

Rainmaker Energy Projects (Pty) Ltd
Lancaster Rd Kenilworth 7700
PO Box 12546 Mill St 8010
Cape Town South Africa
Phone: +27 21 685 5411
Fax: +27 86 582 1792
EMAIL info@rainmakerenergy.co.za

Att: Lené Grobbelaar
To: Department of Environmental Affairs & Tourism
Fedsure Building
315 Pretorius Street
Pretoria

Your Reference

Our Reference

Date
January 2010

RE: Motivation for the AB's Wind Energy Facility

DNA Wind Energy Company (Pty) Ltd is proposing to establish a commercial Wind farm and associated infrastructure on a site near Indwe the Eastern Cape. The proposed AB's Wind Farm is expected to comprise up to 24 Wind Turbines, and could generate up over 50MW. DNA Wind Energy Company (Pty) Ltd will own and operate the wind farm project company, and Rainmaker Energy Projects (Pty) Ltd will develop this project through to construction.

The AB's Wind Farm will be registered with the United Nation's Framework Convention for Climate Change as part of the Clean Development Mechanisms Programme.

The proposed site has been identified by Rainmaker Energy Projects (Pty) Limited ("Rainmaker") based upon a number of criteria set by significant preceding feasibility studies for wind projects in the Northern Cape, Western Cape, Kwazulu-Natal, and Eastern Cape. Rainmaker has analysed the localised area and has deduced that the proposed site is most appropriate having regard to both environmental and social considerations, as well as the prospect of the Wind project being a financially viable.

The proposed project shall also support the region of the Eastern Cape economically, as well as providing much-needed power to the region without the negative impact of creating air pollution, emitting carbon or draining water resources.

Rainmaker's selection of the proposed site is as follows:

1. Site Topography

The site was chosen as a result of its easy build out, wind profile, as well as having a transmission line already located on the site. The hill has a concentrating effect on the wind, enabling this wind project to be viable in the area.

The site covers in excess of 980 hectares, with matching transmission, which allows for the installed capacity.

2. Vegetation and Land use

The entire area of the proposed site consists of vegetation which is disturbed by agriculture, and is used for stock farming. This ecosystem is thus not threatened and is regarded as not being vulnerable. In addition, from a food security perspective, the proposed wind farm will not impact on the production capability of the farm.

3. Visual

This is a relatively small wind project so visual effect is reduced compared to large wind projects, and the line limitations, as well as adequate ridge will result in the project being not more than 24 turbines. As such the wind turbines shall have significantly less visual effect and visual carry than larger wind projects. In addition, the turbines are against the mountain range, so are not on the highest point of the area.

4. Transmission

The proposed site has existing transmission lines running through it, suitable for a wind farm of this size. As a result, a direct connection point will be made on the site, without any further need for the construction of power lines over adjacent land.

In addition, consumption of power will occur at Indwe and Elliot. Currently, power in the Eastern Cape is generated by coal power stations situated in the provinces of Limpopo and Mpumalanga. Generation of power in this site should reduce existing line losses by between tot the area of 17 - 25%. In effect, generating 1KWh of power in the Eastern Cape, reduces the need for South Africa to produce 1.20 – 1.25 KWh of coal energy. This is supported by the National Electricity Regulator of South Africa (NERSA) who, in conjunction with Eskom, developed an Integrated Resource Plan (IRP) for electricity in South Africa where they demonstrated that by reducing the load in East London, results in a net 25.3% savings.

5. Industry and Economic Stimulus

The Eastern Cape, with 15% of South Africa's population, is the third largest province by population, yet only has 8.1% of the countries GDP. The proposed wind energy facility will thus create much-needed economic stimulus, yet without needing major infrastructure upgrades in the form of new roads, ports or transmission.

The proposed site is located within the proximity of Indwe and Elliot. The proposed project has the potential of stimulating employment (requiring labour from the local area, where unemployment is high), as well as having the knock-on-effects of creating local industry in the form of the service teams required to support the project. The Eastern Cape has a negative population growth as a result of emigration to surrounding provinces and DNA expects, through the proposed project, to create an additional economic pull into the region.

6. Regional and South African Power situation

The Eastern Cape has limited power generation capability and a project of this nature will create new energy generation capability to the region.

South Africa is also going through a major power shortage, needing large investments in new power projects. This site yields a high wind regime, thus creating very reliable and predictable wind energy of the winter periods and in fact, enhanced power generation whenever the weather countrywide is colder.

