

## Savannah Environmental Public Process

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**From:** Serame Motlhake <MotlhakeS@sentech.co.za>  
**Sent:** 01 August 2018 11:58 AM  
**To:** Savannah Environmental Public Process  
**Cc:** 'Shaun Taylor'; Gabriele Stein; Abidan Sango; Tshifularo Sigwavhulimu; Hennie Tolsma  
**Subject:** RE: APPLICATION FOR AMENDMENT TO THE ENVIRONMENTAL AUTHORISATION: KARREEBOSCH WIND FARM AND ASSOCIATED INFRASTRUCTURE  
**Attachments:** SENTECH Letter of Approval for Karreebosch Wind Farm\_01 Agust 2018.pdf  
**Importance:** High

Good Day,

The preliminary study indicates that there will be no interference caused to our networks. Attached please find letter of approval.

Regards,

Serame

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**From:** Savannah Environmental Public Process [mailto:publicprocess@savannahsa.com]  
**Sent:** 01 August 2018 09:35 AM  
**To:** Serame Motlhake <MotlhakeS@sentech.co.za>  
**Cc:** 'Shaun Taylor' <shaun@savannahsa.com>; Gabriele Stein <gabriele@savannahsa.com>  
**Subject:** RE: APPLICATION FOR AMENDMENT TO THE ENVIRONMENTAL AUTHORISATION: KARREEBOSCH WIND FARM AND ASSOCIATED INFRASTRUCTURE

Good day,

Please find attached as requested.

Kind regards,

---

**From:** Serame Motlhake [mailto:MotlhakeS@sentech.co.za]  
**Sent:** 01 August 2018 8:09 AM  
**To:** Savannah Public Process <publicprocess@savannahsa.com>  
**Subject:** RE: APPLICATION FOR AMENDMENT TO THE ENVIRONMENTAL AUTHORISATION: KARREEBOSCH WIND FARM AND ASSOCIATED INFRASTRUCTURE  
**Importance:** High

Good Morning Rozanne Els,

Can you kindly send us the layout of the planned Wind Farm in kml format so that a study could be done determine if any of our networks will be affected.

Regards,

Serame

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**From:** Savannah Public Process [<mailto:publicprocess@savannahsa.com>]

**Sent:** 31 July 2018 04:26 PM

**Subject:** APPLICATION FOR AMENDMENT TO THE ENVIRONMENTAL AUTHORISATION: KARREEBOSCH WIND FARM AND ASSOCIATED INFRASTRUCTURE

Dear Stakeholder

Karreebosch Wind Farm (Pty) Ltd received an Environmental Authorisation (EA) for the construction of the Karreebosch Wind Farm and associated infrastructure in the Northern and Western Cape Provinces (DEA Ref: 14/12/16/3/3/2/807) on the 29<sup>th</sup> of January 2016. The applicant is considering an updated turbine model for the project and is proposing the following:

- » an increase in the rotor diameter for each turbine from 140m, to up to 160m;
- » an increase in the hub height from 100m, to up to 125m; and
- » an increase the generating capacity of each turbine from 2MW - 3.3MW, to 2MW up to 5.5MW.

It is also requested that the wind measuring mast height is increased from 100m to 125m. The height of the wind measuring mast is to be increased in line with the hub height to take accurate wind measurements. Savannah Environmental (Pty) Ltd have been appointed to submit the amendment application and motivation report to the National Environmental Affairs. Please refer to the attached notification letter for details regarding the amendments applied for and the availability of the motivation report for a 30-day review period.

Please do not hesitate to contact us should you require further information.

Kind regards,

**Rozanne Els**

Public Participation Co-ordinator | Savannah Environmental (Pty) Ltd  
Tel: +27 (0)11 656 3237 | Fax: +27 (0)86 684 0547

*SAWEA Award for Leading Environmental Consultant for Wind Projects in 2013 & 2015*

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**KARREEBOSCH WIND FARM (Pty) Ltd**

First Floor, Block 2, 5 Woodlands Drive Office Park  
Cnr Woodlands Drive and Western Service Road,  
Woodlands  
2191

Tel: +27 (0)11 656 3237

Fax: +27 (0)86 684 0547

01 August 2018

Attention: Rozanne Els

**RE: PROPOSED KARREEBOSCH WIND FARM (Pty) Ltd.**

1. The above matter refers.
2. We wish to advise that SENTECH SOC Ltd ("SENTECH") has received an application from Karreebosch Wind Farm (Pty) Ltd ("the applicant"), which plans to construct one solar PV facility as described in annexure 1 hereto, at the Karreebosch Wind Farm, hereafter referred to as "the site", in accordance with the provisions of Section 29(1) (b) of the Electronic Communications Act no. 36 of 2005 ("the Act").
3. SENTECH has analyzed the information provided by the applicant in accordance with the provisions of Section 29(1) (c) of the Act, and specifically the location of the site and confirm that there would be limited degradation of SENTECH transmitted Terrestrial UHF/VHF Television (TV), and/or FM radio services in the planned deployment area, as indicated in annexure 1.
4. SENTECH hereby grants the applicant approval to proceed with the construction of its energy project at the site subject to the following terms and conditions:

