

OCTOBER 2011

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED

**OLIFANTS RIVER WIND ENERGY FACILITY,  
AND ASSOCIATED INFRASTRUCTURE**

ON A SITE WEST OF LUTZVILLE,  
WESTERN CAPE PROVINCE

**BACKGROUND INFORMATION DOCUMENT**



s a r g e

South African Renewable Green Energy (Pty) Ltd (SARGE) is proposing to establish a commercial wind energy facility and associated infrastructure on a site located west of Lutzville in the Western Cape. The wind energy facility is proposed to accommodate up to 115 wind turbines with a generating capacity of ~350 MW, spaced to make use of the wind resource on the site. Based on a pre-feasibility analysis and site identification processes undertaken by SARGE, a favourable area has been identified for consideration and evaluation through an Environmental Impact Assessment (EIA).

The project is proposed on the following farm portions (refer to attached map), and is referred to as the Olifants River Wind Energy Facility project:

- » Remainder of the Farm Zoutpans Klipheuvel 268
- » Portion 1 of the Farm Zoutpans Klipheuvel 268
- » Erf 618 of the Olifants River Settlement

The site proposed for the facility falls within the Matzikama Local Municipality. A broader area of approximately 3 000 ha is being considered within which the facility is to be constructed. The nature and extent of this facility is explored in more detail in this Background Information Document (BID).

### AIM OF THIS BACKGROUND INFORMATION DOCUMENT

This BID aims to provide you, as an interested and/or affected party (I&AP), with:

- » An overview of the proposed Wind Energy Facility.
- » An overview of the Environmental Impact Assessment process and studies being undertaken to assess the potential impacts, both positive and negative, associated with the proposed project.
- » Details of how you can become involved in the process, receive information, or raise issues, which may concern and/or interest you.

### OVERVIEW OF THE PROPOSED PROJECT

SARGE has identified a site in the Lutzville area in the Western Cape as an ideal location for the Proposed Olifants River Wind Energy Facility due to the favourable wind, land tenure and suitable existing infrastructure of the area, as well as initiatives taken by the Western Cape to pilot renewable energy.

The capacity of the wind energy facility will depend on the wind turbine selected by SARGE, and will depend on the turbine model and capacity that will be deemed most suitable for the site. The estimated total installed capacity for the proposed facility is up to 350 MW.

As the performance of the turbines is affected by disturbance to the wind resource, they must be appropriately spaced within the facility. The overall aim of the design and layout of the facility is to maximise electricity production through exposure to the wind resource, while minimising infrastructure, operation and maintenance costs, and social and environmental impacts. The proposed turbines would therefore be appropriately located on the identified site, which covers an area of ~3 000 ha. The broader site is proposed to accommodate both the wind turbines as well as the associated infrastructure which is required for such a facility including, but not limited to:

- » Up to 115 wind turbines (up to 3 MW in capacity)
- » foundations to support the turbine towers
- » Cabling between the turbines, to be laid underground where practical
- » Substations

- » overhead power lines feeding into the electricity distribution network/grid
- » an access road to the site from the main road/s within the area
- » internal access roads to each wind turbine
- » an onsite workshop area for maintenance and storage

The Olifants River Wind Energy Facility is intended to be registered with the United Nation's Framework Convention for Climate Change as part of the Clean Development Mechanisms Programme.

## RENEWABLE ENERGY TECHNOLOGIES PROPOSED FOR THE PROJECT

Various renewable energy technologies are available for electricity generation. Renewable energy technologies offer an alternative to fossil fuels, thereby reducing the amount of CO<sub>2</sub> emissions into the atmosphere. The generation of renewable energy contributes to South Africa's electricity generating market which has been dominated by coal-based power generation.

## MORE ABOUT WIND TURBINES

A wind energy facility consists of multiple wind turbines which are used to capture the kinetic energy of the wind for the purposes of generating electricity. This captured kinetic energy is used to drive a generator located within the wind turbine and the energy is subsequently converted into electrical energy. A turbine is designed to operate continuously, with low maintenance for more than 20 years. A typical wind turbine consists of four primary components:

- » The foundation unit upon which the turbine is anchored to the ground.
- » The tower which is up to 100m in height. The tower is a hollow structure allowing access to the nacelle. The height of the tower is a key factor in determining the amount of electricity a turbine can generate. Small transformers are housed either inside or outside each turbine tower, depending on what make and model of turbine is deemed most suitable for the site. The transformer converts the electricity to the correct voltage for transmission into the grid.
- » The nacelle (generator/turbine housing) which houses the gearbox and generator as well as a wind sensor to identify wind direction. The nacelle turns automatically ensuring the blades always face into the wind to maximise the amount of electricity generated.
- » The rotor which is comprised of three rotor blades (the approximate rotor diameter being 120m (i.e. each blade up to 60 m in length). The rotor blades use the latest advances in aeronautical engineering materials science to maximise efficiency. The greater the number of turns of the rotor the more electricity is produced.