7. Site Access and construction

The proposed site is well-situated for construction of a wind facility, having a relatively flat topography and short grass fields. Roads already exist to most of the turbine locations.

The major roads (R56) are well-designed for the transport of wind turbines and allow for ease of transport between the site and major ports.

8. Technology Alternatives

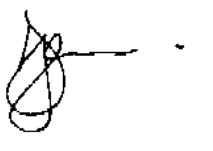
Besides the significant consideration in selecting the site of an appropriate and viable wind facility in this area, Rainmaker has considered alternative energy forms. Though the area has a known coal reserve, this coal is generally of poor quality, is expensive to mine and will be of significant environmental consideration should it be mined.

Other technologies in the Eastern Cape, such as solar PV or concentrated solar thermal would not be appropriate for the region, for lack of direct solar, as well as limited water resources.

Taking as a whole, wind energy can be regarded as one of the most cost-effective energy sources, offsetting carbon and air pollution, as well requiring negligible water usage during operation. Rainmaker will evaluate various wind turbine designs to ascertain the suitability of their selection during the EIA process.

Rainmaker welcomes your comments and/or queries.

Yours Sincerely



Douglas Jenman
Technical Advisor
Rainmaker Energy Projects



RAINMAKER ENERGY PROJECTS

Comments on the Wind profile for AB's wind Site

15 March 2010



1. Introduction

This document is for use in the AB's wind project EIA reporting, regarding the energy yield expected from this project.

About Rainmaker

Rainmaker is a South African Renewable Energy Development company focussing on the initiation and development of large-scale Wind Energy projects in Southern Africa. Rainmaker consists of an experienced team and partners who have developed and implemented energy infrastructure projects both locally and abroad. This multidisciplinary experience ensures that Rainmaker has the capability of implementing projects across the legal, technical, commercial, financial and operational arena. Rainmaker is currently developing over 500 MW of high capacity factor wind sites around the country, including environmental approvals.

Contact

Douglas Jenman

Tel: +27 21 685 5411

Mobile: 082 41 52515

Email: Doug.Jenman@rainmakerenergy.co.za

Luke Callcott-Stevens

Tel: +27 21 685 5411

Mobile: 084 813 4734

Email: luke.Callcott-stevens@rainmakerenergy.co.za

2. Summary of Energy Yield for the AB's wind farm

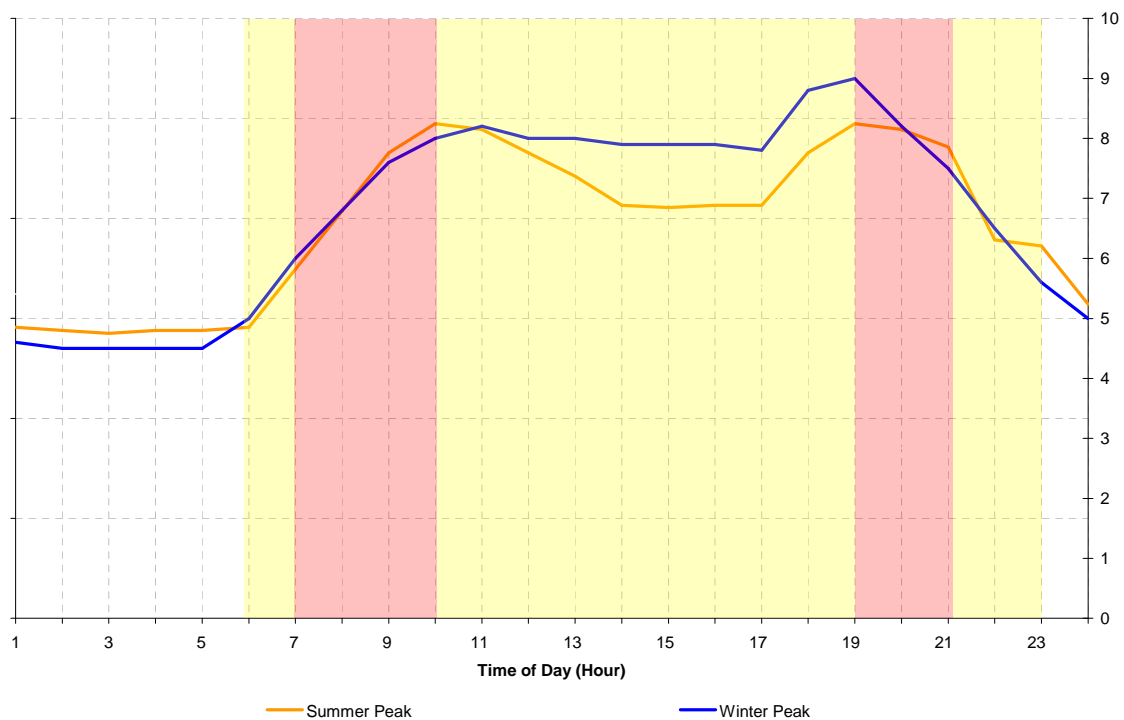
Rainmaker site selection has been based on finding sites with minimum potential environmental impact, as well as existing infrastructure, and aligning this with finding the wind profiles (and resulting energy produced) that maximise energy output for South Africa's needs. An added important in site selection is to ensure that the power generation profile of the site matches to that of South Africa's load requirements, thus ensuring not only does the wind site reduce South Africa's reliance on fossil fuels, but also ensures the alleviation of looming South Africa's power shortage.

