

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS  
FINAL BASIC ASSESSMENT REPORT

PROPOSED DEVIATION OF THE EXISTING 132KV  
DASSENBERG-KOEBERG POWER LINE FROM THE  
KOEBERG POWER STATION INTO THE ANKERLIG  
POWER STATION WESTERN CAPE PROVINCE  
DEA REF: 14/12/16/3/3/1/1182

FINAL FOR AUTHORITY REVIEW

June 2015

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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

14/12/16/3/3/1/1182

Application Number:

Date Received:

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

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### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 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.
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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.

## PROJECT DETAILS

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DEA Reference No. : 14/12/16/3/3/1/1182

Title : Environmental Assessment Process  
Final Basic Assessment Report: Proposed Deviation of the Existing 132kV Dassenberg-Koeberg Power Line from the Koeberg Power Station into the Ankerlig Power Station, Western Cape Province

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Client : Eskom Holdings SOC Limited

Report Status : Final Basic Assessment Report for Public Review

When used as a reference this report should be cited as: Savannah Environmental (2015) Final Basic Assessment Report: Proposed Deviation of the Existing 132KV Dassenberg-Koeberg Power Line from the Koeberg Power Station into the Ankerlig Power Station, Western Cape Province.

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## SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

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### 1. Project Description

Eskom Holdings SOC Limited obtained authorisation for the relocation of the turbine units at Acacia Power Station to Ankerlig Power Station in February 2009. These units provide a dedicated off-site power supply to the Koeberg Power Station in terms of the requirements of the National Nuclear Regulator (NNR). As part of this authorisation, a 132kV power line between Ankerlig Power Station and Koeberg Power Station was authorised. During the detailed planning process, and through discussions with the NNR, it has been determined that the authorised power line route is no longer technically viable as the NNR requires that the power line for the dedicated off-site supply to Koeberg is not crossed by any other power line so as to reduce any risks to this power line's normal operation. As the routing of the authorised power line between Ankerlig and Koeberg crosses a number of 400kV power lines, Eskom is proposing to reroute a portion (~5km of the 15km route) of this power line in order to avoid these power line crossings. The deviation of the power line will be undertaken on the northern portion of the line in close proximity to the Ankerlig Power Station. The deviated portion of the line will be connected to a new 132kV HV yard within the Ankerlig Power Station boundary. After deviation of the power line, the existing portion of the Dassenberg-Koeberg power line which will no longer be required will be delinked and decommissioned (refer to Figure 1).

The project will include the following:

- » The deviation of approximately 5km of the northern section of the existing 132kV Dassenberg-Koeberg power line.
- » Developing access roads along the servitude where required for construction and operational purposes.
- » Decommissioning of a portion of the Dassenberg-Koeberg power line.

The activities associated with the construction of the power line will include site clearance and construction of access roads to facilitate access to the site (where required, where existing access roads are not present). A servitude of 36m will be required along the length of the power line during operation.

### 2. Project Alternatives

A number of alternatives were considered by Eskom in determining the proposed routing of the deviation:



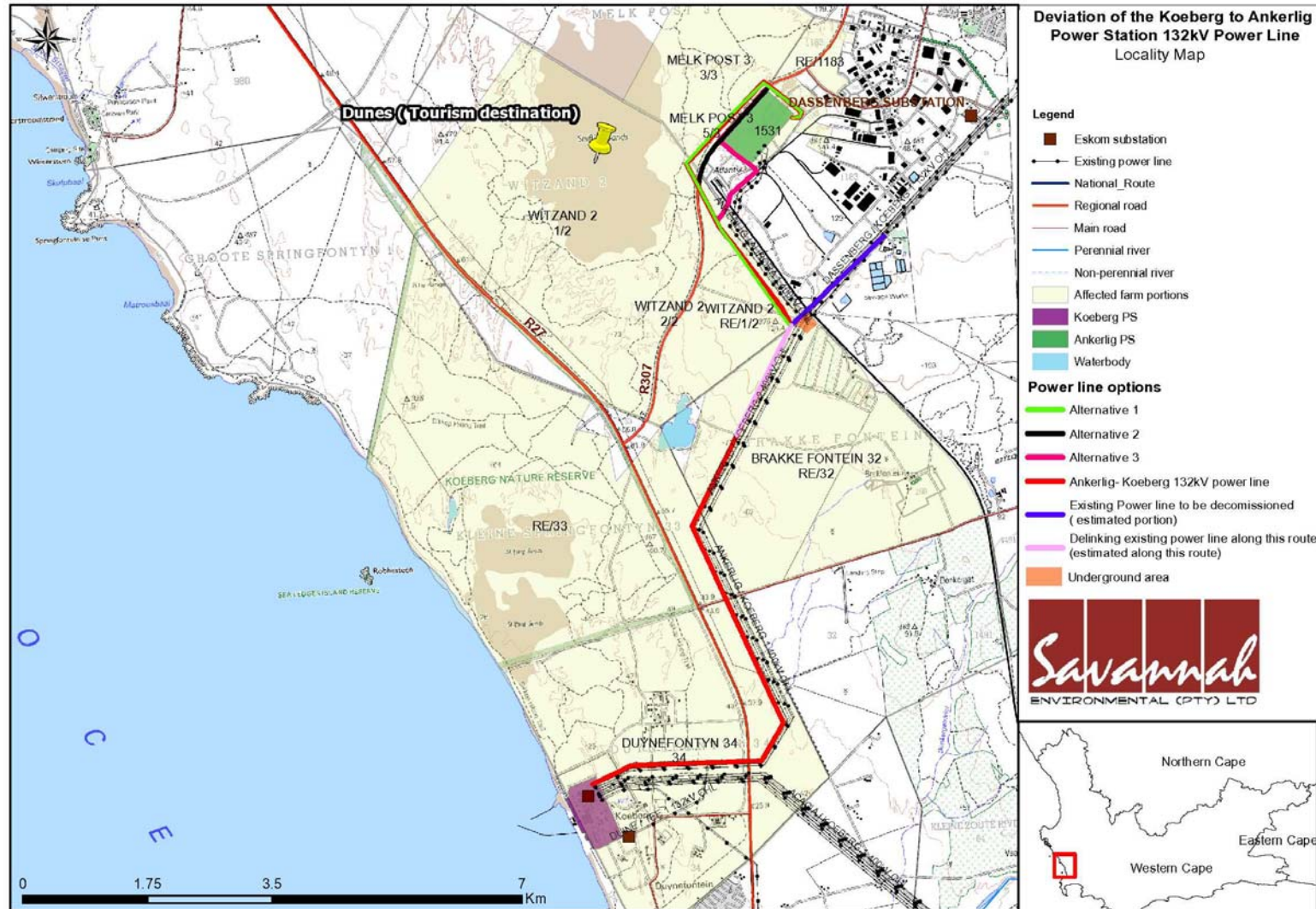
1. Alternative 1: A power line running north from the substation, crossing the R307 and then turning southwards to link with the existing power line;
2. Alternative 2: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, turning southwards and linking into the existing Koeberg-Dassenberg 132kV power line;
3. Alternative 3: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, and then down the eastern boundary of the Ankerlig Power Station towards Neil Hare road next to the railway line and then following the same route as for Alternative 2.
4. Alternative 4: An underground cable at the 400kV transmission lines crossing.

Alternatives 3 and 4 above were determined to be non-feasible from a technical perspective for the following reasons:

- » Alternative 3 - Due to the stress on the towers it is not possible to have angles of more than 60 degrees at bend points. This alternative will require bends of 90 degrees at the road intersections, which will not be possible. In addition, construction of the power line on the eastern boundary of the Ankerlig power station would limit potential future expansion opportunities for the power station, which is not considered desirable.
- » Alternative 4 - underground cabling is not considered feasible due to issues relating to the reliability of the lines and the time taken to repair a fault. The time allowed, by the National Nuclear Regulator (NRR) for the off-site supply to be out of service without Koeberg having to shut down is 3 days per 12 month window. Using cable increases the duration of repair times and would increase the risk of exceeding the 3 day limit which could result in Koeberg being shut down. This option places the nuclear license of Koeberg at risk and is therefore not considered feasible.

Therefore, only Alternatives 1 and 2 above and the no go option are considered within this Basic Assessment Report. A power line corridor of 300m is considered for each alternative within which the 36m wide servitude could be located.

The nature and extent of this power line and associated access roads, as well as the significance of the potential environmental impacts associated with the construction, operation and decommissioning phases are assessed in more detail in this Basic Assessment (BA) Report.



**Figure 1:** Locality map of the proposed deviation of the Dassenberg-Koeberg power line, showing alternatives investigated

### **3. Requirements for a Basic Assessment Process**

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Eskom Holdings SOC Limited (the Applicant) requires environmental authorisation for the deviation of the existing 132kV Dassenberg-Koeberg power line and development of access roads along the servitude, where required, for construction and operational purposes. In terms of sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of GN R543 – R546 (as amended) a Basic Assessment process is triggered by the proposed project.

In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these activities must be considered, investigated, assessed and reported on to the competent authority that has been charged by NEMA with the responsibility of granting environmental authorisations. As this project is being developed by Eskom, a State Owned Enterprise, the National Department of Environmental Affairs (DEA) is the competent authority and the Western Cape Department of Environmental Affairs and Development Planning (WC DEA&DP) will act as the commenting authority. An application for authorisation has been accepted by DEA for the proposed power line under application reference number **14/12/16/3/3/1/1182**.

The nature and extent of the proposed power line deviation is explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner.

#### **1.2 Details of Environmental Assessment Practitioner and Expertise to conduct the Basic Assessment**

Savannah Environmental has been appointed as the independent environmental consultant, to undertake the Environmental Basic Assessment to identify and assess the potential environmental impacts associated with the proposed facility. Neither Savannah Environmental nor any of its specialist sub-consultants on this project are subsidiaries of or are affiliated to Eskom Holdings SOC Limited. In addition, Savannah Environmental does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessment and planning to ensure compliance and evaluate the risk of development and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and

experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

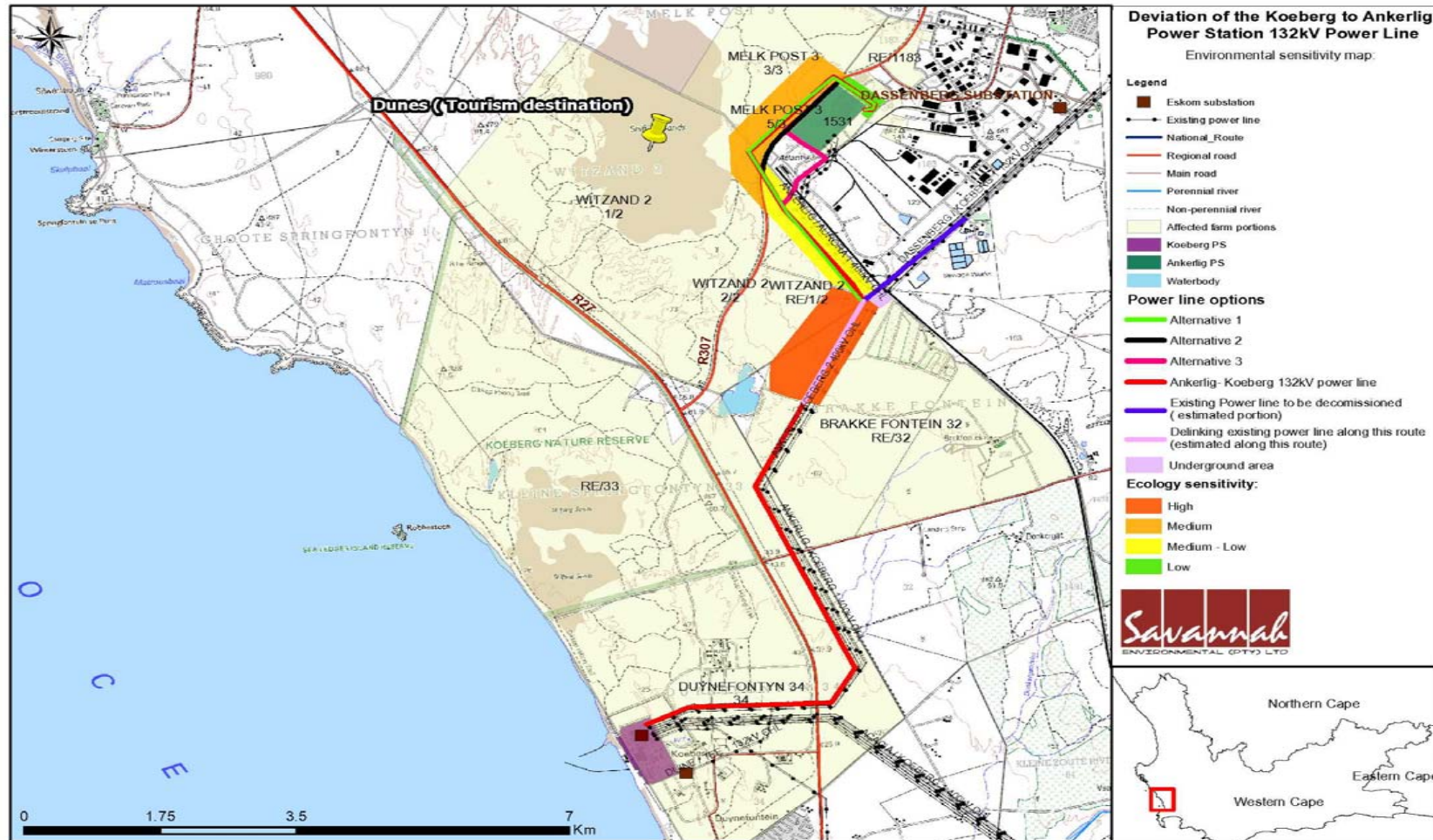
The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity transmission.

The Environmental Assessment Practitioners (EAPs) from Savannah Environmental who are responsible for this project are:

- » *Jo-Anne Thomas*, the principle EAP on the project, is a registered Professional Natural Scientist and holds a Master of Science degree. She has 16 years' experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently involved in undertaking siting processes as well as EIAs for several renewable energy projects across the country.
- » *Azrah Essop*, the principle author of this report, holds an Honours Bachelor of Science degree in Environmental Science and has two and a half years of experience in environmental management.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with power line projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous power line projects.

Curricula vitae for the Savannah Environmental project team consultants are included in **Appendix H**.



**Figure 2:** Sensitivity map of the proposed deviation of the Dassenberg-Koeberg power line from the Koeberg Power Station to the Ankerlig Power Station, Cape Town Western Cape Province



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## **FINAL BASIC ASSESSMENT REPORT FOR REVIEW**

This Final Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the proposed deviation of the existing 132kV Dassenberg - Koeberg power line and associated access roads. This process is being undertaken in support of an application for an environmental authorisation in terms of the requirements of the National Environmental Management Act (NEMA, Act No 107 of 1998).

The 30-day period for review of the Draft Basic Assessment report was from the 10 March – 13 April 2015. As required in terms of Regulation 56(3), this Final Basic Assessment Report has been made available to registered interested and affected parties for comment and has also been submitted to DEA, as the competent authority, for review and decision-making. I&APs have been advised to submit any additional comments to the DEA with a copy to Savannah Environmental, in accordance with Regulation 56(6). Changes made in this FBAR have been underlined for ease of reference.

## SECTION A: ACTIVITY INFORMATION

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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

Eskom Holdings SOC Limited obtained authorisation for the relocation of the turbine units at Acacia Power Station to Ankerlig Power Station in February 2009. These units provide a dedicated off-site power supply to the Koeberg Power Station in terms of the requirements of the National Nuclear Regulator (NNR). As part of this authorisation, a 132kV power line between Ankerlig Power Station and Koeberg Power Station was authorised. During the detailed planning process, and through discussions with the NNR, it has been determined that the authorised power line route is no longer technically viable as the NNR requires that the power line for the dedicated off-site supply to Koeberg is not crossed by any other power line so as to reduce any risks to this power line's normal operation. As the routing of the authorised power line between Ankerlig and Koeberg crosses a number of 400kV power lines, Eskom is proposing to reroute a portion (~5km of the 15km route) of this power line in order to avoid these power line crossings. The deviation of the power line will be undertaken on the northern portion of the line in close proximity to the Ankerlig Power Station. The deviated portion of the line will be connected to a new 132kV HV yard within the Ankerlig Power Station boundary. After deviation of the power line, the existing portion of the Dassenberg-Koeberg power line which will no longer be required will be delinked and decommissioned (refer to Figure 1).

