

## **MINUTES**

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### **PROPOSED WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE AT A SITE IN THE WESTERN CAPE**

#### **MEETING WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM (DEAT) AND THE WESTERN CAPE DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING (DEA&DP)**

**HELD AT DEAT OFFICES, FEDSURE FORM, PRETORIA  
MONDAY 2 APRIL 2007  
at 11h00**

#### **AUTHORITY CONSULTATION MEETING No.1**

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#### **PRESENT**

An attendance register is attached in Appendix A.

#### **Apologies**

Deidre Herbst - Eskom

Mampiti Matsabu – Savannah Environmental

#### **1. WELCOME AND INTRODUCTIONS**

Karen Jodas welcomed all to the meeting and thanked all for their attendance. She explained that Savannah Environmental have been appointed as the independent environmental consultants for the proposed wind energy facility and associated infrastructure at a site in the Western Cape. She indicated that she would be the project manager for the EIA process and was therefore the point of contact for the consultants.

Everyone was provided an opportunity to introduce themselves.

## **2. PURPOSE OF THE MEETING**

Karen Jodas explained that the purpose of the meeting was:

- » for DEAT to be introduced to the proposed Wind Energy Facility project, and to ensure that all parties are fully informed of the work done by Eskom and DEA&DP to date
- » to present all information already available, and indicate how this existing information overlaps with this EIA application
- » to provide background regarding DEA&DP's strategic initiative for the location of wind energy facilities in the Western Cape
- » to reach consensus regarding the way forward.

## **3. BACKGROUND TO THE PROPOSED PROJECT**

### **3.1. Presentation by WC DEA&DP – Summary of DEA&DP's Strategic Initiative for Wind Energy Development in the Western Cape**

Paul Hardcastle presented a summary of DEA&DP's Strategic Initiative for wind energy development in the Western Cape. The following key information was noted:

- » The Western Cape initiative is a strategic initiative which began in 2003.
- » The aim was to develop a forward planning tool in order to avoid issues identified/encountered internationally in terms of wind energy facilities.
- » This initiative is meant to provide a positive/innovative approach to planning the location of such facilities.
- » The vision of DEA&DP's initiative was the development and implementation of a strategic approach for the identification of areas suitable for the establishment of wind energy projects. This approach was at a regional level, and not site specific.
- » The objectives of the initiative included:
  - To facilitate the implementation of wind energy in a practical manner.
  - To develop wind energy facilities in line with international best practice.
  - To eliminate wasted time on unsuitable sites for the placement of wind energy facilities.
- » The Regional Methodology was developed in consultation with a large reference group (including DEAT, DME, local communities, and developers linked to wind energy facilities (including Eskom)).
- » The regional methodology outlined was developed and tested for a selected study area within the Western Cape.
- » Seven reports were formulated and are presented within the guideline document published by WC DEA&DP.

- » Report 5 details the regional methodology developed, and outlines the criteria which should be dealt with as a precursor to an EIA process.
- » International investigations were undertaken during the development of the regional methodology in order to identify problems experienced, possible solutions, the approach to studies undertaken internationally, etc.
- » Support for this strategic initiative was expressed by international stakeholders consulted as part of this process.
- » In developing the methodology, a number of methods were investigated, i.e.:
  - Method 1 – Regional criteria:
    - \* Based on international findings which were adapted for South African conditions.
    - \* A criteria based methodology.
    - \* Involves negative mapping (i.e. map areas where development cannot occur, and the area which is left is considered suitable).
    - \* *Conclusions:* Method 1 has a limited ability to deal with qualitative landscape issues. In addition, areas identified would not necessarily be viable from a technical perspective.
    - \* Wind data is not included in this method, as the required level of wind data for South Africa is not available for most sites.
  - Method 2 – Components & landscape types:
    - \* This method considered visibility, landscape value, capacity, and landscape sensitivity.
    - \* Two major aspects were considered, i.e. landform (i.e. the physical aspects) and land cover (i.e. the cultural aspects).
    - \* This method resulted in an analysis of the landscape into restricted areas, negotiable areas and positive areas for the establishment of wind energy facilities.
    - \* *Conclusions:* This method is biased towards the visual environment, and is a subjective assessment. The method is considered to be a powerful tool, but is technically complex, intensive and time consuming. This method is considered to be a more extensive tool than the criteria based method (i.e. Method 1). It was felt that the method must incorporate some technical criteria (in terms of wind data, land availability, proximity to the electricity grid, etc.).
- » The two methods did not come up with the same results for the area under consideration. Therefore, DEA&DP re-looked at the methodology in order to come up with an integrated regional approach.
- » From this study, a regional methodology was developed which includes a combination of criteria-based and landscape-based methodology.
  - \* The application of this methodology results in positive zones and negative zones for wind energy development, and provides a composite analysis of the area under consideration.
  - \* The methodology allows the consideration of cumulative impact criteria.

