

PROPOSED WIND ENERGY FACILITY

AND ASSOCIATED INFRASTRUCTURE

ON WOLF WIND FARM (PTY) LTD
NEAR WOLWEFONTEIN IN THE EASTERN CAPE

ENVIRONMENTAL IMPACT ASSESSMENT

FINAL ENVIRONMENTAL IMPACT REPORT

DEA Reference No.: 14/12/16/3/3/2/599

11 February 2015

Report No. 9792

Project applicant:

juwi

juwi Renewable Energies (Pty) Ltd
22nd Floor Cape Town Met Life Centre
7 Coen Steytler Avenue
Roggebaai
Cape Town
8001

Project consultant:

aurecon

Aurecon South Africa Pty (Ltd)
Reg no. 1977/03711/07
PO Box 494
Cape Town
8000
www.aurecongroup.com

1 INTRODUCTION AND BACKGROUND

The purpose of this Chapter is to introduce the project and describe the relevant legal framework within which the project takes place as well as the listed activities in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, that require authorisation. It further serves to orientate the reader in terms of the project location and transmission line route near Wolwefontein in the Eastern Cape.

Supplementing this chapter is Annexure B2, which provides an overview of the policy and legislative context in which the development of renewable energy projects takes place in South Africa.

1.1 INTRODUCTION

Wolf Wind Farm (Pty) Ltd, owned by juwi Renewable Energies (Pty) Ltd (juwi) is proposing to construct a Wind Farm and associated infrastructure (project referred to as the Wolf Wind Farm) with a generation capacity of up to 98MW near Wolwefontein in the Eastern Cape. Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed to undertake the requisite environmental process on behalf of juwi as required in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended.

The proposed Wolf Wind Farm will consist of up to 28 turbines located on the farms listed in Table 1-1. The project is located approximately 5km north of Wolwefontein, 35km north-west of Kirkwood and 36km south-east of Jansenville, and is situated on the Klein Winterhoek Mountain ridge in the Eastern Cape. The site can be accessed via the R75 and an existing gravel road leading east towards the proposed site (see Figure 1-1). The affected farms or site is approximately 6,902ha in extent although the project footprint or disturbance will equate to less than 1% of the total area.

Energy generated at the Wolf Wind Farm will be evacuated via a new 132kV overhead transmission line, of which there are currently three alternative routes (see Figure 3-1) being assessed.

Ancillary infrastructure would include the transmission line to connect into the existing grid at the Wolf substation, cabling between turbines and project components, an onsite substation, concrete gravity foundations to support turbine towers and hard stands to support cranes and serve as a construction laydown area at each turbine. Service roads will be constructed in addition to those already existing on the site with the required stormwater control infrastructure and access controls (i.e. security and access control guard hut, fencing and gates) as required. A laydown area will be established for the construction period, which will house a temporary maintenance and storage areas.

In terms of the NEMA, the project triggers a suite of activities which require authorisation from the competent environmental authority via an Environmental Impact Assessment (EIA) process prior to commencement. Since the project is for the generation of energy, and energy projects are dealt with by the national authority, the identified competent authority is the national Department of Environmental Affairs (DEA). The DEA's decision regarding the project will be based on the information emerging from this EIA process provided in the final EIA report.

This report serves to document the Assessment Phase of the EIA process (the EIA process and sequence of documents produced as a result of the process are illustrated in Figure 2-1).

3 THE PROPOSED ACTIVITY

The purpose of this Chapter is to provide a description of the proposed activity with specific reference to the construction, operation and decommissioning of the Wind Farm and to describe the feasible alternatives that are being considered in the EIA process. The Chapter also discusses the need and desirability of and for the proposed Wolf Wind Farm. Alternatives that are being considered are discussed in terms of location, activity, site layout and technology. The project description provided here forms the basis for the identification and assessment of potential environmental impacts.