The project will include the following:

- » The deviation of approximately 5km of the northern section of the existing 132kV Dassenberg-Koeberg power line.
- » Developing access roads along the servitude where required for construction and operational purposes.
- » Decommissioning of a portion of the Dassenberg-Koeberg power line.

The activities associated with the construction of the power line will include site clearance and construction of access roads to facilitate access to the site (where required, where existing access roads are not present). A servitude of 36m will be

required along the length of the power line during operation.

### 3. Project Alternatives

A number of alternatives were considered by Eskom in determining the proposed routing of the deviation:

- » Alternative 1: A power line running north from the substation, crossing the R307 and then turning southwards to link with the existing power line;
- » Alternative 2: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, turning southwards and linking into the existing Koeberg- Dassenberg 132kV power line;
- » Alternative 3: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, and then down the eastern boundary of the Ankerlig Power Station towards Neil Hare road next to the railway line and then following the same route as for Alternative 2.
- » Alternative 4: An underground cable at the 400kV transmission lines crossing.

Alternatives 3 and 4 above were determined to be non-feasible from a technical perspective for the following reasons:

- » Alternative 3 - Due to the stress on the towers it is not possible to have angles of more than 60 degrees at bend points. This alternative will require bends of 90 degrees at the road intersections, which will not be possible. In addition, construction of the power line on the eastern boundary of the Ankerlig power station would limit potential future expansion opportunities for the power station, which is not considered desirable.
- » Alternative 4 - underground cabling is not considered feasible due to issues relating to the reliability of the lines and the time taken to repair a fault. The time allowed, by the National Nuclear Regulator (NNR) for the off-site supply to be out of service without Koeberg having to shut down is 3 days per 12 month window. Using cable increases the duration of repair times and would increase the risk of exceeding the 3 day limit which could result in Koeberg being shut down. This option places the nuclear license of Koeberg at risk and is therefore not considered feasible.

Therefore, only Alternatives 1 and 2 above and the no go option are considered within this Basic Assessment Report. A power line corridor of 300m is considered for each alternative within which the 36m wide servitude could be located.

Furthermore, regarding the alternatives, there is a possibility of the alternatives being in close proximity to the Sunbird Energy (Ibhubesi) Pty Ltd (Sunbird) Gas field. This gas field is located in License Block 2A off the West Coast of South Africa. Eskom has issued a request for information (RFI) for the supply and delivery of gas to its 1 350 MW Ankerlig Open Cycle Gas Turbine (OCGT) Peaking Power Station near Atlantis



(ongoing referred to as Ankerlig), which currently operates using diesel as a fuel source. Based on this RFI, Sunbird is considering various additional and alternative project components, from what was originally approved, in order to supply indigenous gas feedstock to Ankerlig and potential end users on the Saldanha Peninsula. An onshore gas receiving facility would be required to reduce gas pressure in the production pipeline and measure the gas flow rate before it is fed through to the end user. The facility would be approximately 1 ha in extent. Due to the sensitive nature of the coastal environment it is probable that the southern onshore gas receiving facility would be located at one of two sites adjacent to the Ankerlig power station. This gas line proposal has the potential to impede on construction activities of the deviation alternatives servitudes, however this will be mitigated for during Eskom's final design phase prior to construction.

The following properties will be affected by the construction of the proposed power line (refer to Figure 1):

- » Portion 2 of Farm Witzand
- » RE1 /2 of Farm Witzand
- » Portion 1 of Farm Witzand
- » Portion 3 of Farm Melk Post
- » Portion 5 of Farm Melk Post
- » Brakke Fontein 32
- » Farm 33
- » Farm 1183
- » Farm 1531

### **1.2. Construction of a Power Line:**

Power lines are constructed in the following simplified sequence:

- Step 1:** Survey of the route
- Step 2:** Selection of best-suited conductor, towers, insulators, foundations
- Step 3:** Final design of line and placement of towers
- Step 4:** Issuing of tenders, and award of contract to construction companies
- Step 5:** Vegetation clearance and construction of access roads (where required)
- Step 6:** Tower pegging
- Step 7:** Construction of foundations
- Step 8:** Assembly and erection of towers on site
- Step 9:** Stringing of conductors
- Step 10:** Rehabilitation of disturbed area and protection of erosion sensitive areas
- Step 11:** Testing and commissioning
- Step 12:** Continued maintenance

Construction of the proposed power line will take approximately 12 months to

complete.

### 1.3. Operation Phase

The proposed power line will require routine maintenance work throughout the operation period. The site will be accessed using existing roads in the area and the access roads established during the construction phase. A servitude of 36m will be required along the length of the power line during operation.

### 1.4. Decommissioning Phase

The power line is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life, or if no longer required. If economically feasible/desirable, the decommissioning activities would comprise the disassembly of the individual components and removal from site.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p><u>GN 544, 18 June 2010, activity 10 (i):</u> <i>The construction of facilities or infrastructure for the transmission and distribution of electricity -</i> <i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</i></p>	<p>The rerouting of a portion of the existing 132kV Dassenberg-Koeberg power line near Ankerlig Power Station. The proposed power line deviation is approximately 5 km in length.</p>
<p><i>GN 544 Item 11 (xi): The construction of (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</i></p>	<p>Construction of power line infrastructure or structures within 32m of a watercourse</p>
<p><i>GN 544, 18 June 2010, activity 18</i> <i>The infilling or deposition of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:</i> <i>(i) a watercourse</i></p>	<p>Activities such as construction of an access road could be required to traverse a watercourse which would result in infilling of the watercourse.</p>
<p><i>GN 546 Item 4(ii): The construction of a road wider than 4 metres with a road reserve less</i></p>	<p>The development of the power line may require the widening or lengthening of a road</p>

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p><i>than 13.5 meters.</i></p> <p><i>GN 546, Item 12: The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation (b) within critical biodiversity areas identified in bioregional plans</i></p>	<p>in an area that is outside an urban area.</p> <p>Construction activities may require clearing of vegetation that constitutes 75% or more of vegetation cover that is of indigenous vegetation that could be located in Critical Biodiversity areas identified in bioregional plans (in the Koeberg and Witzands Aquifer Nature Reserve).</p>
<p><i>GN 546 Item 13(c) ii (ff): The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</i></p>	<p>Construction activities may require clearing of vegetation that constitutes 75% or more of vegetation cover that is of indigenous vegetation that could be located in areas within 10 km from the Koeberg Nature Reserve or 5km from any other protected area identified in terms of NEMPAA (Witzands Nature Reserve) or from the core area of a biosphere reserve.</p>
<p><i>GN 546, 18 June 2010, activity 14</i></p> <p><i>The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation.</i></p> <p><i>i. all areas outside urban areas (Western Cape).</i></p>	<p>More than 75% of the vegetation located in an area that is outside an urban area may be required to be cleared.</p>

The EIA Regulations were revised in December 2014 in terms of GNR 982 – 985. In terms of Sub-Regulations 53(2) and 53(3) of these Regulations (Transitional Arrangements):

*"If a situation arises where an activity or activities, identified under the previous NEMA Notices, no longer requires environmental authorisation in terms of the current activities and competent authorities identified in terms of section 24(2) and 24D of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and where a decision on an application submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn".*

and

*"Where an application submitted in terms of the previous NEMA regulations, is pending in relation to an activity of which a component of the same activity was not identified under the previous NEMA notices, but is now identified in terms of section 24(2) of the Act, the competent authority must dispense of such application in terms of the previous NEMA regulations and may authorise the activity identified in terms of section 24(2) as if*

*it was applied for, on condition that all impacts of the newly identified activity and requirements of these Regulations have also been considered and adequately assessed."*

Therefore, similarly listed and additional activities relevant to the current application have been identified and are listed in the table below.

Activity listed in GNR 544 - 546	Activity listed in GNR 983 - 985	Relevance to the project
<p><b>GN544, activity 10</b> The construction of facilities or infrastructure for the transmission and distribution of electricity – Outside urban areas or industrial complexes with a capacity of more than 33kV but less than 275kV</p>	<p><b>GN983, activity 11 (i)</b> The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</p>	<p>The rerouting of a portion of the existing 132kV Dassenberg-Koeberg power line near Ankerlig Power Station. The proposed power line deviation is approximately 5 km in length.</p>
<p><b>GN544, activity 11</b> The construction of: (x) Buildings exceeding 50 m<sup>2</sup> in size; or (xi) Infrastructure or structures covering 50 m<sup>2</sup> or more.  Where such construction occurs within a watercourse or within 32 m of a watercourse, measures from the edge of a watercourse.</p>	<p><b>GN983, activity 12</b> The development of (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-(a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</p>	<p>Potential construction of power line infrastructure or structures within 32m of a watercourse</p>
<p><b>GN544, activity 18:</b> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from: (i) a watercourse</p>	<p><b>GN983, activity 19:</b> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-(i) a watercourse</p>	<p>Potential activities such as construction of an access road may be required to traverse a watercourse which could result in infilling of the watercourse.</p>
<p><b>GN546, activity 4:</b> The construction of a road wider than 4 m with a reserve less than 13,5m.  (d) In Western Cape:</p>	<p><b>GN985, activity 4:</b> The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p>	<p>The development of the power line may require the widening or lengthening of a road in an area that is outside an urban area.</p>

Activity listed in GNR 544 - 546	Activity listed in GNR 983 - 985	Relevance to the project
(ii) all areas outside urban areas.	f) in the Western Cape i) Outside urban areas aa) Areas containing natural vegetation	
<b>GN546. Activity 12 (b)</b> The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.	<b>GN 985, activity 12</b> The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.  a) In the Western Cape ii) Within critical biodiversity areas identified in bioregional plans	Construction activities may require clearing of vegetation that constitutes 75% or more of vegetation cover that is of indigenous vegetation that could be located in Critical Biodiversity areas identified in bioregional plans (in the Koeberg and Witzands Aquifer Nature Reserve).
<b>GN 546 Item 13(c) ii (ff):</b> <i>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</i>	<b>GN983, activity 27:</b> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity <sup>1</sup>	Construction activities may require clearing of vegetation that constitutes 75% or more of vegetation cover that is of indigenous vegetation that could be located in areas within 10 km from the Koeberg Nature Reserve or 5km from any other protected area identified in terms of NEMPAA (Witzands Nature Reserve) or from the core area of a biosphere reserve.
<b>GN 546, 18 June 2010, activity 14</b> <i>The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation.</i>  <i>i. all areas outside urban areas (Western Cape).</i>	<b>GN983, activity 27:</b> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity <sup>2</sup>	More than 75% of the vegetation located in an area that is outside an urban area may be required to be cleared.

No additional listed activities within the EIA Regulations of December 2014 are relevant to the project.

<sup>1</sup> As this application is for a power line (linear activity), this activity is no longer relevant

<sup>2</sup> As this application is for a power line (linear activity), this activity is no longer relevant

## 2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

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

### a) Site alternatives

A number of alternatives were considered by Eskom in determining the proposed routing of the deviation:

- » Alternative 1: A power line running north from the substation, crossing the R307 and then turning southwards to link with the existing power line;
- » Alternative 2: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, turning southwards and linking into the existing Koeberg- Dassenberg 132kV power line;

- » **Alternative 3:** A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, and then down the eastern boundary of the Ankerlig Power Station towards Neil Hare road next to the railway line and then following the same route as for Alternative 2.
- » **Alternative 4:** An underground cable at the 400kV transmission lines crossing.

Alternatives 3 and 4 above were determined to be non-feasible from a technical perspective for the following reasons:

- » **Alternative 3** - Due to the stress on the towers it is not possible to have angles of more than 60 degrees at bend points. This alternative will require bends of 90 degrees at the road intersections, which will not be possible. In addition, construction of the power line on the eastern boundary of the Ankerlig power station would limit potential future expansion opportunities for the power station, which is not considered desirable.
- » **Alternative 4** - underground cabling is not considered feasible due to issues relating to the reliability of the lines and the time taken to repair a fault. The time allowed, by the National Nuclear Regulator (NNR) for the off-site supply to be out of service without Koeberg having to shut down is 3 days per 12 month window. Using cable increases the duration of repair times and would increase the risk of exceeding the 3 day limit which could result in Koeberg being shut down. This option places the nuclear license of Koeberg at risk and is therefore not considered feasible.

Therefore, only Alternatives 1 (S1) and 2 (S2) above and the no go option are considered within this Basic Assessment Report. A power line corridor of 300m is considered for each alternative within which the 36m wide servitude could be located.

**Alternative:**

**Latitude (S):**

**Longitude (E):**

**Alternative S1** (preferred alternative):

- Starting point of the deviation activity
- Middle/Additional point of the activity
- End point of the activity

33° 36' 55.77"	18° 27' 57.11"
33° 35' 40.56"	18° 27' 04.09"
33° 35' 21.65"	18° 28' 02.86"

**Alternative S2** (preferred alternative):

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

33° 35' 21.74"	18° 28' 2.93"
33° 35' 19.32"	18° 27' 33.69"
33° 35' 50.69"	18° 27' 09.71"

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.

Power line coordinates have been attached in **Appendix A1**.

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

### b) Layout alternatives

No layout alternatives have been assessed within this Basic Assessment as the placement of the power line towers and any associated access roads will be required to be in line with technical requirements as per Eskom's recommendations as well as with specific landowner requirements. The placement of the 36m wide servitude will be negotiated with affected landowners within the broader 300m corridor assessed within this BAR. This broader corridor also allows for the possible avoidance of environmentally sensitive areas identified through this Basic Assessment process.

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

*The choice of technology will be determined by Eskom and does not significantly affect the environmental impact of the proposed development in any way. Single circuit (average height of 21m) self-supporting structures will be used for the proposed power line. The line must be constructed according to Eskom's standards and may therefore require a mixture of tower structures. Facility illustrations are attached in Appendix C.*

Alternative 1 (preferred alternative)		
Alternative 2		



<b>Alternative 3</b>

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

No other alternatives are applicable.

<b>Alternative 1 (preferred alternative)</b>
.
<b>Alternative 2</b>
<b>Alternative 3</b>

**e) No-go alternative**

This is the option of not constructing the deviation of the existing 132kV Dassenberg Koeberg power line. This option is assessed as they “no go alternative” in this Basic Assessment Report.

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 A1<sup>3</sup> (preferred activity alternative):

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the activity:**

--

m<sup>2</sup>

m<sup>2</sup>

or, for linear activities:

**Alternative:**

**Alternative A1** (preferred activity alternative): power line

**Alternative A2** (preferred activity alternative):

**Length of the activity:**

~5km
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M
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<sup>3</sup> “Alternative A..” refer to activity, process, technology or other alternatives.

**Alternative A3** (preferred activity alternative) ):

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

Alternative:

Alternative A1 (preferred activity alternative)

Size of servitude:

Servitude of 36m will be required along the length of the new deviated power line.
m <sup>2</sup>
m <sup>2</sup>

Alternative A2

Alternative A3 (if any)

**4. SITE ACCESS**

Does ready access to the site exist?

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

M
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Describe the type of access road planned:

The power line follows the R307 and existing power lines for the majority of the route. Therefore site can be accessed from the R307 or from existing access roads associated with the power lines. Where new access roads are required, these will be gravel road of approximately 4-6 meters in width.
--

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

**5. LOCALITY MAP**

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;

- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site.

The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

A locality map has been included within **Appendix A**.

## 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.

A route plan has been included within **Appendix A**.

## 7. SENSITIVITY MAP

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

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

- critical biodiversity areas.

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

A sensitivity map has been included within **Appendix A**.

## 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.

Site photographs have been included within **Appendix B**.

## 9. FACILITY ILLUSTRATION

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


A facility illustration has been included as part of this report as within **Appendix C**.

