ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
BASIC ASSESSMENT REPORT

BON ESPIRANGE SUBSTATION AND 132KV OVERHEAD POWER LINE FOR THE AUTHORISED ROGGEVELD WIND FARM PROJECT

REPORT FOR REVIEW
March 2016

Prepared for:
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Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.

15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

Title	**:**	Environmental Assessment Process Basic Assessment Report for the proposed Bon Espirange Substation and 132kV Overhead Power line for the Authorised Roggeveld Wind Farm Project
Authors	**:**	Savannah Environmental Michelle Moodley Karen Jodas Gabriele Wood
Specialists	**:**	Simon Todd – Simon Todd Consulting Lita Webley – ACO Associates cc Dr A.J. Williams - African Insights Bernard Oberholzer - Landscape Architect, and Quinton Lawson - MLB Architects
Applicant	**:**	Roggeveld Wind Power (Pty) Ltd
Report Status	**:**	Basic Assessment Report for Review
Review period	**:**	10 March 2016 – 13 April 2016

When used as a reference this report should be cited as: Savannah Environmental (2016) Basic Assessment Report: Basic Assessment Report for the proposed Bon Espirange Substation and 132kV Overhead Power line for the Authorised Roggeveld Wind Farm Project.

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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Roggeveld Wind Power (Pty) Ltd received environmental authorisation for Phase 1 of the Roggeveld Wind Farm on 12 August 2014. In order to connect the Roggeveld Wind Farm to the high voltage electricity network (grid), an on-site substation (known as the Bon Espirange Substation Eskom Yard) and a new overhead power line is required to be constructed. The Bon Espirange Substation Eskom Yard applied for in this Basic Assessment process will be located directly adjacent to the authorised Bon Espirange Substation IPP Yard (overlapping with the area assessed through the Roggeveld Wind farm EIA). The entire extent of the Bon Espirange Substation, including both the Independent Power Producer (IPP) Yard and the proposed Eskom Yard, is located within the authorised Roggeveld Wind Farm Facility site. The 132kV overhead power line (6-7 km in length) will connect the Bon Espirange Substation to the Eskom Komsberg Substation. The authorised connection for the Roggeveld Wind Farm is no longer viable due to a proposed expansion of the Komsberg Substation. Therefore, the point of connection to the Komsberg Substation has been reconsidered, and the only viable connection solution for the Roggeveld Wind Farm is to connect to the Komsberg Substation on the eastern side of the substation. Limited upgrades might also be required to the Komsberg Substation including but not limited to additional feeder bay, limited access roads and cabling. Any upgrades to the Komsberg Substation would be determined by Eskom at a later stage, but would be within the Komsberg Substation high voltage yard boundary.

Following completion of construction and commissioning, this infrastructure (Eskom Yard and 132kV line along with any required upgrades to the Komsberg Substation) will be transferred to Eskom for ownership and operation.

The proposed project site is located approximately 20 km north of Matjiesfontein. The project site falls within both the Western Cape and Northern Cape Provinces within the Central Karoo District Municipality and the Namakwa District Municipality respectively.

The proposed development for which application is made includes the following (refer to Figure 1):

- An on-site substation (Eskom Yard within the Bon Espirange Substation) (within the authorised Roggeveld Wind Farm footprint).
- 132kV overhead power line (approximately 6 7 km in length with a final servitude of approximately 36m) between the Bon Espirange Substation and the Eskom Komsberg Substation.
- Limited upgrades to the existing Komsberg Substation may be required by Eskom. These upgrades could potentially include an additional feeder bay(s), high-voltage switchgear(s), cabling, limited access roads all within the existing footprint of the Komsberg Substation.

The following property will be affected by the Bon Espirange Substation:

- The Remainder of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (RE/73 Bon Espirange)

The development footprint of the proposed substation will be approximately 130m wide x 50m long. The specialists assessed a 25m buffer around the proposed location to allow for micro-siting. The site for development is located directly adjacent to Bon Espirange Substation IPP Yard (the authorised IPP substation for the Roggeveld Wind Farm hereafter referred to as the Bon Espirange IPP Yard) and within the same proximity of the area assessed for the Bon Espirange Substation IPP Yard. This new Eskom Yard will be located approximately 6 km north west of the Komsberg Substation within the authorised Roggeveld Wind Farm footprint.

The following properties will be affected by the power line:

- The Remainder of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (RE/73 Bon Espirange)
- Portion 1 of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (1/73 Bon Espirange)
- The Farm Aprilskraal 105, Laingsburg Local Municipality, Western Cape (105 Aprilskraal)
- Portion 2 of the Farm Standvastigheid 210, Karoo Hoogland Local Municipality, Northern Cape (2/210 Standvastigheid)
- The Remainder of the Farm Standvastigheid 210, Karoo Hoogland Local Municipality, Northern Cape (RE/210 Standvastigheid)

A 300m wide corridor has been investigated for the siting of the proposed route of the power line. Two alternative routes are provided for the power line, and are described as follows:

- Alternative 1: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation. After approximately 1.5km the corridor bends in a south easterly direction and then traverses the R354. As the corridor reaches a length of approximately 3 km it bends again in an easterly direction, continues for a further 2km and is aligned parallel to the existing 400kV Komsberg-Muldersvlei 1 overhead power line. At 5km the corridor bends in a south easterly direction where it traverses a secondary road off the R354 and at approximately 6km the corridor passes into the Komsberg Substation property (2/210 Standvastigheid) on the northern side. The 132kV line connection to the substation itself would be from the eastern side.
- Alternative 2: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation and directly overlaps with Alternative 1. After approximately 1.5km the corridor bends in a south easterly direction, traverses the

R354 and, unlike Alternative 1, continues to follow this alignment and then crosses under the existing 400kV Komsberg-Muldersvlei 1 power line. At 4.5 km the corridor traverses the Aprils Kraal property boundary and bends in a slight north easterly direction for approximately 6km and passes into the Komsberg Substation property (2/210 Standvastigheid) on the northern side at approximately 6km. The 132kV line connection to the substation itself would be from the eastern side.

As required by Eskom's technical specifications for the construction of a power line, the power line will comprise a combination of monopole in-line towers, guyed towers, as well as self-supporting towers depending on the technical aspects. The tower structures within the Komsberg Substation footprint would be double circuit while the remainder of the power line would be single circuit.

1.1. NEED AND DESIRABILITY FOR THE PROPOSED INFRASTRUCTURE

The need and justification for the proposed project is linked to the authorised Roggeveld Wind Farm which has been awarded Preferred Bidder under the Department of Energy's Renewable Energy Independent Power Producer Procurement Programme (REIPPP Programme). The proposed project constitutes essential infrastructure to viably connect the wind farm to the National Eskom grid at the Komsberg Main Transmission Substation (MTS). The Komsberg MTS is proposed to be expanded in order to accommodate the three preferred bidder projects as well as future preferred bidder projects within this area, as pre-determined by Eskom's requirements. This expansion has been assessed in a separate Basic assessment process. It must be noted that a grid connection alternative was approved in the Environmental Authorisation for the Roggeveld Wind Farm (issued 12 August 2014). Should the proposed grid connection applied for in this application be approved, Roggeveld Wind Power would not construct the previously authorised connection where function is duplicated (i.e. the power line).

The proposed Bon Espirange Substation and power line corridor, like the Roggeveld Wind Farm, is located within one of the study areas identified as part of the Strategic Environmental Assessment (SEA) for Renewable Energy Development Zones (REDZ). The SEA project was initiated by the Department of Environmental Affairs with intent to "*identify geographical areas best suited for the rollout of wind and solar PV energy projects and the supporting electricity grid network*". The SEA process identified prioritised locations that are potential REDZ). Similar to the Renewable Energy SEA, Eskom's Electricity Grid Infrastructure Strategic Environmental Assessment (Grid SEA) is also underway. The SEA is in accordance with the government's commitment to implement the NDP and improve on infrastructure. More specifically, the Grid SEA is in support of SIP 10, which aims to achieve "Electricity and distribution for all". The area in which the Roggeveld Wind Farm is proposed is currently within the corridor planned to be strengthened by Eskom as part of the Grid SEA. The Grid SEA aims to provide widespread distribution of electricity throughout South Africa and to initialise economic development

within areas limited to electricity access to meet the country's economic and social development needs. The location of the proposed project is within the Komsberg REDZ and Central Corridor, which are prioritised areas for development.

From an overall environmental sensitivity and planning perspective, the proposed grid connection supports the broader strategic context of the respective local municipalities as it is linked to a renewable energy facility which is considered a driver for economic growth in the region. It is also in line with broader societal needs and the public interest as it is linked to a renewable energy facility, for which there is a driving national policy and support. No exceedance of social, ecological, heritage or avifaunal limits will result from the construction of the project, and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment Report.

1.2. REQUIREMENTS FOR A BASIC ASSESSMENT PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations of December 2014, published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Roggeveld Wind Power (Pty) Ltd requires authorisation for the construction of the proposed project. In terms of Sections 24 and 24D of NEMA (No 107 of 1998), as read with the EIA Regulations of GN R982 – R985, a Basic Assessment process is required to be undertaken in support of the application for authorisation for 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 the application is related to renewable energy and distribution of energy, the National Department of Environmental Affairs (DEA) is the competent authority[1] and the Northern Cape Department of Environment and Nature Conservation (NC DENC) and the Western Cape: Department of Environmental Affairs and Development Planning (WC DEADP) will act as the commenting authorities. This project will be registered with the DEA through submission of an Application for Authorisation.

The nature and extent of the proposed project is explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations of December 2014 (as per Table A below), and includes details of the activity description; the site, area and property description; the public participation.

[1] In terms of the Energy Response Plan, the DEA is the competent authority for all energy related applications.

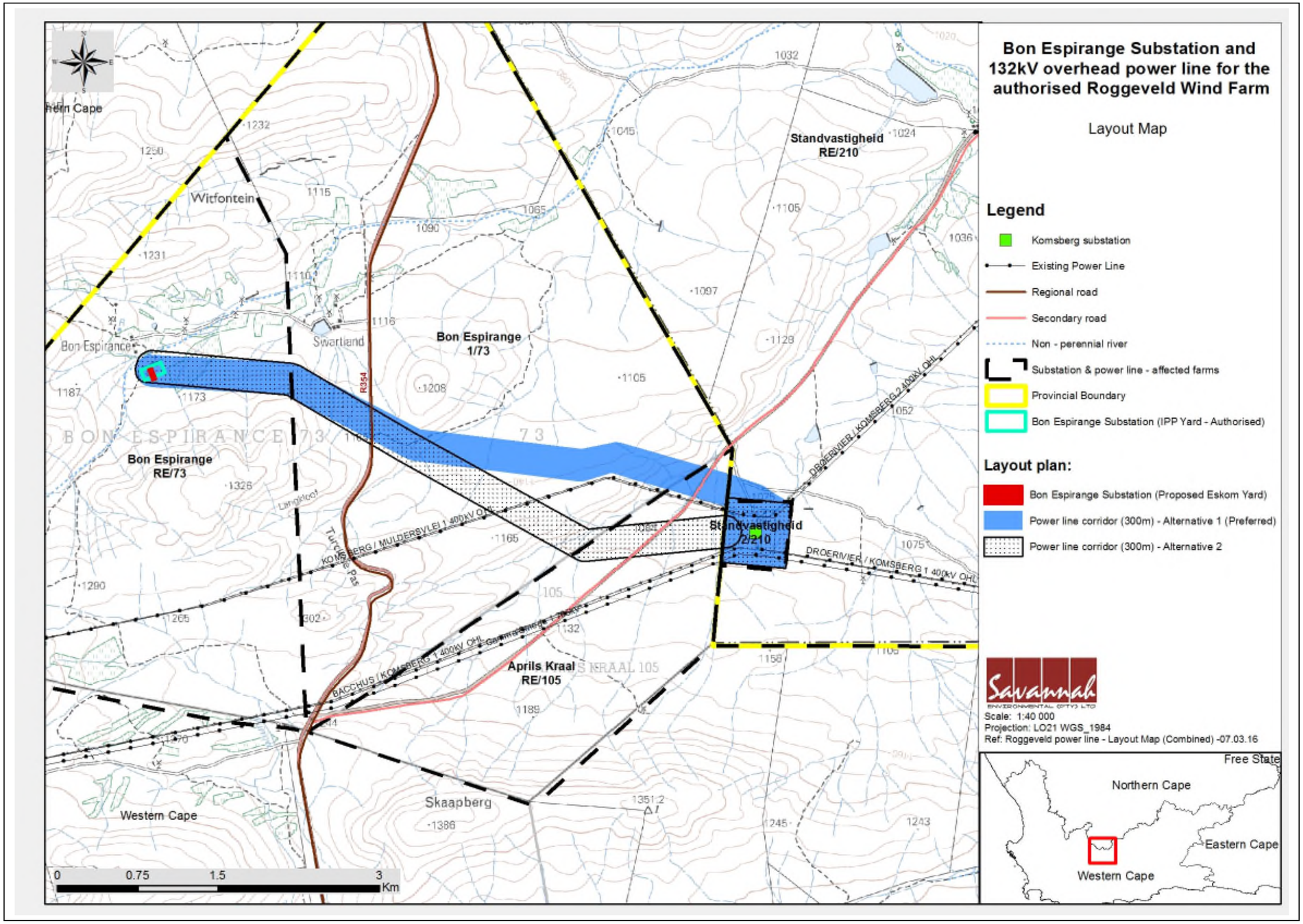

Figure 1: Layout Map indicating the proposed location and layout of the project. Refer to Appendix A for A3 map.

process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner (EAP).