3.1 DESCRIPTION OF THE PROPOSED ACTIVITIES

The proposed Wolf Wind Farm will consist of up to 28 turbines located on farms listed in Table 1-1. The project site is situated approximately 5km north of Wolwefontein, 35km north-west of Kirkwood and 36km south-east of Jansenville on the Klein Winterhoek Mountain range in the Eastern Cape. The site can be reached via the R75 and an existing gravel road leading east, up the mountain ridge towards the proposed site (see Figure 1-1). The site includes several farms which amount to approximately 6,902ha in extent although the physical project footprint (or area to be disturbed), from the results of the facility layout determination, is approximately 60.66ha which will be directly impacted by this development. This amounts to approximately 0.88% of the total project area. After the construction phase rehabilitation has been completed the remaining permanent footprint will consist of the concrete turbine foundations, crane hardstands, access route, on site substation, transmission line pylons and transmission line access track, equating to 34.48ha (see Table 3-3 for a breakdown of the footprint).

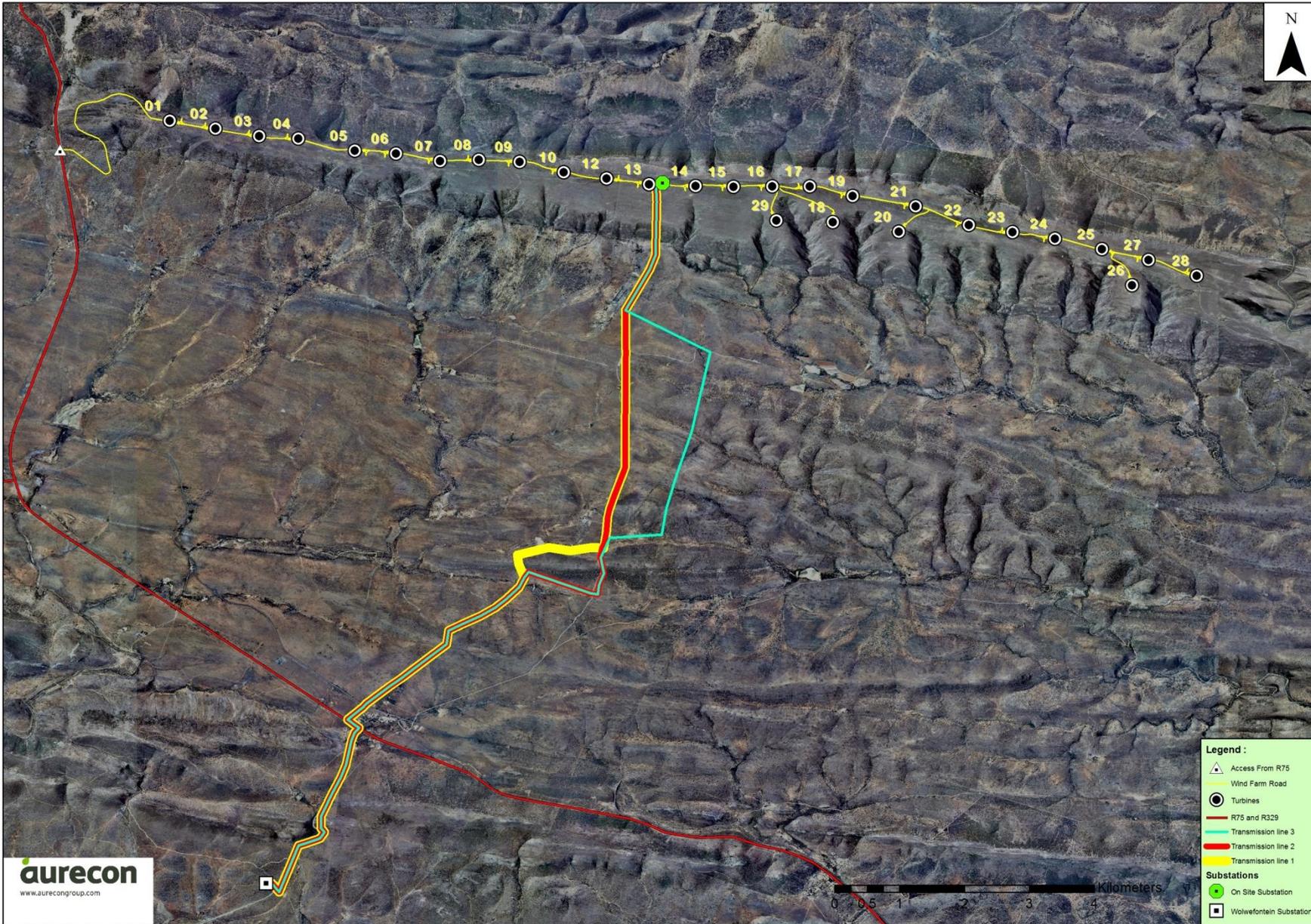


Figure 3-1 |The Wolf Wind Farm preferred 28 turbine project layout

5 CONCLUSION AND WAY FORWARD

The purpose of this Chapter is to conclude the Final EIR, describe the key findings / recommendations and describe the way forward.

