

JANUARY 2012

ENVIRONMENTAL BASIC ASSESSMENT PROCESS

PROPOSED

DENHAMI WIND FARM

NEAR STRUIS BAY,
WESTERN CAPE PROVINCE

BACKGROUND INFORMATION DOCUMENT



SUSTAINABLE
FUTURES ZA



Denhami Research Farms CC is proposing to establish a commercial wind energy facility as well as associated infrastructure on a site owned by it and located approximately 4 km west of Struis Bay in the Western Cape Province. A favourable site has been identified for consideration and evaluation through a Basic Assessment. The project is referred to as the Denhami Wind Farm near Struis Bay. The project is located within the Cape Agulhas Local Municipality and is proposed on Farm Brakfontien B.

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 Basic Assessment process and studies being undertaken to assess the potential impacts, both positive and negative, associated with the proposed project; and
- » details of how you can become involved in the process, receive information, or raise issues, which may concern and/or interest you.

PROJECT DESCRIPTION

The site was selected by Denhami Research Farms CC for the development of a wind energy facility based on its wind climate (high average wind speeds), suitable proximity in relation to the existing electricity grid, minimum technical constraints from a construction and technical point of view, as well as a perceived low overall impact.

The operational capacity of the wind energy facility will depend on the wind turbine selected (in terms of the turbine capacity and model that will be deemed most suitable for the site) as well as the capacity of the Eskom transmission grid to evacuate the power from where it is generated to where it is consumed. Turbines of between 2 MW and 3 MW in capacity are being considered for the site. The total installed capacity for the proposed project would be up to nine 2 MW turbines or up to seven 3 MW turbines (one being as a partial spare) with a total capacity of less than 20 MW.

As the performance of the turbines is affected by disturbance to the wind resource caused by the turbines themselves, 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 optimal exposure to the wind resource, while minimising infrastructure, operation and maintenance costs and as importantly minimising social and environmental impacts. The proposed turbines would therefore be appropriately located on the identified site, which covers a broader area of \approx 700 hectares. The affected development footprint for the facility would be less than 20 ha. The site is proposed to accommodate both the wind turbines as well as the associated infrastructure which is required for such a facility including :

- » Up to 9 **wind turbine generators** (with a hub height of between 60 m and 105 m, depending on the turbine selected);
- » **cabling** between the turbines and transformer station, to be laid underground where practical;
- » **internal access roads** to each turbine;
- » **workshop area** for control, maintenance and storage;
- » small onsite **transformer station** to facilitate the connection between the wind energy facility and the grid; and
- » new 11 kV **overhead power line** to turn in and out of the existing distribution power line to L'Agulhas, in close proximity to the development site (i.e. < 600 m).

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 wind energy is subsequently converted into electrical energy. A turbine is designed to operate continuously, with low maintenance for more than 20 years. The length of the construction period for the wind energy facility is estimated to be approximately 3 months. A typical wind turbine consists of four primary components :

- » the **foundation unit** upon which the turbine is anchored to the ground;
- » the **tower** which can be between 60 m and 105 m in height (depending on the turbine selected); the tower is a hollow structure allowing access to the nacelle; the height of the tower is a key factor in determining the exposure of the wind turbine to the wind and consequently the amount of electricity a turbine can generate;
- » the **nacelle** which houses the gearbox and generator as well as a wind sensor to identify wind direction; the nacelle turns automatically ensuring that the turbine 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 is in the range of 80 m to 112 m); the rotor blades use the latest advances in composite materials science to maximise efficiency while maximising safety and minimising acoustic noise; the greater the number of revolutions of the rotor the greater the electricity energy 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 or other pollutants.

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 2 m/s and 3 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.

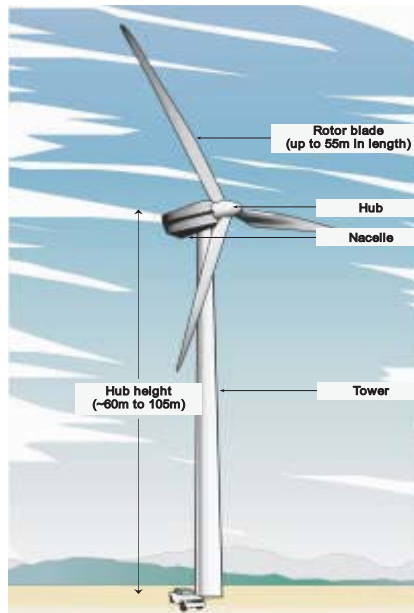


Figure 1: Illustration of a wind turbine

ENVIRONMENTAL BASIC ASSESSMENT PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), the Denhami Research Farm CC 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 Denhami Wind Farm. In terms of Sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R543 - 546, a Basic Assessment Process is required to be undertaken for this proposed project. This is due to the fact that the facility development area covers an area of less than 20 hectares and the generation capacity is less than 20 MW. In order to obtain authorisation, comprehensive and 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 **12/12/20/2569**.

An environmental assessment 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 report, as well as dialogue with I&APs.

Denhami Research Farms CC has appointed **Savannah Environmental** as the independent environmental consultants to undertake the required Basic Assessment 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 (EMP). As part of these environmental studies, I&APs will be actively involved through the public involvement process, which is being led by Sustainable Futures.

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

A number of potential negative environmental impacts associated with the proposed wind energy facility have been identified. These include the following :

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

Specialist studies will be undertaken to identify and assess each of these potential impacts.

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 invite you to become involved.

The positive environmental impacts associated with the proposed wind energy facility are that it will use a renewable energy source to generate much needed electrical power and without polluting the environment in any significant way.

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 process 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; and
- » adequate review periods are provided for I&APs to comment on the findings of the draft Basic Assessment Report.

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; and
- » 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 telephone, facsimile or email) to our invitation for your involvement which has been advertised in local and regional 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. The date for the public meeting will also be advertised in local newspapers.
4. By contacting the consultants with queries or comments.
5. By reviewing and commenting on the draft Basic Assessment Report within the stipulated 30 day review period.

If you consider yourself to be 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 considered in the process.

COMMENTS AND QUERIES

Direct all comments, queries or responses to:

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To view project documentation, visit
www.savannahSA.com



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Locality Map

Legend

- National Road
- Regional Road
- Secondary Road
- Railway Line
- Perennial River
- Non-perennial River
- New Power Line Segment
- Existing Power Lines
- Distribution Substation
- WEF portion

