

Arcus GIBB (PTY) LTD

Environmental Impact Assessment for the Establishment of the Caledon Wind Farm, Western Cape Province



Environmental Scoping Report Transportation Special Study

Date: November 2009

EXECUTIVE SUMMARY

GIBB was appointed by Genesys Wind to undertake the Environment Impact Assessment (EIA) for the proposed Caledon Wind Farm. Transportation was identified as one of the areas requiring a specialist study. GIBB Transportation forms part of the Caledon Wind Farm team and is responsible for the transportation specialist study component of the EIA.

The transportation study takes into account the impact and possible mitigation measure for the construction, operation and decommissioning phases of Caledon Wind Farm.

The aim of this report is to present the preliminary determination of impacts of the Caledon Wind Farm on the environment and its relevant significance and possible mitigation measures.

For the scoping phase of the transportation special study, a site visit and desktop study was performed.

The construction stage of Caledon Wind Farm is considered to produce the most impact on the transport network; therefore the assessment will mainly focus on the construction phase.

The possible impact the proposed development will have on the existing transportation network:

- Road heavy load transport impact
- Operational capacity of relevant intersections
- Access roads
- Interference with the aviation lines

The possible mitigation measures will be required to alleviate the impact of the site:

- Extension of the off-road vehicle track to the south of the site
- Possible road network upgrade
- Restriction of the surrounding aviation lines

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Transportation Special Study

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1 INTRODUCTION

GIBB was appointed by Genesys Wind to undertake the Environment Impact Assessment (EIA) for the proposed Caledon Wind Farm. The EIA process consists of three phases, namely:

- Screening
- Scoping
- Assessment

Transportation was identified as one of the areas requiring a specialist study. GIBB Transportation forms part of the Caledon Wind Farm team and is responsible for the transportation specialist study component of the EIA.

The transportation study takes into account the impact and possible mitigation measure for the construction, operation and decommissioning phases of Caledon Wind Farm.

The aim of this report is to present the preliminary determination of impacts of the Caledon Wind Farm on the environment and its relevant significance and possible mitigation measures.

These findings and issues will be further investigated in the assessment phase.

1.1 Background

Caledon Wind Farm consists of several components, namely wind turbines, transmission lines and associated infrastructure, and a staging area.

Electricity generated will be transmitted to the power lines in the vicinity via transmission lines. A staging area is also proposed at the south section of the site for construction.

1.2 Assumptions and Limitations

The following assumptions were made while compiling this report:

- Report was compiled from information obtained through site visits and desktop study.
- Preliminary impacts were considered for the construction, operation and decommissioning stage.
- The amount of traffic that will be experienced during the construction phase is unknown.

- Limited transport demand will generate by Caledon Wind Farm once it is in operation.
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1.3 Methodology

For the scoping phase of the transportation special study, a site visit and desktop study was performed.

A site visit was undertaken to observe the accessibility of the site and the conditions of the surrounding road infrastructures.

The desktop study entails the study of the broader road network surrounding the site and possible transportation requirements.

2 DESCRIPTION OF THE SITE AND SURROUNDING ENVIRONMENT

A description of the site is provided below with regard to its location, surrounding land use and the relevant transportation network.

2.1 Location

Caledon Wind Farm is situated on the east coast of South Africa, as shown in **Figure 2.1** and lies within Western Cape Province approximately 130 km east of Cape Town.

The site is located 30 km south of Villiersdorp, 30 km north east of Botrivier and 47 km north west of Caledon.

2.2 Surrounding Land Use

The surrounding towns such as Villiersdorp, Botrivier and Caledon are mainly low-density holiday and tourist destinations with Villiersdorp and Botrivier being the closest major towns. The inland areas are mainly used for agricultural purposes.

2.3 Transportation Network

The railway line is located to the south of the site, which runs from Cape Town along the east coast parallel to N2 with the closest railway station in Botrivier.

The N2 runs in an east-west direction connecting the main centres along the east coast. The site can be accessed to N2 via R43. R43 is a surfaced road that runs from Worcester south to the N2.

The site can currently be accessed via the main entrance of the farm or via an off-road vehicle track to the south of the site onto R43, as shown in **Figure 2.3**.



Figure 2.3: Access Road to the south of the site

3 IMPACTS AND MITIGATION MEASURES

3.1 Overview

The following section details the preliminary transportation impacts and possible mitigation measures of the following phases of Caledon Wind Farm:

- Construction
- Operation
- Decommissioning

During the **construction phase**, large construction components and other construction materials will be transported by roads along N2 and R43.

The off-road vehicle track to the south of the site is proposed to be extended further into the site for construction purposes and become an additional access point, as shown in **Figure 3.1**.

As minimal labour will be required for the **operation phase**, the transportation demand of the site during operation is expected to be little.

The **decommissioning phase** of the site is believed to have similar impact on the transportation network as the construction phase, therefore no further investigation is required.

The construction phase of Caledon Wind Farm is considered to generate the most impact on the transport network, the assessment will therefore mainly focus on the construction phase.

3.2 Construction Phase Transportation Impacts

The transportation of components and construction materials will have a significant impact on the existing road network.

The intersection of N2 and R43 will have to be assessed in order to determine the possible impact during the construction phase.

The condition of the off-road vehicle track will have to be assessed to determine the necessity of possible upgrades. An investigation for sight distance at the R43 / off-road vehicle track intersection will be required.

The height of the wind turbines may affect the aviation line in the area. Further investigation on the aviation line will be required.

3.3 Mitigation Measures

The possible mitigation measures will be required to alleviate the impact of the site:

- Extension of the off-road vehicle track to the south of the site
- Possible road network upgrade
- Restriction of the surrounding aviation lines

4 TERMS OF REFERENCE FOR IMPACT ASSESSMENT PHASE

In order to further investigate the issues and impact in the assessment phase, the following tasks will be undertaken:

- Classified traffic counts at relevant intersections during the peak periods
- Description of the site and its operation during construction
- Description of surrounding road network and future transport planning proposals
- Discussion of access location in terms of access spacing, sight distance and operational requirements
- Analysis of the existing and future operation of the road network
- Description of surrounding aviation line network where relevant
- Recommendations of mitigation actions
- Identification of possible road upgrades
- Conceptual design of road upgrades, if required

5 CONCLUSIONS

The following can therefore be concluded:

- This report serves as the transportation output of the scoping phase and presents the initial transportation findings and issues.
- Caledon Wind Farm is situated in the Western Cape 130 km east of Cape Town.
- The extension and possible upgrade of the off-road vehicle track to the south of the site will be required.
- The traffic impact of the relevant intersections will be further investigated.
- The aviation line network in the area will be further investigated.