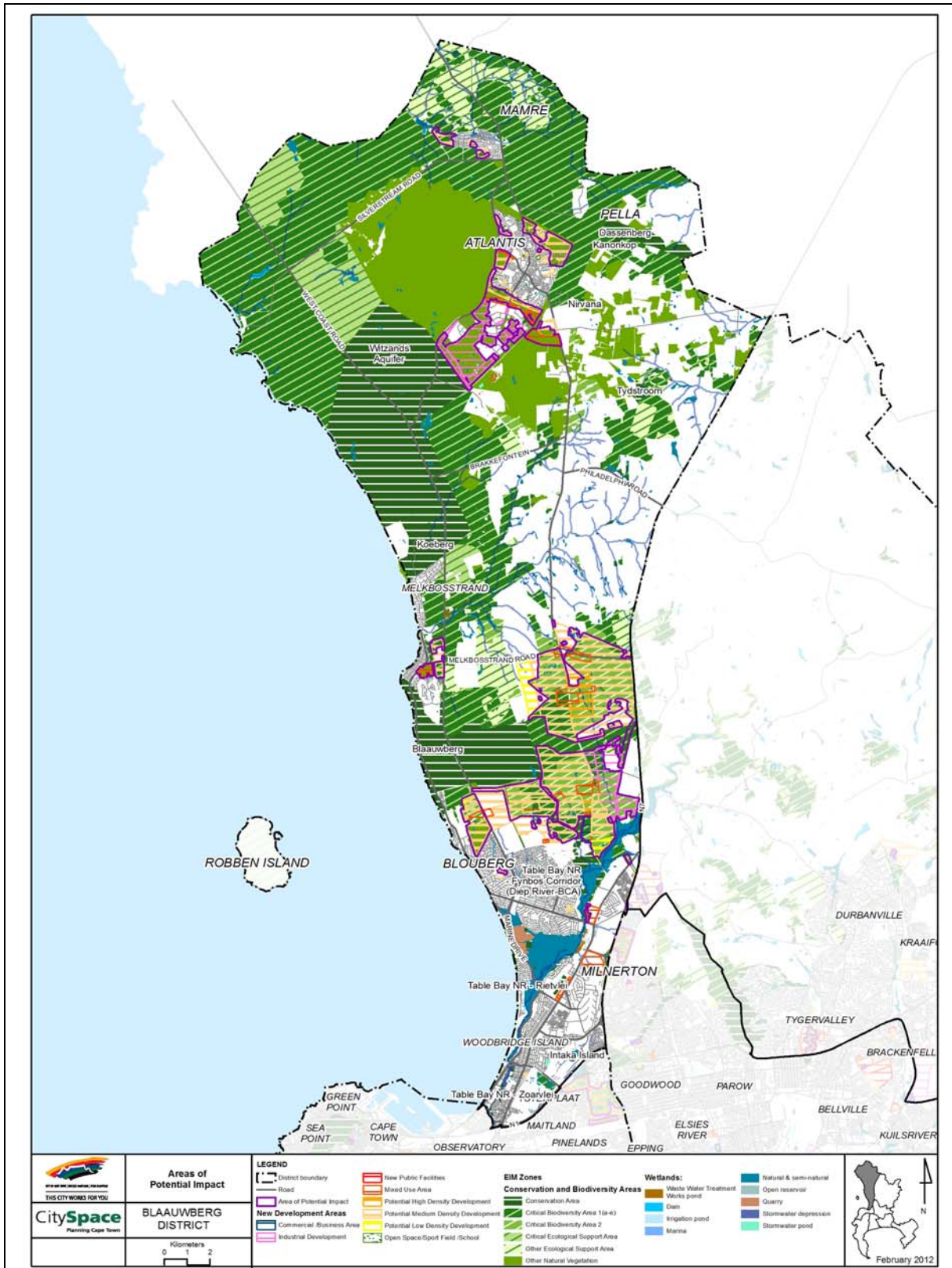
## 10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	<input type="checkbox"/>	No ✓	Please explain
Environmental authorisation is required to deviate and construct the 132kV overhead power line. A servitude will be required to be registered across the affected properties.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<input type="checkbox"/>	YES ✓	Please explain
The activity is in line with the Cape Town Spatial Development Framework (CTSDF, 2012). The CTSDF is guided by various spatial features which monitors public and private development in order to ensure the best possible outcome in terms with the city's key features and resources. The CTSDF seeks to 'appropriately protect the citizens of Cape Town from hazardous areas/activities'. In this regard, the City of Cape Town would like to reduce the development impediments and safety risks associated with the Koeberg Nuclear Power station. This activity is therefore in line with the CTSDF it has been determined that the authorised power line route is no longer technically viable as the NNR requires that the power line for the dedicated off-site supply to Koeberg is not crossed by any other power line so as to reduce any risks to this power line's normal operation. As the routing of the authorised power line between Ankerlig and			

<p>Koeberg crosses a number of 400kV power lines, Eskom is proposing to reroute a portion (~5km of the 15km route) of this power line in order to avoid these power line crossings and ensure the safety of the Koeberg Nuclear Station. This activity will ensure the continued operation of this power station.</p>		
<p><b>(b) Urban edge / Edge of Built environment for the area</b></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed power line deviation is located ~30km north of Cape Town and ~3km west of Atlantis in the Western Cape. The power line will not compromise the urban edge.</p>		
<p><b>(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?).</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>As mentioned above, the activity described in this report is in line with the City of Cape Town's SDF (2012) as it plans to ensure the continue the operations of the Koeberg Power line, by ensuring the power line to the station is not crossed by other lines in the area (according to NNR regulations). The Western Cape Spatial Development Framework notes under that "transmission lines should be aligned along existing and proposed transport corridors rather than along point to point cross-country routes" (HR 26, Mandatory directive).</p> <p>The IDP identifies strategic focus areas (SFA's), the purpose of which is to focus the implementation of the City's plans and programmes.</p>		
<p><b>(d) Approved Structure Plan of the Municipality</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>The proposed Dassenberg Koeberg power line deviation will be undertaken in an area that has existing power lines namely; Ankerlig – Koeberg 1 (400kV) and the Ankerlig – Koeberg 2 (400kV). This will blend into the structural planning by the municipality in the area. Cape Town has eight separate District Plans which have been compiled for each of the planning districts in Cape Town. These plans are informed by the Cape Town SDF. The Blaauwberg District Plan identifies Environmental Impact Management zones (EIMs) which relate to the environmental attributes of the district. The Koeberg Ankerlig Deviation, or portions of the line along the R307 could potentially fall into the Coastal and Dune Zone (EIM Zone 2) and the Conservation and Biodiversity Zone (EIM 3). EIM 2 sensitive dune fields like the Atlantis Dune fields. EIM2 identifies conservation and core flora sites e.g. Koeberg Nature Reserve. Activities in EIMs may be considered dependant on the EIA findings and appropriate mitigation measures. Sensitive areas along the power line route will have appropriate mitigatory measures put into place which will be detailed in the EMP.</p> <p>The Blaauwberg Sub-District Plan for the area indicates that the existing line and the bulk of the proposed deviation are aligned across land designated Core 1. The portion north of the R307 traverses an area designated Buffer 1. While portions of the proposed deviation would traverse Core 1 areas and portions of the Witzand Aquifer Conservation Area (WACA), only the outer margins would be affected. The infrastructure guidelines contained in the Blaauwberg District Plan also note that power line construction may be considered in Core 1 areas, subject to EIA approval. The plan also indicates that the proposed crossing of R307 is not located at a designated gateway to Atlantis or the dune fields. In this regard, the designated dune field's gateway is indicated ~2 km to the east, near Avondale.</p>		

<p><b>(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?)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The approval of the application will not compromise the integrity of the environmental management priorities for the area as it falls in the Environmental Impact Management Zone 6 which includes a nuclear exclusion zone.</p> <p>However, Alternative 1 does impact on the Witzands Nature Reserve. This is evident in the map below which identifies areas of potential impact in the Blauwberg area. Alternative 1 will have more of an impact than Alternative 2 and will overlap into the Witzands Aquifer conservation area. However, this deviation is necessary in order for the power line to comply with NNR regulations and to ensure a dedicated supply to Koeberg. Any impacts associated with this deviation will be adequately addressed in the EMP.</p>			



(f) Any other Plans (e.g. Guide Plan)	NO ✓	Please explain
None		
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	YES ✓	Please explain

<p><b>development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>			
<p>The Cape Town SDF is a long term (20+ years plan) initiated to manage the spatial growth and development of Cape Town. The proposed corridor is located south-west of the Atlantis Industrial Area. The area between Atlantis and Melkbosstrand cannot be developed for urban development as a result of the 5 km nuclear safety exclusion zone around Koeberg Nuclear Power Station (NPS) and protected areas located to the west of Atlantis, including the Witzand Aquifer Conservation Area (WACA)) to the west of Atlantis, and the Koeberg Nature Reserve to the west of the R27 (West Coast Road). Due to the presence of Koeberg Nuclear Power Station, the area to the south of Atlantis is characterized by a number of existing Eskom power line servitudes. Majority of the deviation will conform to the current land use that comprises multi-line Eskom power line servitudes. Alternative 1 of the power line deviation will have more of an impact on the Witzand Nature Reserve than Alternative 2. However, as mentioned previously, this deviation is of national priority, is necessary to ensure compliance with NNR regulations and to ensure a dedicated uninterrupted supply to Koeberg Power Station.</p>			
<p><b>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.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The proposed deviation is a project of national priority. Without the deviation, the power line route will not be compliant with the NNR regulations and as such might interrupt power supply to the Koeberg Power Station. This ultimately could affect power supply to numerous areas that Koeberg supplies power to.</p>			
<p><b>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.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>Since the power line to be deviated is an existing feature within the landscape, it follows that services to the development are currently in place.</p>			
<p><b>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.)</b></p>		<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed project is to be developed by Eskom Holding SOC Limited and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any implications for the municipality.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The Koeberg Nuclear Power Station is of national importance and concern due to its contribution to the national electricity grid and power supply to the Western Cape in particular. The proposed deviation of the existing power line is required to provide a dedicated backup or offsite power supply that will keep the plant running during scheduled maintenance and or unexpected shut</p>			



<p>downs. This will prevent any nuclear incidents and protect the environment around the Koeberg area and beyond. This is a requirement of the nuclear license issued by the NNR.</p>		
<p><b>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.)</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>The proposed power line corridor is required to be located between the Ankerlig Power Station and the turn in point on the existing Koeberg-Dassenberg power line. The power line corridors assessed within this report are considered to be the most appropriate routing of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.</p>		
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>The power line corridor alternatives are limited due to the NNR's requirement that the power line does not cross any other lines. The power line alternatives were determined through the consideration of technical and environmental criteria, and through consultation with key stakeholders (City of Cape Town and CapeNature). The proposed power line corridors proposed for assessment are considered to be the most appropriate for this infrastructure.</p>		
<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the corridor investigated will have low environmental impacts. The proposed power line will provide a reliable dedicated off site power supply to the Koeberg Nuclear Power Station to provide power during routine maintenance and shutdowns, as required by the NNR. The Koeberg Power station is a critical installation with a generation capacity of 1800MW. The stability of the plant will guarantee a sustainable source of power for the national grid and this will have a positive impact at a local, regional and national level.</p>		
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	<p>YES ✓</p>	<p>Please explain</p>
<p>The proposed power line is backup infrastructure for the Koeberg Power Station. The development is required in terms of the requirements of the NNR. The specific requirement of no power lines crossing this line is not a technical requirement and will not set a precedent for other power line projects, nor set a precedent for the area.</p>		
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>Landowners will be affected by the proposed project. These landowners have been consulted by the developer and the environmental team and are aware of the proposed project.</p>		
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed power line to be deviated is located ~30km North of Cape Town and ~3km west of Atlantis Industrial in the Western Cape. The new deviated power line corridor is located in an industrial development zone.</p>		
<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?</b></p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project does not form part of a SIP.</p>		
<p><b>15. What will the benefits be to society in general and to the local communities?</b></p>	<p>Please explain</p>	

The proposed power line deviation will ensure a dedicated off site supply to Koeberg Power Station in accordance with the NNR requirements. This will ensure the safe operation of the Koeberg Power Station, reducing any risks to local communities.	
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
Not applicable.	
<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
The proposed deviation is a project designed to ensure the safe operation of Koeberg Power Station and does not have any implications for any future development of nuclear power stations. In this sense, it cannot create expanding opportunities (as the NDP aims to do) however, it can create confidence in the opportunities and capabilities the country can present to foreign investment in terms of power supply.	
<b>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</b>	
According to Section 23 of NEMA, appropriate environmental management tools must be utilised to ensure the integrated environmental management of activities. The potential impacts of the proposed project and the alternatives have been investigated to avoid impacts and minimise the possible harm on the environment. Furthermore, socio-economic conditions and cultural heritage were also taken into consideration.	
<b>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b>	
<p>Section 2 of NEMA states that environmental management must place people and their needs at the forefront, and serve their physical, psychological, developmental, cultural and social interests equitably. These principles of NEMA include the following:</p> <ul style="list-style-type: none"> <li>» Development must be sustainable;</li> <li>» Pollution must be avoided or minimised and remedied;</li> <li>» Waste must be avoided or minimised, reused or recycled;</li> <li>» Negative impacts must be minimised; and</li> <li>» Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.</li> </ul> <p>The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation.</p> <p>This process has been undertaken in a transparent manner and all effort has been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Regulating Authority.</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. Refer to **Table 1.4** below.

**Table 1.4:** Relevant legislative and permitting requirements applicable to the proposed power line

<i>Legislation</i>	<i>Applicable Requirements</i>	<i>Relevant Authority</i>	<i>Compliance requirements</i>
<b>National Legislation</b>			
National Environmental Management Act (Act No. 107 of 1998)	<p>The Basic Assessment Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GN R543, R544 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Western Cape Department of Environmental Affairs and Development Planning (DEA&amp;DP)</li> </ul>	<ul style="list-style-type: none"> <li>» The listed activities triggered by the proposed substation have been identified and assessed in the Basic Assessment Process being undertaken. This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.</li> <li>» The <u>Final</u> BA Report is to be submitted to the DEA for review and decision making.</li> <li>» DEA&amp;DP will act as the commenting authority.</li> </ul>
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> <li>» A project proponent is required to consider a project holistically and to consider the cumulative effect of</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise directly, the holistic consideration of the potential</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>potential impacts.</p> <ul style="list-style-type: none"> <li>» In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised.</li> </ul>		<p>impacts of the proposed project has found application in the environmental process.</p> <ul style="list-style-type: none"> <li>» The implementation of mitigation measures are included as part of the Draft EMP and will continue to apply throughout the life cycle of the project.</li> </ul>
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	<ul style="list-style-type: none"> <li>» Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53)</li> <li>» A list of threatened and protected species has been published in terms of S56 (1) - Government Gazette 29657.</li> <li>» Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations).</li> <li>» Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Western Cape Department of Environmental Affairs and Development Planning</li> </ul>	<ul style="list-style-type: none"> <li>» Specialist flora and fauna studies were undertaken as part of the EIA process as required by GNR 152.</li> <li>» A number of protected plant species are known to occur in the area. A permit will be required should any protected plant species on site be disturbed or destroyed as a result of the proposed development.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>(CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011).</p> <p>» This Act also regulates alien and invader species.</p>		
<p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>» The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>» In terms of the regulations published in terms of this Act (GN 921 of November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed</p>	<p>» National Department of Water and Environmental Affairs</p> <p>» Western Cape Department of Environmental Affairs and Development Planning</p>	<p>» As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.</p> <p>» Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act, as detailed in the EMP.</p> <p>» The volumes of waste to be generated and stored on the site during construction and operation of the</p>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>activities.</p> <ul style="list-style-type: none"> <li>» Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that                             <ul style="list-style-type: none"> <li>(a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste;</li> <li>(b) Adequate measures are taken to prevent accidental spillage or leaking;</li> <li>(c) The waste cannot be blown away;</li> <li>(d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and</li> </ul> </li> <li>(e) Pollution of the environment and harm to health are prevented.</li> </ul>		<p>power line will not require a waste license (provided these remain below the prescribed thresholds).</p>
<p>National Environmental Management: Air Quality Act (Act No. 39 of 2004)</p>	<ul style="list-style-type: none"> <li>» S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas"</li> <li>» Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards</li> <li>» The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that</li> </ul>	<ul style="list-style-type: none"> <li>» District Municipality</li> <li>» Metropolitan Municipality</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project.</li> <li>» The Air Emissions Authority (AEL) may require the compilation of a dust management plan.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>the person has failed to comply with the Act.</p> <ul style="list-style-type: none"> <li>» Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan.</li> </ul>		
National Water Act (Act No. 36 of 1998)	<ul style="list-style-type: none"> <li>» Under S21 of the act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.</li> <li>» In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Water Affairs</li> <li>» Department of Water Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» A general permitting or licensing is a requirement from this legislation for river and wetland crossings. There are no drainage lines or wetlands within the proposed power line corridor.</li> </ul>
Environment Conservation Act (Act No. 73 of 1989)	<ul style="list-style-type: none"> <li>» National Noise Control Regulations (GN R154 dated 10 January 1992)</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Local Authorities</li> </ul>	<ul style="list-style-type: none"> <li>» There is no requirement for a noise permit in terms of the legislation.</li> <li>» Any noisy activities carried out during the construction phase that could present an audible impact to the local community should be limited to 6:00am to 6:00pm Monday – Saturday (excluding public holidays).</li> <li>» Should these specific activities need to be undertaken outside of these times, the surrounding communities will need</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
			to be notified and appropriate approval will be obtained from the DEA and the Local Municipality.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<ul style="list-style-type: none"> <li>» A mining permit or mining right may be required where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act.</li> <li>» Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act.</li> </ul>	<ul style="list-style-type: none"> <li>» Department of Minerals and Energy</li> </ul>	<ul style="list-style-type: none"> <li>» As no borrow pits are expected to be required, no mining permit or mining right is required to be obtained.</li> </ul>
National Heritage Resources Act (Act No. 25 of 1999)	<ul style="list-style-type: none"> <li>» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including                             <ul style="list-style-type: none"> <li>» The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length;</li> </ul> </li> <li>» The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup>; or the re-zoning of a site</li> </ul>	<ul style="list-style-type: none"> <li>» South African Heritage Resources Agency</li> </ul>	<ul style="list-style-type: none"> <li>» A permit may be required should heritage sites be unearthed on site during the construction phase.</li> </ul>



