none"> • the Kalagadi Manganese Mine, supplied from the Eskom Umtu substation; • the Hotazel mine, supplied from the Eskom Hotazel substation; • the Gloria Mine, supplied from the Eskom Hotazel substation; • the N' Chwaning mine, supplied from the Eskom Klipkop substation via the Eskom Hotazel and Umtu substations; • the Wessels mine, supplied by the Eskom Wessels substation via the Eskom Hotazel and Umtu substations. <p>Due to the expected increase of the energy demand arising from the current and future mining activities in the Hotazel area, Eskom will upgrade the Hotazel distribution substation at 400 kV. The Hotazel substation is planned to become a transmission substation from 2020 and will be connected to the Eskom Mookodi and Ferrum substations at 400 kV.</p> <p>This Eskom integration project is called "Kimberley Strengthening Phase 3" and it entails the following interventions affecting the Hotazel area:</p> <ul style="list-style-type: none"> • Hotazel 400/132 kV substation (1st and 2nd 500 MVA 400/132 kV transformers)

	<ul style="list-style-type: none"> • Hotazel 400 kV loop-in (Ferrum-Mookodi (Vryburg) 2nd 400 kV line) • Hotazel Ext. 132 kV 1st 36 MVar capacitor”. <p>Please refer to the last Transmission Development Plan 2015-24 published on the Eskom website.</p> <p>The local generation in the Hotazel area by means of e.g. new solar plants like the East Solar Park will help Eskom to meet the increase of the local supply demand without the urgent need of huge interventions on the network aimed to import the energy from other provinces / areas. Furthermore, we expect that the electricity tariff proposed by Eskom to the mines may be reduced wherever the energy is produced locally at a competitive price (as it is the aim of the East Solar Park).</p>
<p><u>Assmang notes 6.8 to 6.11:</u></p> <p>6.8 An option to be considered by the proponent is to provide Assmang with "one free move" of the power line, in accordance with which the proponent enters into an agreement with Assmang to relocate the power line to a different location on the property, should Assmang wish to conduct mining operations in the area where the power line is intended to be situated.</p> <p>6.9 It bears consideration that there is already a servitude registered over our property with a power line erected in the servitude area.</p> <p>6.10 An additional servitude and power line over our property will render yet another portion the property economically useless.</p> <p>6.11 The proponent should consider utilising the existing power line corridor in order to avoid additional impacts on Assmang.</p>	<p><u>Osalus Energy clarifications 6.8 to 6.11:</u></p> <p>Please be assured that Osalus Energy can't built any power line / switching station over Your property until a servitude is registered in this respect, in terms of a servitude agreement to be entered into by and between Osalus Energy and Assmang. Therefore we wish to cooperate in the negotiation of a servitude agreement over the Farm Kipling 271 and any suggestion in respect of the power line route will be welcome. We are not aware of any vacant servitudes available for new power lines.</p> <p>We are the opinion that - given the present state - to add a new power line to the existing Eskom line along the same route constitutes the <u>lowest intrusive option</u> in terms of present and future land uses on the Farm Kipling 271.</p> <p>Your proposal of "one free move" option can be considered but only within the power line Corridor 1 to be authorised by the DEA.</p>
<p><u>Assmang notes 6.12 to 6.13:</u></p> <p>6.12 The Draft BAR contains the following statement on page 18 (paragraph 12): <i>"The owners of the land crossed by the proposed East 132 kV Power Line could be affected. These owners has been consulted for consent to permit the registration of the relevant power line servitudes to be registered over the affected properties".</i></p> <p>6.13 This statement is incorrect. We have not been consulted for consent. We have only been invited to register as an interested and affected party.</p>	<p><u>Osalus Energy clarifications 6.12 to 6.13:</u></p> <p>Ages, as EAP, only contacted you in respect of the environmental authorisation process, in order to distribute the BID and the Draft BAR to the I&AP's for the public participation process.</p> <p>The statement refers to the discussion between our team and Assmang in respect of:</p> <ol style="list-style-type: none"> a) the Kipling Solar Park, planned on Your farm by Palus Energy, b) the consent for the registration of power line servitudes over Your farm for the proposed East Solar Park, developed by Osalus Energy. <p>Assmang was approached for consent for the registration of the power line servitude in a letter dated as far back as 11 June 2014 and again emailed on 24 March 2015. The feedback from Mr. Louis Meyer was that the matter will be</p>