TABLE A: Legal Requirements of the EIA Regulations

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include— (a) details of— (i) the EAP who prepared the report; and	Summary and Overview of the Proposed Project: Section 1.3
(ii) the expertise of the EAP, including a curriculum vitae;	Section 1.3 Appendix H
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel;	Section A Table 1.1
(ii) where available, the physical address and farm name;	Farm name : Section A, Table 1.1
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Not applicable
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Appendix A1 and A2 Appendix C
or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix J1, Please note that the coordinates provided are approximately following the centreline of the corridor. This is not fixed and would change based on micro-siting. A corridor of 300m is currently applied for to allow for micro-siting.
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	Section A (1) a, b
(e) a description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	Section A (11)
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section A (11)
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Summary and Overview of the Proposed Project: Section 1.1 and Section 10
(g) a motivation for the preferred site, activity and technology alternative;	Section (A)1.1 Section (A) 2 Section (A) 10
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered;	(i) Section 2 (ii) Section C

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1		CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	(iii) Appendix E – no comments have been received to date
(iv)	the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section B Section D
(v)	the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section D Appendix F
(vi)	the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Appendix F
(vii)	positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Appendix F Section D
(viii)	the possible mitigation measures that could be applied and level of residual risk;	Appendix F and Appendix G Section D
(ix)	the outcome of the site selection matrix;	N/A. *The proposed project constitutes essential infrastructure to connect the wind farm to the National Eskom grid connection point at Komsberg MTS as dictated by Eskom's requirements. The fixed locations of the Bon Espirange Substation and Komsberg Substation informed the location alternative. Two routes between the two substations are considered in this BA Process.*
(x)	if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section A 2
(xi)	a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section D2
(i)	a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Appendix F Appendix D
(ii)	an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Appendix F Appendix D

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(j) an assessment of each identified potentially significant impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Appendix F Appendix D
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section D2
(l) an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section D2 Appendix A3
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;	Section D2
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section A (1.4)
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section D
(q) where the proposed activity does not include Operation aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A. *"The project includes Operation aspects".*
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs;	Appendix H

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1		CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	
(s)	where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A. *"Rehabilitation will be required in terms of the Environmental Management Programme, which will be legally binding to the Contractor. The Contractor would therefore need to make financial provision for rehabilitation when quoting for construction of the project".*
(t)	any specific information that may be required by the competent authority; and	N/A
(u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

1.3. DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER AND EXPERTISE TO CONDUCT THE BASIC ASSESSMENT

Roggeveld Wind Power (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd (Savannah Environmental) as the independent environmental consultant to undertake the required Basic Assessment process and to identify and assess all the potential environmental impacts associated with the proposed project and propose appropriate mitigation and management measures in an Environmental Management Programme (EMPr). As part of these environmental studies, Interested & Affected Parties (I&APs) have been actively involved through the public involvement process. Neither Savannah Environmental nor any of the specialist sub-consultants on this project are subsidiaries of or are affiliated to Roggeveld Wind Power (Pty) Ltd. 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 has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission/ distribution projects through their involvement in related EIA processes over the past 10 years. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous renewable energy projects and their associated infrastructure; including the EIAs for the authorised Roggeveld Wind Farm. 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 generation and transmission.

The EAPs and Public Participation consultants from Savannah Environmental who are responsible for this project are:

» *Michelle Moodley,* the principle author of this report, is a Professional Natural Scientist, holds an Honours degree in Environmental Science and has 4 years of experience in environmental consulting. She has undertaken EIAs for various energy generation and distribution projects and various other infrastructure projects in South Africa.
» *Gabriele Wood* - holds an Honours Degree in Anthropology, obtained from the University of Johannesburg. She has 6 years of consulting experience in public participation and social research. Her experience includes the design and implementation of public participation programmes and stakeholder management strategies for numerous integrated development planning and infrastructure projects. Her work focuses on managing the public participation component of

Environmental Impact Assessments and Basic Assessments undertaken by Savannah Environmental.

» *Karen Jodas* is a registered Professional Natural Scientist and holds a Master of Science degree and is the registered EAP on the proposed project. She has more than 19 years of 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 responsible for the project management of EIAs for several renewable energy projects across the country.

In order to adequately identify and assess potential environmental impacts associated with the proposed project, Savannah Environmental has appointed the following specialists to conduct specialist impact assessments:

» Ecology: Simon Todd – Simon Todd Consulting
» Heritage: Lita Webley – ACO Associates cc
» Avifauna: Dr A.J. Williams - African Insights
» Visual: Bernard Oberholzer - Landscape Architect, and Quinton Lawson - MLB Architects

Curricula Vitae for the Savannah Environmental project team and specialist consultants are included in **Appendix H**. Please refer to **Appendix I** for specialist declaration of interest.

1.4. ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations are applicable to the studies undertaken within this Basic Assessment Process:

» All information provided by the proponent to the environmental team was correct and valid at the time it was provided.
» It is assumed that the development site identified by the proponent represents a technically suitable site for the establishment of the proposed project (taking into account that optimisation of the layout might be required based on geotechnical investigations).
» It is assumed correct that the proposed connection to the National Eskom Grid is appropriate in terms of viability and need.
» Studies assume that any potential impacts on the environment associated with the proposed development will be avoided or mitigated accordingly based on the findings of this Basic Assessment Report and the associated Specialist Studies.

» This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other power distribution alternatives.

Refer to the specialist studies in **Appendices D1 – D2** for specific limitations.

BASIC ASSESSMENT REPORT FOR REVIEW

This Basic Assessment Report for review has been prepared by Savannah Environmental in order to assess the potential significance of environmental impacts associated with the proposed project. This process is being undertaken in support of an application for environmental authorisation to the National DEA. The 30-day period for review is from **10 March 2016 – 13 April 2016**. The report is available for public review at the following locations:

- **Sutherland Public Library on Sarel Cilliers Street**
- **Laingsburg Public Library on Van Riebeeck Street**
- **http://data.g7energies.com/eia/roggeveld/electrical-infrastructure/**

To obtain further information, register on the project database, or submit written comment please contact:

Savannah Environmental:
Gabriele Wood
Tel: 011 656 3237
Fax: 086 684 0547
Email: gabriele@savannahsa.com
Post: P O Box 148 Sunninghill 2157

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	**YES**	**NO**

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

1. PROJECT DESCRIPTION

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

Roggeveld Wind Power (Pty) Ltd received environmental authorisation for Phase 1 of the Roggeveld Wind Farm on 12 August 2014. In order to connect the Roggeveld Wind Farm to the high voltage electricity network (grid), an on-site substation (known as the Bon Espirange Substation Eskom Yard) and a new overhead power line is required to be constructed. The Bon Espirange Substation Eskom Yard applied for in this Basic Assessment process will be located directly adjacent to the authorised Bon Espirange Substation IPP Yard (overlapping with the area assessed through the Roggeveld Wind farm EIA). The entire extent of the Bon Espirange Substation, including both the Independent Power Producer (IPP) Yard and the proposed Eskom Yard, is located within the authorised Roggeveld Wind Farm Facility site. The 132kV overhead power line (6-7 km in length) will connect the Bon Espirange Substation to the Eskom Komsberg Substation. The authorised connection for the Roggeveld Wind Farm is no longer viable due to a proposed expansion of the Komsberg Substation. Therefore, the point of connection to the Komsberg Substation has been reconsidered, and the only viable connection solution for the Roggeveld Wind Farm is to connect to the Komsberg Substation on the eastern side of the substation. Limited upgrades might also be required to the Komsberg Substation including but not limited to additional feeder bay, limited access roads and cabling. Any upgrades to the Komsberg Substation would be determined by Eskom at a later stage, but would be within the Komsberg Substation high voltage yard boundary.

Following completion of construction and commissioning, this infrastructure (Eskom Yard and 132kV line along with any required upgrades to the Komsberg Substation) will be transferred to Eskom for ownership and operation.

The proposed project site is located approximately 20 km north of Matjiesfontein. The project site falls within both the Western Cape and Northern Cape Provinces within the Central Karoo District Municipality and the Namakwa District Municipality respectively.

The proposed development for which application is made includes the following (refer to Figure 1):

- An on-site substation (Eskom Yard within the Bon Espirange Substation) (within the authorised Roggeveld Wind Farm footprint).
- 132kV overhead power line (approximately 6 7 km in length with a final servitude of approximately 36m) between the Bon Espirange Substation and the Eskom Komsberg Substation.
- Limited upgrades to the existing Komsberg Substation may be required by Eskom. These upgrades could potentially include an additional feeder bay(s), high-voltage switchgear(s), cabling, limited access roads all within the existing footprint of the Komsberg Substation.

The following property will be affected by the Bon Espirange Substation:

- The Remainder of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (RE/73 Bon Espirange)

The development footprint of the proposed substation will be approximately 130m wide x 50m long. The specialists assessed a 25m buffer around the proposed location to allow for micro-siting. The site for development is located directly adjacent to Bon Espirange Substation IPP Yard (the authorised IPP substation for the Roggeveld Wind Farm hereafter referred to as the Bon Espirange IPP Yard) and within the same proximity of the area assessed for the Bon Espirange Substation IPP Yard. This new Eskom Yard will be located approximately 6 km north west of the Komsberg Substation within the authorised Roggeveld Wind Farm footprint.

The following properties will be affected by the power line:

- The Remainder of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (RE/73 Bon Espirange)
- Portion 1 of the Farm Bon Espirange 73, Laingsburg Local Municipality, Western Cape (1/73 Bon Espirange)
- The Farm Aprilskraal 105, Laingsburg Local Municipality, Western Cape (105 Aprilskraal)
- Portion 2 of the Farm Standvastigheid 210, Karoo Hoogland Local Municipality, Northern Cape (2/210 Standvastigheid)
- The Remainder of the Farm Standvastigheid 210, Karoo Hoogland Local Municipality, Northern Cape (RE/210 Standvastigheid)

A 300m wide corridor has been investigated for the siting of the proposed route of the power line. Two alternative routes are provided for the power line, and are described as follows:

- Alternative 1: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation. After approximately 1.5km the corridor bends in a south easterly direction and then traverses the R354. As the corridor reaches a length of approximately 3 km it bends again in an easterly direction,

continues for a further 2km and is aligned parallel to the existing 400kV Komsberg-Muldersvlei 1 overhead power line. At 5km the corridor bends in a south easterly direction where it traverses a secondary road off the R354 and at approximately 6km the corridor passes into the Komsberg Substation property (2/210 Standvastigheid) on the northern side. The 132kV line connection to the substation itself would be from the eastern side.

» Alternative 2: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation and directly overlaps with Alternative 1. After approximately 1.5km the corridor bends in a south easterly direction, traverses the R354 and, unlike Alternative 1, continues to follow this alignment and then crosses under the existing 400kV Komsberg-Muldersvlei 1 power line. At 4.5 km the corridor traverses the Aprils Kraal property boundary and bends in a slight north easterly direction for approximately 6km and passes into the Komsberg Substation property (2/210 Standvastigheid) on the northern side at approximately 6km. The 132kV line connection to the substation itself would be from the eastern side.

As required by Eskom's technical specifications for the construction of a power line, the power line will comprise a combination of monopole in-line towers, guyed towers, as well as self-supporting towers depending on the technical aspects. The tower structures within the Komsberg Substation footprint would be double circuit while the remainder of the power line would be single circuit.

Table 1.1: Location of the study area

Property	Province	Local Municipality (Ward No.)/ District Municipality	SG 21 Digit Code
Portion 1 of the Farm Bon Espirange 73	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-7-3-0-0-0-0-1
Remainder of the Farm Bon Espirange 73	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-7-3-0-0-0-0-0
Portion 2 of the Farm Standvastigheid 210	Northern Cape	Karoo Hoogland LM (Ward 4) / Namakwa DM	C-0-7-2-0-0-0-0-0-0-0-0-0-0-0-2-1-0-0-0-0-2
Remainder of the Farm Standvastigheid 210	Northern Cape	Karoo Hoogland LM (Ward 4) / Namakwa DM	C-0-7-2-0-0-0-0-0-0-0-0-0-0-0-2-1-0-0-0-0-0
Remainder of the Farm Aprilskraal 105	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-1-0-5-0-0-0-0

Nearest town(s) to the project site are Laingsburg, Matjiesfontein (WC) and Sutherland (NC).

Construction of the proposed Bon Espirange Substation:

A substation will be required to evacuate the power into the National Eskom grid via 132kV line into the Komsberg MTS. Substations are constructed in the following simplified sequence:

Step 1: Surveying of the development area and negotiation with affected landowners;
Step 2: Final design and micro-siting of the infrastructure and laydown areas based on geotechnical, topographical conditions and potential/identified environmental sensitivities;
Step 3: Vegetation clearance and construction of access road/tracks;
Step 4: Site grading and levelling;
Step 5: Construction of foundations;
Step 6: Import of substation components;
Step 7: Construction of substation;
Step 8: Rehabilitation of disturbed area/s and protection of erosion sensitive areas;
Step 9: Testing and commissioning.

Construction of a Power Line:

The 132kV overhead power line considered within this Basic Assessment Report will be approximately 6 km in length, and would be constructed within a servitude of approximately 36m in width. This servitude would be within the 300m wide corridor assessed through this BAR. Power lines are constructed in the following simplified sequence:

Step 1: Survey the area;
Step 2: Final design and siting of the infrastructure;
Step 3: Vegetation clearance and construction of access roads (where required);
Step 4: Construction of foundations;
Step 5: Assembly and erection of infrastructure on site;
Step 6: Stringing of conductors;
Step 7: Rehabilitation of disturbed areas and protection of erosion sensitive areas;
Step 8: Continued maintenance.

Construction of the proposed power line will take approximately 10 to 14 months to complete.

The self-supporting monopole structure (in-line tower) is typically used along the straight sections of the power line, while the guyed suspension and bend/strain

structures are used where there is a bend in the power line alignment. The tower structures within the Komsberg Substation footprint would be double circuit while the rest of the distribution line are proposed to be single circuit. Construction of access roads to the tower positions and construction of tower foundations will be the most significant construction phase activity resulting in environmental impact requiring mitigation. The footprint of each tower will be approximately 10mx10m (100m²) depending on the final structure to be used.

The servitude width for a 132kV power line is up to 36m. The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be in line with Eskom requirements. On receipt of an approval of the final corridor by the environmental Authorities and after negotiations with landowners and final environmental and technical surveys, the final definition of the centre line for the power line and co-ordinates of each bend in the line will be determined. Optimal tower sizes and positions will be identified and verified using a ground survey (in terms of the Environmental Management Programme (EMPr) requirements.

Operation and Maintenance Phase

The proposed project will require routine maintenance work throughout the operation period. During operation, the project will be accessed via a gravel road and existing roads would be used, as well as access roads for the authorised Roggeveld Wind Farm. A servitude of 36m will be registered (a right of way) along the length of the power line in favour of Eskom. During this operation phase vegetation within the servitude and at the proposed Bon Espirange Substation will require management only if it impacts on the operation objectives of the infrastructure. The maintenance of the grid connection infrastructure will be the responsibility of the Holder of the EA.

Decommissioning Phase

The power line and substation are expected to have a lifespan of more than 25 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life or is no longer required. If economically feasible/desirable the decommissioning activities would comprise the disassembly of the individual components and removal from site. This phase would include the following decommissioning activities:

a) Site Preparation

Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

b) Disassemble Components

The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

c) Rehabilitation

Disturbed areas (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the site.

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

Listed activity as described in GN R 983, 984 and 985	Description of project activity that triggers listed activity
GN R983, Activity 11 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.	A 132kV substation (Bon Espirange Substation) will be constructed within the wind farm site in order to connect the authorised Roggeveld Wind Farm to the National grid. A 132kV power line will be constructed (approximately 6-7 km in length) outside an urban area to connect the proposed Bon Espirange Substation to the Eskom's Komsberg Substation.
GN R.983, Activity 12: The development of (x) buildings exceeding 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square meters or more where such development occurs (a) within a watercourse; (c) if no development setback exists within 32m of a watercourse measured from the edge of a watercourse	The power line will be located within 32m of a watercourse. A low level crossing or culvert which does not impede flow or natural functioning of the non-perennial watercourse will be constructed within the watercourse for access roads associated with the power line.
GN R.983, Activity 19: 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	The construction of access roads required for the construction and maintenance activities of the power line will require infilling or removal of $5m^3$ or more of material into/from the watercourse for the placement of culverts.