<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>exceeding 10 000 m<sup>2</sup> in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided.</p> <p>» Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.</p>		
National Forests Act (Act No. 84 of 1998)	<p>» In terms of S5 (1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated”.</p> <p>» GN 1042 provides a list of protected tree species.</p>	» National Department of Forestry	» No protected trees are likely to occur on site.
National Veld and Forest	» Provides requirements for veldfire	» National Department of	» While no permitting or licensing

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
Fire Act (Act 101 of 1998)	<p>prevention through firebreaks and required measures for fire-fighting. Chapter 4 places a duty on landowners to prepare and maintain firebreaks, and Chapter 5 places a duty on all landowners to acquire equipment and have available personnel to fight fires.</p> <ul style="list-style-type: none"> <li>» In terms of S21 the applicant would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land.</li> <li>» In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material.</li> <li>» In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.</li> </ul>	Forestry	requirements arise from this legislation, this act will find application during the operational phase of the project in terms of fire prevention and management.
Hazardous Substances Act (Act No. 15 of 1973)	<ul style="list-style-type: none"> <li>» This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in</li> </ul>	» Department of Health	» It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> <li>» Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance;</li> <li>» Group IV: any electronic product;</li> <li>» Group V: any radioactive material.</li> <li>» The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.</li> </ul>		
<b>Provincial Legislation</b>			
<p>Western Cape Noise Control Regulations: PN 627 of 1998</p>	<ul style="list-style-type: none"> <li>» The control of noise in the Western Cape Province is legislated in the form of Noise Control Regulations promulgated in terms of section 25 of</li> </ul>	<ul style="list-style-type: none"> <li>» Western Cape DEA&amp;DP</li> </ul>	<ul style="list-style-type: none"> <li>» In terms of Regulation 4 of the Noise Control Regulations: "No person shall make, produce or cause a disturbing noise (greater than 5 dBA), or allow it</li> </ul>

<i>Legislation</i>	<i>Applicable Requirements</i>	<i>Relevant Authority</i>	<i>Compliance requirements</i>
	the Environment Conservation Act No. 73 of 1989.		to be made, produced or caused by any person, animal, machine, device or apparatus or any combination thereof".
Western Cape Land Use Planning Ordinance 15 of 1985	» Details land subdivision and rezoning requirements and procedures	Western Cape Department of Environmental Affairs and Development Planning » Local authorities	Rezoning may be required to be undertaken following the issuing of an environmental Authorisation for the proposed project.
The Nature and Environmental Ordinance 19 of 1974, (as amended by the Western Cape Nature Conservation Laws Amendment Act, Act 2 of 2000	The Nature and Environmental Ordinance 19 of 1974, (as amended by the Western Cape Nature Conservation Laws Amendment Act, Act 2 of 2000) defines the protection status of plants as follows: * <b>“endangered flora”</b> means flora of any species which is in danger of extinction and is specified in Schedule 3 or Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973; provided that it shall not include flora of any species specified in such Appendix and Schedule 4; (thus all Schedule 3 species) * <b>“protected flora”</b> means any species of flora specified in Schedule 4 or Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973; provided that it	CapeNature	Removal / relocation of protected plant / animal species require a permit to be obtained from CapeNature

<i>Legislation</i>	<i>Applicable Requirements</i>	<i>Relevant Authority</i>	<i>Compliance requirements</i>
	<p>shall not include any species of flora specified in such Appendix and Schedule 3</p> <p>» <b>“indigenous unprotected flora”</b> means any species of indigenous flora not specified in Schedule 3 or 4;</p>		
<i>Local Legislation / Policies / Plans</i>			
Western Cape Transportation Amendment Act of 1996	The provincial MEC may grant permit to undertake works within 200m of the published route upon receipt of the report assessing the potential impacts thereof.	Western Cape Department of Public Transport and Community Liaison	Any application for authorisation contemplated in the ECA and NEMA in respect of a 200m area on either side of a published route determination for a provincial road must be accompanied by a report that addresses the issues listed in that section of the Act.
Cape Town Spatial Development Framework, 2012	The development will occur within areas identified within this plan	City of Cape Town	The proposed development will have to ensure compliance with the requirements set out in the framework.
Blaauwberg District Plan	The development will occur within areas identified within this plan	City of Cape Town	The proposed development will have to ensure compliance with the requirements set out in the district plan.
City of Cape Town Integrated Development Plan (2012-2017)	The development will occur within areas identified within this plan	City of Cape Town	The proposed development will have to ensure compliance with the requirements set out in the development plan.

## 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"/>
-----	-------------------------------------

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

Minimal volumes.
Exact volumes unknown at this stage

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

It is anticipated that construction waste will be comprised mainly of spoil material from clearing activities as well as metal and cabling off-cuts. Non-biodegradable waste will be delivered to the nearest registered waste disposal facility for appropriate disposal or recycling.

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

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to the nearest-licensed waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?

<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
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If YES, what estimated quantity will be produced per month?

--

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

--

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

--

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

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

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

YES	NO
-----	----

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

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

YES	NO
-----	----

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

**b) Liquid effluent**

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

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

m <sup>3</sup>
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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 ✓
--	------

If YES, provide the particulars of the facility:

<b>Facility name:</b>			
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>	<b>Cell:</b>		
<b>E-mail:</b>	<b>Fax:</b>		

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

--

**c) Emissions into the atmosphere**

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

	NO ✓
--	------

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

--	--

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:

During the construction phase, it is expected that there will be short term dust generation and emissions from vehicles and machinery. However the dust and emissions will have a medium to short-term duration and therefore limited impact in terms of extent and severity. The extent of the impact will be restricted to the power line servitude. Appropriate dust suppression measures will be implemented to reduce the impacts as required. It is recommended that construction vehicles remain serviced and maintained in good mechanical condition to minimise possible exhaust emission.

**d) Waste permit**

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

	NO ✓
--	------

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

**e) Generation of noise**

Will the activity generate noise?

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

--	--

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

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

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. Should construction work be required to be undertaken outside of these times, surrounding sensitive receptors should be timeously informed. The applicant must adhere to the relevant noise control legislation as well as SANS 10103 (The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication').



### 13. WATER USE

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

<b>Municipal</b> ✓	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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During construction, water tanks will be sourced from the municipality

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?

	NO ✓

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

*The requirement for a water use license will depend on whether any infrastructure is located within a watercourse or within 500m of a wetland. This will only be determined through the final design process. An application for a water use license will be submitted following final design, should this be required.*

### 14. ENERGY EFFICIENCY

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

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

N/A
-----

## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

- 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):

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

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

YES	<input checked="" type="checkbox"/>
-----	-------------------------------------

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:**

<b>Province</b>	Western Cape Province
<b>District Municipality</b>	City of Cape Town Metropolitan Municipality
<b>Local Municipality</b>	City of Cape Town Metropolitan Municipality
<b>Ward Number(s)</b>	A small portion near Ankerlig is located in Ward 29, while the remaining power line corridor is located in Ward 32
<b>Farm name and number</b>	Portion 2 of Farm Witzand Re1 /2 of Farm Witzand Portion 1 of Farm Witzand Portion 3 of Farm Melk Post Portion 5 of Farm Melk Post Brakke Fontein 32 Farm 33 Farm 1183 Farm 1531
<b>Portion number</b>	Portion 2 of Farm Witzand Re1 /2 of Farm Witzand Portion 1 of Farm Witzand Portion 3 of Farm Melk Post Portion 5 of Farm Melk Post Brakke Fontein 32

	Farm 33 Farm 1183
	Farm 1531
<b>SG Code</b>	Portion 2 of Farm Witzand 2 C0160000000000200002 Portion 1 of Farm Witzand 2 C0160000000000200001 RE1/2 of Farm Witzand 2 C0160000000000200001 Portion 3 of Farm Melk Post 3 C0160000000000300003 Portion 5 of Farm Melk Post 3 C0160000000000300005 Brakke Fontein 32 C01600000000003200000 Farm 33 C01600000000003300000 Farm 1183 C01600000000118300000 Farm 1531 C01600000000153100000

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:**

Livestock farming (Agriculture) with the Witzand Nature reserve being zoned as Conservation

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:

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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The proposed power line is located entirely on a level coastal plain with some relief. Dune formations are responsible for most of the topography. Slopes are mostly  $\leq 2\%$  but in places go up to 5%.

### Alternative S2 (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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### 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"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	<b>2.8 Dune</b>	<input checked="" type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	<b>2.6 Plain</b>	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

## 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	<input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES NO	YES NO
Dolomite, sinkhole or doline areas	<input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES NO	YES NO
Seasonally wet soils (often close to water bodies)	<input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES NO	YES NO

Unstable rocky slopes or steep slopes with loose soil		NO ✓	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO ✓	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO ✓	YES	NO	YES	NO
Any other unstable soil or geological feature		NO ✓	YES	NO	YES	NO
An area sensitive to erosion		NO ✓	YES	NO	YES	NO

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

#### 4. GROUNDCOVER

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

<b>Natural veld - good condition<sup>E</sup> ✓</b>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	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.

Groundcover description found in Appendix X Ecology

#### 5. SURFACE WATER

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

Perennial River		NO ✓	
Non-Perennial River		NO ✓	

Permanent Wetland		NO ✓	
Seasonal Wetland		NO ✓	
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.

N/A

## 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:

<b>Natural area</b> ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	<b>Agriculture</b> ✓
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard N	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line N	Museum
<b>Power station</b>	Major road (4 lanes or more) N	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	<b>Other: R307</b>

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

N/A

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

N/A

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)	YES ✓	
Core area of a protected area? ( <i>Witzand Nature Reserve – proclaimed nature reserve</i> )	YES ✓	
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:

The proposed activity is considered acceptable in heritage terms and they are no signs of cultural or historical significance in the area. The impact of the proposed activity is considered to be low-zero in terms of all generally protected heritage.

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:

The existing servitude already hosts two 400 kV transmission lines and towers. Further lines will be an addition to a scenario where electrical infrastructure is a locally accepted feature of the landscape. This is not expected to detract from the scenic qualities of the area as this has already been impacted by the existing servitude. Alternative 2 which will link Ankerlig with the existing 132kV line amounts to some 3.5 linear kilometres.

No generally protected buildings were identified in or close to the proposed route.

**Palaeontology**

No surface palaeontology was identified.

**Archaeology (pre-colonial)**

No archaeological material of any significance was previously observed in this area. The most recent site inspection supports these findings.

**No-Go Alternative**

Use of the no-go alternative while technical undesirable for security of essential emergency supply to Koeberg, will have no influence in heritage terms. Its effect will be neutral

Will any building or structure older than 60 years be affected in any way?

**NO ✓**

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

**NO ✓**

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

**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 Atlantis Industrial Area was intended to cater for the local community's economic needs, and the town was essentially laid out around the Industrial area (viz. to the east thereof). Throughout the Apartheid years, the area benefited from various state subsidies and other incentives, and attracted a fair number of large manufacturers (mainly textiles and clothing, but also electronics, engineering works and others). Atlantis' isolated location and concentration of generally lower skilled labour however,



dictated against lasting economic feasibility/ sustainability.

Many companies were ill prepared to continue operations in Atlantis once the subsidies started falling away (1993 onwards), and many gradually closed operations/ relocated. With the exception of Eskom's Ankerlig open cycle gas turbine (OCGT) power station, the area has not attracted any large-scale investment/ development. Unemployment in the community is therefore significant. A major portion of the labour force commutes to employment opportunities in the CoCT and elsewhere on a daily basis. The unemployment rates of an economically active population currently stand at 23.9% for the City of Cape Town, 26.58% for Atlantis and 18.31% for Atlantis Rural.

***Economic profile of local municipality:***

The IDP Review notes that based on Census data, the CCT remains the second-largest contributor to South Africa's total GDP, accounting for 10.7% in 2011. While average annual growth rates are fairly similar among the metropolitan municipalities, the CoCT's GDP per capita is nearly double the national average.

In terms of gross value added (GVA); the CoCT's economy is dominated by four sectors, namely Finance and Business Services; Manufacturing; Trade and Hospitality; and Community Services and General Government. From 2001 to 2011 the relative contributions of these sectors have however changed. The Finance and Business Services sector has maintained its importance (36.1% of total GVA), supported by a high growth rate. While the Manufacturing sector's share of the CCT economy has grown slightly, the sector has continued to shed semi-skilled and unskilled employment opportunities.

The same four sectors of the CoCT economy also contribute most to CoCT employment provision, albeit not in the same order of importance as for GVA. In this regard, Community Services and General Government is currently the largest contributor (28.2% in 2011). The contribution of Manufacturing, once the second-largest contributor to CoCT employment, has dramatically shrunk in relative and absolute terms. The sector is estimated to have shed approximately 42 000 employment opportunities over the past decade.

From 2010 to 2011, the number of employment opportunities increased in all sectors, apart from Manufacturing, Agriculture, Forestry and the Fishing sector. In 2011, the average unemployment rate for Cape Town was 23.9% for people of working age (5 – 64) – a decrease from 24.9% in 2010.

Up to 75% of CoCT businesses are classified as small and medium enterprises (SMEs) and account for 50% of the city's economic output. Up to 93% of all small and micro-sized firms are low-tech operations in mature, traditional industries, with very little

interaction with large firms.

The CoCT informal economy involves activities (mainly wholesale and retail trade, home-based catering and accommodation, and working in private households) which are not linked to the city's main economic activities. The CoCT sector is also less important in terms of informal employment creation (11%) than the national average of (17%).

**Level of education:**

Poverty rates for the study area communities were higher than the CoCT average, and adult education levels lower – especially of the rural area, where an estimated 28.8% of the adult population may be considered functionally illiterate. The highest qualification primary or less % of population older than 20 years was 28.8% for Atlantis Rural, 19.8% Atlantis, and 14.5% for the City of Cape Town.

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	~R35 Million
What is the expected yearly income that will be generated by or as a result of the activity?	This is confidential information.
Will the activity contribute to service infrastructure?	Eskom dependant
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?	Unsure at this stage
What is the expected value of the employment opportunities during the development and construction phase?	5% of Capex Value (R35 Million)
What percentage of this will accrue to previously disadvantaged individuals?	100%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unsure at this stage
What is the expected current value of the employment opportunities during the first 10 years?	Unsure at this stage
What percentage of this will accrue to previously disadvantaged individuals?	100%

Please note that the jobs to be created during construction will be of a temporary nature. A contractor will be appointed in this instance. This is a technical and high skilled job.

## 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](mailto: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
<b>Critical Biodiversity Area (CBA)</b> ✓	Ecological Support Area (ESA)	<b>Other Natural Area (ONA)</b> ✓	No Natural Area Remaining (NNR)	The deviated section of the Koeberg-Ankerlig line lies within nationally listed ecosystems (Cape Flats Dune Strandveld – Endangered and Atlantis Sand Fynbos – Critically Endangered) and areas which are classified as priority Critical Biodiversity Areas with the City of Cape Town Biodiversity network. <u>The development footprint will be within a Proclaimed Nature Reserve.</u> In addition, a large number of red-data listed plant species are known from the area.