	<p>referred to Your Exco committee for consideration. Your reply is the first that we formally received on the request for consent. As said, we wish to cooperate in the negotiation of a servitude agreement over the Farm Kipling 271.</p>
<p><u>Assmang notes 6.14 to 6.16:</u> 6.14 The physical positioning of the monopoles together with the existing Eskom monopoles may compromise the access between the Eastern and Western extremities of our property. 6.15 In our submission the above factors argue strongly in favour of moving the solar farm as well as the power line out of the Manganese Belt. 6.16 It is also conceivable that Assmang may in future obtain a commercial interest in the exploitation of minerals on the property. The erecting of power lines on our property may negatively impact such activities.</p>	<p><u>Osalus Energy clarifications 6.14 to 6.16:</u> The East Solar Park is located outside the Manganese Belt. Osalus Energy and the owner of the Farm East 270 entered into an agreement for the rental of 210 ha within the Remainder of the Farm East 270, Kuruman RD.</p> <p>Osalus Energy submitted application to DMR on 9 May 2014 and received an approval from DMR on 7 July 2014 with an indication of prospecting rights and mineral rights holders over the Farm East 270. These being Southern Ambitions 1549 CC and Zama Mining Resources (Pty) Ltd. These parties were consulted and in both instances <u>they granted consent for the development of the proposed East Solar Park.</u></p> <p>It is important to highlight that the envisaged East Power Line will affect the “Manganese Belt” by the utilisation of a new servitude of only 36 m wide, which will be parallel to registered power line corridors already utilised for existing Eskom power lines. As mentioned above, no new servitude can be registered over Your farm without Your consent.</p> <p>Please find attached the drawings - to be annexed to the Final BAR: EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station EAPL_05_r0 Switching station</p> <p>showing the power line corridor (Corridor 1) to be authorised by the DEA for the new East Power Line, as well as the planned location of the switching station. This corridor - 100 to 200 m wide - represent the “study area” investigated under the environmental authorisation process. The actual servitude to be registered within the study corridors will only be 36 m wide. Please refer to the attached draft servitude map, for your comments and evaluations.</p>

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.

Please refer to the Appendix E3 Comments and Response Report-

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Please see spreadsheet included in Appendix E5.

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address

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

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

Please refer to:

Appendix E5 List of registered I&AP's

Appendix E6 I&AP's correspondence

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 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.

1.1. Atmospheric pollution and noise

Construction Phase

During this phase there will be a concentration of earthmoving equipment and construction vehicles that will clear vegetation within the power line servitude (36 m wide) for construction purposes and in the process will create dust and exhaust smoke that will impact on air quality. There will also be more noise created by the vehicles during this phase. Burning of waste and fires at the temporary construction sites may also create smoke.

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no impact on air quality is expected in this phase.

CORRIDORS 1 AND 2										
Project Phase	Impact :Atmospheric Pollution and noise								Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation	
								Low-medium	Medium	
Construction	Earthworks and Vegetation clearance	Air pollution : Dust	Low-medium	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium	
	Vehicle movement	Air pollution : Smoke	Low	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium	
	Vehicle movement	Air pollution : Dust	Low	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium	
	Vehicle movement	Noise pollution	Low-medium	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium	

CORRIDORS 1 AND 2									
Project Phase	Impact :Atmospheric Pollution and noise								
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
	Burning of cleared vegetation, solid waste & veld fires	Air pollution by excessive smoke	Low-medium	Medium-high	Low-medium	Medium	Medium	Low-medium	Medium
	Cooking fires of workers	Air pollution : Smoke	Low	Medium-high	Low-medium	Medium	Medium	Low	Medium
Cumulative impacts	Pollution & Noise	Increase in release of smoke and increase in noise levels	Low	Medium-high	Low-medium	Medium	Medium	Low	Medium

Mitigation measures - Construction Phase

- Vehicles must be well serviced so that it does not produce excessive smoke and noise.
- Refueling shouldn't be allowed on the power line servitude.
- Vehicle maintenance shouldn't be allowed on the power line servitude.
- Speed of construction vehicles should be kept as low as possible to reduce the generation of dust and noise.
- Access road must be damped to prevent excessive dust formation.
- The clearing of the power line servitude should be done in phases as the construction progresses.
- Construction should only take place during the hours between sunrise and sunset on weekdays and Saturdays.
- Contractors must comply with Provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.
- Vegetation cleared from the site and solid waste generated by the construction team (10 - 15 people) may not be burned on site or the surrounding areas, but be regularly removed to the municipal waste disposal site.
- The cleared vegetation stock-piled and should be removed to a licensed waste disposal site on a regular basis.