- \* The methodology results in the demarcation of preferred zones, negotiable zones and restricted zones.
- » DEA&DP acknowledged that technical criteria also need to be considered in determining the suitability of a location for the establishment of a wind energy facility.
- » The regional methodology should be utilised as a guiding framework for the location of wind energy facilities.

### **3.2. Presentation by Eskom – Summary of Eskom’s strategic assessment**

Ian Smit of Eskom presented a summary of Eskom’s research and investigation into wind energy facilities to date, as well as the results of the Eskom strategic assessment undertaken in determining sites for the establishment of a wind energy facility in the Western Cape. The following key information was noted:

- » A wind energy facility cannot utilise all the energy in the wind. A theoretical efficiency of 60% can be achieved. A typical efficiency of 44% is expected. When combined, an efficiency of approximately 25% can be expected.
- » There is more wind along coastline than inland.
- » A wind energy facility requires wind speeds of approximately 6-7 m/s or greater to be economical (based on results from European sites).
- » Eskom estimate that there is the potential for approximately 500 MW from wind energy facilities along the west coast.
- » In 1999 – 2000, Eskom, the CSIR and DME established South Africa’s first wind atlas based on 114 sites throughout the country (i.e. sites which qualified as being to an acceptable standard for data).
- » Potential wind resources have been identified along the west coast, in the Port Elizabeth/East London area, the Drakensberg and the Karoo.
- » South Africa is characterised by a moderate wind resource.
- » As part of the research initiative, Eskom installed a number of meteorological stations to enhance their understanding of the wind resource throughout South Africa. These meteorological stations were located in areas which are considered to be the ‘better wind areas’ in South Africa. Continuous monitoring has been undertaken by Eskom at these stations for approximately 3 years, and will continue.
- » Wind data from weather stations across South Africa can generally not be used as reliable data sources as the information is not being captured or enhanced in such a manner that it can be used to determine wind resource.
- » Some larger industrial companies have wind data which extends over a longer period, and this data could be used for information purposes if it is available.
- » It is important to note that a 30% variation in the wind resource can be experienced from year to year at a particular site.

- » In determining a site for the establishment of a wind energy facility, Eskom considered the area to the north of Langebaan. There is some useful information regarding wind resources available for this area.
- » Langebaan itself is considered to be a good site, but has numerous issues associated with it (including, for example, the presence of the defence force and associated restrictions, etc).
- » Typical wind resource on the west coast are SW and NW winds.
- » From measurements of the wind resource on the west coast (at a site owned by TransHex, located to the north of the Olifants River), it was determined that there is an additional north-easter component to the wind which blows in winter months. This additional component of the wind resource has not been measured at other sites within South Africa.
- » An annual average wind speed of approximately 6 m/s has been measured at this site.
- » Eskom can currently readily access wind energy, as it is a known and proven technology internationally. Solar energy has been proven as a good resource for South Africa, but the technology is not readily accessible.
- » Eskom propose a 100 MW wind energy facility at a site on the west coast (i.e. 50 x 2 MW turbines)
- » In terms of timelines for this facility:
  - The facility can be operational by the end of 2009/beginning of 2010, depending on the required authorisations and availability of components.
  - The facility would contribute to summer evening peak production.
- » Components of the wind energy facility which would be required to be considered include:
  - Land accessibility.
  - Good roads are required to access the site in order to get the components (i.e. the masts (80m), blades (45m), nacelle (heaviest piece of equipment – 60 tonnes)) and construction equipment (i.e. cranes, concrete trucks, etc) to site.
  - The turbines would have to be connected to each other, requiring the installation of underground cables.
  - An on-site substation would be required.
  - 132 kV Distribution powerlines will be required to connect the facility to the electricity grid.
  - Concrete foundations of approximately 15 m (length) x 15 m (width) x 2 m (depth) would be required.
- » It has been assumed that 1 week will be required per tower establishment. Therefore, the establishment of 50 turbines will take approximately 1 year.
- » The lifespan of a wind turbine is approximately 20 years.
- » The proposed area of study is as follows:
  - Eskom are considering a section of land along the coastline north of the Olifants River mouth, and south of Brandsebaai.