5.1 CONCLUSION

As per the requirements of the National Environmental Management Act, this EIA reviewed a range of feasible project alternatives and contemplated an array of potential biophysical and socio-economic impacts associated with the construction, operation and decommissioning of the proposed Wolf Wind Farm and its associated activities.

Table 5-1 provides a high level overview on the impact assessment by providing only the most significant impact rating of the suite of impacts in each aspect or category of impacts. The table has been sorted in descending order of significance rating, i.e. the most significant impacts first. Further it must be noted that this table shows only the post mitigation significance ratings for the preferred alternative during the construction and operational phases of the project. For greater detail on the alternatives assessment, decommissioning phase, cumulative and pre-mitigation impact assessment, refer to the respective impact assessment sections under Chapter 4.

Table 5-1| Impact assessment overview

Project Phase	Aspect	Mitigated impact significance
		Preferred alternative (28 Turbines)
Construction	Botanical	High (-)
	Heritage*	High (-)
	Visual	Medium (-)
	Avifauna	Medium (-)
	Bats	Low (-)
	Agriculture	Low (-)
	Traffic	Low (-)
	Fauna	Very low (-)
	Palaeontology	Very low (-)
	Dust	Very low (-)
	Noise	Very low (-)
	Freshwater	Very low (-)
	Socio-economic	High (+)
	Operation	Visual
Heritage*		High (-)
Bats		Medium (-)
Avifauna		Medium (-)
Botanical		Low (-)
Noise		Low (-)
Fauna		Low (-)
Agriculture		Low (-)
Freshwater		Very low (-)
Traffic		Very low (-)
Energy generation		Medium (+)
Climate change abatement		Low (+)
Palaeontology		None
Socio-economic		High (+)

* Note that the direct impact on heritage resources is rated as low (-) and that the high (-) impact rating shown here relates to visual impacts to landscape, setting and character (generally referred to as "sense of place").

The proposed Wolf Wind Farm site is situated on an environmentally constrained site, driven predominantly by its mountainous character. The constrained nature applies not only to the site's use as a Wind Farm but also to most other forms of land use, including agriculture. As a result, this site has remained relatively undisturbed by anthropogenic activities. Despite the constrained nature of the site the EIA process did not identify any specific fatal flaw as far as the proposed Wind Farm is concerned. When considering the suite of impacts, as shown in Table 5-1, the key aspects informing a possible decision are primarily those pertaining to impacts on botanical and visual resources (including heritage impacts to landscape, setting and character), which are assessed as being significantly impacted by the implementation of the proposed project. These negative impacts need to be contrast with the strategic importance (or need and desirability) of the proposed Wind Farm in order to distil the project's acceptability for authorisation.

With reference to the information available at the feasibility stage of the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for decision-making purposes, specifically in terms of the environmental impacts and risks. The EAP is of the opinion that the information contained within the Scoping Report and this Environmental Impact Report is adequate to inform a decision making process from an environmental perspective. It is acknowledged that the project details, subject to authorisation, will evolve during the detailed design and construction phases. However, these are unlikely to significantly change the overall environmental impact of the proposed project. Any significant deviation from what was assessed in this Environmental Impact Report should however be subject to further assessment and verification. If this was to occur, an amendment to the Environmental Authorisation may be required in which case the prescribed process would need to be followed.