1.2. Groundwater and surface water pollution

Construction Phase

Spillage of fuel and lubricants from construction vehicles could occur. Storm water contamination by solid waste could lead to groundwater and surface water pollution. In this phase the vegetation is removed and storm water over the area could cause erosion as well as siltation of watercourses. Road construction within the power line servitude (if required) will also increase the possibility of erosion and the siltation/sedimentation of surface water streams, because of increased storm water run-off.

Operational Phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no impact on groundwater is expected in this phase.

CORRIDORS 1 AND 2										
Project Phase	Impact: Groundwater and Surface water Pollution								Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation	
								With Mitigation	Without Mitigation	
Construction	Spillage of fuel and lubricants from construction vehicles	Water Pollution	Medium	Medium-high	Low-medium	Medium-high	Medium-high	Low	Medium	
	Clearing of vegetation	Erosion & siltation of streams	Low-medium	Medium-high	Low-medium	Medium	Medium-high	Low-medium	Medium	
	Solid waste disposal freshwater resources	Pollution of freshwater resources	Low	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium	
	Sanitation seepage from chemical toilets	Water Pollution	Medium	Medium	Low-medium	Medium	Low	Low	Low-medium	
Cumulative impacts	Water pollution and increased water run-off	Increased potential for water pollution and increased water run-off	Low-Medium	High	Low-medium	Medium	Medium	Low-medium	Medium	

Mitigation measures - construction phase

The following precautionary measures are recommended to prevent any surface or groundwater pollution:

- Clearance of vegetation should be restricted to the 36 m wide power line servitude and the grass layer should be preserved as much as possible.
- Construction activities should be restricted to the proposed power line servitude.
- Refueling shouldn't be allowed on the power line servitude.
- Vehicle maintenance shouldn't be allowed on the power line servitude.
- Chemical sanitation facilities in the temporary construction sites should be regularly serviced by appropriate companies to ensure that no spills or leaks to surface and groundwater take place. Chemical toilets should not be placed within 100 m from any watercourse.
- Solid waste must be kept in adequate waste bins. Building rubble and various waste products should be removed on a regular basis to a licensed landfill site.
- If all possible soil pollution is restricted and prevented, there would be no cumulative impacts as a result of the establishment of the East 132 kV Power Line.

1.3. Water use / water quantity

Construction phase

During this phase, a small amount of water may be utilized for building of the foundations of the steel monopole structures. The water needed for the construction activities will be provided from the Sedibeng Water, the local water provider.

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Water use is not envisaged in this phase.

CORRIDORS 1 AND 2										
Project Phase	Impact: Water use								Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation	
								Low	Low-Medium	
Construction	Construction process	Depletion of water resources: Water consumption	Low-medium	Medium	Medium	Medium	Low	Low	Low-Medium	
Cumulative impacts	Water use	Increased pressure on local water resources	Low-medium	Medium	Medium	Medium	Low	Low	Low-Medium	

Mitigation measures – Construction Phase

- Water should be used sparingly and it should be ensured that no water is wasted.
- Road along the power line servitude (if required) should be treated with chemicals to lower the use of water.
- Vehicle maintenance shouldn't be allowed on the power line servitude.
- An eradication and rehabilitation plan should be compiled for the exotic invasive plant species present on the power line servitude. An ecologist should be consulted to assist in this regard.

1.4. Land and soils

Planning phase

The crossing of the Gamagara Spruit (Corridor 2) should be designed in such a way to avoid the installation of structures inside the watercourse and related wetland area.

Construction phase

During construction, the vehicles used have the potential to spill diesel and lubricants that can pollute the soil. The storage of solid waste before it can be disposed of has the potential to pollute the soil and becomes a nuisance.

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no impact on land and soils is expected in this phase.