- 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	94%	The section of line where the delinking is proposed to occur lies along the boundary between Cape Flats Dune Strandveld and Atlantis Sand Fynbos. The vegetation in this area consists of restiod fynbos dominated by

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).
		species such as <i>Willdenowia incurvata</i> , <i>Trichocephalus stipularis</i> , <i>Eriocephalus africanus</i> , <i>Salvia africana-lutea</i> and <i>Metalasia muricata</i> . Although there are some areas that are invaded by <i>Acacia saligna</i> , the overall density is relatively low compared to most other areas in the vicinity. This area is considered as having 'high sensitivity' due to the intact nature of the area and the transitional nature with Atlantis Sand Fynbos. It is recommended that the delinking should occur as near to Ankerlig as possible to ensure that no additional disturbance in this area takes place.
Near Natural (includes areas with low to moderate level of alien invasive plants)	<5%	A large proportion of the proposed deviation is heavily invaded by alien <i>Acacia saligna</i> which has significantly impacted the biodiversity value of some of these sections.
Degraded (includes areas heavily invaded by alien plants)	0%	N/A
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	<1%	The section of the Dassenberg Road

**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.

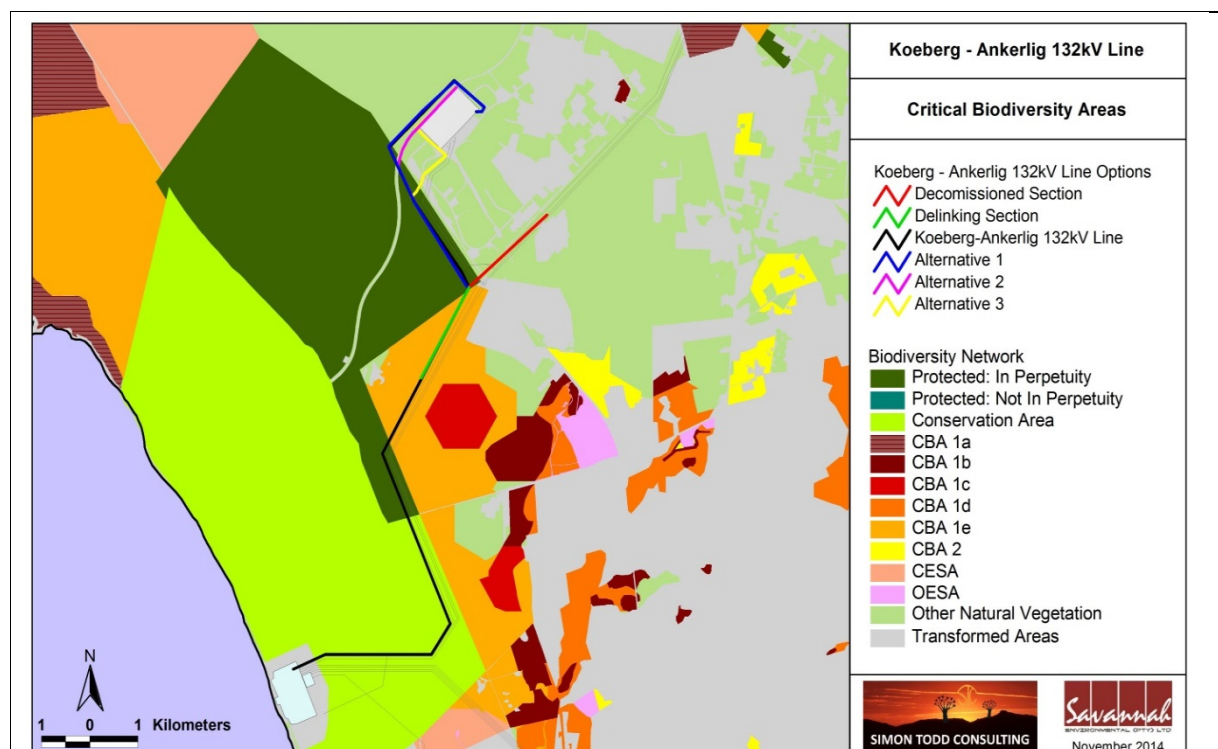
Terrestrial Ecosystems		Aquatic Ecosystems			
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical ✓	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline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

Plant species prevalent in this area include *Putterlickia pyracantha*, *Searsia lucida*, *Searsia laevigata* var. *villosa*, *Willdenowia incurvata*, *Cotyledon orbiculata*, *Zygophyllum flexuosum*, *Ruschia indecora*, *Asparagus capensis*, *Tetragonia fruticosa*, *Cissampelos capensis*, *Osyris compressa*, *Euphorbia caput-medusae* and *Euphorbia mauritanica*. Although there is some remnant vegetation in this area, it is heavily invaded in many parts and this has reduced the biodiversity value of this area. If the vegetation clearing under the line is conducted in the appropriate manner, it could result in an overall net benefit along this section of the line as it would result in the rehabilitation of currently invaded areas below the power line.

More than 600 species are known from the quarter degree square which includes the site. Although this is in itself a high number which illustrates the high diversity of the area, the fact that this includes 98 species of high conservation concern is simultaneously more impressive and concerning. Given these results, it is highly likely that some listed species occur along the power line route which may be impacted by the development. However, as a large proportion of the route is heavily invaded by alien *Acacia* species, this also presents the opportunity to clear these areas and improve the habitat for indigenous species. Generating a positive outcome however, depends very heavily on the manner in which the vegetation under the power line is managed and inappropriate clearing techniques will definitely not improve the habitat for most species.

The site lies within the planning domain of the Cape Town City Biodiversity Network which was developed by the City of Cape Town and is updated on a regular basis. The relevant portion of the map is illustrated below in Figure 2. The whole power line route (except for the section over the Dassenberg Road) lies within various protected areas or category 1 CBAs, indicating that these areas have high conservation value and impact to these areas is undesirable. A mitigating circumstance for the section of power line through the Proclaimed Witzands Nature Reserve is that the affected area is heavily invaded and it is also along the margin of the area in proximity to the other power lines and the urban fringe of Atlantis. It must be noted that this alien vegetation is under continual management by the City of Cape Town in order to reduce its impact on natural vegetation and habitat.



**Figure 2:** City of Cape Town Biodiversity Network map for the study area, indicating protected areas and Critical Biodiversity Areas.

The site is likely to have relatively low mammalian species richness. The site falls within or near the edge of the distribution range of 42 terrestrial mammals and nine bats. Two listed terrestrial mammal species may occur at the site, the Honey Badger and the White-tailed Mouse (Endangered). It is likely that the Honey Badger is present in the area, but it is unlikely that the power line would generate significant habitat loss for this wide-ranging species.

According to the Southern African Reptile Conservation Assessment (SARCA) database, 31 reptiles have been recorded from the area. This includes three listed species, the Bloubergstrand Dwarf Burrowing Skink, Cape Dwarf Chameleon and Cape Sand Snake. It is possible that all three species may occur within the affected area as the habitat is suitable for each of them. In terms of the likely impacts of the development on reptiles, habitat loss is not likely to be highly significant as the power line is not likely to create a large loss of habitat. Although the construction phase will generate some disturbance which may negatively impact reptiles, this would be temporary and in the long-term impacts on reptiles are likely to be low.

The diversity of amphibians within the affected area is likely to be relatively low as there are no wetlands or significant drainage features within the power line route. Species present are likely to be those which are not dependent on water and associated with sandy soils such as the Sand Toad, Sand Rain Frog and Cape Sand Frog. Given the low diversity of frogs in the footprint area and the low likely terrestrial footprint of the power line, impacts on amphibians are likely to be low and concentrated in the construction phase.

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Die Burger WC Weskusnuus	
<b>Date published</b>	Die Burger - 13 March 2015 Weskusnuus - 31 March 2015	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	33 °40' 36" S	18° 27'18" E
	33 °39' 55" S	18° 27'21" E
	33 °39' 25" S	18° 27'02" E
	33 °35' 56" S	18° 27'07" E
	33 °35' 41" S	18° 27'40" E
<b>Date placed</b>	Site Notices: 16 May 2014	

Include proof of the placement of the relevant advertisements and notices.

### 2. DETERMINATION OF APPROPRIATE MEASURES

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

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Affected and neighbouring landowners have been and will continue to be consulted through one-on-one consultation sessions and via telephone. A focus group meeting was held on the 14<sup>th</sup> October 2014 to allow the City of Cape Town and CapeNature to meet the project team, discuss the project and any unresolved issues and find a way forward in terms of recommendations and mitigations.

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

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

Any comments received during the review period of the draft Basic Assessment Report as well as responses provided will be captured and recorded within the Comments and Response Report to be attached as Appendix E3 in the final Basic Assessment Report.

Comment	Response
Alternatives to the proposed power line route should be considered to minimise impacts on the Witzand Nature Reserve	Alternatives identified and discussed with the City of Cape Town, CapeNature and Eskom have been considered and assessed within this Basic Assessment Report
Management of vegetation within the power line servitude is important to minimise impacts on sensitive species.	Management measures for vegetation within the servitude have been included in the EMPr.
Impacts of electromagnetic radiation	Extensive studies have been undertaken in this regard. The servitude is designed in order to minimise any impacts associated with this impact. Strict control of any activities within the servitude is therefore implemented by Eskom.
Why is the power line not constructed underground?	Underground cabling is not considered feasible due to issues relating to the reliability of the lines and the time taken to repair a fault. The NNR requires that the down time of the line for the dedicated supply must not exceed 3 days. It may not be possible to correct a fault in this timeframe with underground cables. This places the nuclear license of Koeberg at risk and is therefore not considered feasible.

### 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.

### 5. AUTHORITY PARTICIPATION

A list of authorities and organs of state identified as key stakeholders is included within Appendix E4.

### 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.

**See Appendix E4 for I&AP database**

A list of registered I&APs included as appendix E4.

Copies of any correspondence and minutes of any meetings held are included in E3 and E5.

## **SECTION D: IMPACT ASSESSMENT**

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

### **1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE**

The assessment of impacts considers all components of the proposed project, i.e.:

- » Construction of deviated portion of an existing 132kV power line; and
- » Associated infrastructures such as access roads, a temporary lay down area, etc.

The extent of the infrastructure required is as follows:

- » 132kV power line (36m wide servitude and up to ~15 km in length);
- » Temporary Lay-down area;
- » Access road if required (up to 4-8m wide).

The sections which follow 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 is applied to all the identified alternatives to the activities identified in Section A (2) of this report.

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.

Activity	Impact summary	Significance	Proposed mitigation
<b>Alternative 1 (Technically Preferred)</b>			
<b>CONSTRUCTION PHASE</b>			
Construction of deviated portion of existing power line and associated infrastructure	<b>Ecology</b>		
	<i>Direct impacts</i>		
	Impacts on vegetation and listed or protected plant species would occur due to the construction activities.	Medium	<ul style="list-style-type: none"> <li>» Vegetation clearing to be kept to a minimum. Blanket vegetation clearing or brush cutting should not take place, the footprint areas for the pylons can be cleared to facilitate construction but the servitude itself should only be cleared of alien species and any individuals of indigenous trees or shrubs that are particularly tall and may pose a hazard.</li> <li>» A formal road should not be constructed under the power lines, a simple track should be sufficient.</li> <li>» The final development area should be surveyed for the presence of listed and protected species and the pylons positions adjusted accordingly if necessary. If such species cannot be avoided, they should be marked and translocated prior to the commencement of construction as part of the search and rescue operation for the development.</li> </ul>
Faunal Impacts.	Medium	<ul style="list-style-type: none"> <li>» Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.</li> <li>» Construction staff should undergo an environmental induction at the start of the project to ensure that they are aware of the</li> </ul>	

Activity	Impact summary	Significance	Proposed mitigation
			appropriate response to the presence of fauna at the site and do not kill or harm fauna such as snakes or other reptiles which are often feared. » All hazardous materials used during construction should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
<b>Indirect impacts</b>			
	With appropriate avoidance and mitigation residual impacts will be very low.	Low	» N/A
<b>Cumulative impacts</b>			
	Cumulative impacts on vegetation are likely to be relatively low given the low expected footprint of the power line.	Low	» Vegetation clearing to be kept to a minimum. Blanket vegetation clearing or brush cutting should not take place, the footprint areas for the pylons can be cleared to facilitate construction but the servitude itself should only be cleared of alien species and any individuals of indigenous trees or shrubs that are particularly tall and may pose a hazard.
	The construction of the infrastructure would contribute to cumulative disturbance and habitat loss for fauna, but the contribution would be very small and is not considered significant.	Low	» Vegetation clearing to be kept to a minimum. Blanket vegetation clearing or brush cutting should not take place, the footprint areas for the pylons can be cleared to facilitate construction but the servitude itself should only be cleared of

Activity	Impact summary	Significance	Proposed mitigation
			alien species and any individuals of indigenous trees or shrubs that are particularly tall and may pose a hazard.
	<b>Agriculture<sup>4</sup></b>		
	<b>Direct impacts</b>		
	Loss of agricultural land use due to, direct occupation of land by footprint of power line infrastructure and having the effect of taking affected portions of land out of agricultural production.	Low	<ul style="list-style-type: none"> <li>» No mitigation possible or necessary so same as impacts without mitigation</li> <li>» Alternative 2, does not differ from alternative 1 in terms of agricultural impact. The 'do nothing' alternative has zero impact on agriculture, compared to the low impact for the development</li> </ul>
	Soil erosion due to alteration of surface characteristics due to vegetation removal, and surface disturbance that results in the loss and deterioration of soil resources.	Low	<ul style="list-style-type: none"> <li>» Limit the surface area that is cleared of vegetation at any one time (particularly during construction) to reduce wind erosion.</li> <li>» Alternative 2, does not differ from alternative 1 in terms of agricultural impact. The 'do nothing' alternative has zero impact on agriculture, compared to the low impact for the development</li> </ul>
Loss of topsoil due to poor topsoil management (burial, erosion, etc.) during construction related soil profile disturbance (levelling, excavations, disposal of spoils from excavations etc.) Loss of soil fertility on disturbed areas after rehabilitation.	Low	<ul style="list-style-type: none"> <li>» Strip and stockpile topsoil from all areas where soil will be disturbed.</li> <li>» After cessation of disturbance, re-spread topsoil over the surface.</li> <li>» Dispose of any sub-surface spoils from excavations where they will not impact on agricultural land, or where they can be effectively covered with topsoil.</li> <li>» Alternative 2, does not differ from alternative 1 in terms of agricultural impact. The 'do nothing'</li> </ul>	

<sup>4</sup> Impacts on Agricultural Potential are the same throughout all phases of the project

Activity	Impact summary	Significance	Proposed mitigation
			alternative has zero impact on agriculture, compared to the low impact for the development
	<b>Indirect impacts</b>		
	N/A	N/A	» N/A
	<b>Cumulative impacts</b>		
	The overall loss of agricultural land in the region due to other developments.	Low	» The significance is low due to the limited agricultural potential of the land in the area, and due to the small footprint of impact associated with this development.
<b>Heritage</b>			
	<b>Direct impacts</b>		
	Impacts to cultural landscape (historical pattern of settlement)	Low	» N/A » No further archaeological sites of significance were identified further to those described in previous work. The impact of the proposed activity is considered to be low-zero in terms of all generally protected heritage
	Impacts to pre-colonial archaeology caused by destruction and displacement of archaeological material by excavation of bases for towers.	Low	» Site environmental officer is requested to report any unexpected finds of archaeological material, fossil bone or human remains to relevant authority.
	<b>Indirect impacts</b>		
	N/A		» N/A
	<b>Cumulative impacts</b>		
	N/A		» N/A
<b>Social</b>			
	<b>Direct impacts</b>		
	Creation of employment and business opportunities during the construction phase	Low	» Where reasonable and practical the contractors appointed by the proponent should appoint local contractors and implement a 'locals first' policy,

Activity	Impact summary	Significance	Proposed mitigation
			<p>especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.</p> <ul style="list-style-type: none"> <li>» Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria;</li> <li>» Before the construction phase commences the proponent and its contractors should meet with representatives from the BPD to establish the existence of a skills database for the area. If such as database exists it should be made available to the contractors appointed for the construction phase.</li> <li>» The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase.</li> <li>» Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.</li> <li>» The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	Assessment of impact of construction workers on local communities	Low	<ul style="list-style-type: none"> <li>» Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks;</li> <li>» ESKOM should consider the establishment of a Monitoring Forum (MF) for the construction phase. The MF should be established before the construction phase commences and should include key stakeholders, including representatives from the local community, local councillors and the contractor. The role of the MF would be to monitor the construction phase and the implementation of the recommended mitigation measures. The MF should also be briefed on the potential risks to the local community associated with construction workers;</li> <li>» The proponent and the contractors should, in consultation with representatives from the MF, develop a Code of Conduct for the construction phase. The code should identify what types of behaviour and activities by construction workers are not permitted. Construction workers that breach the code of good conduct should be dismissed. All dismissals must comply with the South African labour legislation;</li> <li>» The movement of construction workers on and</li> </ul>