4.1 Due to the fact that the findings made by SENTECH are based on simulations and calculated on a theoretical model, using available data and assumptions where no data was provided, such findings may change at any time should any further information be made available to or come to SENTECH's attention;

**DIRECTORS:**

Mr. M Mello (Chairperson), Mr. M Booi (CEO), Mr. S Mthethwa CA (SA) (CFO), Mr. T Leshope (COO),  
Ms. J Huntley, Ms. Z Mbele CA (SA), Mr. L Mtimde, Ms. L Ndlovu, Dr S Malinga, Ms T Malaka  
Company Secretary (Acting) : Zunaid Adams

- 4.2 At any time after the approval, and during construction of the project, should any radio transmissions be affected by construction activities, SENTECH will give the applicant 7 (seven) day's written notice to remove the cause of the interference.
- 4.3 Under no circumstances whatsoever will SENTECH be liable to the applicant or any third party for any damages, loss or costs, of any nature whatsoever or howsoever arising, suffered as a consequence of the aforementioned request and the applicant fully indemnify SENTECH ;
- 4.4 SENTECH prior written consent must first be obtained before any construction activities underneath, along, across or within close proximity to SENTECH infrastructure can begin and shall comply with the applicable SENTECH guidelines relating to clearances between equipment and the proposed construction activity. Furthermore, the applicant shall clearly adhere to, and ensure all installations shall be fully compliant with the Occupational Health and Safety Act No. 85 of 1993.
5. This approval is further subject to the submitted applications boundaries or structures listed in annexure 1 hereto, the materials used, as well as the size and positioning of structures declared in the application. If the services of SENTECH or its clients is in any way compromised by a deviation or change of this submission, the applicant shall be liable for all costs to re-establish, or relocate the services, and under no circumstances whatsoever will SENTECH be liable to the applicant or any other third party for any damages, loss or costs, of any nature whatsoever or howsoever arising, suffered as a consequence.
6. This approval is valid and applicable between SENTECH and the applicant only. It does not include any approval for any of the other electronic communication operators which have current co-sharing agreements to utilize SENTECH's radio masts.
7. Any additions, amendments, additional structures to be built, or any change to the energy farm boundaries, will require a new application to SENTECH.
8. The validity of this approval is for a period of 12 (twelve) months. If construction of the designed project commences after the expiry of the twelve month period, the application must be re-submitted to SENTECH for further evaluation and approval.
9. This approval does not imply any rights of access whatsoever to SENTECH property or use of SENTECH's access roads for construction or maintenance of the design project. Separate permission must be obtained from SENTECH in this regard. Furthermore, SENTECH reserves the right to claim damages in terms of Section 29 of the Act, for any loss or damages sustained as a result of damages to any of SENTECH's electronic broadcast and communications infrastructure.

10. The applicant shall, in carrying out any work or project, take all the necessary precautions for the safety of SENTECH's employees, contractors, representatives and its property, including the radio transmitters and links on or near the site against damages as a result of construction of the applicant's energy project.
11. The applicant shall be liable for all and any direct and/or indirect, and/or consequential damages or injury that may be caused by the applicant, its contractors, subcontractors, employees, agents or representatives to any employee, contractor, representative or property of SENTECH including radio network transmitters and/or links or land which may have been disturbed shall be restored to the same condition in which it was before commencement of the construction of the energy project.
12. In no event will SENTECH, its employees, contractors, or representatives be liable to the applicant or any third party whatsoever for special, collateral, exemplary, direct, indirect, incidental, consequential or any other damages of any nature whatsoever or howsoever arising (including without limitation, loss of goodwill, loss of profits or revenues, loss of savings, loss of use, interruptions or noisiness, or injury) whether or not such damages or injury occurred prior or subsequent to, or are alleged as a result of any SENTECH radio network approved and/or not approved in terms of this letter, even if SENTECH has been advised of the possibility of such damages or injury.

All SENTECH rights are fully reserved.

Regards.