- The land use along the coastline in this area is largely diamond mining by Namaqua Sands, TransHex and De Beers, with a small amount of subsistence farming.
  - From the original wind study undertaken in 1999 - 2000, as well as Eskom's wind study, it has been determined that the wind resource along this section of the coastline is available at wind speeds of approximately 6m/s at 10 m height.
  - The properties along this section of coastline consist of flat open pieces of land which is available, with no major anticipated development other than mining activity.
  - Farming activities currently consist largely of sheep grazing.
  - There is some roads infrastructure already available in this area.
  - The northern extremity of the Eskom Transmission infrastructure is at Juno Substation in the vicinity of Vredendal.
  - There is a Distribution line to the Koekenaap Substation (distribution substation).
  - This section of the coastline has an adequate wind resource, is flat and accessible, and has access to the electricity network. Therefore, the establishment of a wind energy facility within this area is considered to be technically feasible.
  - The dunes on which the wind energy facility could be established are located at approximately 100 m elevation, and are located approximately 2 km inland of the coastline.
  - It is proposed that the turbines be clustered following the 100 m contour line in order to make maximum use of wind resource.
- » Information obtained by Eskom at Klipheuwel in terms of environmental issues include:
- No bird strikes have been recorded. Internationally, the industry standard is 0.1 birds per facility per year. This is dependent on the siting of the facility.
  - No bat strikes have been recorded.
  - The visual issue has been determined as being the main issue associated with the wind energy facility.
  - Noise is considered to be a non-issue on modern day turbines.
  - Electro-magnetic conductivity (EMC): wind energy facilities are considered to be basic electricity generating infrastructure, and is well understood. The wind turbines are tall structures which could interfere with telecommunication equipment if these structures interfere with line of sight. It has been established that the wind turbines appear on radar and could interfere with sensitive equipment. The turbines do not cause electrical noise.

### 3.3. Discussion session

- » Paul Hardcastle asked whether the technology which is being considered is the best technology for the South African situation?
  - South Africa has a moderate-low wind resource, and turbines would be required to be tailored to optimise the moderate wind resource.
  - Ian Smit replied that the technology selected would be based on experience in the industry and would be the best available which would be optimised for moderate-low wind conditions (as experienced in South Africa). He added that there are a few manufacturers which can provide guaranteed and stable equipment for low wind speed specifications. Eskom will source the best equipment for the local conditions. In addition, Eskom will endeavour to consider the ASGI-SA criteria in terms of local content, although it should be noted that approximately 80% of the components would be required to be imported due to the technology required.
  - Paul Hardcastle indicated that it is important to optimise the technology available.
  - Ian Smit agreed that it is important to ensure that the technology selected is suitable to the wind resource available.
- » Nico Gewers asked whether the configuration of the turbines is fixed.
  - Ian Smit replied that once a preferred site is selected, Eskom will undertake micro-siting of the wind turbines on the site. He indicated that turbine 1 would be placed at the best possible position on the site and then the remainder would be located in relation to that one. He said that the optimal positioning of the turbines would be perpendicular to primary wind direction. The technical issues would have to be considered in the micro-siting process to be undertaken.
  - Ian Smit indicated that the dune length on the identified sites is approximately 7 km in length. An area of approximately 5 km<sup>2</sup> would be required to accommodate all 50 turbines.
- » Paul Hardcastle noted DEA&DP's concern at receiving a site-specific EIA application without having seen Eskom's approach to addressing the strategic regional methodology criteria which have been published.
  - He indicated that it is DEA&DP's preference for Eskom to follow the regional methodology approach for their site selection process. He said that Eskom are in an ideal situation to undertake this strategic assessment as they do not own any property and would therefore not be biased with regards to the site which was selected.
  - He said that he has reviewed the strategic report submitted by Eskom and had noted that Eskom had only considered the criteria methodology approach and not the landscape assessment approach in the identification of areas and sites for the wind energy facility. He said that, if the regional methodology approach had been adopted, DEA&DP would