Listed activity as described in GN R 983, 984 and 985	Description of project activity that triggers listed activity
of more than 5 cubic metres from (i) a watercourse	
R985, Activity 4 (a)(ii)(bb); (f)(i)(aa) The development of a road wider than 4 metres with a reserve less than 13.5 metres- (a) In Northern Cape Province (ii) Outside urban areas, in: (bb)National Protected Area Expansion Strategy Focus areas; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (f) In Western Cape: (i) Areas outside urban areas; (aa) Areas containing indigenous vegetation;	Access roads wider than 4 metres with a reserve less than 13.5metres will be developed in the Northern Cape Province, outside urban areas within a CBA as identified in a bioregional plan and within a NPAES area Access roads wider than 4 metres with a reserve less than 13.5metres will be developed in the Western Cape Province, in an area containing indigenous vegetation.
R985, Activity 12 (a)(ii); (d) (ii) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (a) In Western Cape Province (ii) Within critical biodiversity areas identified in bioregional plans (d) In Northern Cape (ii) Within critical biodiversity areas identified in bioregional plans;	An area of 300 square meters or more of indigenous vegetation will be cleared in the Northern Cape and Western Cape within a CBA in terms of the bioregional plans
R985, Activity 14 (xii) (a) The development of – (x)buildings exceeding 10 square metres in size; (xii) infrastructure or structures with a physical footprint of 10 square metres or more	The infrastructure required for the Project would exceed 10 square metres in size and falls within the CBA and an NPAES in both the Northern and Western Cape

Listed activity as described in GN R 983, 984 and 985	Description of project activity that triggers listed activity
Where such development occurs- (a) within a watercourse (c) If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of the watercourse. (a) In the Northern Cape: (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (a) In the Western Cape: (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	

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 Operation 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.982. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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 layouts, 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

As part of the EIA processes undertaken for the authorised Roggeveld Wind Farm (DEA Ref No.: 12/12/20/1988/1), a technically feasible IPP substation site, based on the early development project layout at the time, was considered/assessed and recommended for authorisation provided that recommended mitigation measures are implemented (refer to Figure 1). The IPP yard of Bon Espirange Substation and a 132kV distribution line from Bon Espirange to connect to the west Komsberg was authorised.

After the environmental authorisation was obtained, Eskom indicated that the point of connection would be to the east of the Komsberg Substation. The Applicant has therefore optimised the layout of the 132kV distribution line, taking the environmental sensitivities identified during the EIA processes into consideration.

The proposed Bon Espirange Substation site (Eskom Yard) is directly related to the location of the authorised Bon Espirange Substation (IPP Yard). The site of the proposed Bon Espirange Substation (Eskom Yard) is directly adjacent to the authorised Bon Espirange Substation (IPP Yard) and the footprint has already largely been assessed during the previous EIA process for the Roggeveld Wind Farm. No environmental flaws were identified and therefore this site is considered acceptable and the only feasible alternative.

The proposed location of the power line is directly related to the location of the authorised Bon Espirange Substation (IPP Yard), the proposed Bon Espirange Substation (Eskom

Yard) and the location of the proposed Komsberg Substation expansion (DEA Ref no. 14/12/16/3/3/1/1482). Due to the need to connect the Bon Espirange Substation to the Komsberg substation, site alternatives were not found feasible.

Therefore, no alternative site was considered for the Bon Espirange Substation (Eskom Yard) and the proposed power line and the siting thereof, inter alia, is based on the following:

» Grid connection optimisation - The proposed substation is located ~6 - 7km to the north-west of the existing, proposed to be expanded Komsberg MTS;
» The location is based on discussions with various stakeholders including the landowner and Eskom;
» The proposed Bon Espirange Substation (Eskom Yard) and power line supports the optimised wind energy facility layout, which was optimised to avoid environmental sensitivities.
» The proposed Bon Espirange Substation and power line location is technically suitable for construction (e.g. in terms of topography, access and expected ground conditions (to be confirmed through a geotechnical investigation)).

Alternative 1 Bon Espirange Substation		
Description	**Lat (DDMMSS)**	**Long (DDMMSS)**
The proposed project is proposed within the authorised Roggeveld Wind Farm development boundary, which is situated north-west of the existing Komsberg MTS. This location within the authorised wind facility project site presents an optimal grid connection solution.	32°55'12.23"S	20°32'3.56"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

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.

A table has been attached as **Appendix J1** detailing all the proposed power line co-ordinates. Please note that the coordinates in Appendix J1 are the approximate centreline of the proposed corridor. The corner coordinates of the corridor are provided in Appendix J1.

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 J2 (Bon Espirange Substation) and J3 (Powerline Alternative 1 and 2 corridors).

b) Layout alternatives

As with the selection of the site alternatives, the consideration of layout alternatives are constrained on the basis of the approved wind energy facility layout plan and optimised grid connection factors.

The proposed Bon Espirange Substation (Eskom Yard) site is also situated outside of the identified areas of higher sensitivity. The proposed Bon Espirange Substation (Eskom Yard) layout is directly related to the layout of the authorised Bon Espirange Substation (IPP Yard) which will be situated directly adjacent the to the authorised Bon Espirange Substation (IPP Yard). Furthermore layout alternatives for substations are constrained as the area to be transformed cannot deviate significantly from the standard design for 33/132kV substations (with a dimension of up to 130m wide x 50m long) as required by Eskom's building standards. There are therefore no layout alternatives for the Bon Espirange Substation (Eskom Yard).

For the Power line, a 300m wide corridor has been investigated for proposed route of the power line. Two alternative routes are provided for the power line, and are described as follows:

» Alternative 1: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation. After approximately 1.5km the corridor bends in a south easterly direction and then traverses the R354. As the corridor reaches a length of approximately 3 km it bends again in an easterly direction, continues for a further 2km and is aligned parallel to the existing 400kV Komsberg-Muldersvlei 1 overhead power line. At 5km the corridor bends in a south easterly direction where it traverses a secondary road off the R354 and at approximately 6 km the corridor passes into the Komsberg Substation property (2/210 Standvastigheid) at the northern side. The 132kV line connection to the substation itself would be from the eastern side.

» Alternative 2: begins at the Bon Espirange Substation and follows an alignment east of the Bon Espirange Substation and directly overlaps with Alternative 1. After approximately 1.5km the corridor bends in a south easterly direction, traverses the R354 and, unlike Alternative 1, continues to follow this alignment and then crosses under the existing 400kV Komsberg-Muldersvlei 1 power line. At 4.5 km the corridor traverses the Aprils Kraal property boundary and bends in a slight north easterly direction for approximately 6km and passes into the Komsberg Substation property (2/210 Standvastigheid) at the western side at approximately 6km. The 132kV line connection to the substation itself would be from the eastern side.

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**

Alternative Power line corridor 1: (preferred)

• Starting point of the activity	32° 55' 11.37" S	20° 32' 03.25" E
• Middle/Additional point of the activity	32° 55' 34.63" S	20° 33' 43.22" E
• End point of the activity	32° 55' 55.01" S	20° 35' 39.76" E

Alternative: Power line corridor 2

• Starting point of the activity	32° 55' 11.37" S	20° 32' 03.25" E
• Middle/Additional point of the activity	32° 55' 41.61" S	20° 33' 49.99" E
• End point of the activity	32° 56' 04.54" S	20° 35' 37.55" S

Alternative A3 (if any)

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

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

No technological alternatives are applicable for the proposed Bon Espirange Substation and the power line. The proposed project will need to conform to certain industry standards which consist of proven technologies that are widely accepted within the industry.

Alternative 1
Alternative 2
Alternative 3

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

The design of the proposed project will be based on widely proven and accepted industry standards therefore no other alternatives were considered for the proposed Bon Espirange Substation and power line.

Alternative 1 (preferred alternative)
.
Alternative 2
Alternative 3

e) No-go alternative

This is the option of not constructing the proposed Project. This option is assessed as the "no go alternative" in this Basic Assessment Report (also refer to Appendix F).

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 (preferred):	**Size of the activity:**
Bon Espirange Substation (Eskom Yard)	130 m x 50 m= 6500 m^2 (0.65 ha)
Alternative SS22 (if any)	m^2
Alternative SS33 (if any)	m^2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative Power line corridor 1	6 – 7 km
Alternative Power line corridor 2	6 – 7 km
Alternative A3 (if any)	

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

Alternative:	**Size of servitude:**
Bon Espirange substation	130 m x 50 m
Alternative Power line corridor 1	Servitude = 36m (within an assessed 300m wide corridor)
Alternative Power line corridor 2	Servitude = 36m (within an assessed 300m wide corridor)

4. SITE ACCESS

Does ready access to the site exist?	**YES**
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

Substation: The site can be accessed via an existing District gravel road off the R354. This is the same road that will serve as the access road for the authorised Roggeveld Wind Farm.

Power line: The site can be accessed via an existing District gravel road off the R354. This is the same road that will serve as the access road for the authorised Roggeveld Wind Farm. Furthermore, additional access roads are approved under the Roggeveld Wind Farm EA. In some portions of the servitude corridor, new access roads may be required to be established during the construction phase, but these will be kept to a minimum.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site (refer to Appendix A1 for location of the R354 and secondary roads in relation to the proposed project).

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 km, 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)

An A3 Locality map has been attached as **Appendix A.**
The coordinates of the centre point of the site could not be reflected in Appendix A but are provided here for ease of reference:
32°55'38.62"S; 20°33'58.99"E

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.

An A3 Layout Map has been attached to **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 DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

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

An A3 Sensitivity map and a Critical Biodiversity Area (CBA) map has been included within **Appendix A**.

Ecological Sensitivity

The majority of the corridors traverse low shrublands of moderate sensitivity. Within this habitat there likely to be relatively few listed or protected species present although there may be some localised areas where such species are concentrated. The impacts on vegetation within these areas is likely to be relatively low given the low footprint of the power line.

There are a number of minor drainage lines along the route and the towers should be positioned to minimise impact on the riparian areas. There are also some wetland areas towards the Bon Espirange Substation that should be mapped in the field during a preconstruction walk-through and avoided where necessary. Although there are likely to be some protected species along the power line route, impacts on these species can be minimised through a pre-construction walk through of the power line route and substation footprint to ensure that any individuals directly beneath the line or within the footprint can be avoided.

The majority of the power line corridors fall within CBAs and it is only the Eskom Komsberg Substation area that is not within a CBA. While CBAs are not no-go areas, development within CBAs is not encouraged as such development may compromise the ecological functioning of the CBA or result in direct biodiversity loss within the CBA if not approached carefully and managed effectively. In this regard the preconstruction walk-through of the final power line route would be an important measure to minimise direct impact of biodiversity.

Although the development is situated within a CBA, the footprint within the CBA would be very low. The majority of the footprint of the development would be the on-site Bon Espirange Substation site, but this is located within a previously transformed area and, as such, the overall footprint of the development would not be sufficient to compromise the ecological functioning of the CBA.

Heritage sensitivity

The farmhouse of the Remainder of farm Bon Espirange 73 (known as "Bon Espirance") is situated north of the proposed substation and power line corridor. The following heritage resources were recorded by Hart & Webley (2011) and Hart & Kendrick (2013) but are all outside of the proposed development footprint and would not be impacted:

- Bon Esperance farm complex
- Stone kraal some 30m north of the road, it has two enclosures
- "Trapvloer" or threshing floor some 15m from the road
- Farmhouse, original part (running east west) was built in 1929, but the additions are newer
- Stone kraals
- Stone kraals
- Stone house with probably external hearth. About 4x12m. Many historical artefacts and bones lying around the house.

Avifaunal sensitivity:
Where powerlines run along or especially across hillside slopes is where several raptor species do most of their foraging and so are visually focused on potential prey rather than fine obstructions like wires. For this reason, hill slope habits are considered sensitive areas.

Visual sensitivity:
Visual sensitivity is determined by topographic features, steep slopes, protected areas and scenic routes, where they exist. The affected area includes some mountain ridgelines and the R354 Route. The R354 Main Road from Matjiesfontein to Sutherland is an important tourist route, also used by visitors to the Astronomical Observatory, and has scenic value in places.

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 are attached 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 is included within **Appendix C.**

10.ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	**YES**		Please explain
The majority of the powerline route is currently zoned for Agriculture. Once the powerline route is finalised the servitude would be registered.			

The Bon Espirange Substation is located within the footprint of the Zone (Agriculture and Renewable Energy) for the Northern Cape, and Consent Use in Western Cape *(rezoning not required, consent use is sufficient)* for the activity Roggeveld Wind Power (Pty) Ltd which has received Environmental Authorisation for wind farm development. The proposed activity is therefore permitted in terms of the property's land use rights.
Komsberg: The Komsberg footprint is zoned for authority zone. The proposed activity is therefore permitted in terms of the property's land use rights

2. Will the activity be in line with the following?

(a) Provincial Spatial Development Framework (PSDF)	**YES**		Please explain

The Northern Cape Provincial Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF includes the reference to renewable energy resources in "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed project will facilitate the connection of the authorised Roggeveld Wind Farm to the electricity grid, which will contribute towards this objective.

The Western Cape Provincial Spatial Development Framework (PSDF) sets out a proposed agenda for the sustainable use of the Western Cape's resource base presented in terms of the following provincial spatial policies (each resource policy is discussed in terms of the project study area) where: Policy R4 Energy states "Energy is primarily drawn from unsustainable energy sources, with a very small emergent sustainable energy sector in the form of wind and solar energy locating in the more rural, sparsely populated areas of the province. "Emergent IPPs and sustainable energy producers (wind, solar, biomass and waste conversion initiatives) must be supported and encouraged to thrive in the rural and renewable resource rich areas of the province as a means to uplift rural, stagnating economies." Therefore, PSDF focus area includes sustainable renewable energy development within the province.

(b) Urban edge / Edge of Built environment for the area		**NO**	Please explain

The proposed project falls outside the urban edge. Therefore, the proposed project does not impact upon the urban edge.