Date: 01 August 2018

Mr. Serame Motlhake

Manager: Broadcast Planning

**DIRECTORS:**

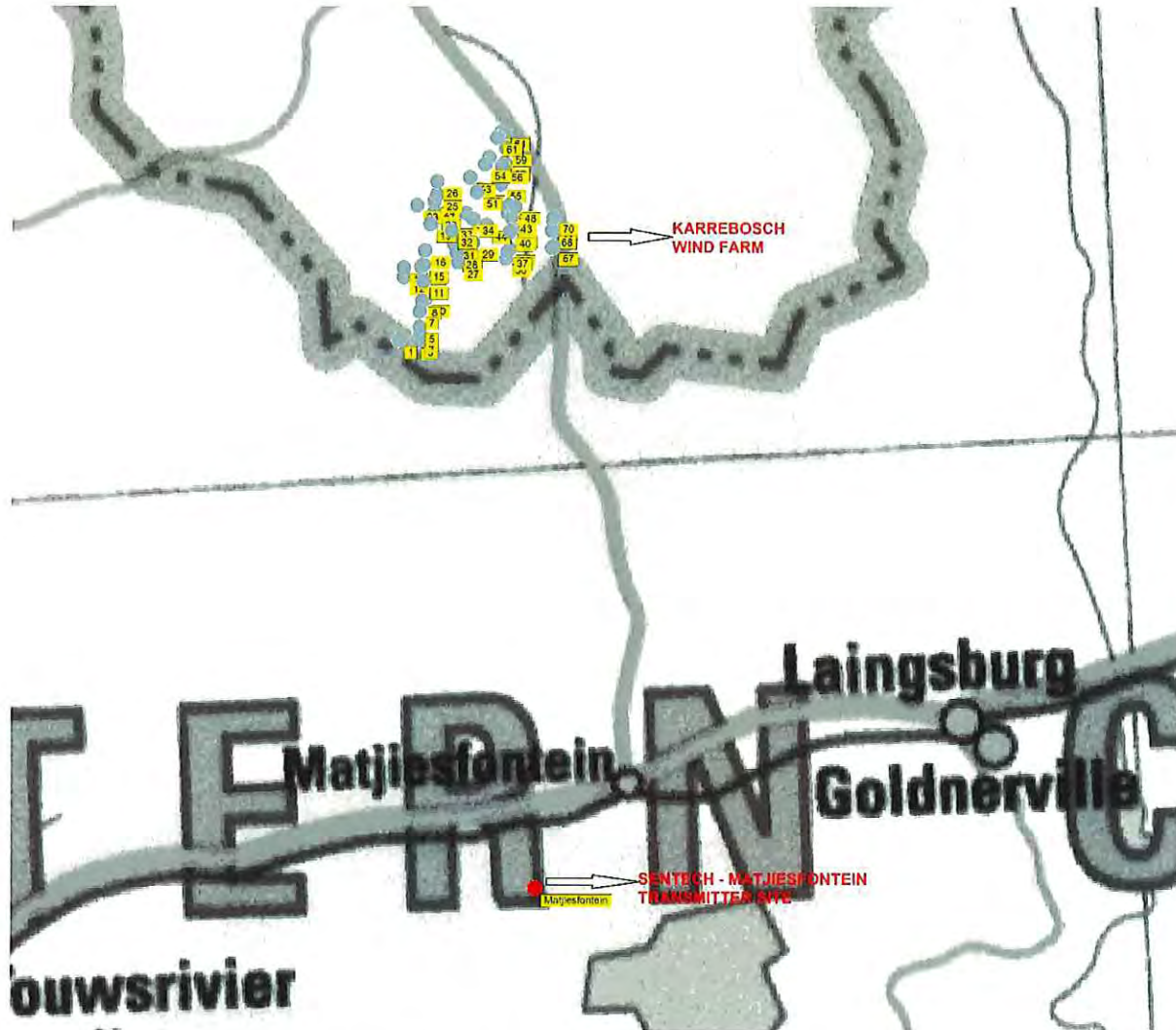
Mr. M Mello (Chairperson), Mr. M Booi (CEO), Mr. S Mthethwa CA (SA) (CFO), Mr. T Leshope (COO),  
Ms. J Huntley, Ms. Z Mbele CA (SA), Mr. L Mtimde, Ms. L Ndlovu, Dr S Malinga, Ms T Malaka  
Company Secretary (Acting) : Zunaid Adams

## ANNEXURE 1

The planned Karreebosch Wind Farm will be located  $\pm$  51 km north of Matjiesfontein (C12) transmitter station. The WTG facility will be located in the of the coverage areas of the transmitter station.

Conclusion on the results and findings of the planned 46 total amount of WTG's can be summarised as follows:

1. No interferences on analogue VHF/UHF TV services in the Matjiesfontein residential areas;
2. No interferences on DTT services in Matjiesfontein residential areas;
3. No interference on FM services will experienced and,
4. None of the existing FM RBR broadcast feeds in the above mentioned area will be affected.



Map 1: Map indicating the location of the Karreebosch WTG and Matjiesfontein C12 transmitter site.

**DIRECTORS:**

Mr. M Mello (Chairperson), Mr. M Booï (CEO), Mr. S Mthethwa CA (SA) (CFO), Mr. T Leshope (COO),  
Ms. J Huntley, Ms. Z Mbele CA (SA), Mr. L Mtimde, Ms. L Ndlovu, Dr S Malinga, Ms T Malaka  
Company Secretary (Acting) : Zunaid Adams





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Environment House · 473 Steve Biko Road· PRETORIA  
Tel (+ 27 12) 399 9372

**DEA Reference:** 14/12/16/3/3/2/807/AM2

**Enquiries:** Ms Makhosi Yeni

**Telephone:** (012) 399 9400 **E-mail:** MYeni@environment.gov.za

Shaun Taylor  
Savannah Environmental (Pty) Ltd  
P.O. Box 148  
**SUNNINGHILL**  
2157

Telephone Number: (011) 656 3237  
Email Address: shaun@savannahsa.com

### **PER EMAIL / MAIL**

Dear Mr Taylor

### **COMMENTS ON THE DRAFT REPORT FOR THE AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION ISSUED ON 29 JANUARY 2016 FOR THE PROPOSED KARREEBOSCH WIND FARM (ROGGEVELD PHASE2) AND ASSOCIATED INFRASTRUCTURE WITHIN THE NOTHERN AND WESTERN CAPE PROVINCES**

The draft amendment of the Environmental Authorisation (EA) Report dated July 2018 and received by this Department on 31 July 2018, refers.

