ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
PROPOSED PROJECT BLUE WIND ENERGY FACILITY

NORTHERN CAPE PROVINCE
Phase 1: 20 MW (DEA Ref: 12/12/20/2331/1)
Phase 2: 56 MW (DEA Ref: 12/12/20/2331/2)
Phase 3: 74 MW (DEA Ref: 12/12/20/2331/3)

October 2011

A WWK Development Project
Background Information Document

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WWK WIND FARM DEVELOPMENT

WWK Development (Pty) Ltd has identified sites north of the town of Kleinzee within the Nama Khoi Local Municipality (Northern Cape), and within a De Beers mining area for the establishment of a commercial wind energy facility. The facility is proposed to accommodate up to 75 appropriately spaced turbines over an extent of approximately 3,300 hectares for the purpose of electricity generation. The total generating capacity of the proposed facility will be up to 150 MW. This proposed facility is proposed to be established in three phases. The entire facility will be referred to as the **Project Blue Wind Energy Facility.**

Aim of this Background Information Document

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

- An overview of the proposed project.
- An overview of the Environmental Impact Assessment Process and the relevant specialist studies being undertaken to assess the potential impacts associated with the project.
- Details of how you can become involved in the EIA process, receive information, or raise issues, which may concern and/or interest you.

Overview of the Project

The proposed wind energy facility and associated infrastructure (including proposed power line route) is to be established in three phases. These phases are proposed to be developed as follows (refer to the attached map):

- Project Blue Phase 1 on the farms Dikgat 195 Portion 07; Dikgat 195 Portion 09; Dikgat 195 Portion 02; Dikgat 195 Portion 05; Dikgat 195 Portion 04; Kleinzee 193 remaining portion; Dreyers pan 192 remaining portion; Predikant Vlei 190 portion 01; Predikant Vlei 190 portion 04; Predikant Vlei 190 portion 03. This phase would comprise up to 10 turbines and would have a generating capacity of up to 20MW.
- Project Blue Phase 2 on the farms Dikgat 195 Portion 07; Dikgat 195 Portion 09; Dikgat 195 Portion 02; Dikgat 195 Portion 05; Dikgat 195 Portion 04; Kleinzee 193 remaining portion; Dreyers pan 192 remaining portion; Predikant Vlei 190 portion 01; Predikant Vlei 190 portion 04; Predikant Vlei 190 portion 03; Predikant Vlei 190 portion 05. This phase would comprise up to 28 turbines and would have a generating capacity of up to 56MW.
- Project Blue Phase 3 on the farms Dikgat 195 Portion 07; Dikgat 195 Portion 09; Dikgat 195 Portion 02; Dikgat 195 Portion 05; Dikgat 195 Portion 04; Predikant Vlei 190 portion 01; Predikant Vlei 190 portion 04; Predikant Vlei; 190 portion 03; Predikant Vlei 190 portion 05. This phase would comprise up to 37 turbines and would have a generating capacity of up to 74MW.

It is known at this time that the wind energy facility will be established in a phased approach under three separate Special Purpose Vehicles (SPVs). As such separate authorisations and permits would be required for each phase of the facility.

The identified site is regarded as favourable due to the wind resource, the disturbed nature of the broader area due to mining activities, and proximity to a suitable electricity connection point. The proposed site for the wind energy facility has been determined in consultation with De Beers (the main affected landowner), and has taken cognisance of the current and proposed mining plans for the broader area in order to ensure no impacts in this regard. As a result, no feasible site alternatives have been identified for investigation for any of the project phases.

The facility is proposed to be established within an area of ~3,330 ha in extent. The facility will utilise up to 75 turbines with a generating capacity of up to 3MW each, with a hub height of up to 120m and a rotor diameter of up to 125m (i.e. each blade approximately 60m in length). The entire facility would have a capacity of up to 150 MW. Other infrastructure associated with the wind energy facility is proposed to include:

- **Foundations** to support the wind turbines.
- **Cabling** between the turbines, to be lain underground where practical, which will connect to an on-site substation.
- **A 66/132 kV** overhead power line, to connect the facilities to the Gromis substation;
- **Internal roads** (approximately 6 m in width) linking the wind turbines and other infrastructure on the site. Existing roads will be used as far as possible;
- **A substation** located within the wind energy facility. A high-voltage (HV) yard footprint of approximately 80m x 90m is proposed; and
- **A workshop** area for maintenance and storage.

