

Project Overview

Windcurrent SA (Pty) in a Joint Venture with WKN Windkraft Nord AG (hereinafter jointly referred to as "WKN Windcurrent"), is proposing to construct a 100 MW wind energy facility on the Farms Zuurbron and Vlakteplaas near Jeffrey's Bay in the Kouga Municipal area, Eastern Cape Province (see Figure 1.1). CSIR has been appointed by WKN Windcurrent to undertake the Environmental Impact Assessment for the proposed construction of the wind energy facility.

The proposed project, referred to as the Ubuntu Wind Energy Project, will be located on the farms Zuurbron and Vlakteplaas, situated in the Kouga Municipality approximately 4 km to 7 km north north west of the town of Jeffrey's Bay as follows:

- Remainder of Farm 830, Kransplaas, (Farm Zuurbron);
- Portions 2/3/4/5/6/7 of Farm 854 (Vlakteplaas);
- Farms 307/5; Div Humansdorp;
- 307/6; Div Humansdorp;
- 307/7 Div Humansdorp; and
- Farm 845, Div Humansdorp.

The proposed project will be undertaken in two phases, both of which are covered in this EIA:

- Phase 1 (2013): Installed capacity up to 50 MW
- Phase 2 (2013): Additional installed capacity of up to 50 MW, bringing the total installed capacity up to 100 MW.

Phase 1 will have a total capacity of up to 50 MW, which can readily be accommodated by the existing transmission infrastructure without the need for any upgrades and would consist of up to a maximum of 25 turbines.

Phase 2 consists of additional turbines, identical to the turbines used in the Phase 1, to bring the total capacity of the wind farm from both phases up to 100 MW. The capacity of the turbines that are considered ranges from 2 MW to 3 MW. The total number of turbines could therefore vary from 33 turbines of 3 MW to 50 turbines if a 2 MW turbine is used.

The existing 132 kV overhead transmission line will be used to connect between the wind farm and the transmission system (Eskom grid). A new 132 kV substation will be built on site to connect to the existing transmission line.

Objective of the Project

At a national scale, renewable energy (in particular, wind energy) has the potential to play an important role in meeting South Africa's energy demand through diversifying the sources of power generation whilst reducing the country's carbon footprint from coal power generation. The project will also make a significant contribution to meeting provincial power supply requirements. The Eastern Cape Province is reliant on electricity supply from other provinces, and is currently limited by both generation and transmission capacity. At a local scale this wind energy project will contribute to improved energy stability and security of supply. In the Kouga area secondary

agricultural processing companies and both small and commercial scale farmers experience an intermittent and sometimes unreliable supply of electricity. In the towns of Jeffrey's Bay and Humansdorp the power supply is struggling to meet the local demand.

Project description

The key components of the project are:

Wind monitoring mast

WKN Windcurrent has erected a wind monitoring mast to collect wind data for a period of approximately 12 - 24 months to guide project design and further investment decisions and to gather the necessary site specific wind data. The proposed erection of the mast was covered by a separate Basic Assessment process conducted by CSIR on behalf of WKN Windcurrent in 2010 (DEA Reference number: 12/12/20/1753).

Wind turbines

1. 33 to 50 turbines (the actual number will be dependent on the capacity of the turbines selected in the range between 2 and 3 MW), with an expected hub height from 80 m to 105 m and a blade diameter from 90 m to 112 m
2. Turbines will be supported on reinforced concrete spread foundations from 16 m to 20 m in diameter and from 2.5 m to 3 m in depth.
3. Electrical transformers will be placed beside or in (the nacelle) of each turbine.
4. Hard standing areas will be established adjacent to each turbine for use by cranes during construction and retained for maintenance use throughout the life span of the project.
5. A maximum of three additional wind monitoring masts of up to 100 m in height may be installed.
6. Gravel roads, approximately 5 m wide, will be necessary to provide access to each turbine site, with the intent being to upgrade existing roads as far as possible.

Electrical connections

1. The wind turbines will be typically connected to each other and to the substation using medium voltage cables which will, in most cases, be buried approximately 1 m below ground, except where a technical assessment of the proposed design suggests that above ground lines are appropriate.
2. A new sub-station and transformer to the 132 kV Eskom grid will be constructed. The substation will preferably be located close to the 132 kV line.
3. The connection from the substation to the Eskom grid line is a stretch of over head line supported on an intermediate pole(s), depending on the location of the substation relative to the 132 kV line.

Other infrastructure

1. Operations and maintenance building: A single storey building, maximum 5000 m², with warehouse / workshop space and access, office and telecoms space and security and ablution facilities as required. This preferably should be situated close to the substation.
2. Fencing as required.

Temporary activities during construction

1. A lay down area is necessary for the assembly of the turbine components, beside an access route, of maximum area 10,000 m² – this hard standing area could be temporary or if the landowner prefers, left for long-term use.
2. The overall site compound for all contractors would be a maximum of 5000 m².
3. Existing borrow pits will be used as far as possible. The size of these pits will be dependent on the terrain and need for granular fill material for use in construction.
4. At the end of construction these borrow pits will be backfilled as much as possible using surplus excavated material from the foundations.

Construction consists of three distinct components: civil construction; electrical installation and wind turbine erection; and commissioning. The construction and commissioning phases are expected to require a total period of 8 to 15 months.

The operational life span of the wind turbines is expected to be 20 years. Turbine life can be extended beyond 20 years through regular maintenance and/or upgrades in technology.

