

SEPTEMBER 2010

BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

ESTABLISHMENT OF THE PROPOSED

KAROO RENEWABLE ENERGY FACILITY

ON A SITE SOUTH OF VICTORIA WEST
NORTHERN CAPE PROVINCE



s a r g e

South African Renewable Green Energy (Pty) Ltd (SARGE) is proposing to establish a commercial renewable energy facility consisting of both a wind energy facility component and a photovoltaic solar facility component, as well as associated infrastructure on a site located approximately 34 km south of Victoria West. 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 portions of the following Farms: Nobelsfontein 227, Annex Nobelsfontein 234, Ezelsfontein 235, Rietkloofplaaten 239, Modderfontein 228 and PhaisantKraal 1. A broader area of approximately 20 222 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 Renewable 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

By undertaking a technical feasibility study which considered favourable climatic conditions (wind and solar renewable energy facilities are directly reliant on average wind speeds and solar radiation values for a particular area), access to the electricity grid, accessibility of the study site, and local site topography, an ideal site has been identified for the establishment of the proposed renewable energy facility.

The site under investigation for the proposed Karoo Renewable Energy Facility covers an approximate area of 200km². The proposed facility is proposed to accommodate up to 350 MW which would comprise a combination of the following technologies:

- » up to 150 wind turbines with a generating capacity of up to 300MW
- » an array of photovoltaic (PV) panels with a generating capacity of up to 50MW

Other infrastructure associated with the facility will include:

- » An on-site generator transformer and a small substation to facilitate the connection between the renewable energy facility and the Eskom electricity grid;
- » Foundations to support both the turbine towers as well as the PV panels;
- » Cabling between the project components, to be laid underground where practical;
- » An overhead power line (132kV) of ~6km in length feeding into the Eskom electricity network at the existing Skietkuil/Biesiespoort Substation; and
- » Internal access roads; and
- » Workshop area for maintenance and storage.

The overall aim of the design and layout of the facility is to maximise electricity production through exposure to the wind resource and solar radiation, while minimising infrastructure, operation and maintenance costs, and social and environmental impacts. The use of wind- and solar energy for power generation can be described as a non-consumptive use of natural resources which emits zero greenhouse gas emissions. The generation of renewable energy

contributes to South Africa's electricity generating market which has been dominated by coal-based power generation.

RENEWABLE ENERGY TECHNOLOGIES PROPOSED FOR THE PROJECT

Various renewable energy technologies are available for electricity generation. Renewable energy technologies including wind turbines and solar panels offer an alternative to fossil fuels, thereby reducing the amount of CO₂ emissions into the atmosphere. It is proposed that this renewable energy facility employ both wind turbines and photovoltaic panels in order to generate electricity, which will be fed into the National power grid.

1. Wind Energy Facility

A wind energy facility consists of multiple wind turbines which are used to capture the kinetic energy of the wind. The mechanical power generated by the rotation of the blades is transmitted to the generator within the nacelle via a gearbox and a drive train. The wind turns the blades, which in turn spin a shaft which connects to a generator and generates electrical power.

Wind turbines typically consist of four primary components:

The Foundation

Each turbine will have a concrete foundation upon which the base of the wind turbine will be anchored. These foundations reach depths of approximately 2.5m.

The Tower

The tower varies between 80-100m in height, depending on the type of turbine. The tower is a hollow structure which allows access to the nacelle in order to perform maintenance activities.

The Nacelle

The nacelle refers to the protective housing which comprises the gearbox, generator as well as the wind sensor to identify the wind direction. The nacelle has the ability to rotate in order to ensure that the rotor blades are always facing into the wind therefore maximising the amount of electricity being generated.

The Rotor

The rotor consists of three blades and the hub. The rotor blades are typically up to 50m in length. The greater the number of turns of the rotor, the more electricity is produced.

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 10-15 km/hour, with speeds between 45-60 km/hour required for full power operation. Where wind speeds reach levels which could damage the generator, the turbine automatically shuts down. A turbine is designed to operate continuously, with low maintenance for more than 20 years.

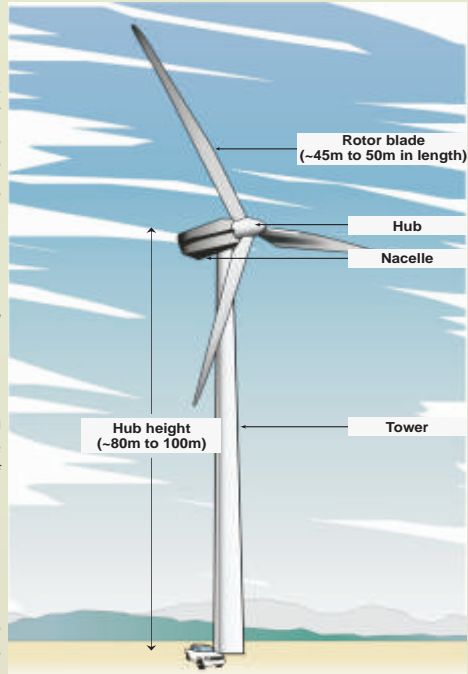


Illustration of the components of a typical wind turbine

2. Solar Energy Facility

Solar energy facilities, such as those using PV panels use the energy from the sun to generate electricity through a process known as the Photovoltaic Effect. This effect refers to photons of light colliding with electrons, and therefore placing the electrons into a higher state of energy to create electricity. The photovoltaic solar facility component of the development is anticipated to accommodate up to 50 MW of generating capacity.