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**		Please explain
The project will not compromise IDP objectives but will assist in reaching these objectives as the IDPs of the respective municipalities aim to ensure that the quality of life of the District community through purposeful and quality service, and the effective and optimal utilisation of resources is achieved. This project will assist in supporting the local electricity supply through its contribution to the National Eskom Grid. The project will further assist in job creation which will further help achieve IDP objectives.			
(d) Approved Structure Plan of the Municipality	**YES**		Please explain
The municipalities were included as part of the Public Participation Process for the approved Roggeveld Wind Farm project. The proposed project supports this approved project and does not compromise the structure of the municipal plans.			
(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?)		**NO**	Please explain
The approval of this application will not compromise the Namakwa District Municipality Environmental Management Framework or the Central Karoo Environmental Management Framework. The proposed project will support the Roggeveld Wind Farm and will indirectly contribute to clean energy generation as a sustainable resource and holds significant benefits for the local region and the country as a whole. Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The project aims at achieving the set goals for the Plan through addressing all possible environmental issues associated with the development and addressing measures to mitigate environmental issues.			
(f) Any other Plans (e.g. Guide Plan)	**YES**		Please explain
Environmental Implementation plan (EIP)			

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**		Please explain
The main purpose of the proposed project is to enable the connection of the authorised Roggeveld Wind Farm to the National Eskom electricity grid. This project is not specifically considered within the existing approved SDF.			
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.)	**YES**		Please explain
The main purpose of the proposed project is to enable the connection of the authorised Roggeveld Wind Farm to the National Eskom electricity grid. The proposed project will facilitate the connection of the Roggeveld Wind Farm to the National Eskom electricity grid, which will have a positive economic impact at a local and regional level in terms of job creation (directly and indirectly) as well as contributing to alleviate South Africa's existing energy supply shortage.			
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.)	**YES**		Please explain
All the services needed for the project have been adequately provided for and should any need for other services arise the relevant authority will be communicated with.			
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.)		**NO**	Please explain
The project will not have any implications for the municipalities apart from assisting them in their achievement of their IDP objectives, as detailed previously. Water and other services will be outsourced or be catered for under the Roggeveld Wind Farm EA.			

7. Is this project part of a national programme to address an issue of national concern or importance?	**YES**		Please explain

Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003). In order to meet the long-term goal of a sustainable renewable energy industry, a goal of 17,8GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010. The energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. This is however dependent on the assumed learning rates and associated cost reductions for renewable options.

Renewable Energy projects also form a key part of the National Development Plan which aims to "*speed up and expand renewable energy…*" in order to facilitate the transition of South Africa to low-carbon economy.

The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

The proposed project will support many of the objectives of the National Development Plan (NDP). Some of these objectives are listed below:

- Create 11 million jobs by 2030; and
- Procuring about 20 000MW of renewable electricity by 2030.

In order to integrate the power generated at Roggeveld Wind Farm facility into the National Eskom electricity grid, the facility is required to be connected to the Komsberg MTS. The proposed project will facilitate this connection and therefore forms a key component of the Roggeveld Wind Farm without which it will not be able to connect to the National grid.

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.)	**YES**		Please explain

Apart from the wind resource, one of the main reasons for the location of the Roggeveld Wind Farm, and therefore the associated grid connection Project, is the adjacent Komsberg MTS which allows the Roggeveld Wind Farm to readily connect to the National Eskom electricity grid. The position of the proposed project is considered to be the most feasible option/s for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The current land use

is agriculture which can continue once the construction phase is completed. Therefore, the land use favour this activity as it can co-exist.			
9. Is the development the best practicable environmental option for this land/site?	**YES**		Please explain
The Roggeveld Wind Farm is an authorised facility. The location of the proposed project is considered to be the most feasible options for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**		Please explain
The specialist studies undertaken as part of this Basic Assessment conclude that the development of the proposed project will have environmental impacts which can be mitigated to acceptable levels. The project is proposed within the boundaries of the already authorised Roggeveld Wind Farm. The proposed project will facilitate the connection of the authorised Roggeveld Wind Farm to the National Eskom electricity grid thereby facilitating the distribution of renewable energy nationally. This will have a positive impact at a local, regional and national level and concur with various national policies (as discussed earlier). The benefits of the project are considered to outweigh the negative impacts (none of which are considered fatal flaws to the project). Further direct and indirect benefits in the form of job creation and direct and indirect economic benefits will also be realised.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO**	Please explain
There are numerous other facilities proposed project, under construction and operational in the area and this authorisation will not set a precedent. It is very likely that future renewable energy developments may be connected to the Bon Espirange substation as a hub.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO**	Please explain
Private landowners will be affected by the proposed project. The affected landowners have been consulted by the proponent and the environmental team, and are well aware and supportive of the proposed project as their rights will not be negatively impacted on.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO**	Please explain
The proposed project falls outside the urban edge. Therefore, the proposed project does not impact upon the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES**		Please explain
The proposed project will indirectly support the objectives for Strategic Infrastructure Projects (SIP) as it supports the Roggeveld Wind Farm:			

» SIP 8: Green energy in support of the South African economy – support sustainable green energy initiatives on a National scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010) - The authorised Roggeveld Wind Farm development will assist in promoting balanced economic development, economic opportunity, assist in achieving socio-economic needs, promote jobs through job creation and assist with economic development. The proposed project from a construction perspective will give people living in the area opportunities to gain employments which would address the socio economic needs of individuals to some extent. The proposed Project in operation will support the wind farm which will result in an increase of sustainable electricity supply in the Northern Cape, Western Cape and nationally, which will aid in meeting the electricity demand of the country. This will increase and balance economic development, which in effect will address the socio-economic needs of the people in the area.

15. What will the benefits be to society in general and to the local communities?	Please explain

The main purpose of the proposed project is to enable the connection of the authorised Roggeveld Wind Farm to the National Eskom electricity grid. The proposed project will enable the wind energy facility to connect to the National electricity grid, which will have a positive economic impact at a National, local and regional level. This will result in job creation and inject money into the local and regional economy, as described above.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

The proposed project forms part of the electrical connection infrastructure of the Roggeveld Wind Farm that will produce renewable energy to feed into the National Eskom electricity grid. The project will contribute to the distribution of power to the national grid once the wind facility is constructed under the REIPPP Programme.

17. How does the project fit into the National Development Plan for 2030?	Please explain

By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Provinces have aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. The wind facility development of which the proposed project will form part, will assist in reducing the carbon footprint, as it will be transporting energy produced from a renewable energy project (Wind) and it will facilitate the infrastructure growth in the area including job creation, local content, enterprise development and other socio-economic benefits and the positive impacts will therefore be realised.

Renewable Energy projects also form a key part of the National Development Plan which aims to "*speed up and expand renewable energy…*" in order to facilitate the transition of South Africa to low-carbon economy.

The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

The proposed project will support many of the objectives of the National Development Plan (NDP). Some of these objectives are listed below:

- Create 11 million jobs by 2030; and
- Procuring about 20 000MW of renewable electricity by 2030.

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the biophysical environment, socio-economic conditions and cultural heritage.

The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

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

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:

» Development must be sustainable;
» Pollution must be avoided or minimised and remedied;
» Waste must be avoided or minimised, reused or recycled;
» Negative impacts must be minimised; and
» Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.

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. The project also forms part of a renewable energy project which contributes to reducing the release of CO_2 into the

atmosphere through energy production by means of coal and thereby helping to curb climate change.

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 Competent Authority.

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:

Table 1.1: Applicable Legislation, Policies and/or Guidelines

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Legislation			
National Environmental Management Act (Act No. 107 of 1998)	The EIA 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. 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. In terms of the NEMA EIA Regulations a Basic Assessment Process is required to be undertaken for the proposed project.	» National Department of Environmental Affairs (DEA) » Northern Cape Department of Environment and Nature Conservation (NC DENC) – commenting authority » Western Cape: Department of Environmental Affairs and Development Planning (DEADP - commenting authority)	The listed activities triggered by the proposed project has been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment). This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No. 107 of 1998)	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.	DEA	While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed project has found application in the EIA process. The implementation of mitigation measures are included as part of the Draft

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			EMPr and will continue to apply throughout the life cycle of the project.
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	In terms of Section 57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase. » The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of	» DEA » NC DENC » DEADP	A Specialist Ecological Assessment was undertaken as part of the Basic Assessment process (refer to Appendix D). As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species, as well as critically endangered (CR), endangered (EN), vulnerable (VU) or protected ecosystems and species and the potential for them to be affected has been considered. If after the site walkthrough, provincially protected plant species are identified to be affected by the proposed project, a permit will be required and applied for the relocation of these plant species.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	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, (GG 34809, GN 1002), 9 December 2011).		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	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. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. In terms of the Regulations published in terms of this Act (GN 921), A Basic	» DEA » NC DENC » DEADP	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr (refer to Appendix G).

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the necessary norms and standards. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in any other way rendered unlit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented.		
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas."	» DEA » Karoo Hoogland Local Municipality » Laingsburg Local Municipality	Dust Control Regulations describe the measures for control and monitoring of dust, including penalties. These regulations might be applicable during the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. » GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas		construction phase of the project. Dust management have also been accounted for in the EMPr (see Appendix G)
National Water Act (Act No. 36 of 1998)	Water uses under S21 of the Act 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. 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.	» National Department of Water and Sanitation » Northern Cape Department of Water and Sanitation » Western Cape Department of Water and Sanitation	A water use license (WUL) or General Authorisation might be required in terms of Section 21 of the Act. Once the power line route is determined, the relevant approvals from DWS will be applied for, if required.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	» A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act. » Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act.	» Department of Mineral Resources	As no borrow pits are expected to be required for project, no mining permit or right is required to be obtained.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	» S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." » Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. » GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas		
National Heritage Resources Act (Act No. 25 of 1999)	» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity which will change the character of a site exceeding 5 000 m^2 in extent » 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^2; or the re-zoning of a site exceeding 10 000 m^2 in extent. This notification must be provided in the early stages of	» South African Heritage Resources Agency » Northern Cape Heritage Resources Authority » Heritage Western Cape	A permit may be required should any identified cultural/ heritage sites on site be required to be disturbed or destroyed as a result of the proposed development. No cultural or heritage sites were identified during the site study by the Heritage specialists but it is possible that some may be unearthed during construction. An NID was submitted to Western Cape Heritage because the powerline exceeds 300 m in length

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Standalone 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.		
National Forests Act (Act No. 84 of 1998)	» 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". » The list of protected tree species was published in GN 877 of 22 November 2013.	» Department of Agriculture, Forestry and Fisheries » NC DENC » DEADP	No protected trees were identified within the study area and therefore no permits would be required in this regard.
National Veld and Forest Fire Act (Act 101 of 1998)	» In terms of S12 the landowner would be obliged to burn firebreaks to ensure that should a veldfire occur on the	Department of Agriculture, Forestry and Fisheries	While no permitting or licensing requirements arise from this legislation, and this Act will find application during

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	property, that it does not spread to adjoining land. » 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. » In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.		the construction and Operation phase of the project.
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	» Prohibition of the spreading of weeds (S5). » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048).	Department of Agriculture, Forestry and Fisheries	The power line will have minimal impact on the land currently used for grazing. Grazing would be able to continue after construction and therefore negligible impacts to agriculture are anticipated. The Bon Espirange footprint was previously considered as part of the Roggeveld EIA and no agricultural risks or concerns were associated with this footprint.
Hazardous Substances Act (Act No. 15 of 1973)	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	» 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

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	or the generation of pressure thereby in 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. » 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; » Group IV: any electronic product; » Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		Operation context they are used, stored or handled. If applicable, a license could be required to be obtained from the Department of Health.
National Road Traffic Act (Act No 93 of 1996)	The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the	» Provincial Department of Transport (provincial roads) » South African National Roads Agency Limited (national roads)	An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts. » The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.		could be required for vehicles carrying abnormally heavy or abnormally dimensioned loads. Any required permits will be applied for prior to commencement of construction.
Provincial Legislation			
Northern Cape Nature Conservation Act (Act No. 9 of 2009)	» Provides inter alia for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province. In terms of this act the following section may be	» NC DENC	A permit is required for any activities which involve species listed under schedule 1 or 2. The NC DENC permit offices provide an integrated permit which can be used for

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	relevant with regards to any security fencing the development may require. **Manipulation of boundary fences** 19. No Person may – (a) erect, alter remove or partly remove or cause to be erected, altered removed or partly removed, any fence, whether on a common boundary or on such person's own property, in such a manner that any wild animal which as a result thereof gains access or may gain access to the property or a camp on the property, cannot escape or is likely not to be able to escape therefrom; The Act also lists protected fauna and flora under 3 schedules ranging from Specially protected (Schedule 1), protected (schedule 2) to common (schedule 3). The majority of mammals, reptiles and amphibians are listed under Schedule 2, except for listed species which are under Schedule 1.		all provincial and Threatened or Protected Species (TOPS)-related permit requirements. If Provincially protected plant species are found within the study area during the site walkthrough, a permit would be applied for, for the removal or relocation of such species.
Northern Cape Nature Conservation Act, Act No. 9 of 2009	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in	» DEADP	A permit is required for any activities which involve species listed under schedule 1 or 2. Provincially protected

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: » Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; » Aquatic habitats may not be destroyed or damaged; » The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species. » The Act provides lists of protected species for the Province.		plant species were found within the study area. If Provincially protected plant species are found within the study area during the site walkthrough, a permit would be applied for, for the removal or relocation of such species.

12.WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? If YES, what estimated quantity will be produced per month?	**YES** Not determined at this time. Minimal waste is expected to be generated by the activity and can be managed effectively through the management measures included in the EMPr (refer to **Appendix G**)

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

It is anticipated that construction waste will be comprised mainly of soil material from excavation activities as well as metal and cabling offcuts. Non-recyclable waste will be removed from site by a suitable contractor and will be transported to the nearest registered waste disposal facility for appropriate disposal.

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 registered waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its Operation phase? If YES, what estimated quantity will be produced per month?	**NO**

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 Operation 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? **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? **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**

If YES, what estimated quantity will be produced per month? m^3

Will the activity produce any effluent that will be treated and/or disposed of on site? **NO**

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

Will the activity produce effluent that will be treated and/or disposed of at another facility? **NO**

If YES, provide the particulars of the facility:

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

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

Waste separation will be implemented as far as possible to allow for recycling if feasible.

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, localised dust generation and exhaust emissions from vehicles and machinery. However, the dust and emissions will be of short term duration and have limited impact in terms of extent and severity. Appropriate dust suppression measures must be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition in order to minimise possible exhaust emission. In this regard the EMPr includes the relevant mitigation measures (refer to Appendix G).

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

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

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

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the construction area and its immediate surroundings. The operation phase will not generate any noise. In this regard the EMPr includes the relevant mitigation measures (refer to Appendix G).

13.WATER USE

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

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	**The activity will not use water other than what is already authorised for the Roggeveld wind farm**

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?	**YES**

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

The Roggeveld Wind Power has received a consent for General Authorisation (GA) from the Department of Environmental Affairs in terms Section (a), (c) and (i) of the National Water Act. The GA allows for water taking for use during the construction phase, which will be applicable for this project. The letter of consent is attached in Appendix J4

14.ENERGY EFFICIENCY

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

Not applicable. The project in its very nature is aimed at electricity distribution in the most energy efficient manner. Furthermore, it facilitates the grid connection of a renewable energy facility, which is also inherently energy efficient.