CORRIDOR 1									
Project Phase	Impact: Land and soils							Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation
								Low	Medium
Construction	Spilling of oil/diesel by construction machines	Contamination of soil	Medium	Medium-high	Low-medium	Medium-high	Medium-high	Low	Medium
	Solid waste disposal	Soil pollution + nuisance	Low	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium
	Storm water over roads and cleared areas	Erosion	Low-medium	Medium-high	Low-medium	Medium	Medium-high	Low-medium	Medium
Cumulative impacts	Increased potential for negative impacts on soil resource	Increased potential for erosion and soil pollution	Low-medium	High	Low-medium	Medium	Medium-high	Low	Medium

CORRIDORS 2									
Project Phase	Impact: Land and soils							Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation
								Low	Medium
Construction	Spilling of oil/diesel by construction machines	Contamination of soil	Medium	Medium-high	Low-medium	Medium-high	Medium-high	Low	Medium
	Solid waste disposal	Soil pollution + nuisance	Low	Medium-high	Low-medium	Medium-high	Medium-high	Low-medium	Medium
	Storm water over roads and cleared areas	Erosion	Low-medium	Medium-high	Low-medium	Medium	Medium-high	Low-medium	Medium
	Wetland degradation due to construction activities within the buffer zone	Wetland degradation	Medium-High	Medium	Medium	Medium	Low-Medium	Low-Medium	Medium
Cumulative impacts	Increased potential for negative impacts on soil resource	Increased potential for erosion and soil pollution	Low-medium	High	Low-medium	Medium	Medium-high	Low	Medium

Mitigation measures - Construction Phase

- The crossing of the Gamagara Spruit (Corridor 2) should be designed in such a way to avoid the installation of structures inside the watercourse and related wetland area.
- Clearance of vegetation should be restricted to the 36 m wide power line servitude; the grass layer should be preserved as much as possible.
- The clearing of the power line servitude shouldn't entail removal of grass, except where the foundations are installed and along the access road. Bushes and trees should be trimmed to ensure that they don't interfere with the power line conductors.
- Construction activities should be restricted to the proposed power line servitude.
- Refueling shouldn't be allowed on the power line servitude.
- Vehicle maintenance shouldn't be allowed on the power line servitude.
- Construction vehicles must be well maintained and serviced to minimise leaks and spills.
- Solid waste must be kept in containers and disposed of regularly at licensed dumping site.
- Any building rubble must be removed to a licensed disposal site on a regular basis during construction.
- The clearing of the power line servitude should be done in phases as the construction progresses.
- Slopes produced by removing soil must be kept to a minimum to reduce the chances of erosion damage to the area.

1.5. Archaeological, Cultural and Social Features

Construction phase

A low density Middle Stone Age occurrence consisting out of single formal tools and scattered debris was documented along the banks of the Gamagara River in the proposed **Corridor 2 (not preferred)** (Site AGES-HZ280-SA01: S 27.202998° E 22.921680°). Since heritage resources of low significance have been documented in the proposed Corridor 2, no lasting impact on such resources is anticipated. No site-specific actions or any further heritage mitigation measures are recommended but the construction process should be monitored in order to avoid the destruction of previously undetected heritage remains. The clearing of the power line corridor may have a negative impact on the archaeological features of the site. Care must be taken in the excavations and moving of soil to observe any archaeological feature of importance, which must be left and reported to the archaeological consultant for comments and actions.

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no impact on heritage sites is expected in this phase.

CORRIDORS 1 AND 2									
Project Phase	Impact: Loss of Archaeological, Cultural and social features							Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation
								Low	Low-medium
Construction	Earth moving and soil clearance	Destroy archaeological evidence and heritage and graves	Low-medium	Medium-high	Low	Low	Low-medium	Low	Low-medium
Cumulative impacts	Activities on site during construction and operational	Increase in potential to unearth archaeological evidence and graves	Low-medium	High	Low	Low	Low-medium	Low	Low-medium

Mitigation measures – Construction and operational phases

Care must be taken during the construction process that anything of archaeological value that is unearthed must be recorded. Please refer to the Heritage Impact Assessment (Appendix D5). The archaeologist or SAHRA must be notified whenever anything of importance is discovered.

1.6. Impact of the development on the ecology (flora, fauna & avifauna and wetland areas)

Planning and construction phase

The removal of natural vegetation and destruction of habitat will have a negative effect on the biodiversity. The specific mitigation measures included in the Ecological and Avifauna Impact Assessment (Appendix D1 and D2) should be adhered to.