Our analysis of various wind sites around the country shows even wind sites with same annual energy output can have significantly different effect on South Africa's power situation. Rainmaker has found that a good wind site should have the following characteristics, namely:

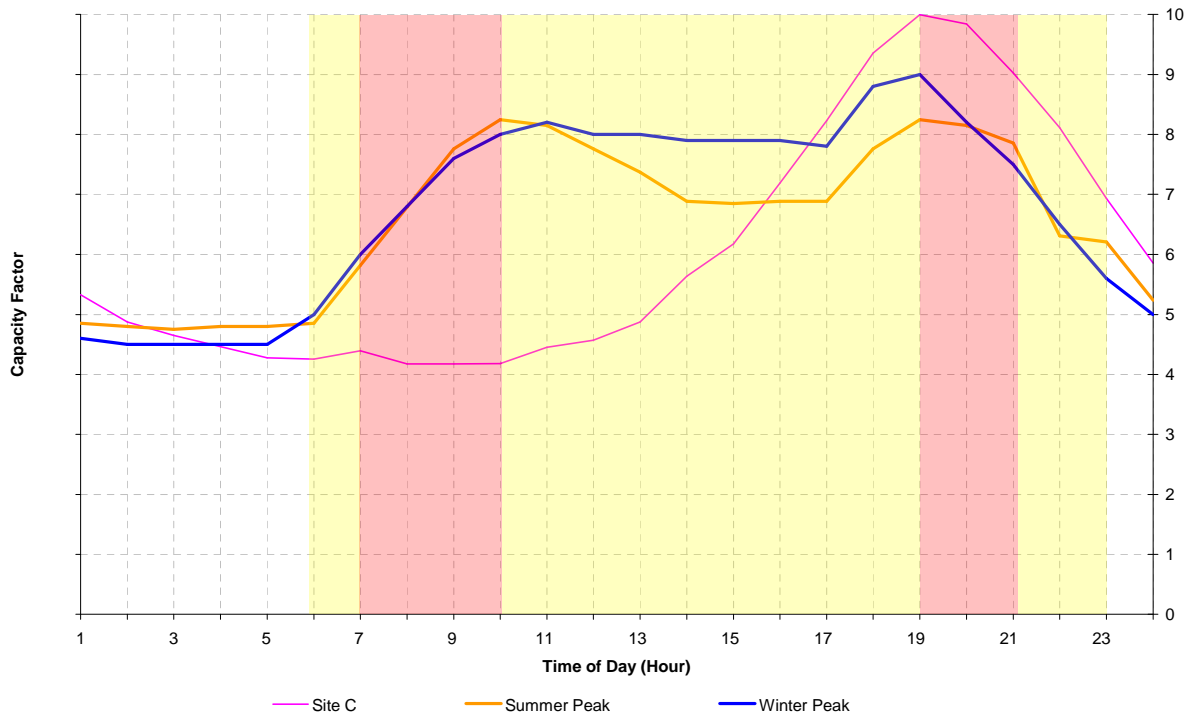
- The wind farm generates power when power is required (i.e. during the day and during peak periods).
- The wind farm generates more power over winter, when power consumption is substantially higher at times than in summer, and when South Africa's electricity supply and demand is at its most fragile.
- Stronger wind generation when the overall country is experiencing a cold spell as the country tends to experience electricity consumption peaks (and the resultant electricity generation strain countrywide) over these periods.

Rainmaker's experience is that sites in South Africa can be 'summer' sites, or 'winter' sites. These are sites where the more reliable energy is delivered in either summer or winter. Winter sites should have preference to summer sites as this is when power is required in the country because of the need for power over this period. This is also an area where solar energy will always play a smaller role.