know that the areas were identified in a responsible manner and that the proposed sites are ideally placed. This would then inform the EIA process.

- He requested that Eskom still undertake this combined approach as outlines in the regional methodology. He indicated that this approach could be quickly and easily completed as the required data for the area is believed to be available. This information can also be used to inform Eskom where they want to go in future.
- Paul Hardcastle indicated that this process of considering all components of the regional methodology should be undertaken outside of the EIA process such that a broader area can be considered, and to confirm that the area selected is supported by the regional assessment. This approach would also confirm that the sites identified are the best ones to be considered in the EIA process. He said that the EIA process should theoretically be simpler as the issue of alternatives would already have been addressed and agreed to by the regulating authorities.
- Paul Hardcastle indicated that it is not impossible to undertake the landscape assessment studies as part of Scoping study, but believed that this approach would make the EIA process a more difficult process, particularly in terms of public participation.
- Paul Hardcastle requested that the scoping phase of the EIA process be delayed until the landscape methodology has been undertaken in order to confirm the sites as being most appropriate.
- Mosile Ntene indicated that DEAT were in agreement with DEA&DP and would request Eskom to undertake follow the regional methodology approach in order to confirm the proposed sites.
- Ian Smit indicated that the broader area considered by Eskom was restricted by the existing mining areas along the coastline, and extended inland up to the N7.
- Kuben Nair asked whether DEA&DP and DEAT were comfortable with the area considered. Paul Hardcastle indicated that DEA&DP have no issues with the general area identified and therefore the general area would be accepted.
- Mosile Ntene indicated that DEAT would agree to the consideration of a broader area for the site selection process, and then a preferred site in the EIA, as had been undertaken by Eskom on previous occasions.
- Karen Jodas asked whether it would be acceptable if only one feasible site was identified for consideration within the EIA process. Paul Hardcastle replied that the type of comparison of alternatives would change from the consideration of alternative sites in the scoping to more site-specific alternatives, such as layout alternatives, height alternatives, etc.
- Karen Jodas asked whether the findings of the strategic study (based on the regional methodology) would be supported by DEA&DP and DEAT.



She indicated that this process of site selection could be challenged in the EIA process, should one site only be taken into the EIA process. Paul Hardcastle replied that undertaking this process would make the selection of alternatives more defensible within the EIA process. He added that there would, however, be no guarantees as the process is not legislated.