Activity	Impact summary	Significance	Proposed mitigation
			off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis; » With the exception of security personnel, no construction workers should be permitted to stay overnight on the site.
<b>Indirect impacts</b>			
	Improved pool of skills and experience in the local area.	Low	» Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.
	Community members affected by STDs etc. and associated impact on local community and burden services etc.		» The proponent and the contractor should implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase;
<b>Cumulative impacts</b>			
	Opportunity to up-grade and improve skills levels in the area.	Low	» Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase; » Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks.
	Impacts on family and community relations that may, in some cases, persist for a long period. Also in cases where unplanned /	Low	» The proponent and the contractor should implement an HIV/AIDS awareness programme for all construction workers at the outset of the

Activity	Impact summary	Significance	Proposed mitigation
	<p>unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS, the impacts may be permanent and have long term to permanent cumulative impacts on the affected individuals and/or their families and the community.</p>		<p>construction phase;</p> <ul style="list-style-type: none"> <li>» Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks.</li> </ul>
<b>Visual</b>			
<b><i>Direct Impacts</i></b>			
	<p>Visual impact on users of the R307 arterial road in close proximity to the proposed power line</p>	<p>Moderate</p>	<ul style="list-style-type: none"> <li>» Maintain the general appearance of the servitude as a whole.</li> <li>» The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2), along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.</li> </ul>
	<p>Visual impact on visitors to the Atlantis dunes in close proximity to the proposed power line</p>	<p>Moderate</p>	<ul style="list-style-type: none"> <li>» Maintain the general appearance of the servitude as a whole.</li> <li>» The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2),</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			<p>along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.</p>
	<p>Visual impact on sensitive visual receptors within the region.</p>	<p>Low</p>	<ul style="list-style-type: none"> <li>» Maintain the general appearance of the servitude as a whole.</li> <li>» The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2), along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.</li> </ul>
	<p>Visual impact of construction on sensitive visual receptors in close proximity to the proposed power line.</p>	<p>Low</p>	<ul style="list-style-type: none"> <li>» Ensure that vegetation is not unnecessarily removed during the construction period.</li> <li>» Reduce the construction period through careful logistical planning and productive implementation of resources.</li> <li>» Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.</li> <li>» Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.</li> <li>» Ensure that rubble, litter, and disused</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			<p>construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.</p> <ul style="list-style-type: none"> <li>» Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).</li> <li>» Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts.</li> <li>» Rehabilitate all disturbed areas immediately after the completion of construction works.</li> <li>» The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2), along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.</li> </ul>
	<p>Visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region</p>	<p>Low</p>	<ul style="list-style-type: none"> <li>» Maintain the general appearance of the servitude as a whole.</li> <li>» The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2),</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.
	<b>Indirect Impacts</b>		
	The visual impact will be removed after decommissioning, provided the power line infrastructure is removed. Failing this, the visual impact will remain.	Moderate	» N/A
	<b>Cumulative Impacts</b>		
<b>OPERATION PHASE</b>	The construction of this power line, together with the existing power lines, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Moderate	» N/A
	<b>OPERATION PHASE</b>		
Operation of power line, routine maintenance and accessing roads by maintenance crew	<b>Ecology</b>		
	<b>Direct Impacts</b>		
	Negative ecological impacts associated with power line servitude maintenance activities	Medium	<ul style="list-style-type: none"> <li>» Alien vegetation clearing should take place on at least an annual basis along the power line corridor. All alien species present should be cleared in the appropriate manner in accordance with the DAFF alien plant control guidelines.</li> <li>» Vegetation clearing beneath the power line should be target specific and only alien species should be removed on a regular basis. If the indigenous vegetation becomes too tall and compromises safety, the tall elements may be</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			specifically cut. General vegetation clearing or brush cutting should not take place. » If the average height of the vegetation exceeds the safety standard, then the vegetation can be brush cut but not to a height lower than 40cm and preferably not more often than once every 10 years.
<b>Indirect Impacts</b>			
	With appropriate avoidance and mitigation residual impacts will be very low.	Low	» Regular targeted alien plant clearing within the power line servitude. » No wholesale vegetation clearing or brush cutting of indigenous species.
<b>Cumulative Impacts</b>			
	Cumulative impacts on vegetation are likely to be relatively low given the low expected footprint of the power line.	Low	» Regular targeted alien plant clearing within the power line servitude. » No wholesale vegetation clearing or brush cutting of indigenous species.
<b>Social</b>			
<b>Direct impacts</b>			
	Benefits associated with ensuring that the required energy infrastructure is in place to ensure energy security for the region	High	» The proposed deviation should be developed.
	Impact on the existing and future tourism related activities	Low	» Mitigation measures contained in (Visual Impact Assessment) VIA should be implemented. » Maintain the general appearance of the servitude as a whole.
	Impact on sense of place and visual character of the area		» Mitigation measures contained in VIA should be implemented. » Maintain the general appearance of the servitude as a whole.

Activity	Impact summary	Significance	Proposed mitigation
<b>Indirect impacts</b>			
	Positive impact on ability for the region of accommodate future economic growth due to inadequate energy supply and distribution network	High	» The proposed deviation should be developed.
	Negative impact on tourism in the area	Low	» Mitigation measures contained in VIA should be implemented.
<b>Cumulative impacts</b>			
	Positive impact on ability for the region of accommodate future economic growth due to inadequate energy supply and distribution network	High	» The proposed deviation should be developed.
	Potential negative impact on other tourism activities in the area	Low	» Mitigation measures contained in VIA should be implemented.
	Potential negative impact on tourism in the area	Low	» Mitigation measures contained in VIA should be implemented.
<b>Visual</b>			
<b>Direct Impacts</b>			
	Visual impact on users of the R307 arterial road in close proximity to the proposed power line.	Moderate	» Maintain the general appearance of the servitude as a whole.
	Visual impact on sensitive visual receptors within the region.	Low	» Maintain the general appearance of the servitude as a whole.
	Visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.	Low	» Maintain the general appearance of the servitude as a whole.
<b>Indirect Impacts</b>			
	The visual impact will be removed after decommissioning, provided the power line infrastructure is removed. Failing this, the	Moderate	» Maintain the general appearance of the servitude as a whole.

Activity	Impact summary	Significance	Proposed mitigation
	visual impact will remain.		
	<b>Cumulative Impacts</b>		
	The construction of this power line, together with the existing power lines, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Moderate	» Maintain the general appearance of the servitude as a whole.
<b>Avifauna</b>			
	<b>Direct Impacts</b> Electrocution of Avifauna	Moderate	<ul style="list-style-type: none"> <li>» Where the proposed line passes within 540 m of the wetland in the north (categorized as high risk because of the number of wetland birds) all lines should be marked with bird diverters.</li> <li>» Ideally the lines would be constructed on the south-east side of the present line – taking it further way (approximately 760 m) from the wetland and the birds there. This will help reduce bird impacts with this line.</li> <li>» Within the Koeberg NR, the line should also be marked with bird diverters. There are many power lines that already cross highly sensitive areas (i.e. those close to the wetlands mentioned above) and these should all be marked with bird diverters to reduce possible collisions by pelicans, Black Harriers, marsh harriers and fish eagles that regularly use the wetland.</li> </ul>
	Collision of Avifauna with power line	Moderate	» Where the proposed line passes within 540 m of the wetland in the north (categorized as high risk because of the number of wetland birds) all lines should be marked with bird diverters.



Activity	Impact summary	Significance	Proposed mitigation
	Positive influence for nesting for large threatened raptors	Moderate	<ul style="list-style-type: none"> <li>» Ideally the lines would be constructed on the south-east side of the present line – taking it further way (approximately 760 m) from the wetland and the birds there. This will help reduce bird impacts with this line.</li> <li>» Within the Koeberg NR, the line should also be marked with bird diverters.</li> </ul>
<b>Indirect Impacts</b>			
	Increased incident of Avifauna collisions and executions due to the addition of another power line in the area.	Moderate	<ul style="list-style-type: none"> <li>» Where the proposed line passes within 540 m of the wetland in the north (categorized as high risk because of the number of wetland birds) all lines should be marked with bird diverters.</li> <li>» Ideally the lines would be constructed on the south-east side of the present line – taking it further way (approximately 760 m) from the wetland and the birds there. This will help reduce bird impacts with this line.</li> <li>» Within the Koeberg NR, the line should also be marked with bird diverters.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	<p><b><i>Cumulative Impacts</i></b></p> <p>Increased incident of Avifauna collisions and executions due to the addition of another power line in the area.</p>	<p>Moderate</p>	<ul style="list-style-type: none"> <li>» Where the proposed line passes within 540 m of the wetland in the north (categorized as high risk because of the number of wetland birds) all lines should be marked with bird diverters.</li> <li>» Ideally the lines would be constructed on the south-east side of the present line – taking it further way (approximately 760 m) from the wetland and the birds there. This will help reduce bird impacts with this line.</li> <li>» Within the Koeberg NR, the line should also be marked with bird diverters.</li> </ul>
<b>DECOMMISSIONING AND CLOSURE PHASE</b>			
<ul style="list-style-type: none"> <li>» Disassemble power line component according to regulatory requirements</li> <li>» Impacts associated with erosion and alien vegetation invasion.</li> <li>» Disturbed areas will be rehabilitated</li> </ul>	<p><b><i>Direct impacts</i></b></p> <p>The major social impacts associated with the decommissioning phase are linked to the loss of jobs, in addition, the social impacts associated with final decommissioned are likely to be limited due to the relatively small number of permanent employees affected.</p> <p>Impacts associated with erosion and alien vegetation invasion.</p> <p>Visual Impacts</p>	<p>Low</p>	<ul style="list-style-type: none"> <li>» The potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).</li> <li>» Avoid establishment of soil seed bank that would take decades to remove. Remove all alien plants in the project area.</li> <li>» Remove infrastructure not required for the post-decommissioning use of the servitude.</li> <li>» Rehabilitate all areas. Consult an ecologist regarding rehabilitation specifications.</li> <li>» Monitor rehabilitated areas post-</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	Ecological Impacts		decommissioning and implement remedial actions. » Any fauna encountered during decommission should be removed to safety by the ECO or other suitably qualified person, » All vehicles to adhere to low speed limits (40km/h max) on the site, to reduce risk of faunal collisions as well as reduce dust. » Electrical cables and other power line components should be removed and no parts left lying in the veld.
	<b>Indirect impacts</b>		
	Impacts associated with erosion and alien vegetation invasion.	Low	Establish an on-going monitoring programme to detect and quantify any aliens that may become established
	<b>Cumulative impacts</b>		
N/A	N/A	N/A	

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

### Comparison of Alternatives

Environmental Aspect	Alternative 1	Alternative 2
	A power line running north from the substation, crossing the R307 and then turning southwards to link with the existing power line;	Alternative 2: A power line running north from the substation, parallel to the Ankerlig power station boundary to the south of the R307 road, turning southwards and linking into the existing Koeberg- Dassenberg 132kV power line;
Ecology	Alternative 1 is considered less favourable to Alternative 2	<b>Preferred alternative</b> - Alternative 2 is identified as the preferred Alternative and it is important that this alternative is selected for construction as this will ensure that the disturbance associated with the power line is maintained on the Ankerlig side of the Dassenberg road, which is seen to significantly reduce the overall impact of the power line and the potential for ecological impact and disruption of ecological processes in the area.
Avifauna	Least preferred as it passes through a conservation area where endemic fynbos birds and Endangered Black Harriers are known to occur	<b>Preferred</b> - the best option from an avian perspective is one that stays closest to the substation itself
Heritage	The impact of the proposed activity is considered to be low-zero in terms of all generally protected heritage. No preference for either alternative.	The impact of the proposed activity is considered to be low-zero in terms of all generally protected heritage. No preference for either alternative.
Visual	Not the preferred alternative	The Visual Impact Assessment <b>favours the Alternative 2</b> alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment (Alternative 2), along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.
Social	Less preferred	Preferred

From the above table, it can be concluded that no fatal flaws are associated with either alternative. Alternative 2 is however the preferred alternative from an environmental perspective.

### **No-go alternative (compulsory)**

The 'do-nothing' alternative is the option of not constructing the proposed power line. This alternative would result in no environmental impacts on the site or surrounding area. However, this option would result in the situation of the Koeberg Power Station not having a reliable backup power line of offsite power supply and retaining the old line which does not meet NNR regulatory requirements. Failure to deviate the power line will increase the risks to the Koeberg Power Station that requires a reliable backup supply during periodic maintenance and any unplanned shutdown. The deviation of the line will ensure uninterrupted operation of the Koeberg Power station which is critical to the power sector in South Africa. This is in line with the policy and Principles for Nuclear Energy use in South Africa.

The 'do nothing' alternative will increase the risk for the Koeberg Nuclear Power Station. The crossing of an offsite backup power line for a nuclear plant increases the risk of power supply interruption. For a commercial nuclear plant, an offsite AC power source is essential for safe operation and accident recovery. The lack of loss of an offsite power can have a major negative impact on power plants ability to achieve and maintain safe shutdown conditions. The loss of an offsite power source is one of the major contributors to nuclear power plant incidents and risks. **The 'do nothing alternative is, therefore, not a preferred alternative.**

## 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.

### 2.1. Summary of the Conclusions of the Basic Assessment

A summary of the potential impacts and conclusion as assessed through this Basic Assessment is provided below:

**Ecology:** Majority of impacts on ecology are of **low to medium significance** and relate to the following:

- » Impacts on vegetation and listed or protected plant species;
- » Impacts on terrestrial fauna at the site due to operation of heavy machinery and the presence of construction personnel; and
- » Ecological impacts associated with power line servitude maintenance activities.

The affected section of the Koeberg-Ankerlig line lies within nationally listed ecosystems and areas which are classified as priority Critical Biodiversity Areas with the City of Cape Town Biodiversity network. In addition, a large number of red-data listed plant species are known from the area. As such, the potential for significant negative impacts is relatively high. However, a large proportion of the proposed deviation is heavily invaded by the alien species *Acacia saligna* which has significantly impacted the biodiversity value of some of these sections. This is especially true of Alternative 2 and somewhat less applicable to Alternative 1. As a result, Alternative 2 is identified as the preferred Alternative and it is important that this alternative is selected for construction as this will ensure that the disturbance associated with the power line is maintained on the Ankerlig side of the Dassenberg road, which is seen to significantly reduce the overall impact of the power line and the potential for ecological impact and disruption of ecological processes in the area. In this sense the power line represents a potential opportunity to improve the ecological value of the power line servitude through alien clearing and favourable management of the servitude. However, a positive outcome is highly contingent on favourable management of the power line servitude and in particular, regular alien clearing and positive management in support of indigenous vegetation.

**Heritage:** The impacts on heritage resources by the proposed development are not considered to be highly significant. The recorded sites that will potentially be impacted on are all of **low significance**. The identified impacts include;

- » Impacts to cultural landscape; and

- » Impacts to pre-colonial archeology.

Alternative 2 is a 3.5 km route which will link Ankerlig gas turbine power station with an existing power line by traversing the northern edge of the Ankerlig site, then crossing southwards to the linkup. Reversion to the no-go alternative will have no advantage in heritage terms. The proposed activity is considered acceptable in heritage terms.

**Soils:** The impacts on soils during the construction and decommission phase will have an impact on the agriculture suitability of soils in the area. The impacts are considered to be of **low significance** and will include;

- » Loss of agricultural land use;
- » Soil erosion and alteration to surface characteristics; and
- » Loss of top soils.

The conclusion of this assessment is that from an agricultural impact perspective there are no fatal flaws associated with the development and it can proceed as proposed, subject to the recommended mitigation measures provided.

**Visual:** The Visual impacts during the construction, operational and decommission phase will have an impact on the aesthetics of the area. The impacts are considered to be of **low to moderate significance** and will include;

- » Visual impact on users of the R307 arterial road in close proximity to the proposed power line.
- » Visual impact on visitors to the Atlantis dunes in close proximity to the proposed power line.
- » Visual impact on sensitive visual receptors within the region
- » Visual impact of construction on sensitive visual receptors in close proximity to the proposed power line.
- » Visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.

The visual impact assessment acknowledges that there may be potential visual impacts associated with the construction of the new Koeberg-Ankerlig 132kV power line. These visual impacts are expected to primarily influence observers travelling along the Dassenberg Road and potentially impact on observers visiting the Atlantis sand dunes. These visual impacts relate to the northern section of the alignment, where the alignment do not traverse adjacent to the existing Koeberg-Ankerlig 400kV lines (i.e. effectively along the section that deviates from the already authorised alignment to the Dassenberg substation).