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

Not applicable. The project in its very nature is aimed at providing alternative (renewable) energy to the National grid.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

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:

Property	Province	Local Municipality (Ward No.)/ District Municipality	SG 21 Digit Code
Portion 1 of the Farm Bon Espirange 73	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-7-3-0-0-0-0-1
Remainder of the Farm Bon Espirange 73	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-7-3-0-0-0-0-0
Portion 2 of the Farm Standvastigheid 210	Northern Cape	Karoo Hoogland LM (Ward 4) / Namakwa DM	C-0-7-2-0-0-0-0-0-0-0-0-0-0-2-1-0-0-0-0-0-2
Remainder of the Farm Standvastigheid 210	Northern Cape	Karoo Hoogland LM (Ward 4) / Namakwa DM	C-0-7-2-0-0-0-0-0-0-0-0-0-0-2-1-0-0-0-0-0-0
Remainder of the Farm Aprilskraal 105	Western Cape	Laingsburg LM (Ward 1) / Central Karoo DM	C-0-4-3-0-0-0-0-0-0-0-0-0-0-0-1-0-5-0-0-0-0-0

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

Current land-use zoning as per local municipality IDP/records:	The land is currently used for agricultural purposes. The Bon Espirange Substation is located within the footprint of the Roggeveld Wind Power (Pty) Ltd which has received Environmental Authorisation for wind farm development. A consent use has been obtained for the wind energy facility. The Komsberg Substation footprint is zoned for authority zone.
	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

All Alternatives

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

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site

All Alternatives:

2.1 Ridgeline	2.4 Closed valley	**2.7 Undulating plain / low hills**	**X**
2.2 Plateau	2.5 Open valley	2.8 Dune	
2.3 Side slope of hill/mountain	2.6 Plain	2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	**Paved surface**	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise. **(Refer to the Ecological Report in Appendix D).**

According to the national vegetation map (Mucina & Rutherford 2006), there are **two vegetation types** along the power line route.

The majority of the route from and including the on-site Bon Espirange Substation consists of Central Mountain Shale Renosterveld. Central Mountain Shale Renosterveld occurs in the Western and Northern Cape on the southern and southeastern slopes of the Klein Roggeveldberge and Komsberg below the Komsberg section of the Great Escarpment as well as farther east below Besemgoedberg and Suurkop and in the west in the Karookop area. Although this vegetation type is classified as Least Threatened, it has a very limited extent of 1236km^2 and is not formally conserved anywhere.

Towards the Komsberg Substation the vegetation changes to Koedesbergs Moordenaars karoo which is associated with more arid conditions than Central Mountain Shale Renosterveld. According to Mucina & Rutherford (2006) the Koedoesberge-Moordenaars Karoo vegetation type has an extent of 4714km^2. This unit occurs in the Western and Northern Cape on the Koedesberge and Pienaar se Berg low mountain ranges bordering on the southern Tanqua Karoo and separated by the Klien Roggeveld Mountains from the Moordenaars Karoo in the broad area of Laingsburg and Merweville. Koedoesberge-Moordenaars Karoo is associated with slightly. This vegetation type is classified as Least Threatened and has not been significantly impacted by transformation.

Listed Plant species

According to the SANBI SIBIS database, nearly 1000 indigenous species have been recorded from the four quarter degree squares around the site. This includes 26 threatened species and an additional 44 species of lower conservation concern. This is however a considerably larger area than the study area and includes a wide variety of habitats, many of which are not found within the study area, but this is an exceptionally high number for a semi-arid environment. This serves to illustrate the high species

richness of the area and high potential impact of the development on plant species of conservation concern.

Species of conservation concern that were observed in the vicinity of the site include *Brunsvigia josephinae* (VU), *Duvalia parviflora* (VU) and *Eriocephalus grandiflorus* (Rare) and *Drimia altissima* (Declining). However, none of these species were observed directly within the proposed development footprint and it is likely that the abundance of listed species within the footprint of the development is low as the listed species tend to be associated with drainage lines or higher–lying ground which would not be impacted by the current development.

List of plant species of conservation concern which are known to occur in the vicinity of the Bon Espirange Substation, and 132kV power line corridor alternatives. The list is derived from the SIBIS:SABIF website. Those in red are confirmed present at the site, but not necessarily within the development footprint.

Species	IUCN Status
Brunsvigia josephinae	**VU**
Duvalia parviflora	**VU**
Astroloba herrei	**VU**
Gasteria disticha	**CR**
Haworthia serrata	**CR**
Antithrixia flavicoma	**VU**
Euryops namaquensis	**VU**
Wurmbea capensis	**VU**
Adromischus mammillaris	**EN**
Amphithalea spinosa	**VU**
Amphithalea villosa	**EN**
Aspalathus candicans	**EN**
Lotononis comptonii	**EN**
Lotononis densa subsp. congesta	**VU**
Lotononis gracilifolia	**EN**
Lotononis venosa	**VU**
Xiphotheca fruticosa	**VU**
Drimia arenicola	**VU**
Lachenalia martinae	**VU**
Geissorhiza karooica	**VU**
Moraea aspera	**VU**
Romulea eburnea	**VU**
Romulea hallii	**VU**
Romulea multifida	**VU**
Romulea syringodeoflora	**VU**
Antimima hamatilis	**VU**
Didymaotus lapidiformis	**VU**

Lampranthus amoenus	**EN**
Tanquana archeri	**VU**
Tanquana hilmarii	**CR**
Pterygodium inversum	**EN**
Muraltia karroica	**VU**
Protea convexa	**CR**
Hypodiscus sulcatus	**EN**
Acmadenia argillophila	**VU**

Refer to the Ecological Report in **Appendix D** for more detail.

5. SURFACE WATER

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

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

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

The proposed project falls within the Gouritz water catchment area. The quaternary drainage region is J11D (Gouritz). This catchment is characterised by several perennial and non-perennial drainage lines.

Non-Perennial River: There are a number of minor drainage lines along the route and the towers should be positioned to minimise impact on the riparian areas.

Seasonal Wetland: There are limited wetland areas towards the Bon Espirange Substation on the northern boundary of the 300m wide corridor. These areas will be mapped in the field during a preconstruction walk-through and avoided as necessary. The current layout already avoids the drainage features identified to date.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential	Church	**Agriculture** Majority of the area has been previously disturbed through ploughing. Parts of the area will be cleared as a result of the application.
Retail commercial & warehousing	Old age home	**River, stream or wetland** There are a number of minor drainage lines along the route and the towers should be positioned to minimise impact on the riparian areas. There are also some wetland areas towards the Bon Espirange Substation, however, these can be avoided therefore impacts as a result of the application will be relatively low.
Light industrial Komsberg Substation is located 6-7 km from the proposed substation and the proposed power line will connect to Komsberg Substation. The final design of the proposed expansion of the Komsberg Substation will potentially impacts the point of connection of the proposed power line. There	Sewage treatment plant	Nature conservation area

are also existing power line infrastructure in the area therefore the proposed power line will contribute to the cumulative impacts of the application		
Medium industrial [AN]	Train station or shunting yard [N]	**Mountain, koppie or ridge** The local area is characterised by flat plains interspersed with hills and ridges. Construction on ridges will add to the visual impact of the powerline route
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	**Other: Roggeveld** Wind Farm The application will contribute minimally to the cumulative impact of the proposed authorised wind farm. **Near Natural** The majority of the area is made up of low shrublands. The impacts within these areas as a result of the application will be low given the footprint of the project.

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

N/A

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

N/A

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

N/A

Does the proposed site fall within any of the following:

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

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A3. (Refer to the Sensitivity Map in **Appendix A3**).

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:		**NO**

Heritage impact assessment has been conducted and is included in Appendix D.

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: **(Heritage impact assessment in Appendix D).**

Palaeontological surveys in the Roggeveld WEF have failed to identify and significant fossil material on the surface due to the absence of bedrock exposures, except on the

crests of hills and cliff faces (Miller 2010). Furthermore Almond (2016) has issued a letter of exemption from further studies on the Karusa Wind Farm substation (in close proximity to the proposed substation and powerline), noting that; 'scientifically important fossil remains are very scarce within the development site'. It is therefore likely that similar low occurrences of significant fossil material will be found in the substation footprint and along the power line route, although important remains may occur below the surface.

During previous archaeological surveys in 2011 and 2013, the tops of the high ridges were found to be generally sterile of any form of human made heritage material. The farmhouse on the Bon Espirange property and associated farm buildings are located north of the planned substation, as well as both power line alternatives and it is anticipated that no buildings or kraals will be impacted.

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:

Karoo Hoogland Local Municipality
According to the 2011 Census data, 3 655 people are employed, 623 are unemployed, and 395 are classified as discouraged work-seekers. The unemployment rate is ~14,6%. Amongst the youth (aged 15 – 34 years), 1 317 people are employed, 329 are unemployed, 218 are classified as discouraged work-seekers, and 1 433 are not economically active. The unemployment rate is thus relatively high.

Laingsburg Local Municipality
According to the 2011 Census data, the municipality has 3 735 people who are economically active (employed or unemployed but looking for work), and of these

17,9% are unemployed. 22,0% of the 1 544 economically active youth (15 – 34 years) in the municipality are unemployed.

Economic profile of local municipality:

Karoo Hoogland Local Municipality
Stock farming (mostly sheep) is the traditional mainstay of the economies of Karoo Hoogland Local Municipality areas. Economically viable farming units are spatially extensive (around Sutherland, around ~7 000 ha). In the case of Sutherland, the Sutherland Observatory, located approximately 15km east of Sutherland, is internationally renowned, and attracts both local and international visitors and scientists. The town itself has seen some modest growth as a lifestyle resettlement destination over the past decade. Tourist flows into the study area municipality is currently limited, and mainly associated with the town of Sutherland (observatory) and the small Victorian rail siding of Matjiesfontein, which is located approximately 30 km west of Laingsburg.

Laingsburg Local Municipality
Agricultural activities is the traditional mainstay of the economies of Laingsburg Local Municipality areas. Livestock farming contributes significantly to these agricultural activities '(37.3 %) while mixed farming makes a contribution of 26.6 % and crop farming 9.9.

Level of education:

Karoo Hoogland Local Municipality
The level of education within the Municipality is poor. Approximately 8.4% of the population aged 20+ has no schooling, while only 16.9% have matriculated. Approximately 8.7 % go on to obtain an education at University/Technikon level.

Laingsburg Local Municipality
Of those aged 20 years and older, 7,7% have completed primary school, 34,3% have some secondary education, 21,5% have completed matric, 7,1% have some form of higher education; and 10,2% have no form of schooling.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	This cannot be provided at this stage.

What is the expected yearly income that will be generated by or as a result of the activity?	The substation will allow the authorised Roggeveld Wind Farm to connect to the National grid and indirectly results in the sale and proceeds from electricity generation. The local community will benefit indirectly from the socio-economic initiatives that form part of the REIPPP Programme for the wind farm, as well as job creation which will result in a trickle down economic effect. No income will however be earned from the substation and power line directly.	
Will the activity contribute to service infrastructure?	**YES**	
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?	Construction - ~50 people Operation - ~1 or 2 people	
What is the expected value of the employment opportunities during the development and construction phase?	~R4.8 Million for construction period. The majority of the staff will be unskilled. The staff members will be paid equal or in excess of minimum wage for the duration of their employment contract. The exact amount depends on the contractor appointed.	
What percentage of this will accrue to previously disadvantaged individuals?	This will depend on the contractor appointed to undertake the construction work.	
How many permanent new employment opportunities will be created during the Operation phase of the activity?	Limited job opportunities will be available during the operation phase as existing Eskom staff would be used for maintenance.	
What is the expected current value of the employment opportunities during the first 10 years?	Limited job opportunities will be available during the operation phase as existing Eskom staff would be used for maintenance.	

What percentage of this will accrue to previously disadvantaged individuals?	Limited job opportunities will be available during the operation phase as existing Eskom staff would be used for maintenance.

9. BIODIVERSITY

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

Refer to the Ecological Report in Appendix D.

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

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	**Other Natural Area (ONA)**	No Natural Area Remaining (NNR)	The site lies within the domain of the Biodiversity Assessment of the Central Karoo District Municipality of the Western Cape). This district-wide biodiversity assessment was commissioned to inform Spatial Development Frameworks (SDFs), Biodiversity Sector plans, Environmental Management Frameworks (EMFs), Strategic Environmental Assessments (SEAs) and the Environmental Impact Assessment (EIA) process. The Biodiversity Assessments identify CBAs which represent biodiversity priority areas which should be maintained in a natural to near natural state. The CBA maps indicate the most efficient selection and

				classification of land portions requiring safeguarding in order to meet national biodiversity objectives. Although development within CBA is not desirable, the footprint of the current development within the CBA would be very small. The major contiguous footprint of the development would be the on-site Bon Espirange Substation. However, this is located within a previously transformed area and the overall footprint of the development would not be sufficient to compromise the ecological functioning of the CBA

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc.).
Natural	0%	N/A
Near Natural (includes areas with low to moderate level of alien invasive plants)	80%	The majority of the study area comprises of natural habitat consisting primarily of Central Mountain Shale Renosterveld. Towards the Komsberg Substation the vegetation changes to Koedesberge-Moordenaars Karoo
Degraded (includes areas heavily invaded by alien plants)	10%	A portion of the project area already has other existing power lines to the existing substation (Komsberg MTS) and has been disturbed due to ploughing activities and farmsteads
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	10%	A portion of the project area has been transformed by agricultural practices, the R354, a secondary road and existing power lines.

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		
	Critical		Estuary	Coastline

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

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

Vegetation types

According to the national vegetation map (Mucina & Rutherford 2006), there are two vegetation types along the power line route.

The majority of the route from and including the on-site substation consists of Central Mountain Shale Renosterveld. Central Mountain Shale Renosterveld occurs in the Western and Northern Cape on the southern and southeastern slopes of the Klein Roggeveldberge and Komsberg below the Komsberg section of the Great Escarpment as well as farther east below Besemgoedberg and Suurkop and in the west in the Karookop area. Although this vegetation type is classified as Least Threatened, it has a very limited extent of 1236km^2 and is not formally conserved anywhere. Levels of transformation are however low and it is considered to be 99% intact. Although no endemic species are known to occur within this vegetation type, little is known about this Renosterveld type and it has been poorly sampled. Experience from this and other projects in the area indicate that this should be considered to be a relatively sensitive vegetation type with a relatively high abundance of species of conservation concern.

Towards the Komsberg Substation the vegetation changes to Koedesbergs Moordenaars karoo which is associated with more arid conditions than Central Mountain Shale Renosterveld. According to Mucina & Rutherford (2006) the Koedoesberge-Moordenaars Karoo vegetation type has an extent of 4714km^2. This unit occurs in the Western and Northern Cape on the Koedesberge and Pienaar se Berg low mountain ranges bordering on the southern Tanqua Karoo and separated by the Klien Roggeveld Mountains from the Moordenaars Karoo in the broad area of Laingsburg and Merweville. Koedoesberge-Moordenaars Karoo is associated with slightly This vegetation type is classified as Least Threatened and has not been significantly impacted by transformation. Conservation status is however poor and of the target of 19% only a very small proportion is conserved within the Gamkapoort Nature Reserve. At least 14 endemic species are known from this vegetation type, which is high number considering that this vegetation unit occupies less than 5000km^2. In addition, the majority of listed species known from the broader

area are associated with this vegetation type. It is however very poorly known and little research has been conducted within this unit.

A diversity of habitats are available in the area, which includes rocky uplands, densely vegetated kloofs and riparian areas, as well as open plains and low shrublands.