The entire facility will be constructed in a phased approach and is proposed to take approximately 15 months to construct and commission. The construction will require a workforce comprising low, semi skilled and highly skilled staff. The operational phase is estimated at approximately 20 years. Each turbine is designed to operate continuously and with low maintenance.

Site-specific studies and assessments are currently being undertaken through an Environmental Impact Assessment process in order to confirm the environmental feasibility of the proposed project and to delineate any areas of environmental sensitivity within the study area. The exact positioning or detailed layout of the components of this proposed wind energy facility will be finalised by taking cognisance of the wind resource on the site as well as the environmental sensitivities and mitigation measures identified through the EIA process. An indicative layout for the wind energy facility is indicated in the attached map. A final layout of the turbines within the facility would be prepared prior to construction following the completion of detailed environmental investigations and on-site wind monitoring.

The need for the project

The need to expand electricity generation capacity in South Africa is based on **national policy** and informed by on-going strategic planning undertaken by the Department of Energy (DoE) and the National Energy Regulator of South Africa (NERSA). The South African Government has recognised the need to diversify the mix of energy generation technologies within the country, and also to reduce the country's reliance on fossil fuel derived power generation. As a result, and in order to meet the long-term goal of a sustainable renewable energy industry, the South African Government has set a target of 17GW renewable energy contribution to new power generation capacity by 2030. This is to be produced mainly from biomass, **wind**, solar and small-scale hydro. The proposed Project Blue Wind Energy Facility aims to assist government in meeting this goal.

Wind Power as a Power Generation Technology

Wind turbines use the energy from the wind to generate electricity. In essence, the blades of the turbine are turned by the wind and the energy captured is converted into electrical energy and supplied to the electricity grid for use in homes and elsewhere. Wind power is regarded as a non-consumptive use of a natural resource, which produces an insignificant quantity of greenhouse gases in its life cycle. Wind power consumes no fuel for continuing operation, and has no emissions directly related to electricity production.

A wind turbine typically consists of three rotor blades and a nacelle mounted at the tip of a tapered tower (refer to Figure 1). The rotational power generated by the turbine blades is transmitted to the generator housed within the nacelle via a gearbox and drive train. It is proposed that turbines with a hub height of up to 120m and a rotor diameter of up to 125m (i.e. each blade up to approximately 60m in length) be utilised for all three phases of this facility.