- Kuben Nair asked whether the strategic study undertaken by Eskom would be required to be put out for public comment. Paul Hardcastle said that DEA&DP do not require public participation (i.e. advertising and review of the documentation) as part of this process. He added that it is believed that the information should be shared with the Local Authority and other strategic role-players in the area, as this would allow for the support from these role-players for the identified sites.
- It was agreed that the findings of the strategic study identifying potential sites can form part of the scoping report which is made available to the public for review as supporting information.
- » Paul Hardcastle provided DEAT with a copy of the DEA&DP strategic assessment and the regional methodology. He highlighted Chapter 5 as being the most important section as this detailed the regional methodology proposed by DEA&DP.
- » It was indicated that DEA&DP and DEAT would prefer a strategic level assessment to be undertaken outside of the EIA process, with a preferred site/area considered in the EIA process. It was agreed that Eskom would determine whether the landscape assessment would be considered prior to the EIA process commencing, or whether it would be considered within the EIA process.
- » Morore Mashao noted that the need for the project was in response to the urgent need for electricity generating capacity within South Africa. The proposed project is seen as particularly important for meeting the summer peak demand.
- » Morore Mashao asked how long the authorities would require to 'approve' the strategic document and provide support to the sites selected. Paul Hardcastle replied that DEA&DP would give the project priority attention. He said that their review of the findings of the strategic assessment could be undertaken in a short timeframe (i.e. about 2 weeks).
- » Mosile Ntene indicated that DEAT have a forum to prioritise projects, and added that Nico Gewers is aware of the appropriate channels to follow to prioritise projects (**Action: Nico Gewers**).

In summary, the following was agreed:

- » Eskom are to consider which approach to follow:
  - the approach put forward by DEAT and DEA&DP to include the landscape assessment within the strategic assessment as a precursor to the scoping

phase, and thereby 'simplify' the approach to looking at alternatives, i.e. the EIA process would consider a preferred site in the EIA phase with micro-siting alternatives, or

- consider the landscape assessment as part of the scoping phase. This approach may require the consideration of more than one alternative within the EIA phase. In addition, if the landscape assessment is considered as part of the scoping process, the public participation process would be required to be undertaken for the entire area (**Action: Eskom team**).
- » It was agreed that the submitted application for the EIA process will stand, and DEAT would be notified of any amendments to this application in writing (**Action: Savannah Environmental**).
- » Stakeholders to be involved in the strategic study could include: mining companies, Local Authorities, tourism bodies, stakeholders from the local towns, strategic role-players, directly affected landowners, DEAT, DEA&DP, and DEAT: MCM (**Action: Savannah Environmental & Shawn Johnston**).
- » Eskom noted their concerns regarding timeframes for the EIA application and the required provision of generating capacity to South Africa.
- » It was confirmed that the area considered by Eskom's strategic assessment is the area which would be carried through for further consideration through the regional methodology, i.e. the area south of Brandsebaai and north of the Olifants River. Eskom noted that sites south of the Olifants River are not considered feasible due to planned developments in this area. It was noted that Eskom must consider as broad an area as possible to optimise future opportunities for wind energy facilities.

#### **4. ENVIRONMENTAL IMPACT ASSESSMENT & PUBLIC PARTICIPATION PROCESS**

##### **4.1. Communication channels between Consultant, Competent Authority and Commenting Authority**

It was confirmed that DEA&DP (as the commenting authority) would send comments directly to DEAT (as the competent authority).

##### **4.2. Receipt of comments from other regulating Authorities**

Kuben Nair indicated that it was often a challenge getting comments from other commenting authorities (e.g. SAHRA or DME). He asked how DEAT would deal with obtaining comments within the 30-day process. Mosile Ntene advised that the applicant is to provide proof that they have tried to obtain comments from the relevant authorities and that no comments were received. Paul Hardcastle added that it is important to take a proactive approach and have meetings with as many stakeholders/authorities as possible in order to obtain comments.

#### **4.3. Information requirements and site visit by Authorities**

- » Eskom's completed strategic study is to be submitted to DEAT and DEA&DP.
- » Paul Hardcastle suggested that it would be useful to go to site once areas have been identified from the strategic process. Karen Jodas indicated that DEAT are to indicate when they would like to visit the site (**Action: DEAT & DEA&DP**).

#### **5. CLOSURE**

Karen Jodas thanked all for their attendance and contribution to the meeting.

The meeting ended at 13:30.

Attached as Appendix 1: Attendance Register

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Minutes prepared by Jo-Anne Thomas, Savannah Environmental

## ATTENDANCE REGISTER

**PROJECT:** Eskom Wind Energy Facility EIA

**DATE:** 2 April 2007

**MEETING:** Authorities meeting No.1



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