There are a number of minor drainage lines and a small pan along the route. There are also some wetland areas towards the Bon Espirange Substation. The listed plant species tend to be associated with drainage lines. The only significant drainage lines along the route, is the drainage line which occurs northwest of the Komsberg Substation and is traversed by both alternatives.

Mammals

At least 50 mammal species potentially occur at the site. Species observed in the area include species associated with more rocky habitats such as Cape Rock Elephant Shrew, *Elephantulus edwardii*, Hewitt's Red Rock Hare *Pronolagus saundersiae*, Namaqua Rock Mouse *Micaelamys namaquensis* and Rock Hyrax, *Procavia capensis*. The lowlands contain species associated with deeper soils, dense vegetation or floodplain habitats, including Brants's Whistling Rat *Parotomys brantsii*, the Bush Vlei Rat *Otomys unisulcatus*, Hairy-footed Gerbil *Gerbillurus paeba*, Steenbok *Raphicerus campestris* and Common Duiker *Sylvicapra grimmia*, while Grey Rhebok *Pelea capreolus* are also present.

Reptiles

The site is likely to have relatively rich reptile fauna which is potentially composed of seven tortoise species, 20 snakes, 17 lizards and skinks, two chameleons and 10 geckos. The only currently listed species which may occur at the site is the Karoo Padloper *Homopus boulengeri* which is listed as Near Threatened. Species observed at the site include Karoo Tent Tortoise *Psammobates tentorius tentorius*, Angulate Tortoise *Chersina angulata*, Puff Adder *Bitis arietans*, Karoo Girdled Lizard *Cordylus polyzonus*, Southern Rock Agama *Agama atra*, Cape Skink *Mabuya capensis* and Cape Cobra *Naja nivea*. Tortoises were relatively abundant at the site and a large number of Angulate Tortoises, *Chersina angulata* were observed as were several Karoo Tent Tortoises, *Psammobates tentorius tentorius*.

Amphibians

The amphibian diversity at the site is likely to be relatively low as the site lies within the distribution range of only eight frog and toad species. No species of conservation concern are known from the area and all the species which may be present are quite widespread species of low conservation concern.

The Karoo Dainty Frog, *Cacosternum karooicum* is listed as Data Deficient reflecting the little-known distribution and ecology of this species. The site also falls within the

distribution of two other regional endemic species, the Cape Sand Frog, *Tomopterna delalandii* and the Raucous Toad, *Amietophrynus rangeri*. The Cape Sand Frog occurs in lowlands and valleys in fynbos and Succulent Karoo throughout most of the Western Cape and into Namaqualand. The Raucous Toad is more widely distributed and occurs throughout much of South Africa inland and along the east coast into Gauteng and Mpumalanga. Therefore, there are no range-restricted species which occur at the site which would be vulnerable to population-level impacts.

SECTION C: PUBLIC PARTICIPATION

1.3.1. ADVERTISEMENT AND NOTICE

Publication name	*Die Noordwester*	
Date published	11 March 2015	
Site notice position	**Latitude**	**Longitude**
	32°55'01.9" S	20°31'57.8" E
	32°55'25.4" S	20°33'21,6" E
	32°55'50.2" S	20°34'00.8" E
Date placed	6 February 2016	

Include proof of the placement of the relevant advertisements and notices in Appendix E1. **(Refer to Appendix E1)**

1.3.2. 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.982.

» A2 Site notices were placed along the property boundary of the proposed Bon Espirange Substation, along property boundaries of the corridor route and along the property boundary of the Komsberg Substation (refer to Appendix E1 for the coordinates).
» An advert was placed in one local newspaper in the predominant language to notify the public about the availability of the Basic Assessment Report.
» Notifications letters, notifying I&APs of the project, providing background on the project and notifying them of the availability of the BAR.
» A Database of registered I&APs has been compiled and will be updated throughout the application process.
» Any Stakeholder and I&AP issues and comments will be included in the Comments and Responses Report.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.982 – ***Refer to the details provided within the I&AP database contained in Appendix E***.

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)

Include proof that the key stakeholders received written notification of the proposed activities as Appendix E **(Refer to Appendix E; additional proof will be included with the Final BAR)**. This proof includes a combination of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt.

1.3.3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No comments have been received on this proposed project to date. All comments received during the review period of the Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as Appendix E in the submission of the Final Basic Assessment Report.

Summary of main issues raised by I&APs	Summary of response from EAP

1.3.4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the BAR is submitted to DEA. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the BAR as Appendix E. Comments received during the public review will form part of the Final BAR which will be submitted to the DEA for review and consideration.

1.3.5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders - ***Refer to I&AP database contained in Appendix E***.

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

Include proof that the Authorities and Organs of State received written notification of the proposed activities as Appendix E **(Please refer to Appendix E; proof will be submitted with the Final BAR).**

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

1.3.6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

A list of registered I&APs must be included as Appendix E. **(Please refer to Appendix E)**

Copies of any correspondence and minutes of any meetings held must be included in Appendix E. No stakeholder or public meetings have been held however focus group meetings will be arranged with stakeholders if requested for by stakeholders during the review period.

SECTION D: IMPACT ASSESSMENT

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

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

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

1.1 Planning and/or Design Phase

Activities associated with the design and pre construction phase pertains mostly to feasibility assessments undertaken at a desktop level. Geotechnical surveys are usually undertaken in this phase and could result in impacts mainly associated with disturbance of vegetation and soils at localised areas where they drill.

1.1.1. Bon Espirange Substation

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Ecological impacts		
Drilling at localised areas for	***Direct impacts:*** » Potential disturbance of vegetation » Potential disturbance of soil	Low The disturbance will be localised and of short duration	» Keep disturbance of vegetation and trampling to a minimum.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
geotechnical surveys			» No pre-construction activities should be undertaken within areas demarcated as being of very high sensitivity. » Do not unnecessarily remove vegetation in areas outside of the construction footprint. » It is recommended that areas containing protected plant species, be noted and every effort made to reduce the impacts of disturbance on these sections of vegetation. Protected plant species in any area to be cleared should be identified and relocated. Permits would be required to relocate or remove these protected plant species and fauna, if they are to be affected. » Implement erosion control measures if required to minimise erosion. » Remove all equipment from site and rehabilitate any disturbed areas once activities are completed.
	Indirect impacts: » Limited biodiversity loss of floral and faunal species » Limited disruption of ecosystem functions i.e. fragmentation	Low The disturbance will be localised and of short duration	» Ensure that large areas of vegetation are not disturbed
	Cumulative impacts: » The planning activities could impact the Central Mountain Shale Renosterveld Vegetation type, leading to localised or a slight reduction in the overall extent	Low The disturbance will be localised and of short duration	» Keep vegetation disturbance to a minimum. » Control stormwater runoff. » Control soil erosion. » Control alien invasive plants.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	of this vegetation type. Where this vegetation type has already been affected due to degradation and transformation at a regional level, further losses may lead to increased vulnerability. » The further loss of habitat from other developments and the potential invasion of alien plant species may exacerbate the impact.		

1.1.2 Power line Alternatives 1 and 2

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Ecological impacts		
Drilling at localised areas for geotechnical surveys	***Direct impacts:*** » Potential disturbance of vegetation » Potential disturbance of soil	Low The disturbance will be localised and of short duration	» Keep disturbance of vegetation and trampling to a minimum. » No pre-construction activities should be undertaken within areas demarcated as being of very high sensitivity. » Do not unnecessarily remove vegetation in areas outside of the construction footprint. » It is recommended that areas containing protected plant species, be noted and every effort made to reduce the impacts of disturbance on these sections of vegetation. Protected plant species in any area to be cleared should be identified and relocated.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			Permits would be required to relocate or remove these protected plant species and fauna, if they are to be affected. » Implement erosion control measures if required to minimise erosion. » Remove all equipment from site and rehabilitate any disturbed areas once activities are completed.
	Indirect impacts: » Limited biodiversity loss of floral and faunal species » Limited disruption of ecosystem functions i.e. fragmentation	Low The disturbance will be localised and of short duration	» Ensure that large areas of vegetation are not disturbed
	Cumulative impacts: » The planning activities could impact the Central Mountain Shale Renosterveld Vegetation type, leading to localised or a slight reduction in the overall extent of this vegetation type. Where this vegetation type has already been affected due to degradation and transformation at a regional level, further losses may lead to increased vulnerability. » The further loss of habitat from other developments and the potential invasion of alien plant species may exacerbate the impact.	Low The disturbance will be localised and of short duration	» Keep vegetation disturbance to a minimum. » Control stormwater runoff. » Control soil erosion. » Control alien invasive plants.

1.2 Construction Phase

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the Construction Phase of the proposed project are provided in the tables which follow.

1.2.1. Bon Espirange Substation

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Ecological impacts		
The construction of the substation, and the resultant vegetation clearance, where necessary.	***Direct impacts:*** » Potential loss of vegetation and listed or protected plant species » Potential loss of floral and faunal species » Potential disturbance of Fauna	Low The proposed substation site is located in an area that has been previously disturbed and is of low ecological sensitivity	» Preconstruction walk-through of the substation site in order to locate species of conservation concern that should be avoided or translocated. » Construction to commence only after walk through has been conducted and necessary permits obtained from Cape Nature and/or DENC if any is required. » Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. » ECO to provide supervision and oversight of vegetation clearing activities near sensitive areas. » Vegetation clearing to be kept to a minimum. » Existing access roads to be used as far as possible. » Any fauna threatened by the construction activities should be removed to safety by the ECO or appropriately qualified person. .

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» All construction vehicles should adhere to a low speed limit (40km/h) to avoid collisions with susceptible species such as snakes and tortoises. » All hazardous materials 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.
	Indirect impacts: » Increased erosion risk.	Low The proposed substation site is located in an area that has been previously disturbed.	» Implement regular dust suppression during construction, especially along gravel access roads which are used frequently.
	Cumulative impacts: » The potential for cumulative impacts on vegetation is low given the small footprint of substation » During the construction phase, the activity would contribute to cumulative fauna disturbance and disruption in the area, but the impact would be of local extent, limited duration and not of high significance with mitigation.	Low The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm	» Keep vegetation clearance to a minimum. » Control stormwater runoff. » Control soil erosion. » Control alien invasive plants.
Visual impacts			
	Direct impacts:	Medium	**Mitigation**

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
The potential visual impact of the construction of the substation on observers in close proximity to the proposed project	» Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed project	Open landscape offers little visual absorption capacity to visually absorb construction phase of the substation however the substation site is located in a valley	» Signage related to the proposed facilities be discrete and confined to the entrance gates. No corporate or advertising signage. » Lighting at the substation to be fitted with reflectors to avoid light spillage. » Areas damaged by construction activities to be rehabilitated / revegetated.
	Indirect impacts: » None	N/A	» N/A
	Cumulative impacts: » Adds to the visual impact on the rural landscape when combined with the construction activities within the Roggeveld Wind Farm, which includes the authorised Roggeveld Substation and facility power lines.	Medium Construction of the Roggeveld Wind farm will be undertaken simultaneously	» Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities.
		Avifauna impacts	
Construction of the substation and vegetation clearing	***Direct impacts:*** » Destruction of bird habitat	Low The natural vegetation of the area remains predominant across a wide region. Key bird habitats are well known for the area following several	» Clear only areas where absolutely necessary » Minimise construction footprint. » Limit movement of people and machinery to and from the site.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
		years of pre-construction monitoring for the wind farm.	
	Indirect impacts: » Potential disturbance of birds (mainly small scrub-dwelling birds) in the area	Low The disturbance will be temporary and its impact can be minimised if, once it begins, construction is kept to as short a period as feasible.	» Minimise habitat disturbance caused by the construction of the substation by keeping the lay-down areas as small as possible, and creating as few temporary tracks through natural vegetation as possible. » Abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, lowering levels of associated noise.
	Cumulative impacts: » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative impact on avifauna within the region.	Low The construction of the substation will be undertaken during the construction of the adjacent substation	» Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible.
Social impacts			
Construction of the substation	***Direct impacts:*** » Job creation (positive impact).	Low (positive) The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm, and additional job opportunities will be limited.	» A Locals-first employment policy is adopted to maximise the opportunities made available to the local labour force (sourced from nearest towns/settlements within the local municipalities). » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. » Where feasible, training and skills development programmes should be initiated

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			prior to the commencement of the construction phase. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
	Indirect impacts: » Nuisance impacts in terms of a temporary increase in noise and dust.	Low Due to the nature of the area. The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm	» Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. » Ensure all vehicles are roadworthy, drivers are qualified and are made aware of the potential noise and dust issues. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
	Cumulative impacts: » Opportunity to upgrade and improve skills levels in the area. » Opportunity for local employment opportunities. » Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.	Low Due to the nature of the area. The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm	
Heritage			
Construction of the substation and impacts to palaeontological	***Direct impacts:*** » Potential impacts of the substation on the palaeontological heritage of the study area	Low – Very low No heritage sites of significance will be affected by the proposed substation and cemeteries and	» Mitigation of palaeontological heritage can be achieved by ensuring that during deep excavations, fossil material that is found is checked by a palaeontologist.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
heritage and precolonial archaeology of the study area	» Negative impacts to sub-surface archaeological material which may include stone artefact scatters, stone kraals and pastoralist sites along river valleys » Possible negative impacts on cemeteries or graves » Impacts to Colonial Archaeology and the Built Environment » Impacts to Pre-Colonial Archaeology » Impact on cultural landscape	graves are usually located near farmsteads	» Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Bon Espirange substation. » If any concentrations of stone artefacts or human remains are uncovered during the excavations, then work must stop in that area before SAHRA and/or Heritage Western Cape are notified (Tel: 021 483 9685). » Any deep excavations into the bedrock should be examined by a suitably qualified palaeontologist; » If fossil material is encountered, the palaeontologist must be given sufficient time to recover a scientifically representative sample; » Mitigation normally involves recording and/or collection of fossil material with a permit issued by Heritage Western Cape. » If any concentrations of archaeological material, such as stone artefacts are recovered, Heritage Western Cape must be notified. » If any human remains are uncovered during the excavation of tower holes, work must stop in that area and Heritage Western Cape must be alerted immediately; » Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the
	Indirect impacts: N/A	N/A	
	Cumulative impacts: » Irreplaceable loss of archaeological heritage resources.	Low No heritage sites of significance will be affected by the proposed substation and cemeteries and graves are usually located near farmsteads	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			hill near the proposed Espirange substation. While it is unlikely that these features will occur on an elevated area at a considerable distance from the farmhouse, nevertheless, the ECO should be alerted to this possibility.