The crossing of the Gamagara Spruit (Corridor 2) should be designed in such a way to avoid the installation of structures inside the watercourse and related wetland area, as indicated in the Wetland Delineation Study (Appendix D3).

The following tree species occur in the area, namely **Acacia haematoxylon (Grey camel thorn)** and **Acacia erioloba (Camel thorn)**. A licence application should therefore be submitted to DAFF before any of these trees can be removed during construction.

Plant species are also protected according to the Northern Cape Nature Conservation Act (NCNCA), No. 9 of 2009. According to this Act, no person may pick, import, export, transport, possess, cultivate or trade in a specimen of a specially protected or protected plant species. The Appendices to the Act provide an extensive list of species that are protected, comprising a significant component of the flora expected to occur on site. Communication with Provincial authorities indicates that a permit is required for all these species, if they are expected to be affected by the proposed project.

The following protected plant species (geophytes) was found on site:

- **Harpagophytum procumbens**
- **Nerine laticoma**

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Only impact on avifauna are expected in this phase.

CORRIDOR 1 (preferred)										
Project Phase	Environmental Aspect: Ecology (Fauna and Flora)								Significance	
	Activity that causes impact	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation	
								With Mitigation	Without Mitigation	
Construction	Earthworks and vegetation clearance at construction site	Loss of indigenous plant species & disturbance to sensitive habitat	Medium	Medium	Low-Medium	Medium	Medium-High	Low-medium	Medium	
	Vegetation clearance	The eradication and control of exotic invasive plant species Loss of indigenous plant species	Medium	Medium	Medium	Low-Medium	Medium-High	Low-Medium	Medium	
	The occurrence of veldt fires on site	Destruction of flora/habitats Loss of indigenous fauna	Low-Medium	Medium	Medium	Medium-High	Medium	Low	Medium	
	Littering (e.g. cans and plastics) along access road and at construction site	Public nuisance and loss/death of indigenous fauna	Low-Medium	Medium	Medium	Medium-High	Medium	Low	Medium	
	The control of animals on site Killing, poisoning or hunting of animals	Loss of indigenous fauna to the area	Medium-High	Medium	Medium	Medium	Low-Medium	Low-Medium	Medium	
Operation	Birds colliding with power line	Electrocution of birds	Medium-High	High	Low-Medium	Low-Medium	Low	Low	Medium	
Cumulative Impacts	Increased potential of negative impacts on ecology of the area	Increase in natural vegetation to be removed Electrocution of birds	Medium-High	High	Low-Medium	Low-Medium	Low	Low	Low-Medium	

CORRIDOR 2 (not preferred)									
Project Phase	Environmental Aspect: Ecology (Fauna and Flora)								
	Activity that causes impact	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Earthworks and vegetation clearance at construction site	Loss of indigenous plant species & disturbance to sensitive habitat	Medium	Medium	Low-Medium	Medium	Medium-High	Low-medium	Medium
	Vegetation clearance	The eradication and control of exotic invasive plant species Loss of indigenous plant species	Medium	Medium	Medium	Low-Medium	Medium-High	Low-Medium	Medium
	The occurrence of veldt fires on site	Destruction of flora/habitats Loss of indigenous fauna	Low-Medium	Medium	Medium	Medium-High	Medium	Low	Medium
	Littering (e.g. cans and plastics) along access road and at construction site	Public nuisance and loss/death of indigenous fauna	Low-Medium	Medium	Medium	Medium-High	Medium	Low	Medium
	The control of animals on site Killing, poisoning or hunting of animals	Loss of indigenous fauna to the area	Medium-High	Medium	Medium	Medium	Low-Medium	Low-Medium	Medium
	Wetland degradation due to construction activities within the buffer zone	Wetland degradation	Medium-High	Medium	Medium	Medium	Low-Medium	Low-Medium	Medium
Operation	Birds colliding with power line	Electrocution of birds	Medium-High	High	Low-Medium	Low-Medium	Low	Low	Medium
Cumulative Impacts	Increased potential of negative impacts on ecology of the area	Increase in natural vegetation to be removed Electrocution of birds	Medium-High	High	Low-Medium	Low-Medium	Low	Low	Low-Medium

Mitigation measures – Construction phase

- The crossing of the Gamagara Spruit (Corridor 2) should be designed in such a way to avoid the installation of structures inside the watercourse and related wetland area.
- Clearance of vegetation should be restricted to the 36 m wide power line servitude; the grass layer should be preserved as much as possible.
- The clearing of the power line servitude shouldn't entail removal of grass, except where the foundations are installed and along the access road. Bushes and trees should be trimmed to ensure that they don't interfere with the power line conductors.
- Construction activities should be restricted to the proposed power line servitude.
- Refueling shouldn't be allowed on the power line servitude.
- Vehicle maintenance shouldn't be allowed on the power line servitude.