This Department has the following comments on the abovementioned application:

- i. This Department further requests that you submit the final site layout plan for the proposed amendments which will address the issue raised in Condition 35 on page 18 of the approved EA.
- ii. Please ensure that all issues raised and comments received during the circulation of the application for amendment from registered I&APs and organs of state which have jurisdiction in respect of the proposed activity are adequately addressed in the final amendment report.
- iii. Proof of correspondence with the various stakeholders must be included in the application for amendment. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments. The Public Participation Process must be conducted in terms of Regulations 39, 40 41, 42, 43 and 44 of the EIA Regulations 2014 and proof of compliance such as newspaper adverts, site notice etc. are to be included in the final report.
- iv. The adverts that were published in *Die Burger* (provincial newspaper) and *Die Noordwester Uitgewers* (local newspaper) on the 01 and 03 August 2018 respectively (referred to as Appendix E2), must form part of the final report.
- v. The Environmental Management Programme (EMPr) must be amended to include additional information resulting from the amendment and measures as dictated by the final site lay-out map and micro-siting, and the provisions of the environmental authorisation.

You are requested to submit a copy of the final Amendment Report to the Department and at least one unprotected electronic copy (CD) of the complete final report with the hard copy documents.

Should you fail to meet any of the timeframes stipulated in regulation 32 of Part 2 of Chapter 5 of the Environmental Impact Assessment Regulations, 2014, as amended, your application will lapse.

Further note that in terms of Regulation 45 of the EIA Regulations 2014, this application will lapse if the applicant fails to meet any of the timeframes prescribed in terms of the these Regulations, unless an extension has been granted in terms of Regulation 3(7).

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours faithfully



**Mr Sabelo Malaza**

**Chief Director: Integrated Environmental Authorisations**

**Department of Environmental Affairs**

**Signed by: Ms Olivia Letlalo**

**Designation: Deputy Director: Strategic Infrastructure Developments**

**Date: 14/08/2018**

cc:	Mr Kilian Hagemann	Karreebosch Wind Farm (Pty) Ltd	Tel: 021 3000610	Email: karreebosch@g7energies.com
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## Eskom requirements for work at or near Eskom infrastructure.


1. Eskom's rights and services must be acknowledged and respected at all times.
2. Eskom shall at all times retain unobstructed access to and egress from its servitudes.
3. Eskom's consent does not relieve the developer from obtaining the necessary statutory, land owner or municipal approvals.
4. Any cost incurred by Eskom as a result of non-compliance to any relevant environmental legislation will be charged to the developer.
5. If Eskom has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the developer's activities or because of the presence of his equipment or installation within the servitude restriction area, the developer shall pay such costs to Eskom on demand.
6. The use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the developer must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. It is advisable to make application separately in this regard.
7. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom's satisfaction.
8. Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the developer, his/her agent, contractors, employees, successors in title, and assignees. The developer indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom's services or apparatus or otherwise. Eskom will not be held responsible for damage to the developer's equipment.
9. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the developer must give at least seven working days' notice prior to the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the relevant Eskom Manager

Note: Where and electrical outage is required, at least fourteen work days are required to arrange it.

10. Eskom's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with.
11. Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The developer shall maintain the area concerned to Eskom's satisfaction. The developer shall be liable to Eskom for the cost of any remedial action which has to be carried out by Eskom.
12. The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by *Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)*.
13. Equipment shall be regarded electrically live and therefore dangerous at all times.
14. In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as an additional safety precaution, Eskom will not approve the erection of houses, or structures occupied or frequented by human beings, under the power lines or within the servitude restriction area.
15. Eskom may stipulate any additional requirements to highlight any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant.
16. It is required of the developer to familiarise himself with all safety hazards related to Electrical plant.
17. Any third party servitudes encroaching on Eskom servitudes shall be registered against Eskom's title deed at the developer's own cost. If such a servitude is brought into being, its existence should be endorsed on the Eskom servitude deed concerned, while the third party's servitude deed must also include the rights of the affected Eskom servitude.