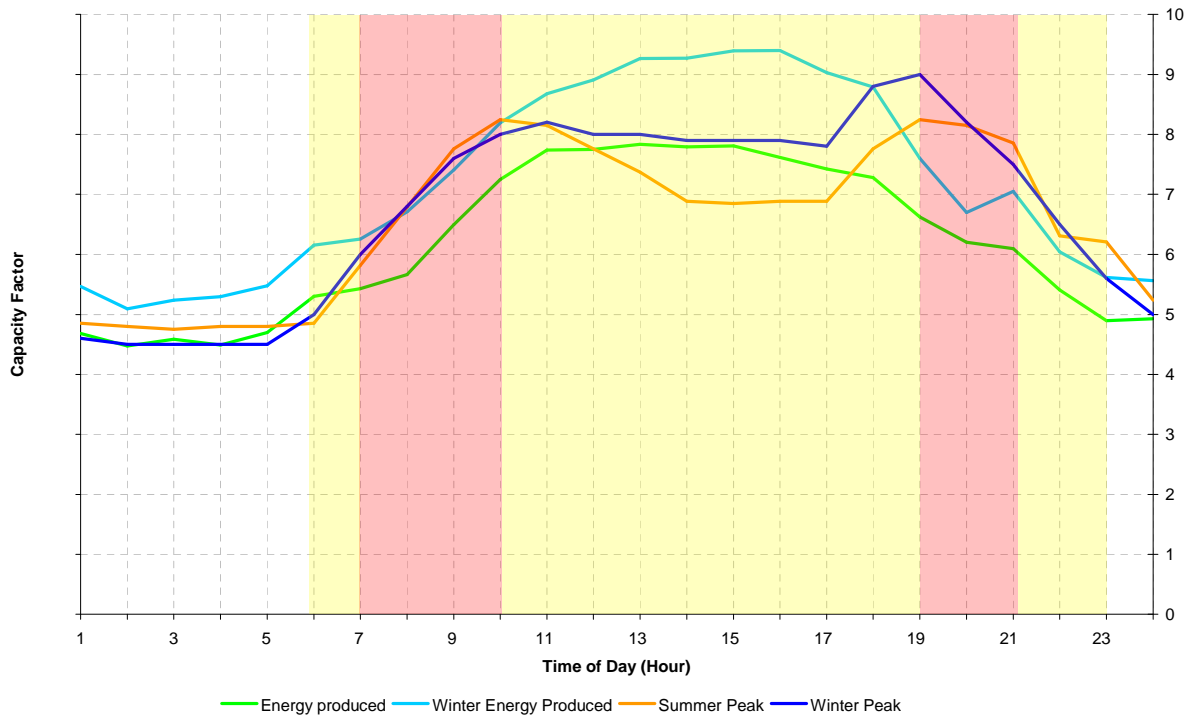
This is further reinforced by the Megaflex tariff structure (the tariff that large users such as municipalities and larger industrial users pay), where electricity is priced according to when it is used (i.e. the time of use), as well as whether it is used in winter or summer periods (winter tariffs are double that of summer tariffs).



Load profile for South Africa, showing consumption during winter and summer periods. The Megaflex periods (red peak tariff, yellow standard tariff and white off-peak times) are overlaid onto this graph to further reinforce the value of electricity in South Africa at different times in the day. During the winter months, electricity as per the Megaflex tariff is double that of the summer tariff.



Load profile of a typical South African wind site. The graph shows an energy profile of a typical coastal site (Site C) where the overall energy yield is substantially lower than AB's (i.e. for every turbine installed on AB's, more energy will be produced), even though it has a high peak power. When energy is produced, it does not match the load profile (i.e. the typical wind pattern tends to increase in the afternoon). Finally, the majority of this wind energy is produced in summer, when overall consumption drops.



Energy produced by the AB's wind project. This graph shows the Energy Produced (Mean energy production) for the facility, as well as highlighting the energy production over winter. The profile matches the consumption pattern. Furthermore, winter production is extremely reliable and matches consumption. The colder South

Africa's temperature, the higher the energy production, following consumption patterns where energy use increases during cold periods.

Sites such as AB's are thus encouraging as they:

- Provide power when the country needs it during the day and peak periods.
- Provides reliable power during winter and cold spells.
- High yields (i.e. capacity factors) ensure that more power (KWh's) are generated per wind turbine, thus reducing the number of wind turbines needed per KWh generated.