1.2.2. Power line Corridor Alternative 1

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Ecological impacts		
The construction of the proposed project, and the resultant vegetation clearance, where necessary.	***Direct impacts:*** » Potential loss of vegetation and listed or protected plant species » Potential loss of floral and faunal species » Potential disturbance of Fauna	Low The proposed power line will not result in clearance of vegetation from the entire servitude	» Preconstruction walk-through of the power line route in order to locate species of conservation concern that should be avoided or translocated. » Construction to commence only after walk through has been conducted and necessary permits obtained from Cape Nature and DENC, should any be required. » Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. » ECO to provide supervision and oversight of vegetation clearing activities near sensitive areas. » Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. » Existing access roads to be used as far as possible.
	Indirect impacts: » Increased erosion risk. » Potential disruption of ecosystem functions i.e. fragmentation if drainage lines are traversed	Low The proposed power line will not result in entire clearance of vegetation within the servitude	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» Implement regular dust suppression during construction, especially along gravel access roads which are used frequently. » Any fauna threatened by the construction activities should be removed to safety by the ECO or appropriately qualified person. » Implement regular dust suppression during construction, especially along gravel access roads which are used frequently. » No construction activity should be allowed at the site between sunset and sunrise as this is the period when many fauna are active with the greatest risk of roadkill. » All construction vehicles should adhere to a low speed limit (40km/h) to avoid collisions with susceptible species such as snakes and tortoises. » All hazardous materials 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.
	Cumulative impacts: » During the construction phase, the activity would contribute to cumulative fauna disturbance and disruption in the area, but the impact would be of local	Low The construction of the power line will be undertaken during the construction of the Roggeveld Wind Farm.	» Control stormwater runoff. » Control soil erosion. » Control alien invasive plants.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	extent, limited duration and not of high significance with mitigation.		
	Visual impacts		
The potential visual impact of the construction of the power line on observers in close proximity to the proposed project	***Direct impacts:*** » Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed power line	Medium Views of the construction of the towers and power line from the R354, which is considered to be a scenic route	**Mitigation** » Signage related to the proposed facilities be discrete and confined to the entrance gates. No corporate or advertising signage. » Areas damaged by construction activities to be rehabilitated / revegetated.
	Indirect impacts: » None	N/A	» N/A
	Cumulative impacts: » Adds to the visual impact on the rural landscape when combined with the authorised Roggeveld Wind Farm, which includes the authorised Roggeveld Substation and existing Eskom power line.	Medium The construction of the towers together with the construction of the Roggeveld Wind Farm will be visible along a scenic route.	» Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » 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. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» Reduce and control construction dust using approved dust suppression techniques as and when required. » Rehabilitate all disturbed areas immediately after the completion of construction works.
		Avifauna impacts	
Construction of the power line	***Direct impacts:*** » Destruction of bird habitat » Bird collision mortality	Low Key bird habitats are well known for the area following several years of pre-construction monitoring for the wind farm.	» Clear only areas where absolutely necessary » Minimise construction footprint. » Limit movement of people and machinery to and from the site.
	Indirect impacts: » Potential disturbance of birds from the area (mainly small scrub-dwelling birds)	Low The disturbance will be temporary and its impact can be minimised if, once it begins, construction is kept to as short a period as feasible.	» Minimise habitat disturbance caused by the construction of the substation by keeping the lay-down areas as small as possible, and creating as few temporary tracks through natural vegetation as possible. » Abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, lowering levels of associated noise.
	Cumulative impacts: » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative impact on avifauna within the region.	Low The construction of the powerline will be undertaken during the construction of the Roggeveld Wind Farm	» Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible.
		Social impacts	
Construction of the power line	***Direct impacts:*** » Job creation (positive impact).	Low (positive)	» A Locals-first employment policy is adopted to maximise the opportunities made available to

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
		The construction will be undertaken during the construction of the Roggeveld Wind Farm, and additional job opportunities will be limited	the local labour force (sourced from nearest towns/settlements within the local municipalities). » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. » Where feasible, training and skills development programmes should be initiated prior to the commencement of the construction phase. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
	Indirect impacts: » Nuisance impacts in terms of a temporary increase in noise and dust	Low Due to the nature of the area	» Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. » Ensure all vehicles are roadworthy, drivers are qualified and are made aware of the potential noise and dust issues. A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the
	Cumulative impacts: » Opportunity to upgrade and improve skills levels in the area » Opportunity for local employment opportunities » Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.	Low Due to the nature of the area. The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			local community to express any complaints or grievances with the construction process.
		Heritage	
Construction of the power line and impacts to palaeontological heritage and precolonial archaeology of the study area	***Direct impacts:*** » Potential impacts of the power line on the palaeontological heritage of the study area » Negative impacts to sub-surface archaeological material which may include stone artefact scatters, stone kraals and pastoralist sites along river valleys » Impacts to Colonial Archaeology and the Built Environment » Impacts to Pre-Colonial Archaeology » Impacts on cultural landscape	Low- very low No heritage sites of significance will be affected by the proposed substation and cemeteries and graves are usually located near farmsteads	» Mitigation of palaeontological heritage can be achieved by ensuring that during deep excavations, fossil material that is found is checked by a palaeontologist. » Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Bon Espirange substation. » If any concentrations of stone artefacts or human remains are uncovered during the excavations, then work must stop in that area before SAHRA and/or Heritage Western Cape are notified (Tel: 021 483 9685). » Any deep excavations into the bedrock should be examined by a suitably qualified palaeontologist; » If fossil material is encountered, the palaeontologist must be given sufficient time to recover a scientifically representative sample; » Mitigation normally involves recording and/or collection of fossil material with a permit issued by Heritage Western Cape. » If any concentrations of archaeological material, such as stone artefacts are
	Indirect impacts: N/A	N/A	
	Cumulative impacts: » Irreplaceable loss of archaeological heritage resources.	Low No heritage sites of significance will be affected	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			recovered, Heritage Western Cape must be notified. » If any human remains are uncovered during the excavation of tower holes, work must stop in that area and Heritage Western Cape must be alerted immediately; » Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Espirange substation. While it is unlikely that these features will occur on an elevated area at a considerable distance from the farmhouse, nevertheless, the ECO should be alerted to this possibility.

1.1.2. Power line Corridor Alternative 2

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Ecological impacts		
The construction of the proposed project, and the resultant vegetation clearance, where necessary.	***Direct impacts:*** » Potential loss of vegetation and listed or protected plant species » Potential loss of floral and faunal species » Potential disturbance of Fauna	Low The proposed power line will not result in clearance of vegetation from the entire servitude	» Preconstruction walk-through of the power line route in order to locate species of conservation concern that should be avoided or translocated. » Construction to commence only after walk through has been conducted and necessary permits obtained from Cape Nature and DENC, should any be required. » Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to.
	Indirect impacts: » Increased erosion risk. » Potential disruption of ecosystem functions i.e. fragmentation if drainage	Low The proposed power line will not result in entire clearance of vegetation within the servitude	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	lines are traversed Potential disruption of ecosystem functions i.e. fragmentation if drainage lines are traversed		» ECO to provide supervision and oversight of vegetation clearing activities near sensitive areas. » Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. » Existing access roads to be used as far as possible. » Implement regular dust suppression during construction, especially along gravel access roads which are used frequently. » Any fauna threatened by the construction activities should be removed to safety by the ECO or appropriately qualified person. » Implement regular dust suppression during construction, especially along gravel access roads which are used frequently. » No construction activity should be allowed at the site between sunset and sunrise as this is the period when many fauna are active with the greatest risk of roadkill. » All construction vehicles should adhere to a low speed limit (40km/h) to avoid collisions with susceptible species such as snakes and tortoises.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» All hazardous materials 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
	Cumulative impacts: During the construction phase, the activity would contribute to cumulative fauna disturbance and disruption in the area, but the impact would be of local extent, limited duration and not of high significance with mitigation.	Low The construction of the power line will be undertaken during the construction of the Roggeveld Wind Farm	» Control stormwater runoff. » Control soil erosion. » Control alien invasive plants.
Visual impacts			
The potential visual impact of the construction of the power line on observers in close proximity to the proposed project	***Direct impacts:*** » Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed power line	Medium Views of the construction of the towers and power line from the R354, which is considered to be a scenic route	**Mitigation** » Signage related to the proposed facilities be discrete and confined to the entrance gates. No corporate or advertising signage. » Areas damaged by construction activities to be rehabilitated / revegetated.
	Indirect impacts: » None	N/A	» N/A
	Cumulative impacts: » Adds to the visual impact on the rural landscape when combined with the authorised Roggeveld Wind Farm, which includes the authorised Roggeveld Substation and existing Eskom power line.	Medium The construction of the towers together with the construction of the Roggeveld Wind Farm will be visible along a scenic route	» Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required. » Rehabilitate all disturbed areas immediately after the completion of construction works.
		Avifauna impacts	
Construction of the power line	***Direct impacts:*** » Destruction of bird habitat	Low The natural vegetation of the area remains predominant across a wide region Key bird habitats are well known for the area following several years of pre-construction monitoring for the wind farm.	» Clear only areas where absolutely necessary not from the entire servitude of the line » Minimise construction footprint » Limit movement of people and machinery to and from the site.
	Indirect impacts: » Potential disturbance of birds (mainly small scrub-dwelling birds)	Low The disturbance will be temporary and its impact can be minimized if, once it begins, construction is kept to as short a period as feasible.	» Minimise habitat disturbance caused by the construction of the power line by keeping the lay-down areas as small as possible, and creating as few temporary tracks through natural vegetation as possible. » Abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, lowering levels of associated noise.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Cumulative impacts: » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative impact on avifauna within the region.	Low The construction of the powerline will be undertaken during the construction of the Roggeveld Wind Farm	» Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible.
	Social impacts		
Construction of the power line	***Direct impacts:*** » Job creation (positive impact).	Low (positive) The construction will be undertaken during the construction of the Roggeveld Wind Farm, and additional job opportunities will be limited	» It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force (sourced from nearest towns/settlements within the local municipalities). » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible » Where feasible, training and skills development programmes should be initiated prior to the commencement of the construction phase A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
	Indirect impacts: » Nuisance impacts in terms of a temporary increase in noise and dust	Low Due to the nature of the area	» Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Cumulative impacts: » Opportunity to upgrade and improve skills levels in the area » Opportunity for local employment opportunities » Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.	Low Due to the nature of the area. The construction of the substation will be undertaken during the construction of the Roggeveld Wind Farm	ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers » Ensure all vehicles are roadworthy, drivers are qualified and are made aware of the potential noise and dust issues. A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process
		Heritage	
Construction of the power line and impacts to palaeontological heritage and precolonial archaeology of the study area	***Direct impacts:*** » Potential impacts of the power line on the palaeontological heritage of the study area » Negative impacts to sub-surface archaeological material which may include stone artefact scatters, stone kraals a » Pastoralist sites along river valleys » Impacts to Colonial Archaeology and the Built Environment » Impacts to Pre-Colonial Archaeology » Impact on cultural landscape	Low- very low No heritage sites of significance will be affected by the proposed substation and cemeteries and graves are usually located near farmsteads	» Mitigation of palaeontological heritage can be achieved by ensuring that during deep excavations, fossil material that is found is checked by a palaeontologist. » Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Bon Espirange substation. » If any concentrations of stone artefacts or human remains are uncovered during the excavations, then work must stop in that area before SAHRA and/or Heritage Western Cape are notified (Tel: 021 483 9685). » Any deep excavations into the bedrock should be examined by a suitably qualified palaeontologist; » If fossil material is encountered, the palaeontologist must be given sufficient time to recover a scientifically representative sample;

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	Indirect impacts: N/A	N/A	» Mitigation normally involves recording and/or collection of fossil material with a permit issued by Heritage Western Cape. » If any concentrations of archaeological material, such as stone artefacts are recovered, Heritage Western Cape must be notified. » If any human remains are uncovered during the excavation of tower holes, work must stop in that area and Heritage Western Cape must be alerted immediately; » Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Espirange substation. While it is unlikely that these features will occur on an elevated area at a considerable distance from the farmhouse, nevertheless, the ECO should be alerted to this possibility.
	Cumulative impacts: » Irreplaceable loss of archaeological heritage resources.	Low	

1.3 Operation Phase

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the Operation Phase of the proposed substation and power line are provided in the tables which follow.

1.3.1. Bon Espirange Substation

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Ecological impacts		
Maintenance and operation of the substation	***Direct impacts:*** » Potential influx of alien invader species.	Low	» Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	» Potential for increased soil erosion	Following construction re-vegetation with indigenous species will commence	» When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. » Clearing methods should themselves aim to keep disturbance to a minimum. » No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be allowed. » Regular monitoring of the site for erosion problems is recommended, particularly after large summer thunder storms have been experienced. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the project, should be revegetated with locally occurring species, to bind the soil and limit erosion potential.
	Indirect impacts: » Potential disruption of ecosystem function & processes	Low The substation will be located in an area of low ecological sensitivity	
	Cumulative impacts: » Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.	Low Following construction re-vegetation with indigenous species will commence	
Visual impacts			
Maintenance and operation of the substation	***Direct impacts:*** » Potential visual impact of the proposed substation on the visual quality of the landscape and sense of place of the region.	Medium The proposed substation is located in a valley, which would reduce its visibility from the surroundings.	» Maintain the general appearance of the substation
	Indirect impacts: » None	N/A	» N/A

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Cumulative impacts: » The project, together with the existing infrastructure and proposed wind farms in the area are likely to increase the potential cumulative visual impact within the region.	Medium The proposed substation is located in a valley, which would reduce its visibility from the surroundings as opposed to the tall turbines associated with the Roggeveld Wind Farm.	» Maintain the general appearance of the substation
	Avifauna impacts		
Operation and maintenance of the substation	***Direct impacts:*** » Potential electrocutions on substation infrastructure.	Low Electrocutions on substation infrastructure are unlikely	» Take note of any areas where high impacts are experienced and recommend any additional mitigation which may be required to be implemented.
	Indirect impacts: » Potential decrease in avifauna species in the study area due collision	Low Electrocutions on substation infrastructure are unlikely	» N/A
	Cumulative impacts: » There will be authorised wind farm infrastructure in the vicinity of the proposed site and further development will add to the possibility of electrocutions and collisions.	Low There are existing powerlines in the area	» N/A

1.3.2. Power line Alternative 1

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Ecological impacts		
Maintenance and operation of the power line	***Direct impacts:*** » Potential influx of alien invader species » Potential for increased soil erosion	Low The area would not have been cleared but instead disturbed	» Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Indirect impacts: » Potential disruption of ecosystem function & processes	Low Traversing drainage lines can be avoided	» When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. » Clearing methods should themselves aim to keep disturbance to a minimum. » No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be allowed. » Regular monitoring of the site for erosion problems is recommended, particularly after large summer thunder storms have been experienced. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.
	Cumulative impacts: » Potential impacts such as soil erosion and habitat disturbance may exacerbate the infestation of alien species.	Low Regular monitoring for alien plants will be undertaken	
Visual impacts			
Maintenance and operation of the power line	***Direct impacts:*** » Potential visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.	Medium The power line will be visible from the R354	» Maintain the general appearance of the project as a whole.
	Indirect impacts: » None	N/A	» N/A
	Cumulative impacts: » The power line, together with the existing infrastructure and proposed power lines in the area are likely to	Medium The power line together with the Roggeveld Wind Farm will be visible from a scenic route	» Maintain the general appearance of the project as a whole.