John Geeringh (Pr Sci Nat)

Senior Consultant Environmental Management  
Eskom GC: Land Development

	<p style="text-align: center;"><b>SCOT</b></p>	<p style="text-align: center;"><b>Technology</b></p>
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Title: **Renewable Energy Generation Plant Setbacks to Eskom Infrastructure** Unique Identifier: **240-65559775**

Alternative Reference Number: **N/A**

Area of Applicability: **Power Line Engineering**

Documentation Type: **Guideline**

Revision: **0**

Total Pages: **8**

Next Review Date: **N/A**

Disclosure Classification: **CONTROLLED DISCLOSURE**

**Compiled by**



**J W Chetty**  
**Mechanical Engineer**

Date: 20/02/2014

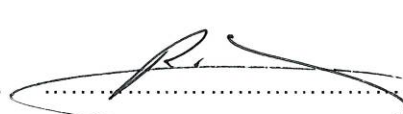
**Approved by**



**V Naidoo**  
**Chief Engineer (Lines)**

Date: 24/02/2014

**Authorised by**



**R A Vajeth**  
**Acting Snr Manager (Lines)**

Date: 27/2/2014

**Supported by SCOT/SC**



**R Vajeth**  
**SCOT/SC/ Chairperson**

Date: 27/2/2014

PCM Reference: 240-65132732 **LINE ENGINEERING SERVICES**

SCOT Study Committee Number/Name : **OVERHEAD LINES**

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## **EXECUTIVE SUMMARY**

In recent decades, the use of wind turbines, concentrated solar plants and photovoltaic plants have been on the increase as it serves as an abundant source of energy. This document specifies setbacks for wind turbines and the reasons for these setbacks from infrastructure as well as setbacks for concentrated solar plants and photovoltaic plants. Setbacks for wind turbines employed in other countries were compared and a general setback to be used by Eskom was suggested for use with wind turbines and other renewable energy generation plants.

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## **1. INTRODUCTION**

During the last few decades, a large amount of wind turbines have been installed in wind farms to accommodate for the large demand of energy and depleting fossil fuels. Wind is one of the most abundant sources of renewable energy. Wind turbines harness the energy of this renewable resource for integration in electricity networks. The extraction of wind energy is its primary function and thus the aerodynamics of the wind turbine is important. There are many different types of wind turbines which will all exhibit different wind flow characteristics. The most common wind turbine used commercially is the Horizontal Axis Wind Turbine. Wind flow characteristics of this turbine are important to analyse as it may have an effect on surrounding infrastructure.

Wind turbines also cause large turbulence downwind that may affect existing infrastructure. Debris or parts of the turbine blade, in the case of a failure, may be tossed behind the turbine and may lead to damage of infrastructure in the wake path.

This document outlines the minimum distances that need to be introduced between a wind turbine and Eskom infrastructure to ensure that debris and / or turbulence would not negatively impact on the infrastructure.

Safety distances of wind turbines from other structures as implemented by other countries were also considered and the reasons for their selection were noted.

Concentrated solar plants and photovoltaic plants setbacks away from substations were also to be considered to prevent restricting possible power line access routes to the substation.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

This document provides guidance on the safe distance that a wind turbine should be located from any Eskom power line or substation. The document specifies setback distances for transmission lines (220 kV to 765 kV), distribution lines (6.6 kV to 132 kV) and all Eskom substations. Setbacks for concentrated solar plants and photovoltaic plants are also specified away from substations.

#### **2.1.1 Purpose**

Setbacks for wind turbines and power lines / substations are required for various reasons. These include possible catastrophic failure of the turbine blade that may release fragments and which may be thrown onto nearby power lines that may result in damage with associated unplanned outages. Turbulence behind the turbine may affect helicopter flight during routine Eskom live line maintenance and

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inspections that may lead to safety risk of the aircraft / personnel. Concentrated solar plants and photovoltaic plants setback away from substations were required to prevent substations from being boxed in by these renewable generation plants limiting line route access to the substations.

### 2.1.2 Applicability

This document is applicable to the siting of all new and existing wind turbines, concentrated solar plants and photovoltaic plants near power lines and substations.

## 2.2 NORMATIVE/INFORMATIVE REFERENCES

### 2.2.1 Normative

1. <http://www.envir.ee/orb.aw/class=file/action=preview/id=1170403/Hiiumaa+turbulence+impact+EMD.pdf>.
2. <http://www.energy.ca.gov/2005publications/CEC-500-2005-184/CEC-500-2005-184.PDF>
3. <http://www.adamscountywind.com/Revised%20Site/Windmills/Adams%20County%20Ordinance/Adams%20County%20Wind%20Ord.htm>
4. [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=PA11R&RE=1&EE=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA11R&RE=1&EE=1)
5. <http://www.wind-watch.org/documents/european-setbacks-minimum-distance-between-wind-turbines-and-habitations/>
6. <http://www.publications.parliament.uk/pa/ld201011/ldbills/017/11017.1-i.html>
7. [http://www.caw.ca/assets/pdf/Turbine\\_Safety\\_Report.pdf](http://www.caw.ca/assets/pdf/Turbine_Safety_Report.pdf)
8. Rogers J, Slegers N, Costello M. (2011) A method for defining wind turbine setback standards. Wind energy 10.1002/we.468

### 2.2.2 Informative

None

## 2.3 DEFINITIONS

Definition	Description
Setback	The minimum distance between a wind turbine and boundary line/dwelling/road/infrastructure/servitude etc.
Flicker	Effect caused when rotating wind turbine blades periodically cast shadows
Tip Height	The total height of the wind turbine ie. Hub height plus half rotor diameter (see Figure1)

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### 2.3.1 Disclosure Classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 ABBREVIATIONS

Abbreviation	Description
None	

## 2.5 ROLES AND RESPONSIBILITIES

All personnel involved in the positioning wind turbines, concentrated solar plants and photovoltaic plants near power lines/substations must follow the setbacks outlined in this guideline.