The mechanical power generated by the rotation of the blades is transmitted to the generator within the nacelle via a gearbox and drive train. The wind turns the blades, which in turn spin a shaft which connects to a generator and makes electricity. The use of wind for electricity generation is essentially a non-consumptive use of a natural resource, and produces zero greenhouse gas emissions.

The amount of energy a turbine can harness is dependent on the wind velocity and the length of the rotor blades. Wind turbines start generating power at wind speeds of between 3 m/s and 5 m/s, with speeds between 8 m/s and 12 m/s required for full power operation. In a situation where wind speeds are excessive, the turbine automatically shuts down to prevent damage.

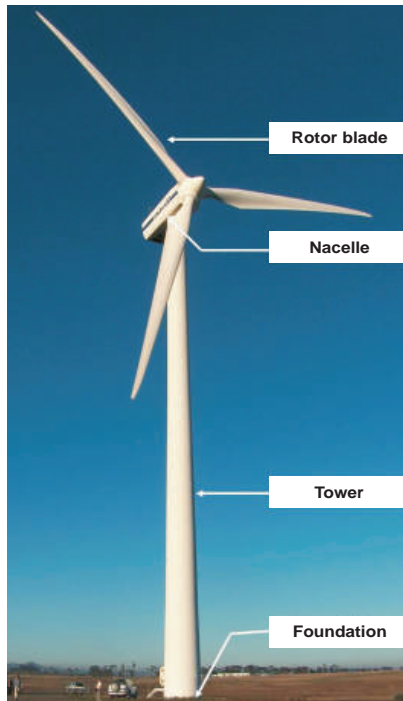


Figure 1: Illustration of the main components of a wind turbine

## ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), South African Renewable Green Energy (Pty) Ltd (SARGE) requires authorisation from the National Department of Environmental Affairs (DEA) (in consultation with the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)) for the construction and operation of the proposed renewable energy facility. In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R543 to R546, a Scoping and EIA are required to be undertaken for this proposed project. In order to obtain authorisation, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations. This project has been registered with the National DEA under application reference number 12/12/20/2269.

An EIA is an effective planning and decision-making tool. It allows the potential environmental consequences resulting from a technical facility during its establishment and its operation to be identified and appropriately managed. It provides the opportunity for the applicant to be forewarned of potential environmental issues, and allows for resolution of the issue(s) reported on in the EIA report as well as dialogue with I&APs.

SARGE has appointed Savannah Environmental, as the independent environmental consultants, to undertake the required Scoping Phase and Environmental Impact Assessment to identify and assess all the potential environmental impacts associated with the proposed project, and proposes appropriate mitigation and management measures in an Environmental Management Programme (EMP). As part of these environmental studies, I&APs will be actively involved through the public involvement process also being undertaken by Savannah Environmental.

The phases of an EIA are as follows:



## EIA PROCESS

### WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT?

A number of potential environmental impacts associated with the proposed project have been identified. These potential impacts will be assessed through the following specialist studies:

Biophysical Studies	Social Studies
<p><b>Impacts on Ecology, Fauna and Flora:</b> The construction of the wind energy facility and the associated disturbance of vegetation may result in impacts on ecology.</p>	<p><b>Visual Quality and Aesthetics:</b> Due to their size, wind turbines have the potential to have a visual impact on the surrounding area.</p>
<p><b>Impact on Avifauna:</b> Birds and bats may be impacted through collision with the blades during operation of the wind energy facility.</p>	<p><b>Impacts on Heritage Sites and Fossils/Paleontology:</b> Disturbance to or destruction of heritage sites and fossils/paleontology may result during the construction of the wind energy facility.</p>
<p><b>Impacts associated with Geology:</b> Impacts associated with geology; relating to the underlying soil conditions and erosion potential.</p>	<p><b>Noise Impacts:</b> The rotation of the blades may result in noise emissions which could impact on nearby residents.</p>
<p><b>Impacts on Agricultural Potential:</b> Impacts on agricultural areas and potential, and land capacity.</p>	<p><b>Impacts on the Social Environment:</b> The construction and operation of the facility may result in limited job opportunities and could impact on the local land use.</p>

These specialist studies will be undertaken in two phases:

1. The Scoping Phase includes a desk-top study, wherein potential issues associated with the proposed project are identified and evaluated, and those issues requiring further investigation through the EIA phase are highlighted.
2. The EIA Phase includes a detailed assessment of potentially significant impacts identified in the Scoping Phase. Practical and achievable mitigation measures will be recommended in order to minimise potentially significant impacts identified. These recommendations will be included within a draft Environmental Management Programme (EMP).