The Visual Impact Assessment favours the Alternative 2 alignment above the Alternative 1 alignment, as the former alignment is expected to largely mitigate the potential visual impact of power line structures on observers visiting the Atlantis Dunes. This alignment

(Alternative 2), along the edge of the Atlantis Industrial Area, also does not cross the R307 arterial road, which is seen as an added benefit in terms of visual impact reduction.

**Social:** The social impacts during the construction, operational and decommission phase will have an impact on the areas in the vicinity. Neither alternative has preference in terms of social aspects over each other. The impacts are considered to be of **low to High significance** and will include;

- » Creation of employment opportunities.
- » Impacts associated with the presence of construction workers on site.
- » Impacts associated with movement of heavy vehicles during the construction phase.
- » Provision of energy infrastructure ;
- » Impact on tourism activities;
- » Impact on sense of place and character of the area.

The findings of the Social impact assessment (SIA) indicate that the Ankerlig deviation forms a key component of the energy grid for the Western Cape and CoCT. The findings of the SIA also indicate that the potential negative social impacts associated with the proposed deviation are limited and can be mitigated. The findings of the SIA therefore indicate that the proposed Ankerlig deviation is compatible with the provincial and local policy and planning requirements. In terms of alternatives, Alternative 2 and 3 are preferred as they do not require the R 307 to be crossed. The proposed Ankerlig deviation is therefore supported.

**Avifauna:** The avifauna impacts during the construction, operational and decommission phase will have an impact on the areas in the vicinity. The impacts are considered to be of **moderate significance** and will include;

- » Electrocutation of Avifauna;
- » Collision of Avifauna with power line; and
- » Positive influence for nesting of large threatened raptors.

The Avifauna study has identified that the proposed line option has one high risk area (Water Treatment wetland) and one medium risk area (Koeberg NR) for birds. The routing of the three power line alternatives (1, 2, and 3) around the substation at Ankerlig makes no difference to the birds that may be affected farther down the line.

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts resulting from similar or diverse undertakings in the area<sup>5</sup>.

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<sup>5</sup> Definition as provided by DEA in the EIA Regulations.



The cumulative impacts associated with the proposed deviation and operation of the 132kV Dassenberg Koeberg power line is predominantly of **low to medium** significance:

- » **Ecology:** Although the extent of transformation and habitat loss resulting from the new power line section is likely to be of relatively **low significance**, this must be considered in light of the high conservation value of the affected area which falls within listed ecosystems as well as priority Critical Biodiversity Areas defined by the City of Cape Town Biodiversity Network. In addition, the actual amount of habitat loss resulting from the development could vary significantly depending on the management of the vegetation beneath the power line which could vary from a positive outcome to a large negative outcome.
- » **Heritage:** No potential cumulative impact where identified for the proposed power line deviation.
- » **Visual:** The construction of this power line, together with the existing power lines, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region. The impacts are considered to be of **low to moderate** significance.
- » **Social:** The power lines associated with the proposed Ankerlig deviation have the potential for cumulative impacts associated with Combined Visibility (more than one set of power lines visible from one location) and Sequential Visibility (e.g. the effect of seeing more than one set of power lines along a single journey, e.g. road or walking trail). However, as indicated above, what should be viewed within context is that of the existing power lines in the area associated with the Koeberg power station, Ankerlig power station and Dassenberg substation. The potential cumulative impact associated with an additional set of power lines on the areas sense of place is therefore likely to be negligible and of **low significance**. In terms of alternatives, Alternative 2 and 3 are preferred as they do not require the R 307 to be crossed.
- » **Soils:** The overall loss of agricultural land in the region due to other developments is of **low significance** due to the limited agricultural potential of the land in the area, and due to the small footprint of impact associated with this development.
- » **Avifauna:** The deviation of the existing power line will result in increased incidences of avifauna electrocution and collisions due to the addition of an extra power line in the area. The likelihood of the impact was considered to be of **moderate significance**.

Based on the nature and extent of the proposed project, it is concluded that the potential impacts associated with the proposed power line and associated access roads within the identified power line corridor can be mitigated to an acceptable level from an environmental perspective.

#### **Alternative 1 (technically preferred alternative)**

In order to deviate the existing 132kV Dassenberg Koeberg Power Line, the construction of the following essential infrastructure is required:
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- » The deviation of the northern section of the ~15km 132kV Dassenberg-Koeberg power line that runs from Koeberg Power Station to the Ankerlig Power Station, Cape Town, Western Cape Province
- » Developing access roads along the servitude for construction and operational purposes.

In summary, the following conclusions were drawn from each of the specialist studies undertaken (refer to Appendix D):

- » The majority of impacts on **ecology** are of **low to medium significance**. The affected section of the Koeberg-Ankerlig line lies within nationally listed ecosystems and areas which are classified as priority Critical Biodiversity Areas with the City of Cape Town Biodiversity network. In addition, a large number of red-data listed plant species are known from the area and the affected vegetation types. As such, the potential for significant negative impacts is relatively high. However, the actual impact of the power line is likely to be moderated by two factors. Firstly, the footprint of a 132kV line is relatively small and with careful construction, the total extent of habitat lost would be less than 1 ha. In addition, a large proportion of the proposed deviation is heavily invaded by alien *Acacia saligna* which has significantly impacted the biodiversity value of some of these sections. This is especially true of Alternative 2 and somewhat less applicable to Alternative 1. As a result, Alternative 2 is identified as the preferred Alternative and it is important that this alternative is selected for construction as this will ensure that the disturbance associated with the power line is maintained on the Ankerlig side of the Dassenberg road, which is seen to significantly reduce the overall impact of the power line and the potential for ecological impact and disruption of ecological processes in the area.

Given the impact of alien woody plants in the area, the power line represents a potential opportunity to improve the ecological value of the power line servitude through alien clearing and favourable management of the servitude. However, a positive outcome is highly contingent on favourable management of the power line servitude and in particular regular alien clearing and positive management in support of indigenous vegetation. With regards to the current assessment the following specific recommendations are made:

- Alien vegetation clearing should take place on at least an annual basis along the power line corridor. All alien species present should be cleared in the appropriate manner in accordance with the DAFF alien plant control guidelines for the relevant species.
- Vegetation clearing beneath the power line should be target specific and only alien species should be removed on a regular basis. If the indigenous vegetation becomes too tall and compromises safety, the tall

elements may be specifically trimmed to an acceptable height.

- General or wholesale vegetation clearing or brush cutting of indigenous vegetation should not take place without consultation with a suitably experienced botanical specialist. Under all circumstances it is recommended that 40cm should be used as the target height for vegetation clearing of indigenous vegetation when it is required.
- A formal road should not be constructed under the power lines, a simple track should be sufficient.

» There are three factors that influence the significance of all **agricultural** impacts. The first is that the actual footprint of disturbance of the power line is very small in relation to available, surrounding land. The second is that agricultural potential and activity on the site is very limited. The third is that the proposed power line largely runs adjacent to existing power lines and so a certain degree of disturbance is already present along most of the corridor. Thus, there will be a **low overall impact** of the development on agricultural production and livelihoods. Soils along the corridor are almost entirely deep, unconsolidated grey to yellow sands predominantly of the Namib and Fernwood soil forms. Soils are limited by their extremely sandy texture (low clay content) which severely limits their water and nutrient holding capacity. As a result the land is not suitable for dryland cropping. The majority of the corridor is severely invaded by Australian wattle, which lowers the agricultural usability and grazing capacity of the land. There is no cultivation or agricultural development along the corridor. The land is mostly used for grazing, however, the wattle invasion has left it in poor quality. Three potential negative impacts of the development on agricultural resources and productivity were identified as:

- Loss of agricultural land use caused by direct occupation of land by the footprint of the power line infrastructure (low significance, no mitigation possible).
- Soil Erosion caused by alteration of surface characteristics due to vegetation removal and surface disturbance (low significance with and without mitigation).
- Loss of topsoil in disturbed areas, causing a decline in soil fertility (low significance with and without mitigation).

The conclusion of this assessment is that from an agricultural impact perspective there are no fatal flaws associated with the development and it can proceed as proposed, subject to the recommended mitigation measures provided. Alternative 2, does not differ from alternative 1 in terms of agricultural impact. The 'do nothing' alternative has zero impact on agriculture, compared to the low impact for the development.

» The **avifauna impacts** are considered to be of **moderate significance** and

the specialist study has identified that the proposed line option has one high risk (Water Treatment wetland nearby) and one medium risk area (Koeberg NR) for birds. The study identified several areas that require further assessment and monitoring e.g. the above wetland where large numbers of wetland species occur throughout the year. The area holds over 100 birds in summer and few of the existing lines have adequate forms of bird mitigation. Assessments in other seasons should; identify the use of the pans by flamingos and other collision-prone species, the mortality rate and which sections are most dangerous. This should be undertaken by a trained ornithologist. The use of the Fynbos region in the Koeberg NR where the Black Harriers forage should also be assessed for breeding birds (nest are known west of here but could occur here too) and foraging birds and the hotspots of hunting. Semi-quantitative assessments of the significance of the impacts to birds found before mitigation a medium score (56) suggesting mitigations are necessary, and after mitigation this could drop to medium-low score of 33.

- » The impacts to **heritage** resources by the proposed development are not considered to be significant. The recorded sites that will potentially be impacted on are all of **low significance**. In terms of cultural landscape the existing servitude already contains two 400 kV transmission lines and towers. Further lines will be an addition to a scenario where electrical infrastructure is a locally accepted feature of the landscape. This is not expected to detract from the scenic and qualities of the area as this has already been impacted by the existing servitude. They are no structures and protected buildings identified in or close to the proposed route. Furthermore, no surface paleontology was identified. Since the ESKOM servitude is already established and now a recognized element of the landscape, the addition of further transmission lines is not expected to constitute a significant impact. Re-use of the existing alignment and consolidation of the electrical infrastructure is far more preferable than creating a completely new route which will subject the area to a new visual intrusion. Alternative 2 is a 3.5 km route which will link Ankerlig gas turbine power station with an existing power line by traversing the northern edge of the Ankerlig site, then crossing southwards to the linkup. Reversion to the no-go alternative will have no advantage in heritage terms. Mitigation action (if needed) lies within the domain of visual impact assessment.
  
- » The **visual impact** assessment acknowledges that there may be potential visual impacts associated with the construction of the new Koeberg-Ankerlig 132kV power line. These visual impacts are expected to primarily influence observers travelling along the Dassenberg Road and potentially impact on observers visiting the Atlantis sand dunes. These visual impacts relate to the northern section of the alignment, where the alignment does not traverse adjacent to the existing Koeberg-Ankerlig 400kV lines (i.e. effectively along the

section that deviates from the already authorised alignment to the Dassenberg substation).

- » The proposed Koeberg-Ankerlig power line may impact on observers travelling along the Dassenberg (R307) arterial road where the alignment crosses over this road and/or traverses adjacent to it. This impact is expected to be of **moderate** significance.
  - » The potential visual impact on visitors to the Atlantis dunes adjacent to the proposed alignment is expected to be of **moderate** significance for the Alternative 1 alignment and **low** for the Alternative 2 alignment. This is largely due to the fact that there is an existing visual disturbance in the form of the current power station and power line infrastructure.
  - » The visual impact on the users of roads and the residents of towns, settlements and homesteads within the region (i.e. beyond the 3km radius) is expected to be **low**.
  - » During the construction phase access to the proposed alignment will be along the existing power line servitude and very limited removal of vegetation cover is expected and no new access roads are required. This anticipated impact is likely to be of **low** significance.
  - » The anticipated visual impact of the proposed power line on the regional visual quality, and by implication, on the sense of place, is expected to be of **low** significance. This is largely due to the presence of the existing power line infrastructure and Ankerlig power station.
- » The **social impacts** are considered to be of **low to High significance**. The findings of the Social Impact Assessment (SIA) indicate that the Koeberg-Ankerlig deviation forms a key component of the energy grid for the Western Cape and the City of Cape Town. The findings of the SIA also indicate that the potential negative social impacts associated with the proposed deviation are limited and can be mitigated. The proposed Ankerlig deviation is therefore supported. The findings of the SIA also indicate that the potential negative social impacts associated with the proposed Ankerlig deviation are limited and can be mitigated. The proposed Ankerlig power line deviation is therefore supported. In terms of alternatives, Alternative 2 and 3 are preferred as they do not require the R 307 to be crossed.

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse undertaking in the area<sup>6</sup>. The proposed power line deviation will be undertaken in an area with already existing two power lines namely; Ankerlig – Koeberg 1 (400kV) and the Ankerlig – Koeberg 2 (400kV).

<sup>6</sup> Definition as provided by DEA in the EIA Regulations.

The cumulative impacts associated with the proposed deviation and operation of the 132kV Dassenberg Koeberg power line is predominantly of **low to medium** significance:

- » **Ecology:** Although the extent of transformation and habitat loss resulting from the new power line section is likely to be of relatively **low significance**, this must be considered in light of the high conservation value of the affected area which falls within listed ecosystems as well as priority Critical Biodiversity Areas defined by the City of Cape Town Biodiversity Network. In addition, the actual amount of habitat loss resulting from the development could vary significantly depending on the management of the vegetation beneath the power line which could vary from a positive outcome to a large negative outcome.
- » **Heritage:** No potential cumulative impact where identified for the proposed power line deviation.
- » **Visual:** The construction of this power line, together with the existing power lines, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region. The impacts are considered to be of **low to moderate** significance
- » **Social:** The power lines associated with the proposed Ankerlig deviation have the potential for cumulative impacts associated with Combined Visibility (more than one set of power lines visible from one location) and Sequential Visibility (e.g. the effect of seeing more than one set of power lines along a single journey, e.g. road or walking trail). However, as indicated above, what should be viewed within context is that of the existing power lines in the area associated with the Koeberg NPS, Ankerlig power station and Dassenberg substation. . In terms of alternatives, Alternative 2 and 3 are preferred as they do not require the R 307 to be crossed. The potential cumulative impact associated with an additional set of power lines on the areas sense of place is therefore likely to be negligible and of **low significance**.
- » **Soils:** The overall loss of agricultural land in the region due to other developments is of **low significance** due to the limited agricultural potential of the land in the area, and due to the small footprint of impact associated with this development.
- » **Avifauna:** The deviation of the existing power line will result in increased incidences of avifauna electrocution and collisions due to the addition of an extra power line in the area. The likelihood of the impact was considered to be of **moderate significance**. Semi-quantitative assessments of the significance of the impacts to birds found before mitigation a medium score (56) suggesting mitigations are necessary, and after mitigation this could drop to medium-low score of 33. The routing of the three power line alternatives (1, 2, and 3) around the substation at Ankerlig makes no difference to the birds that may be affected farther down the line.

Based on the nature and extent of the proposed project, it is concluded that the potential impacts associated with the proposed power line and associated access roads within the identified corridor can be mitigated to an acceptable level from an environmental perspective.

### **Alternative 2 (preferred environmental alternative)**

In order to deviate the existing 132kV Dassenberg Koeberg Power Line, the construction of the following essential infrastructure is required:

- » The deviation of the northern section of the ~15km 132kV Dassenberg-Koeberg power line that runs from Koeberg Power Station to the Ankerlig Power Station, Cape Town, Western Cape Province
- » Developing access roads along the servitude for construction and operational purposes.

In summary, the following conclusions were drawn from each of the specialist studies undertaken (refer to Appendix D):

- » The majority of impacts on **ecology** are of **low to medium significance**. The affected section of the Koeberg-Ankerlig line lies within nationally listed ecosystems and areas which are classified as priority Critical Biodiversity Areas with the City of Cape Town Biodiversity network. In addition, a large number of red-data listed plant species are known from the area and the affected vegetation types. As such, the potential for significant negative impacts is relatively high. However, the actual impact of the power line is likely to be moderated by two factors. Firstly, the footprint of a 132kV line is relatively small and with careful construction, the total extent of habitat lost would be less than 1 ha. In addition, a large proportion of the proposed deviation is heavily invaded by alien *Acacia saligna* which has significantly impacted the biodiversity value of some of these sections. This is especially true of Alternative 2 and somewhat less applicable to Alternative 1. As a result, Alternative 2 is identified as the preferred Alternative and it is important that this alternative is selected for construction as this will ensure that the disturbance associated with the power line is maintained on the Ankerlig side of the Dassenberg road, which is seen to significantly reduce the overall impact of the power line and the potential for ecological impact and disruption of ecological processes in the area.