## 2.6 PROCESS FOR MONITORING

Approval by Eskom in writing.

## 2.7 RELATED/SUPPORTING DOCUMENTS

None

## 3. DOCUMENT CONTENT

### 3.1 INTERNATIONAL SETBACK COMPARISON

Wind Turbine setbacks employed by various countries were considered. It was found that setbacks were determined for various reasons that include noise, flicker, turbine blade failure and wind effects. The distances (setbacks) varied based on these factors and were influenced by the type of infrastructure

Wind turbine setbacks varied for roads, power lines, dwellings, buildings and property and it was noted that the largest setbacks were employed for reasons of noise and flicker related issues [1-7]. Very few countries specified setbacks for power lines.

The literature survey [1-7], yielded information about studies and experiments were conducted to determine the distance that a broken fragment from a wind turbine might be thrown. Even though of low probability of hitting a power line [ $5.0 \times 10^{-5}$ ]<sup>[8]</sup>, the distances recorded were significant [750m]<sup>[8]</sup>

Setbacks were thus introduced to prevent any damage to Eskom infrastructure.

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Wind turbines may also cause changes in wind patterns with turbulent effects behind the hub. These factors dictate the wind turbine setbacks specified in this document.

Concentrated solar plants and photovoltaic plants also can limit access into the substation for power lines of all voltages. A setback distance must therefore be employed to prevent the substation from being boxed in by these generation plants. These setback distances are specified in this document.

### **3.2 ESKOM REQUIRED SETBACKS**

- Eskom requires a setback distance of 3 times the tip height of the wind turbine from the edge of the closest Eskom servitude (including vacant servitudes) for transmission lines.
- Eskom requires a setback distance of 1 times the tip height of the wind turbine from the edge of the closest Eskom servitude (including vacant servitudes) for distribution Lines.
- Eskom must be informed of any proposed wind turbine, concentrated solar plants and photovoltaic activity within a 5 km radius of a substation. No wind turbine structure shall be built within a 2 km radius of the closest point of the substation. Where concentrated solar plants and photovoltaic structures fall within a 2 km radius of the closest point of a substation, Eskom should be informed in writing during the planning phase of the construction of such plant or structure.
- Applicants must show that Eskom radio telecommunication systems (mainly microwave systems) will not be affected in any way by wind turbines.

#### **CONTROLLED DISCLOSURE**

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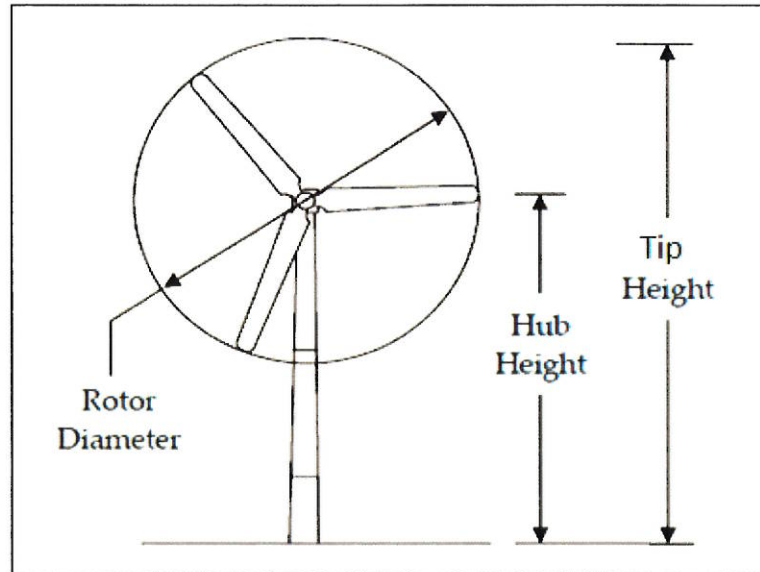


Figure 1: Horizontal Axis Wind Turbine <sup>[2]</sup>

**4. AUTHORISATION**

This document has been seen and accepted by:

Name & Surname	Designation
V Naidoo	Chief Engineer
Dr P H Pretorius	Electrical Specialist
J Geeringh	Snr Consultant Environ Mngt
B Haridass	Snr Consultant Engineer
R A Vajeth	Acting Snr Manager (Lines)