5.2 EAP'S OPINION ON PROJECT ACCEPTABILITY

Regulation 32(2) (m) of the EIA Regulations requires that the EAP provide an opinion as to whether the activity should be authorised or not, which follows:

The EIA process does not identify any overt fatal flaw to the proposed project. Whilst the project may result in significant visual and botanical impacts as a result of the prominence of its location, it is believed that these are within acceptable limits when contrast with the strategic importance of the project, and provided that the recommended mitigation measures are effectively implemented, construction phase disturbance footprint is kept to the minimum and, in particular, that post construction rehabilitation is intensively implemented and maintained. It is our opinion that a Wind Farm and current agricultural land use can coexist on this site. Whilst the EAP believes the project is acceptable it is felt that the strategic environmental benefits associated with this renewable energy project are diminished by its siting on a prominent ridgeline and within a Critical Biodiversity Area. That said it must be appreciated that initial site selection and underlying driver is the presence of an excellent wind resources which has been verified and the availability of undeveloped land, which the site provides. Based on this, it is the opinion of the EAP that the project falls within acceptable tolerances. Against this background the following additional recommendation is made.

5.3 KEY RECOMMENDATIONS

The following key recommendation is made:

- It is recommended that turbines 18, 29, 20 and 26 be excluded from the project layout. These turbines are situated below the ridgeline on the spurs, which carry a higher biodiversity sensitivity than the remainder of the site, as supported by the following:
 - Based on recommendation made in the botanical report (McDonald, 2014) and principles of good environmental practice it is strongly advised that turbines 29, 18, 20 and 26 be removed. The principal reason for this is the location on slopes which would be prone to soil erosion once the vegetation is disturbed. Not only would the turbine sites themselves be a source of erosion but more importantly the access roads would introduce disturbance which would be difficult to contain. These sites and their access roads are considered to probably have a High Negative impact which would be difficult to mitigate.
 - Turbines 18, 20 and 26 fall within the moderate bat sensitivity area and provide foraging habitat or roosting sites considered to have significant roles for bat ecology. Turbines within or close to these areas must acquire priority (not excluding all other turbines) during pre/post-construction studies and mitigation measures, if any is needed (Moir, 2014).
 - Turbines 29, 18, 20, and 26 are situated within the medium sensitivity avifauna class buffer zone. In addition to the buffer zone these turbines also stand on southern running spurs on the convoluted ridge, meaning that they stand out into the path of birds flying along the ridge line, and between the small gorges. These turbines are the highest risk positions for avifauna, and should ideally be moved out of these areas to mitigate for bird collision risk (Smallie, 2014).

The applicant, juwi, is aware and amenable to the recommendation to exclude these turbines in the interest of biodiversity impact mitigation and have indicated that the project would remain feasible, however, the exclusion of these four turbines would result in a reduction in the production of renewable energy from this facility, which may be of strategic importance and may result in a minor loss of socio-economic benefits associated with these turbines. We have therefore tabled this recommendation and put it to the DEA (after consultation through the appropriate cooperative governance channels) to determine whether or not these turbines should be excluded in the Environmental Authorisation. Note that, as a result of this recommendation, juwi have increased the turbine

blade lengths by 3m since the release of the draft EIR, the completed turbine blade diameter therefore increases from the original 120m to 126m. This is occurred as a result of rapidly developing technology in the field and an effort to obtain the optimum amount electricity from any one turbine location, this minor increase in blade length may serve to mitigate the potential energy losses brought about by this recommendation. Specialists have been approached and asked to provided statements on whether this change will impact on the their impact significance ratings. These statements have been appended to this report, after the respective studies (namely, the avifuaana and bat studies and the visual impact assessment has been amended to reflect changes arising from the change).

5.4 WAY FORWARD

The public participation process will see the lodging of this Final EIR on Aurecon's website and a hardcopy at the Kirkwood and Jansenville Public Libraries. Authorities and registered I&APs are provided with 21 days from date of notification in which to review the document and submit written comments.

Following that, the Final EIR, together with any written comments from the final public comment period, will be submitted to the DEA for review. DEA must, within 60 days, do one of the following:

- Accept the report;
- Notify the applicant that the report has been referred for specialist review;
- Request amendments to the report; or
- Reject the report if it does not materially comply with regulations.

Following the acceptance of the report, the DEA must within 45 days either:

- (a) Grant authorisation in respect of all or part of the activity applied for; or
- (b) Refuse authorisation in respect of all or part of the activity.

Once DEA issues their decision on the proposed project, all registered I&APs will be notified of the outcome of the decision within 12 calendar days of the date of the decision. I&APs will also be informed of their right to appeal the decision and given guidance on the appeal procedure. In accordance with the regulations the DEA's decision must also be advertised in the local newspaper.