- Care must be taken that unnecessary clearance of vegetation does not take place. Where possible, natural vegetation must be retained.
- Protected trees and protected plant species can only be removed once the necessary permits have been obtained (DAFF and DENC).
- The protected tree species ***Acacia haematoxylon* (Grey camel thorn)** and ***Acacia erioloba* (Camel thorn)** were found across the proposed power line corridors. No protected trees should be removed without authorisation from DAFF.
- The project should comply with the *Northern Cape Nature Conservation Act* (Act No. 9 of 2009). According to this Act, no person may pick, import, export, transport, possess, cultivate or trade in a specimen of a specially protected or protected plant species. The Appendices to the Act provide an extensive list of species that are protected, comprising a significant component of the flora expected to occur on site. Communication with Provincial authorities indicates that a permit is required for all these species, if they are expected to be affected by the proposed project. The protected plant species ***Harpagophytum procumbens*** and ***Nerine laticoma*** were found across the proposed power line corridors. No protected plant species should be removed without authorisation from DENC and DAFF.
- An eradication and rehabilitation plan should be compiled for the exotic invasive plant species present on the power line servitude. An ecologist should be consulted to assist in this regard.
- Fires should not be allowed and extra care should be taken to prevent veldt fires of occurring.
- The cleared vegetation should not be burned on site. The cleared vegetation should be stockpiled and taken to the closest available landfill site.
- Solid waste must be kept in adequate animal proof waste bins at the temporary construction camp. Building rubble and various wastes should be removed on a regular basis to the closest available landfill site.
- Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by construction activities.
- The stockpiled topsoil and construction material should be managed in such a way that the material is not transported by wind or rain. This can be done by restricting the height of the stockpiles, sandbagging and avoiding steep slopes.
- No animals may be killed, captured or hunted on site by construction workers. Do not feed any wild animals on site.
- Where trenches pose a risk to animal safety, they should be adequately cordoned off to prevent animals falling in and being trapped and/or injured. This could be prevented by the constant excavating and backfilling of trenches (if required) during construction process.
- Cumulative impacts on the ecology of the area can be significant. However, with the mitigation measures in place, the potential is very low for significant negative impacts on the ecology of the area.
- The EMPr will have to be adhered to both during the construction as well as operational phases and regular monitoring should be done to ensure that there is sound environmental practice at the East 132 kV Power Line.

Mitigation measures – Operational phase

- The high-risk sections of the power line should be marked with a suitable anti-collision marking device on the earth wire as per the Eskom guidelines.

1.7. Visual impacts

Planning and construction phase

The natural aesthetic character of the site will be changed. The the Eskom 132 kV power lines parallel to the planned power line corridors have already changed the visual characteristics of the site.

Ideally the project should be designed so as to occupy the smallest footprint on the ground, with the smallest vertical dimensions of suspension towers that are technically possible. The use of a monopole construction versus a lattice steel construction, for example, is more acceptable from a visual exposure perspective, due to its slim design and small footprint. From this perspective, possible visual impacts have already been mitigated by the use of a monopole construction for the project.

The visual absorption capacity of vegetation as a visual resource is largely effective. It is therefore recommended that during construction, the removal of vegetation is kept to the minimum. It is further recommended the conservation of identified individual trees or patches of bush and woodland at strategic locations, as an effort to apply best practice and manage existing visual resources.

CORRIDORS 1 AND 2									
Project Phase	Impact: Visual disturbance							Significance	
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	With Mitigation	Without Mitigation
								Low-Medium	Low-Medium
Construction and operation	Power line	Visual	Low	High	Low	High	High	Low-Medium	Low-Medium
Cumulative Impacts	Increased visibility of power lines	Visual	Low	High	Low	High	High	Low-Medium	Low-Medium

Mitigation measures

- Earth works should be executed in such a way that only the power line servitude is exposed. More importantly the indigenous vegetation should be retained.
- Cumulative impacts will be low as it was possible to mitigate the visual impact at East 132 kV Double Circuit successfully as a result of the natural characteristics of the area and because the power line corridors are parallel to existing Eskom 132 kV power lines.