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	increase the potential cumulative visual impact within the region.		
	Avifauna impacts		
Operation and maintenance of the power line	***Direct impacts:*** » Potential electrocutions on overhead power line conductors or on tower » Potential collision with overhead power lines (or earth wire)	Low The corridor is aligned further away from a hill just east of the R354 road where birds may forage and risk collision	» Undertake regular monitoring of the power line to detect any areas where high impacts are experienced (e.g. near waterbodies) and recommend any additional mitigation which may be required to be implemented (e.g. Placing of diverters at 5 m intervals (as per Eskom's requirement) on the single span of line between the two support structures where, approaching the Komsberg substation, the power line is closest to the farm dam
	Indirect impacts: » Potential decrease in avifauna species in the study area due to electrocution	Low The corridor is aligned further away from a hill just east of the R354 road where birds may forage and risk collision	» N/A
	Cumulative impacts: » There are existing power lines associated with the Komsberg Substation in the vicinity of the proposed site and further development will add to the possibility of electrocutions and collisions.	Low The corridor is aligned further away from a hill just east of the R354 road where birds may forage and risk collision	» N/A

1.3.3. Power line Alternative 2

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Ecological impacts		
Maintenance and operation of the power line	***Direct impacts:*** » Potential influx of alien invader species. » Potential for increased soil erosion	Low The area would not have been cleared but instead disturbed	» When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. » Clearing methods should themselves aim to keep disturbance to a minimum. » No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be allowed. » Regular monitoring of the site for erosion problems is recommended, particularly after large summer thunder storms have been experienced. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.
	Indirect impacts: » Potential disruption of ecosystem function & processes	Low Traversing drainage lines can be avoided	
	Cumulative impacts: » Potential impacts such as soil erosion and habitat disturbance may exacerbate the infestation of alien species.	Low Regular monitoring for alien plants will be undertaken	
	Visual impacts		
Maintenance and operation of the power line	***Direct impacts:*** » Potential visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.	Medium The power line will be visible from the R354	» Maintain the general appearance of the project as a whole.
	Indirect impacts: » None	N/A	» N/A

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	Cumulative impacts: » The power line, together with the existing infrastructure and proposed power lines in the area are likely to increase the potential cumulative visual impact within the region.	Medium The towers together with the Roggeveld Wind Farm will be visible along a scenic route	» Maintain the general appearance of the project as a whole.
	Avifauna impacts		
Operation and maintenance of the power line	***Direct impacts:*** » Potential electrocutions on overhead power line conductors or on tower » Potential collision with overhead power lines (or earth wire)	Low The corridor is however aligned closer to the hill just east of the R354 road where birds may forage and risk collision	» Undertake regular monitoring of the power line to detect any areas where high impacts are experienced (e.g. near waterbodies) and recommend any additional mitigation which may be required to be implemented (e.g. Placing of diverters at 5 m intervals (in light of Eskom's tried and tested technical requirements a 5m spacing is more feasible.) on the single span of line between the two support structures where, approaching the Komsberg substation, the power line is closest to the farm dam)
	Indirect impacts: » Potential decrease in avifauna species in the study area due to electrocution	Low The corridor is aligned further away from a hill just east of the R354 road where birds may forage and risk collision	» N/A
	Cumulative impacts: » There is existing power lines associated with the Komsberg Substation in the vicinity of the	Low The corridor is aligned further away from a hill just east of the R354 road	» N/A

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	proposed site and further development will add to the possibility of electrocutions and collisions.	where birds may forage and risk collision	

1.4 Decommissioning Phase

Impacts associated with the decommissioning of the proposed infrastructure will be similar to those described and assessed for the construction phase. Assessment of the impacts is therefore not repeated here. It must however be noted that because the proposed project is for connecting the approved Roggeveld Wind Farm to the National Eskom grid at Komsberg MTS, it can be assumed that the proposed project will have a minimum lifespan of 25 years. It is however possible that the operating licence of the Roggeveld Wind Farm is extended beyond the 25 years. Should the wind farm however be decommissioned, the proposed substation and power line will be taken out of service, if this cannot further be utilised by Eskom or IPPs. Where possible, parts will be re-used, where it cannot be re-used or recycled it will be disposed of at an appropriately licenced facility. During decommissioning the relevant legislation at the time would need to be complied with.

The following mitigation measures must be complied with during the decommissioning phase:

» Site access to be controlled and no unauthorised persons should be allowed onto the site.
» The collection, hunting or harvesting of any plants or animals at the site or in the surrounding area by decommissioning personnel should be strictly forbidden.
» Any accidental chemical, fuel, and oil spills that occur at the site during decommissioning should be cleaned up in the appropriate manner as related to the nature of the spill.
» No open excavations, holes or pits should be left open for extended periods at the site as fauna can fall in and become trapped. Active pits and trenches should have soil ramps present to allow fauna to escape and all holes and trenches should be filled and levelled following removal of infrastructure.
» All disturbed areas should be rehabilitated with a cover of indigenous species grown from seed or cuttings sourced locally.
» Due to the disturbance at the site during decommissioning, alien plant species are likely to invade the site and a long-term control plan will need to be implemented for two to three years after decommissioning.

» Regular monitoring (bi-annual) for alien plants within the development footprint for two to three years after decommissioning.
» Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. The frequency of alien clearing events should be determined by the identity of the species present and the density of invasion.
» Cleared and disturbed areas should be revegetated with a cover of indigenous grass or shrubs, to a minimum cover of at least 25% projected canopy cover.

1.5 The No-Go Option

This is the option of not constructing the proposed Bon Espirange Substation and 132kV power line (together with limited upgrades to the Komsberg Substation). This will result in the situation where the authorised Roggeveld Wind Farm cannot be connected to the electricity grid because the authorised connection does not allow for the viable connection at the Komsberg Substation. The Komsberg Substation is planned to be expanded by Eskom to cater for the connection of the three preferred bidder projects following the award of the REIPPP Programme Round 4. As such, the only viable connection for the Roggeveld Wind Farm project is at a new transformer bay to be located on the eastern side of the Komsberg Substation. The authorised connection to the west of Komsberg Substation is not supported by Eskom Transmission, as Eskom Holdings Limited have applied to expand the Komsberg Substation, rather than construct a new stand-alone substation. The no-go alternative will negatively impact on the Roggeveld Wind Farm project as without this viable connection, the wind farm will not be able to connect to the grid. This would result in negative impacts at a local, regional and national scale from a socio-economic and economic perspective and is not considered desirable. The negative impacts of the no go alternative are considered to outweigh the positive impacts of this alternative.

The substation and power line considered within this application fall within areas considered to be favourable for such infrastructure when assessed in the EIA for the wind farm. The Roggeveld Wind Farm authorised a connection within a similar corridor. This grid connection solution would replace a portion of the already authorised grid connection, which was considered to be of an acceptable impact. In addition, the application allows for all infrastructure to be operated by Eskom Holdings Limited to be authorised within a single authorisation.

The 'Do nothing' alterative is an undesirable option for the project as it will pose negative impacts on the Wind Farm Project and it will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as no employment would be generated. **The 'Do nothing' alternative is, therefore, not a preferred alternative.**

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.982 must be included as **Appendix F**.

2. ENVIRONMENTAL IMPACT STATEMENT

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

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Project which will aid in connecting the authorised Roggeveld Wind Farm site to the National Eskom electricity grid. This section of the BAR draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project. The following conclusions can be drawn from the Environmental Assessment Practitioner's (EAP's) findings and the specialist studies undertaken within this Basic Assessment.

Ecology: The impacts on vegetation and fauna within the proposed footprint is likely to be relatively low given the small footprint of the power line and substation. Given the small footprint of the development, the construction and operation of the Bon Espirange Substation and the 132kV distribution line corridor would not generate any impact of unacceptable negative significance. The proposed Bon Espirange Substation and power line Alternatives 1 and 2 are considered acceptable from an ecological perspective. The preferred power line Alternative 1 impacts less ecologically sensitive areas and is therefore recommended as the preferred alternative for development.

Avifauna: The predominant vegetation seldom grows above human knee height. Most of the food for birds is on this vegetation or the ground below. Consequently, the great majority of birds that use the area have no need to fly high off the ground and their risk of collision with power lines is considered to be inconsequential. As such, the risks posed to avifauna by the proposed development are considered to be limited, are considered low and can be successfully mitigated to acceptable levels. The proposed Bon Espirange Substation and power line Alternatives 1 and 2 are considered acceptable from an avifaunal perspective. The preferred power line Alternative 1 poses less of a collision risk to foraging birds and is therefore recommended as the preferred alternative for development.

Palaeontology and Heritage: The proposed substation and both power line corridors are of low significance. It is most likely that sites of high significance will not be directly impacted by the construction and operation of the substation and the power line.

Impacts of cultural significance due to the proposed substation and power line are low. The proposed Bon Espirange Substation and power line Alternatives 1 and 2 are considered acceptable from a palaeontological and heritage perspective. The preferred power line Alternative 1 is aligned along an existing servitude and is therefore recommended as the preferred alternative for development.

Visual Impacts: The proposed substation and power line infrastructure as assessed in this Basic Assessment Report are considered of medium significance but are not likely to contribute significantly to the potential visual impacts associated with the authorised, much taller, towers of the wind turbines of the authorised Roggeveld Wind Farm, Komsberg Substation (plus all expansions to this substation) and the existing power lines in the study area. From a visual perspective, both the proposed substation and power line Alternatives 1 and 2 are considered acceptable, but Alternative 1 is preferred as it avoids the prominent ridgeline to the south.

Cumulative Impacts: Cumulative impacts from the proposed substation, 132kV power line and limited upgrades to Komsberg Substation will result from impacts arising from multiple renewable energy facilities and power lines being constructed in the area. Considering the nature and extent of the planned grid connection infrastructure, the contribution of this infrastructure to the cumulative impacts in the area are considered to be **low and acceptable**. The area is within the Komsberg REDZ, where nodal development is supported.

Overall conclusion

From the specialist studies undertaken, the proposed substation and the power line Alternatives 1 and 2 are acceptable from an environmental perspective. Power line Alternative 1 poses less impacts than power line Alternative 2 and is therefore recommended and preferred for development.

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the construction and operation of the proposed Bon Espirange Substation (Eskom Yard), 132kV power line and limited upgrades to Komsberg Substation (within the HV yard). Impacts are expected to be **medium - low** after the implementation of appropriate mitigation and it is recommended that the proposed development can therefore be implemented. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Therefore, the authorisation of the following is acceptable:

1. Construction of the Bon Espirange Substation (Eskom yard)

2. Construction of the 132kV overhead distribution line (6-7km following the Alternative 1 corridor) from the Bon Espirange Substation to the Komsberg Substation
3. Limited upgrades to the Komsberg Substation (within the HV yard) as required by Eskom.

No-go alternative (compulsory)

This is the option of not constructing the proposed Bon Espirange Substation and power line. This will result in the situation where the authorised Roggeveld Wind Farm cannot be connected to the electricity grid because the authorised connection does not allow for the viable connection at the Komsberg Substation. The no-go alternative will negatively impact on the Roggeveld Wind Farm project as without this viable connection, the wind farm will not be able to connect to the grid. This would result in negative impacts at a local, regional and national scale from a socio-economic and economic perspective and is not considered desirable. The negative impacts of the no go alternative are considered to outweigh the positive impacts of this alternative.

The 'Do nothing' alterative is an undesirable option for the project as it will pose negative impacts on the Wind Farm Project and it will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as no employment would be generated. **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 construction of the proposed Bon Espirange Substation (Eskom Yard), the 132kV overhead power line (6-7km in length within the Alternative 1 300m corridor), as well as limited upgrades to the Komsberg Substation (within the HV yard) should be implemented according to the conclusions and recommendations of this report and the specifications of the EMPr to adequately mitigate and manage potential impacts associated with construction and operation activities all of which are considered to be of **medium-very low significance**. The construction and operation activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation (once issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Construction Phase:

» All relevant practical and reasonable mitigation measures detailed within this report and within the EMPr must be implemented.
» The implementation of the EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report.
» 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.
» All declared alien plants 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, as per the EMPr, in this regard is recommended.
» Care must be taken with the topsoil during and after construction on the site. If required, measures to reduce erosion to be employed, such as keeping the soil covered by straw, mulch, erosion control mats, etc., until a healthy plant cover is again established.

- » Rehabilitate construction sites, where required, by establishing with indigenous grasses or alternatively use other suitable plant species according to the landowners recommendations and/ or advice.
- » Erosion control measures must be utilised during construction, operations, decommissioning and rehabilitation of the project.
- » The applicant should obtain all necessary permits prior to the commencement of construction.
- » All hazardous materials 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.
- » Existing access roads to be used as far as possible
- » In-field verification of the wetland area boundaries as part of the walk-through would be necessary if there are towers or other features in close proximity to features of high sensitivity. If these features are adequately avoided by the final tower locations, then such an in-field verification would not be required.
- » A pre-construction walk through of the power line route and substation footprint must be undertaken to ensure that any individuals of protected species directly beneath the line or within the footprint can be avoided.
- » Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to.
- » ECO to provide supervision and oversight of vegetation clearing activities near sensitive areas.
- » Lighting at the substation to be fitted with reflectors to avoid light spillage.
- » The location of the power line route to avoid the prominent ridgeline to the southeast where possible because of their skyline effect.
- » The number of access / maintenance roads to be minimised, and existing roads used as far as possible.
- » Avoidance of hill-slopes where some resident raptors regularly forage.
- » Placing of bird diverters at 5 m intervals on the single span of line between the two support structures where, approaching the Komsberg Substation, the power line is closest to the farm dam
- » During any deep excavations into the bedrock if fossil material is encountered a suitably qualified palaeontologist should be contacted to examine the material
- » If fossil material is encountered, work must be stopped and once the palaeontologist is contacted, the palaeontologist must be given sufficient time to recover a scientifically representative sample.
- » If any concentrations of archaeological material, such as stone artefacts are recovered, Heritage Western Cape or Northern Cape Heritage Resources Authority must be notified.

» If any human remains are uncovered during the excavation of foundations, work must stop in that area and Heritage Western Cape or Northern Cape Heritage Resources Authority must be alerted immediately.
» Avoid direct impacts to stone walling, stone kraals, etc. which may occur on the top of the hill near the proposed Bon Espirange Substation. While it is unlikely that these features will occur on elevated areas at a considerable distance from the farmhouse, nevertheless, the ECO should be alerted to this possibility.

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 for operation:

» On-going monitoring of the project site must be undertaken to detect and restrict the spread of alien plant species.
» Monitor rehabilitated areas, and implement remedial action as and when required.
» Restrict maintenance activities to the substation footprint.
» Rehabilitation of cleared areas with indigenous species after construction to reduce alien invasion potential.
» Regular monitoring and management for alien plants disturbed areas for at least the first 2 years of operation. Bi-annual surveys are likely to be sufficient for this purpose.
» If there are any infestations, alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible and should only be used for woody species which re-sprout following manual control.

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.**

KAREN JODAS

_____

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 and the EAP's Affirmation

Appendix J: Additional Information