Given the impact of alien woody plants in the area, the power line represents a potential opportunity to improve the ecological value of the power line servitude through alien clearing and favourable management of the servitude. However, a positive outcome is highly contingent on favourable management of the power line servitude and in particular regular alien clearing and positive management

in support of indigenous vegetation. With regards to the current assessment the following specific recommendations are made:

- Alien vegetation clearing should take place on at least an annual basis along the power line corridor. All alien species present should be cleared in the appropriate manner in accordance with the DAFF alien plant control guidelines for the relevant species.
  - Vegetation clearing beneath the power line should be target specific and only alien species should be removed on a regular basis. If the indigenous vegetation becomes too tall and compromises safety, the tall elements may be specifically trimmed to an acceptable height.
  - General or wholesale vegetation clearing or brush cutting of indigenous vegetation should not take place without consultation with a suitably experienced botanical specialist. Under all circumstances it is recommended that 40cm should be used as the target height for vegetation clearing of indigenous vegetation when it is required.
  - A formal road should not be constructed under the power lines, a simple track should be sufficient.
- » There are three factors that influence the significance of all agricultural impacts. The first is that the actual footprint of disturbance of the power line is very small in relation to available, surrounding land. The second is that agricultural potential and activity on the site is very limited. The third is that the proposed power line largely runs adjacent to existing power lines and so a certain degree of disturbance is already present along most of the corridor. Thus, there will be a **low overall impact** of the development on agricultural production and livelihoods. Soils along the corridor are almost entirely deep, unconsolidated grey to yellow sands predominantly of the Namib and Fernwood soil forms. Soils are limited by their extremely sandy texture (low clay content) which severely limits their water and nutrient holding capacity. As a result the land is not suitable for dryland cropping. The majority of the corridor is severely invaded by Australian wattle, which lowers the agricultural usability and grazing capacity of the land. There is no cultivation or agricultural development along the corridor. The land is mostly used for grazing, however, the wattle invasion has left it in poor quality. Three potential negative impacts of the development on agricultural resources and productivity were identified as:
- Loss of agricultural land use caused by direct occupation of land by the footprint of the power line infrastructure (low significance, no mitigation possible).
  - Soil Erosion caused by alteration of surface characteristics due to vegetation removal and surface disturbance (low significance with and without mitigation).
  - Loss of topsoil in disturbed areas, causing a decline in soil fertility (low significance with and without mitigation).



The conclusion of this assessment is that from an agricultural impact perspective there are no fatal flaws associated with the development and it can proceed as proposed, subject to the recommended mitigation measures provided. Alternative 2, does not differ from alternative 1 in terms of agricultural impact. The 'do nothing' alternative has zero impact on agriculture, compared to the low impact for the development.

- The **avifauna impacts** are considered to be of **moderate significance** and the specialist study has identified that the proposed line option has one high risk (Water Treatment wetland nearby) and one medium risk area (Koeberg NR) for birds. The study identified several areas that require further assessment and monitoring: the above wetland where large numbers of wetland species occur throughout the year. The area holds over 100 birds in summer and few of the existing lines have adequate forms of bird mitigation. Assessments in other seasons should; identify the use of the pans by flamingos and other collision-prone species, the mortality rate and which sections are most dangerous. This should be undertaken by a trained ornithologist. The use of the Fynbos region in the Koeberg NR where the Black Harriers forage should also be assessed for breeding birds (nest are known west of here but could occur here too) and foraging birds and the hotspots of hunting. Semi-quantitative assessments of the significance of the impacts to birds found before mitigation a medium score (56) suggesting mitigations are necessary, and after mitigation this could drop to medium-low score of 33. The routing of the three power line alternatives (1, 2, and 3) around the substation at Ankerlig makes no difference to the birds that may be affected farther down the line.
  
- » The impacts to **heritage** resources by the proposed development are not considered to be significant. The recorded sites that will potentially be impacted on are all of **low significance**. In terms of cultural landscape the existing servitude already contains two 400 kV transmission lines and towers. Further lines will be an addition to a scenario where electrical infrastructure is a locally accepted feature of the landscape. This is not expected to detract from the scenic and qualities of the area as this has already been impacted by the existing servitude. There are no structures and protected buildings identified in or close to the proposed route. Furthermore, no surface paleontology was identified. Since the ESKOM servitude is already established and now a recognized element of the landscape, the addition of further transmission lines is not expected to constitute a significant impact. Re-use of the existing alignment and consolidation of the electrical infrastructure is far more preferable than creating a completely new route which will subject the area to a new visual intrusion. Alternative 2 is a 3.5 km route which will link Ankerlig gas turbine power station with an existing power line by traversing the northern

edge of the Ankerlig site, then crossing southwards to the linkup. Reversion to the no-go alternative will have no advantage in heritage terms. Mitigation action (if needed) lies within the domain of visual impact assessment.

- » The **visual impact** assessment acknowledges that there may be potential visual impacts associated with the construction of the new Koeberg-Ankerlig 132kV power line. These visual impacts are expected to primarily influence observers travelling along the Dassenberg Road and potentially impact on observers visiting the Atlantis sand dunes. These visual impacts relate to the northern section of the alignment, where the alignment does not traverse adjacent to the existing Koeberg-Ankerlig 400kV lines (i.e. effectively along the section that deviates from the already authorised alignment to the Dassenberg substation).
  - » The proposed Koeberg-Ankerlig power line may impact on observers travelling along the Dassenberg (R307) arterial road where the alignment crosses over this road and/or traverses adjacent to it. This impact is expected to be of **moderate** significance.
  - » The potential visual impact on visitors to the Atlantis dunes adjacent to the proposed alignment is expected to be **low** for the Alternative 2 alignment. This is largely due to the fact that there is an existing visual disturbance in the form of the current power station and power line infrastructure.
  - » The visual impact on the users of roads and the residents of towns, settlements and homesteads within the region (i.e. beyond the 3km radius) is expected to be **low**.
  - » During the construction phase access to the proposed alignment will be along the existing power line servitude and very limited removal of vegetation cover is expected and no new access roads are required. This anticipated impact is likely to be of **low** significance.
  - » The anticipated visual impact of the proposed power line on the regional visual quality, and by implication, on the sense of place, is expected to be of **low** significance. This is largely due to the presence of the existing power line infrastructure and Ankerlig power station.
- » The **social impacts** are considered to be of **low to High significance**. The findings of the Social Impact Assessment (SIA) indicate that the Koeberg-Ankerlig deviation forms a key component of the energy grid for the Western Cape and the City of Cape Town. The findings of the SIA also indicate that the potential negative social impacts associated with the proposed deviation are limited and can be mitigated. The proposed Ankerlig deviation is therefore supported. The findings of the SIA also indicate that the potential negative social impacts associated with the proposed Ankerlig deviation are limited and can be mitigated. The proposed Ankerlig power line deviation is therefore

supported. In terms of alternatives, Alternative 2 and 3 are preferred as they do not require the R 307 to be crossed.

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse undertaking in the area<sup>7</sup>. The proposed power line deviation will be undertaken in an area with already existing two power lines namely; Ankerlig – Koeberg 1 (400kV) and the Ankerlig – Koeberg 2 (400kV).

The cumulative impacts associated with the proposed deviation and operation of the 132kV Dassenberg Koeberg power line is predominantly of **low to medium** significance:

- » **Ecology:** Although the extent of transformation and habitat loss resulting from the new power line section is likely to be of relatively **low significance**, this must be considered in light of the high conservation value of the affected area which falls within listed ecosystems as well as priority Critical Biodiversity Areas defined by the City of Cape Town Biodiversity Network. In addition, the actual amount of habitat loss resulting from the development could vary significantly depending on the management of the vegetation beneath the power line which could vary from a positive outcome to a large negative outcome.
- » **Heritage:** No potential cumulative impact where identified for the proposed power line deviation.
- » **Visual:** The construction of this power line, together with the existing power lines, is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region. The impacts are considered to be of **low to moderate** significance
- » **Social:** The power lines associated with the proposed Ankerlig deviation have the potential for cumulative impacts associated with Combined Visibility (more than one set of power lines visible from one location) and Sequential Visibility (e.g. the effect of seeing more than one set of power lines along a single journey, e.g. road or walking trail). However, as indicated above, what should be viewed within context is that of the existing power lines in the area associated with the Koeberg NPS, Ankerlig power station and Dassenberg substation. The potential cumulative impact associated with an additional set of power lines on the areas sense of place is therefore likely to be negligible and of **low significance**.
- » **Soils:** The overall loss of agricultural land in the region due to other developments is of **low significance** due to the limited agricultural potential of the land in the area, and due to the small footprint of impact associated with this development.
- » **Avifauna:** The deviation of the existing power line will result in increased incidences of avifauna electrocution and collisions due to the addition of an extra

<sup>7</sup> Definition as provided by DEA in the EIA Regulations.

power line in the area. The likelihood of the impact was considered to be of **moderate significance**. The routing of the three power line alternatives (1, 2, and 3) around the substation at Ankerlig makes no difference to the birds that may be affected farther down the line.

Based on the nature and extent of the proposed project, it is concluded that the potential impacts associated with the proposed power line and associated access roads within the identified corridor can be mitigated to an acceptable level from an environmental perspective.

#### Alternative C: N/A

#### No-go alternative (compulsory)

The 'do-nothing' alternative is the option of not constructing the proposed power line. This alternative would result in no environmental impacts on the site or surrounding area. However, this option would result in the situation of the Koeberg Power Station not having a reliable backup power line of offsite power supply and retaining the old line which does not meet NNR regulatory requirements. Failure to deviate the power line will increase the risks to the Koeberg Power Station that requires a reliable backup supply during periodic maintenance and any unplanned shutdown. The deviation of the line will ensure uninterrupted operation of the Koeberg Power station which is critical to the power sector in South Africa. This is in line with the policy and Principles for Nuclear Energy use in South Africa.

The 'do nothing' alternative will increase the risk for the Koeberg Nuclear Power Station. The crossing of an offsite backup power line for a nuclear plant increases the risk of power supply interruption. For a commercial nuclear plant, an offsite AC power source is essential for safe operation and accident recovery. The lack of loss of an offsite power can have a major negative impact on power plants ability to achieve and maintain safe shutdown conditions. The loss of an offsite power source is one of the major contributors to nuclear power plant incidents and risks. **The 'do nothing alternative is, therefore, not a preferred alternative.**

## 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.

The deviation of the existing 132 kV construction of the proposed power line should be implemented according to the EMPr (Appendix G) to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

### **Design, Construction, and Decommissioning Phases:**

- » **After the considerations of the environmental and technical aspects, Alternative 2 is hereby recommended as the preferred alternative.**
- » All relevant practical and reasonable mitigation measures detailed within this report must be implemented.
- » The draft Environmental Management Programme (EMPr) as contained within **Appendix G** of this report should form part of the contract with the appointed contractors to construct and maintain the proposed substation. This will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the proposed project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.
- » An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period. Once a power line route has been negotiated and surveyed within the identified corridor, walk-through surveys should be undertaken by a suitably qualified ecologist, heritage specialist and ornithologist.
- » During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
- » Removal of vegetation and trampling in the area must be kept to a minimum.
- » The final development area should be surveyed for species suitable for search and

- rescue, which should be translocated prior to the commencement of construction.
- » Species of Special Concern should be identified and rescued.
  - » Species of special concern should be rescued however if a species cannot be rescued it must be avoided and untouched.
  - » Permits will be required to remove species of special concern.
  - » Perennial grasses which occur naturally in the area should be used to stabilise the site after it has been cleared. A mix of fast growing annual and perennial grass species could be used.
  - » Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.
  - » An on-going monitoring programme should be established to detect and quantify any alien species.
  - » Identification of areas of high erosion risk (drainage lines, existing problem areas) should be undertaken. Only special works to be undertaken in these areas to be authorised by ECO and Engineer's representative (ER).
  - » Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
  - » Any new access roads required to be carefully planned and constructed to minimise the impacted area and prevent unnecessary degradation of soil.
  - » Erosion control measures- run-off control and attenuation on slopes (sand bags, logs), silt fences, storm water channels and catch-pits, shade nets, soil binding, geofabrics, hydroseeding or mulching over cleared areas must be implemented.
  - » An appropriate stormwater management plan must be developed and implemented.
  - » If concentrations of archaeological heritage material and human remains are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken. This survey would of course be limited to a surface inspection only. In the event of fossils being uncovered during the construction phase, the ECO should photograph and record the position of fossiliferous material.
  - » If protected plant species are encountered, a search and rescue must be conducted to relocate the protected species (A number of other species protected under provincial legislation were also observed at the site including *Putterlickia pyracantha*, *Searsia laevigata* var. *villosa*, *Chrysanthemoides incana*, *Ehrharta villosa* var. *villosa*, *Afrolimon peregrinum*, *Brunsvigia orientalis*, *Haemanthus coccineus*, *Ischyrolepis eleocharis* and *Thamnochortus erectus*).
  - » Ensure that vegetation is not unnecessarily cleared or removed during the construction period.
  - » Reduce the construction period through careful logistical planning and productive implementation of resources.
  - » Plan the placement of lay-down areas and any potential temporary construction camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.
  - » Restrict the activities and movement of construction workers and vehicles to the

immediate construction site and existing access roads.

- » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.
- » Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).
- » Rehabilitate all disturbed areas, construction areas, roads, slopes etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.
- » An application for all other permits (e.g. those with respect to protected tree species or protected plant species) must be obtained from the relevant authority prior to the commencement of construction activities.
- » All declared alien plant species must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the implementation of a monitoring programme in this regard is recommended.
- » Before development can continue the regions need to be checked for the presence of bird nesting sites, particularly those of ground nesting species.
- » Abbreviating maintenance times, scheduling activities in relation to avian breeding and/or movement schedules and lowering levels of associated noise.
- » ESKOM has guidelines and standards for the construction of bird friendly pole and pylon structures. These should be adhered to. Only a bird friendly pole structure should be used. It is recommended that a monopole structure be used with the standard ESKOM Bird Perch installed on all pole tops in order to provide safe perching substrate for bird well clear of the dangerous hardware below.
- » Construction work timing - should avoid the breeding season of the most sensitive species, particularly the raptorial species such as the African Marsh Harriers and Black Harriers. These species start to breed in July and end by December (Simmons 2005a, b). Thus work is best carried out from January to May.
- » Electrocutions can be avoided using the present devices (spikes) found on the pylons in Koeberg NR that prevent large birds from perching on the pylons. These are recommended for all pylons to be erected.
- » Limit construction, maintenance, and inspection activities to dry periods.
- » Develop emergency response plans and procedures to deal with any events of contamination, pollution, or spillages.
- » If large areas are cleared for the storage of equipment, these should be rehabilitated using arid site rehabilitation techniques such as planting cover crops reseeded with local grasses and shrubs.
- » Local community members should be provided an opportunity to be included in a list of possible local suppliers and service providers.
- » Social benefits in terms of training, skills development and the use of local labour should thus be aspired to. These skills can be transferable to other employment sectors and would result in further sustainable benefits.
- » The City of Cape Town Metropolitan and community representatives and

neighbouring property owners should be kept informed of the progress, decisions taken with regards to the development and construction schedules.

- » Attention should be given to the extension and improvement of the existing HIV/Aids awareness programmes.

#### **Operation Phase:**

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

- » Identified drainage areas should be avoided as far as possible by vehicles and heavy machinery. In addition care should be taken to minimise any unnecessary impact on the vegetation outside of the servitude footprint.
- » This power line should be monitored regularly once operational in order to detect any bird collisions that may occur. This line must be patrolled as part of the post construction bird monitoring programme for the Dassenberg Koeberg power line once it is operational. This is likely to take place at least 4 times per year, and will be done by qualified independent staff.
- » The landowner will retain responsibility for the maintenance of the land and land use within the servitude (e.g. cropping activities, veld management, etc.).
- » Maintenance of erosion control measures (i.e. berms).
- » Implementation of an appropriate storm water management plan.
- » On-going maintenance of the facility to minimise the potential for visual impacts.
- » On-going monitoring of the site to detect and restrict the spread of alien plant species.
- » Install and maintain bird diverters on the power line.
- » Development and implementation of a storm water management plan.
- » On-going maintenance of the facility to minimise the potential for visual impacts.
- » On-going monitoring of the site to detect and restrict the spread of alien plant species.
- » Training, skills development and the use of local labour.
- » Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint/servitude. This measure will help to soften the appearance of the power line within its context.

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.

JO-ANNE THOMAS

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## **SECTION F: APPENDICES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information