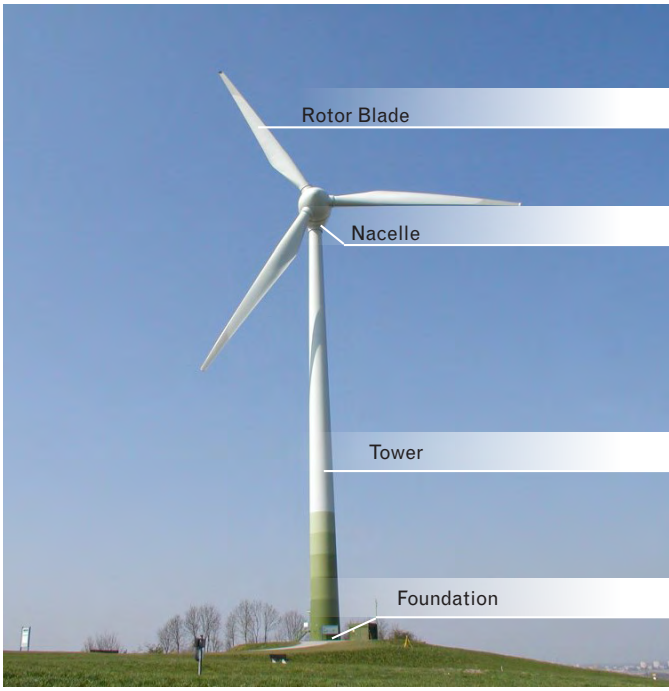

Figure 1: Illustration of the components of a typical wind turbine

Environmental Impact Assessment Process

WWK Development requires authorisation from National Department of Environmental Affairs (DEA; in consultation with the Northern Cape Department of Environmental Affairs and Nature Conservation (DENC) as a commenting authority) for the undertaking of the proposed project. In order to obtain authorisation for this project, comprehensive, independent environmental studies must be undertaken in accordance with the EIA Regulations. In terms of the Environmental Impact Assessment Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), it is a legal requirement that environmental impacts be investigated and assessed for any activity which may have a potentially detrimental impact on the environment. Sections 24 and 24D of NEMA, as read with the EIA Regulations of GNR543, state that a Scoping and EIA are required to be undertaken for the proposed project.

The EIA process is comprised of the following 4 primary phases:

As each phase of the project will be constructed and operated by a separate Special Purpose Vehicle, separate Environmental Authorisations will be required to be obtained. As such, each phase of this project has been registered with the National DEA under following application reference numbers respectively:

Phase 1: 20 MW (DEA Ref: 12/12/20/2331/1)
Phase 2: 56 MW (DEA Ref: 12/12/20/2331/2)
Phase 3: 74 MW (DEA Ref: 12/12/20/2331/3)

As the three phases as proposed form part of a larger wind energy facility development, a consolidated EIA process will be undertaken with a single EIA report being produced to assess the potential environmental impacts associated with each phase of the development, as well as the potential cumulative impacts of all three phases. A single public participation process will be undertaken to consider all three phases of development.

Potential Impacts associated with the establishment of a Wind Energy Facility

Although a wind energy facility utilises a renewable resource to generate electricity, the construction and operation of such a facility has the potential to impact on the environment both negatively and positively. The following impacts are typically associated with wind energy facilities:

- **Visual impacts** - due to their height, wind turbines have the potential to visually impact on the surrounding area.
- **Noise impacts** - the low frequency noise associated with the rotation of the blades as well as the noise associated with the generator may result in noise emissions which could affect sensitive receptors located in close proximity to the facility.
- **Impacts on avifauna** – bird and bat species may be affected through collisions with the turbine blades, electrocution associated with the power line, and through habitat disturbance during the construction phase.
- **Impacts on ecology** - the construction of the wind energy facility and the associated habitat disturbance and transformation may result in impacts on the biodiversity of the area.
- **Impacts on heritage sites** - disturbance to or destruction of heritage sites may result during the construction of the wind energy facility.
- **Impacts associated with erosion potential** - the construction of the wind energy facility may result in increased erosion potential on the site.
- **Impacts on the social environment** - the construction and operation of the facility may result in limited job opportunities and the generation of additional capacity will have an indirect but positive impact through the generation of electricity by means of renewable technology.
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These potential impacts will be assessed through the specialist studies which will be undertaken in two phases as follows:

1. A Scoping Study, wherein potential issues associated with the proposed project will be identified, described and evaluated. Sensitive environmental features on the development site will be identified and mapped.
2. 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 Plan (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 Participation Process

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved from the outset. This aims to ensure that:

- Information containing all relevant facts in respect of the application is made available to I&APs for review.
- Participation by potential I&APs is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the application.
- Adequate review periods are provided for I&APs to comment on the findings of the Draft Environmental Impact 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, 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 project.

How to become involved

- By responding (by phone, fax, or e-mail) to our invitation for your participation which has been advertised.
- By returning the attached reply form to the relevant contact person.
- 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.
- By contacting the consultants with queries or comments.