**5. REVISIONS**

Date	Rev.	Compiler	Remarks
November 2013	0	J W Chetty	First Publication - No renewable energy generation plant setback specification in existence

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## 6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

Jonathan W Chetty (Mechanical Engineer)

Vivendhra Naidoo (Chief Engineer)

Dr Pieter H Pretorius (Electrical Specialist)

John Geeringh (Snr Consultant Environ Mngt)

Bharat Haridass (Snr Consultant Engineer)

Riaz A Vajeth (Acting Snr Manager (Lines))

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**SCIENTIFIC SERVICES**

**postal** Private Bag X6546, George, 6530  
**physical** 4<sup>th</sup> Floor, York Park, Building,  
 York Street, George, 6530  
**website** [www.capenature.co.za](http://www.capenature.co.za)  
**enquiries** Colin Fordham  
**telephone** +27 44 802 5328 **fax** +27 44 802 5313  
**email** [cfordham@capenature.co.za](mailto:cfordham@capenature.co.za)  
**reference** 14/2/6/1/5/2\_LAIN/KAREE\_WEF\_2018/CF033  
**date** 6<sup>th</sup> September 2018

Savannah Environmental  
 P.O. Box 148  
**Sunnynhill** Tel.: (011) 656 3237  
 Johannesburg Fax: 086 684 0547  
 2157  
[publicprocess@savannahsa.com](mailto:publicprocess@savannahsa.com)

Attention: Ms Rozanne Els

**CONSULTATION IN TERMS OF SECTION 24(O) AND (3), IN TERMS OF THE NEMA ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS (AS AMENDED), FOR THE ENVIRONMENTAL AUTHORISATION AMENDMENT APPLICATION FOR THE PROPOSED KAREEBOSCH WIND ENERGY FACILITY, NORTHERN AND WESTERN CAPE PROVINCES, LAINGSBURG LOCAL MUNICIPALITY.**

**DEA EA Reference Number: 14/12/16/3/3/2/807**

CapeNature would like to thank you for the opportunity to comment on the application and would like to make the following comments. Please note that our comments only pertain to the biodiversity related impacts and not to the overall desirability of the application.

Given that the amendment is required in order to change technical aspects of the turbine specifications, it is deemed that there are no major additional environmental impacts other than those already evaluated in the environmental assessment associated with the development application as authorised.

The following table was extracted from the documentation supplied by the consultant illustrates the proposed amendment application request:

	Authorised turbine specification	Amended turbine specifications
Wind Turbine Generation Capacity	2MW to 3.3MW	2MW to 5.5MW
Rotor Diameter	140m	160m
Hub Height	100m	125m
Blade Length	70m	80m

In addition to which, the location of the various turbines and infrastructure has not changed and only the holder of the Environmental Authorisation details are changing. It is noted that no additional Listed Activities will be triggered by the proposed amendments.

The Avifaunal Impact Assessment and the Bat Impact Assessments have been revised accordingly, both finding in favour of the proposed changes.

Since the Environmental Authorisation was granted, the Western Cape Biodiversity Spatial Plan (WCBSP 2017)<sup>1</sup> and its associated Land Use Advice (LUA) Handbook (Pool-Stanvliet *et al.* 2017)<sup>2</sup> have been published. It is therefore recommended these documents/maps be referenced accordingly and all relevant sections of the various reports be updated where necessary. These documents/maps are particularly relevant to the impact assessment sections of these reports and are currently considered best available science in the field of conservation planning for the Western Cape.

Given the above CapeNature **does not object** to the proposed amendment application.

CapeNature reserves the right to revise initial comments and request further information based on any additional information that may be received.

Yours sincerely



**Colin Fordham**  
**For: Manager (Scientific Services)**

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<sup>1</sup> Pence, G.Q.K. (2017). *The Western Cape Biodiversity Spatial Plan: Technical Report*. In Prep. Western Cape Nature Conservation Board (CapeNature), Cape Town.

<sup>2</sup> Pool-Stanvliet, R., Duffell-Canham, A., Pence, G. & Smart, R. (2017). *The Western Cape Biodiversity Spatial Plan Handbook*. Stellenbosch: CapeNature.



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Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za  
South African Heritage Resources Agency | 111 Harrington Street | Cape Town  
P.O. Box 4637 | Cape Town | 8001  
www.sahra.org.za

Enquiries: Natasha Higgitt  
Tel: 021 462 4502  
Email: nhiggitt@sahra.org.za  
CaseID: 7379