1.8. Safety, security and fire hazards

Construction phase

Construction activities such as movement of construction vehicles and the use of equipment further increases the risk of injury.

Operational phase

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no impact on safety is expected in this phase.

CORRIDORS 1 AND 2									
Project phase	Impact: Safety, security and fire hazards								
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Construction activities – erection of power line structures and cable installation	Loss or injury to human life	Low-medium	Medium-high	Low	High	Medium	Low	Medium
	Security	Crime	Medium	Medium-high	Low-medium	Medium	Medium-high	Low - medium	Medium
	Fire hazards	Loss of human life and construction equipment etc.	High	Medium-high	Medium	Low	Low-Medium	Low-Medium	Medium

Mitigation measures

- The Contractor shall conform to the Occupational Health and Safety act (Act 85 of 1993) and regulations applicable. The Act requires the designation of a Health and Safety representative when more than 20 employees are employed.
- Access to the power line servitude should be monitored and allowed only to the workers of the construction team (10/15 people).
- No construction activities should be allowed during the night. Workers should not be allowed to stay on site during the night.
- Open trenches or excavations must be marked with danger tape.
- No solid waste or vegetation may be burnt on the premises or surrounding areas.
- Fire extinguishers must be available.
- Fires should not be allowed and extra care should be taken to prevent veldt fires of occurring.
- It must be ensured that the development complies with the requirements of the National Veld and Forest Fire Act, 1998 (Chapter 2: Fire Protection Associations and Chapter 4: Duty to Prepare and maintain firebreaks).
- Refueling shouldn't be allowed on the power line servitude.
- Vehicle maintenance shouldn't be allowed on the power line servitude.

1.9. Socio-economic impact

Construction phase

The construction phase of the East 132 kV Power Line will last 5 months and will involve a team of 10 to 15 workers.

The operation of the power line only requires periodical inspections in order to inspect the poles and to ensure that vegetation does not affect the cables. Therefore no socio-economic impacts are expected in this phase.

It should be noted that the East 132 kV Power Line will form part of the East Solar Park project. This project will contribute towards the national and local economies through civil contractor work, labour and building materials, which will be required on the project site.

Project phase	Impact: Job creation								
	Activity/Aspect	Specific impact	Severity	Duration	Extent	Frequency	Probability	Significance	
								With Mitigation	Without Mitigation
Construction	Job creation	Job Creation	Low +	Low +	Low +	Low +	High +	N/A	Low +
Cumulative impacts	Increased potential for job creation.	Increased potential for local Community development	Low +	Low +	Low +	Low +	High +	N/A	Low +

Mitigation measures

- Jobs must be created for unemployed local people and skills must be transferred to them.
- Where viable, the work must be executed in a labour intensive manner to create as many jobs possible.
- The cumulative impact of this impact can just be positive. As one of the poorest provinces in South Africa, the Northern Cape is definitely in need of more job opportunities.

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

Please refer to the Appendix F: Impact Assessment

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.

Power Line Corridors 1 and 2 (both of them are preferred at this stage)

Impacts with a rating of Medium-high or High are impacts which are regarded as potentially significant, rated without any mitigation measures. In this impact assessment, the following impacts were regarded as potentially significant impacts:

- i. The Birds colliding with power line / Electrocution of birds during the operational phase
- ii. The occurrence of veldt fires during the construction phase.

These impacts (i-ii) will now briefly be discussed.

1.1. Cumulative impacts (Corridors 1 & 2)

- i. No cumulative impact is expected.
- ii. This can have a cumulative effect if preventative measures are not followed.

1.2. Nature of impact (Corridors 1 & 2)

- i. Loss of avifauna.
- ii. Damage to property, ecology and safety of people.

1.3. Extent and duration of impact (Corridors 1 & 2)

- i. The extent is along the alignment of the power line. The duration is only during operation.
- ii. The extent is potentially on the development area as well as surrounding properties and even regional. The duration is only during construction.

1.4. Probability of occurrence (Corridors 1 & 2)

- i. The probability is possible.
- ii. The probability is infrequent or seldom.