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

Comments and queries
Direct all comments, queries, or responses to:
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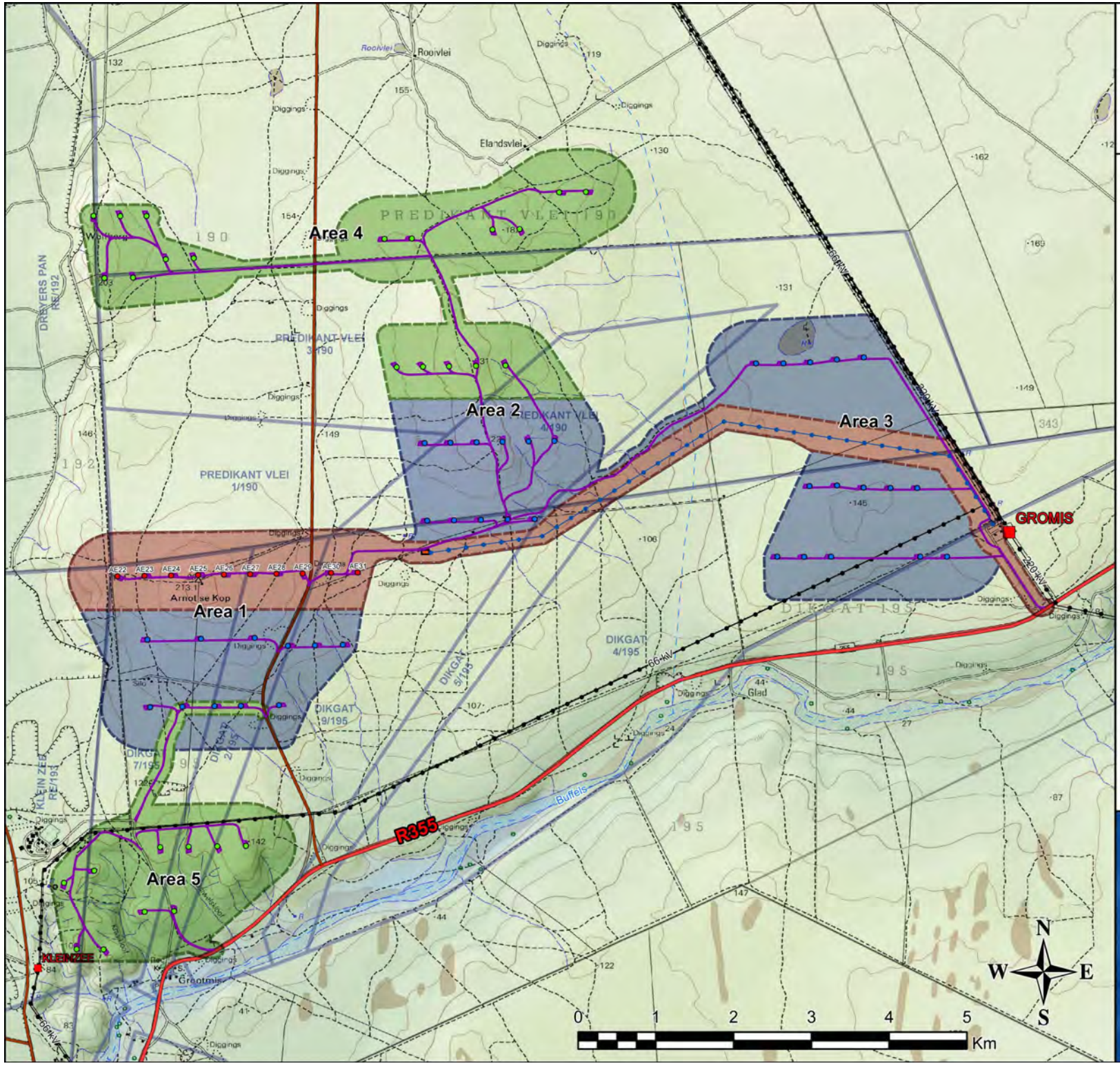
Phone: 083 325 9965
Fax: 086 510 2537
E-mail: swjohnston@mweb.co.za



Project Blue
Wind Energy Facility

Layout Map - All Phases

Legend

- Regional Road
- Secondary Road
- Distribution Substation
- Transmission Substation
- Power Line
- Non-perennial River
- Farm Portions

Proposed Infrastructure

- Indicative site layout - phase 1
- Indicative site layout - phase 2
- Indicative site layout - phase 3
- Aerial cable
- Internal roads
- Proposed substation
- Phase 1
- Phase 2
- Phase 3

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