Solar PV facilities comprise of the following components:

The Photovoltaic Cell

A photovoltaic (PV) cell is made of silicon which acts as a semiconductor used to produce the photovoltaic effect. Individual PV cells are linked and placed behind a protective glass sheet to form a photovoltaic panel.

The Inverter

The photovoltaic effect produces electricity in direct current. Therefore an inverter must be used to change it to alternating current.

The Support Structure

The PV panels will be fixed to a support structure set at an angle so to receive the maximum amount of solar radiation. The angle of the panel is dependent on the latitude of the proposed facility and the angles may be adjusted to optimise for summer or winter solar radiation characteristics.



Illustration of a photovoltaic solar facility

The PV panels are designed to operate continuously for more than 20 years, unattended and with low maintenance.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

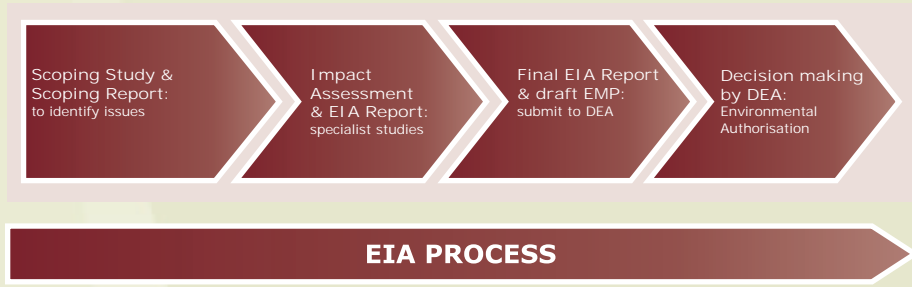
In terms of the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), SARGE (Pty) Ltd requires authorisation from the National Department of Environmental Affairs (DEA) (in consultation with the Northern Cape Department of Environment and Nature Conservation (DENC) as well as 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 R385 (Regulations 27-36) and R387, a Scoping Phase and an 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 12/12/20/1993.

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 (Pty) Ltd 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 Plan (EMP). As part of these environmental studies, I&APs will be actively involved through the public involvement process being undertaken by Batho Earth Social and Environmental Consultants.

The phases of an EIA are:



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

A number of potential environmental impacts, both positive and negative, associated with the proposed Renewable Energy Facility have been identified. These include the following:

Biophysical

Avifauna
Birds and bats may be impacted through collision with the rotor blades of the wind turbine.

Ecology, fauna & flora
The construction of the renewable energy facility and the associated disturbance of the vegetation may result in impacts on the ecology.

Agricultural potential
Impacts on agricultural areas and potential, and land capacity.

Geological
Relating to underlying soil conditions and erosion potential.

Social

Visual quality and aesthetics
Wind turbines have the potential to have a visual impact on the surrounding area (PV panels are visible to a lesser extent when compared to wind turbines).

Heritage sites and fossil/palaeontology
Disturbance to or destruction of heritage sites and fossil/palaeontology may result during the construction of the facility.

Social impacts
The construction and operation of the facility may result in minimum job opportunities and could impact on local land use.

Noise
The rotation of the rotor blades may result in noise emission which could impact on nearby residents.

Specialist studies will be undertaken to identify and assess these potential impacts and will be undertaken in two phases:

1. The Scoping Phase/Study consists of a desktop 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 involves the detailed assessment of potentially significant impacts identified in the Scoping Phase. Practical and achievable mitigation and management measures will be recommended within the draft Environmental Management Plan (EMP).

The potential environmental impacts associated with not undertaking the proposed project will also be explored through the EIA process. Specialist studies will be guided 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.

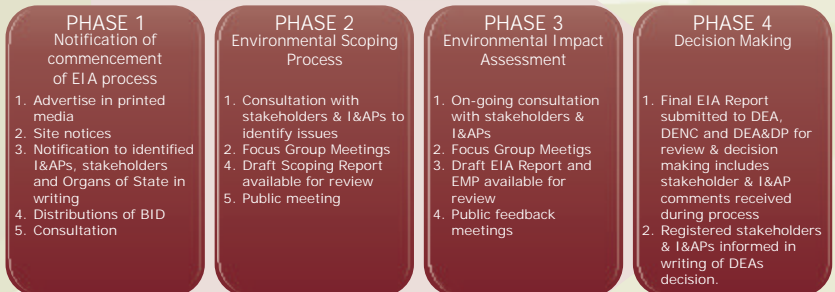
PUBLIC INVOLVEMENT PROCESS

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 time frames.
- » 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:









Ingrid Snyman of Batho Earth
PO Box 35130, Menlo Park, 0102
Phone: 082 779 2750
Fax: 012 361 1623
E-mail: ingrid@bathoearth.co.za

To view project documentation, visit
www.savannahSA.com

Karoo Renewable Energy Project

Locality Map

Legend

-  Area under investigation for EIA
-  National Road
-  Regional Road
-  Railway Line
-  Substation
-  Transmission Power Line
-  Distribution Power Line
-  Provincial Boundary