1.5. Degree to which impact can be reversed (Corridors 1 & 2)

- i. Impact is not reversible but can the occurrence can be reduced with the implementation of the mitigation measures.
- ii. If the development is not continuing there will be no guarantee that veldt fires will not occur on the property. This impact must therefore be managed accordingly.

1.6. Degree to which impact can cause irreplaceable loss of resource (Corridors 1 & 2)

- i. The degree, as well as the occurrence, can be reduced with the implementation of the mitigation measures.
- ii. Veldt fires can create such damage that it will take a long time for the veldt to recover but the fact is that the vegetation has been subjected to veldt fires ever since. Loss of property (buildings) can be replaced.

1.7. Degree to which impact can be mitigated (Corridors 1 & 2)

- i. Successful mitigation is possible
- ii. Successful mitigation is possible

No-go alternative (compulsory)

The no-go alternative is the option of not establishing the East 132 kV Power Line, **infrastructure associated with the East Solar Park**.

If the East 132 kV Power Line is not developed, the East Solar Park (DEA Ref. 14/12/16/3/3/2/664 - applicant: Osalus Energy) will not be able to be connected to the Eskom grid, therefore the solar project will not be established.

The environment will remain in its current state (*status quo*). Therefore:

A) the environmental benefits - in terms of **air quality** - associated with the establishment of the proposed renewable energy generation facility (solar photovoltaic plant) will not be achieved. The electrical energy (electricity) generated by the proposed East Solar Park will reduce the quantity of pollutants and greenhouse gases emitted into the atmosphere. The reduced amount of pollutants and greenhouse gases corresponds to the emissions that would have been generated by a thermal power plant using fossil fuels for producing the same quantity of energy that can be produced by the proposed renewable energy project (solar photovoltaic plant).

B) This will not create any new employment opportunities and the anticipated **economic benefits** of the solar project will accrue to the study area.

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

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.

It is the professional opinion of AGES that the proposed development is **highly desirable** and **does not present any fatal flaws in terms of negative impacts to the environment** and therefore will not have any significant detrimental impacts to render the project unfeasible.

It is proposed that the following conditions must be included in the Record of Decision if the project is authorised:

- The mitigation measures contained in the Assessment Report (Appendix F) must be implemented.
- The management and or mitigation measures contained in the Environmental Management Programme (EMPr, Appendix G) must be implemented.
- The responsibilities to obtain any further authorisations and/or licenses will rest on the proponent of the project, PRIOR to any activities on site.

Is an EMPr attached?

YES

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.

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.

Ages Limpopo (Pty) Ltd (Reg. No. 2006/020831/07)

NAME OF EAP



SIGNATURE OF EAP

**J. H. Botha (Pri.Sci.Nat.)
Senior Environmental Scientist**

2 July 2015

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Regional Map

Satellite Map

Vegetation Map

Sensitivity Map

EAPL_00_r2 Locality Map: Proposed Corridors 1 & 2 and switching station

EAPL_01_r1 Corridors 1 & 2 and sensitivity

EAPL_02_r0 Corridor 1 (preferred), alignments 1 & 2 and switching station

Appendix B: Photographs**Appendix C: Facility illustration(s)**

EAPL_03_r0 Steel monopole structure (single circuit)

EAPL_04_r0 Steel monopole structure (double circuit)

EAPL_05_r0 Switching station

Appendix D: Specialist reports (including terms of reference)

Appendix D1 Ecological Impact Assessment

Appendix D2 Avifauna Impact Assessment

Appendix D3 Wetland Delineation Study

Appendix D4 Agricultural Potential Impact Assessment

Appendix D5 Heritage Impact Assessment

Appendix D6 Geo-technical Study Report

Appendix D7 Visual Impact Assessment

Appendix E: Public Participation

Appendix E1 Proof of the placement of the relevant advertisements and notices

Appendix E2 I&AP's correspondence written notification

Appendix E3 Comments and Response Report

Appendix E4 Written notification to Authorities and Organs of State

Appendix E5 List of registered I&AP's

Appendix E6 I&AP's correspondance

Appendix F: Impact Assessment**Appendix G: Draft Environmental Management Programme (Draft EMPr)****Appendix H: Details of EAP and expertise****Appendix I: Specialist's declaration of interest****Appendix J: Additional Information**

Geo-graphical co-ordinates of the Corridors 1 & 2, alignments 1 & 2 and switching station