The final choice of the type of turbines will be based on ease of erection, availability and suitability to the wind regime, amongst other criteria.

Wind turbines can be operated in parallel with farming activities. Internationally it is common practice for farming to continue whilst wind turbines are in operation leading to greater efficiency of land use and no loss of economic activity, but an added passive income for the landowner. Internationally, wind turbines and related components take up between 2% and 5% of the surface area of the wind farm, allowing other activities such as farming to continue on the land. Farms Zuurbron and Vlakteplaas have a combined area of approximately 4 200 ha. The proposed wind turbines will be situated on the northern half of Vlakteplaas and eastern half of Zuurbron. After construction, the turbine mast footprints will cover approximately 0.03 % of the total area.

Need for an EIA

In terms of the regulations promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA") published in GN R 385, 386 and 387 on 21 April 2006, Scoping and Environmental Impact Assessment (EIA) is required for this project. The need for Scoping and EIA is triggered by, amongst others, the inclusion of activities listed in GN R 387, in particular:

- 1) *The construction of facilities or infrastructure, including associated structures or infrastructure, for –*
 - (a) *the generation of electricity where -*
 - (i) *the electricity output is 20 megawatts or more; or*
 - (ii) *the elements of the facility cover a combined area in excess of 1 hectare.*

Chapter 4 of this Draft EIA Report contains a list of activities contained in GN R 386 and GN R 387 that are triggered by the various project components and form part of this Scoping and Environmental Impact Assessment process.

It is noted that **Amended NEMA EIA Regulations** (Notices GN R. 543, 544, 545, and 546) were published in the Government Gazette No. 33306 of 18 June 2010, and came into effect

from 2 August 2010 (referred to as the **2010 EIA Regulations**). This EIA application by WKN Windcurrent was initiated in December 2009, prior to the enactment of the Amended Regulations, and will therefore be dealt with in terms of GN R 385, 386 and 387. However, in line with Regulation 76 (3) of the Amended EIA Regulations regarding transitional arrangements, any impacts associated with listed activities which are included in the Amended listing notices, which were not listed under the listing notices GN R386 and 387, would need to be assessed as part of this EIA process. The CSIR has therefore checked the new activities and have included the listing notices which may be triggered by this project in this environmental assessment process.

Review of the Draft Scoping Report

This EIA process is currently at the stage where the Draft Scoping Report is being released for a 40-day public review period. Comments need to reach the public participation consultant, Ms Sandy Wren from Public Process Consultants, by no later than 28 March 2011. The Draft Scoping Report will be placed in the Jeffreys Bay and Humansdorp Municipal Libraries and on the project website at www.publicprocess.co.za.

Identification of Issues

The Draft Scoping Report includes the issues identified thus far in the scoping process. The project and EIA process were advertised in one regional newspaper, The Herald, and one local newspaper, Our Times. In addition to the newspaper advertisements, letters with personal notification regarding the EIA process were mailed to all pre-identified key stakeholders on the database, which at the time consisted of 49 I&APs (Letter 1). I&APs were provided a 30-day period within which to raise issues and/or register their interest on the project database, this period extended from the 4 November 2010 to the 3 December 2010.

A synthesis of these issues is provided in the Issues & Response Trail (Chapter 5 of the Draft Scoping Report), which includes an explanation of how the issues will be addressed through the EIA process.

In summary, the following issues have been identified (number in brackets indicates the number of issues raised):

1. Issues related to Noise Impacts (2)
2. Issues related to Birds and Bats (1)
3. Issues related to Visual Impacts (2)
4. Issues related to Agricultural land (4)
5. Issues related to Biophysical impacts (vegetation, fauna and wetlands) (7)
6. Issue related to Heritage related impacts (1)
7. Issue related to Socio-Economic impacts (1)
8. Project details required (2)
9. Environmental Assessment Process and Public Participation (7)
10. General issues and Project Motivation (1).

The *draft Plan of Study for EIA* (Chapter 6 of the Draft Scoping Report) presents the approach to the forthcoming EIA phase. This includes the Terms of Reference for the various specialist studies (listed below) that are proposed to address the issues raised, where necessary.

- Flora and Fauna (excluding avifauna)
 - Impact of the turbines and associated activities during construction as well as operation, on the vegetation and animals, with special attention to red data species.
- Avifauna (birds)
 - Assessment of the potential, as well as potential cumulative, impacts on avifauna, both positive and negative, associated with the proposed project for the construction, operation and decommissioning phases.
 - In addition to the specialist study, a pre-construction bird monitoring programme is being undertaken. The results and recommendations of this monitoring programme will be included in the specialist study.
- Bats
 - Identify and assess the potential impacts of the wind project on bats and bat mortality
 - In addition to the specialist study, a pre-construction bat monitoring programme will be undertaken. The results and recommendations of this monitoring programme will be included in the specialist study.
- Visual
 - Identify and assess the potential impacts of the wind project associated with the proposed project for the construction, operation and decommissioning phases.
- Noise
 - Identify and assess the potential noise impacts associated with the proposed project on residences for the construction, operation and decommissioning phases.
- Archaeology
 - Identify and assess potential impact on archaeology (e.g. stone age artefacts) or impacts on the built environment or places of cultural significance.
- Palaeontology
 - Identify and assess potential impact of excavations on palaeontology (e.g. fossils).