Date: Wednesday September 26, 2018  
Page No: 1

## Final Comment

**In terms of Section 38(4), 38(8) of the National Heritage Resources Act (Act 25 of 1999)**

Attention: Karreebosch Wind Farm (Pty) Ltd

5th Floor, 125 Buitengracht Street  
Cape Town 8001

**Project Name: Karreebosch Wind Farm and Associated Infrastructure within the Karoo Hoogland Local Municipality and the Laingsburg Local Municipality in the Northern Cape Province and Western Cape Province. Applicant: Karreebosch Wind Farm (Pty) Ltd Proposed Activity: The establishment of a wind energy facility on a site located approximately 30km north of Matjiesfontein, and approximately 40 km south of Sutherland. Project Location: The site falls within the Karoo Hoogland Local Municipality, Northern Cape and Laingsburg Local Municipality, Western Cape. The following properties form part of the project development footprint: The following properties form part of the project development footprint: Farm Appelsfontein 201, Remainder and Portion 1 and 2 of Ekkraal 199, Remainder and Portion 1 of Karreebosch 200, Portion 1 of Karreekloof 196, Remainder and 1 of Klipbanksfontein 198, Farm Kranskraal 189, Farm Oude Huis 195, Farm Rietfontein 197, Farm Roode Wal 187, Portion 2 of Standvastigheid 210, Remainder of Wilgebosch Rivier 188, Farm Aprils Kraal 105 and Remainder and Portion 1 of Bon Espirange 73. Application for Environmental Authorisation: Karreebosch Wind Farm (Pty) Ltd has appointed Savannah Environmental as the independent environmental consultant to complete the Environmental Impact Assessment (EIA) process. In terms of sections 24 and 24D of NEMA, as read with Government Notices R982, R983, R984 and R985, a Scoping and EIA process is required for the proposed project.**

Savannah Environmental (Pty) Ltd has been appointed by Karreebosch Wind Farm (Pty) Ltd to conduct an Environmental Authorisation (EA) Amendment Application process for the authorised Karreebosch Wind Farm, near Sutherland, Northern Cape Province (DEA Ref: 14/12/16/3/3/2/807). A draft Motivation for Amendment Report has been submitted in terms of the National Environmental Management Act, No 107 of 1998 (NEMA) and the NEMA 2017 Environmental Impact Assessment (EIA) Regulations. The proposed amendments include the following:

- Wind turbine generation capacity from 2MW – 3.3MW to 2MW – 5.5MW;
- Rotor diameter from 140 m to 160 m;
- Hub height from 100 m to 125 m;





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South African Heritage Resources Agency | 111 Harrington Street | Cape Town  
P.O. Box 4637 | Cape Town | 8001  
[www.sahra.org.za](http://www.sahra.org.za)

Enquiries: Natasha Higgitt  
Tel: 021 462 4502  
Email: [nhiggitt@sahra.org.za](mailto:nhiggitt@sahra.org.za)

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- Blade length from 70 m to 80 m;
- Wind measuring mast height from 100 m to 125 m;
- Change in contact details of the holder of the authorisation.

No proposed amendment to the physical layout and footprint is being requested.

In a Final Comment issued on SAHRIS Case ID 4503

(<https://www.sahra.org.za/sahris/cases/roggeveld-wind-farm-phase-1>), SAHRA stated that Turbines 28 and 29 would need to be removed from the footprint, which was supported in the EA submitted to the case, however the EA Reference number (DEA Ref: 12/12/20/1988/1) differs from the current application i.e. before the original Roggeveld WEF was split into three phases (Karreebosch is phase 2 of the Roggeveld WEF. See Case ID 473 <https://www.sahra.org.za/sahris/cases/roggeveld-wind-farm>) and EIA in Case ID 6884 <https://www.sahra.org.za/sahris/cases/karreebosch-roggeveld-phase-2-wind-farm>).

### Final Comment

The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit notes the proposed amendment and is satisfied that the proposed changes to the project will not impact significant heritage resources. The comments provided in the Final Comment for Case ID 4503 with regards to turbines 28 and 29 are still valid and must be adhered to. The following additional conditions must be included in the Environmental Management Programme (EMPr):

- The final Amendment Report must be submitted to the SAHRIS Case application for record purposes;
- The condition provided in SAHRIS Case ID 473 with regards to the 3 km buffer from the R354 for the original Roggeveld WEF is amended to 1 km so that Phase 2 (Karreebosch) is aligned with the condition provided for Phase 1 of the project as per the Final Comment issued on SAHRIS Case ID 4503;
- If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance,

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South African Heritage Resources Agency | 111 Harrington Street | Cape Town  
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Enquiries: Natasha Higgitt  
Tel: 021 462 4502  
Email: [nhiggitt@sahra.org.za](mailto:nhiggitt@sahra.org.za)  
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- a Phase 2 rescue operation may be required subject to permits issued by SAHRA;
- Should the project be granted the amended Environmental Authorisation, SAHRA must be notified and all relevant documents submitted to the case file.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

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Natasha Higgitt  
Heritage Officer  
South African Heritage Resources Agency

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Phillip Hine  
Acting Manager: Archaeology, Palaeontology and Meteorites Unit  
South African Heritage Resources Agency

**ADMIN:**

Direct URL to case: <http://www.sahra.org.za/node/255743>  
(, Ref: )

**Terms & Conditions:**

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.

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Enquiries: Natasha Higgitt  
Tel: 021 462 4502  
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3. SAHRA reserves the right to request additional information as required.