Specialist studies will be informed by existing information, field observations and input from the public participation process. As an I&AP, your input is considered an important part of this process, and we urge you to become involved.

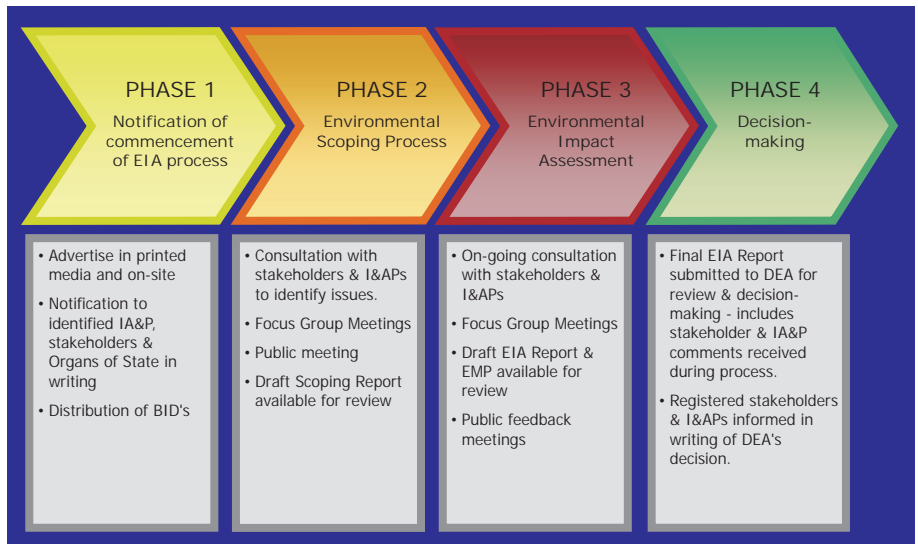
## PUBLIC INVOLVEMENT PROCESS

The sharing of information forms the basis of the public involvement process and offers you the opportunity to become actively involved in the EIA from the outset. Comments and inputs from I&APs during the EIA process are encouraged in order to ensure that potential impacts are considered within the ambit of the study.

The public involvement process aims to ensure that:

- » Information that contains all the relevant facts in respect of the application is made available to I&APs for review.
- » I&AP participation is facilitated in such a manner that they are provided with a reasonable opportunity to comment on the proposed project.
- » Adequate review periods are provided for I&APs to comment on the findings of the draft Scoping and EIA Reports.

In order to ensure effective participation, the public involvement process includes the following 4 phases:



## YOUR RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations, your attention is drawn to your responsibilities as an I&AP:

- » In order to participate in this EIA process, you must register yourself on the project database.
- » You must ensure that any comments regarding the proposed project are submitted within the stipulated timeframes.
- » You are required to disclose any direct business, financial, personal or other interest which that you may have in the approval or refusal of the application for the proposed facility.

## HOW TO BECOME INVOLVED

1. By responding (by phone, fax or e-mail) to our invitation for your involvement which has been advertised in local and national newspapers.
2. By returning the attached Reply Form to the relevant contact person.
3. By attending the meetings to be held during the course of the project. As a registered I&AP you will automatically be invited to attend these meetings. Dates for public meetings will also be advertised in local and regional newspapers.
4. By contacting the consultants with queries or comments.
5. By reviewing and commenting on the draft Scoping and EIA Reports within the stipulated 30-day review periods.

If you consider yourself an I&AP for this proposed project, we urge you to make use of the opportunities created by the public involvement process to provide comment, or raise those issues and concerns which affect and/or interest you, and about which you would like more information. Your input into this process forms a key element of the EIA process.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for this project, and are ensured that your comments, concerns or queries raised regarding the project will be noted.

## COMMENTS AND QUERIES

Direct all comments, queries or responses to:

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PO Box 749, Rondebosch, CAPE TOWN, 7701  
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To review project documentation, visit

[www.savannahSA.com](http://www.savannahSA.com)

