

**SOCIAL ASSESSMENT
FOR
SCOPING REPORT**

**ESKOM ABERDEEN WIND ENERGY
FACILITY**

July 2011

Prepared for

SAVANNAH ENVIRONMENTAL (Pty) Ltd

By

Tony Barbour

Tony Barbour

ENVIRONMENTAL CONSULTANT AND RESEARCHER

P O Box 1753, Sun Valley, 7975, South Africa
(Tel) 27-21-789 1112 - (Fax) 27-21-789 1112 - (Cell) 082 600 8266
(E-Mail) tbarbour@telkomsa.net

EXECUTIVE SUMMARY

Savannah Environmental (Pty) Ltd were appointed by Eskom Holdings as the lead consultants to manage the Environmental Impact Assessment (EIA) process for the establishment of proposed Wind Energy Facility (WEF) and associated infrastructure ~ 24 west of the town of Aberdeen in the Eastern Cape Province, South Africa. The proposed project site is located within the Camdeboo Local Municipality (EC101) (CLM), one of 9 local municipalities which fall within the greater Cacadu District Municipality (DC10) (CDM). The WEF will have a generation capacity of 200 MW.

Tony Barbour Environmental Consultants were appointed by Savannah Environmental to undertake a specialist Social Impact Assessment (SIA) as part of the EIA process. This report contains the findings of the initial scoping level social assessment undertaken as part of the EIA process. The scoping study was based on a review of desktop sources only. These included the development proposal, key policy documents, as well as contextual and demographic sources such as the 2001 Census. The scoping level assessment is also informed by the authors experience with SIA's for other wind energy developments in the both Eastern and Western Cape.

The CDM is the largest (58 243 km²) of the six (6) District Municipalities in the Eastern Cape Province, however it only houses ~ 6% (388 206) of the provinces' population (6 436 793). Of this total ~ 73 % are urbanised. Due the relatively small population size and large geographical area, the population density was 5.6 persons per km² in 2001 in the CDM. This is significantly lower than that of the Eastern Cape and South Africa (both 32 persons in 2001).

Based on the 2001 Census Statistics the CLM had a population of 44 370 in 2001 made up of approximately 10 320 households, giving an average of 4.3 people per house. Based on current estimates the population of the CLM is estimated to be in the region of 50 000 (CLM IDP 2007-2012). Of the 2001 total, ~ 67 % were Coloureds, 22 % Black African and 11 % Whites. The dominant language in the area is Afrikaans. In terms of settlements, the largest concentration of people live in Graff-Reinet (24 224), followed by Umasizake (8 237), Aberdeen (4 976), Thembalesizwe (1 345), Nieu-Bethesda (1 009). Approximately 4 579 live in the rural, farming areas of the LM (Census 2001).

The 2001 Census data indicates that ~ 50% of population older than 20 years are semi- or completely illiterate, whilst the majority of the remaining 50% do not have secondary, matric or a higher qualification. In this regard ~ 6% of persons older than 20 years have a tertiary education. Of the ~ 10 320 households in the CLM ~ 39% earned below R800 per month and 43 % earned between R 801 and R 3 200 per month. The Poverty Line Income is defined as R800 per month per household. The low income levels in the area are closely linked to the low education levels.

As a result of the low income levels a large portion of the population derives its income from Social Support (Welfare). Based on latest statistics (2010) 42% of the total population (50 000) receive some form of social support from the Government.

In terms of employment, 20% of the employable sector was unemployed and 43% were not economically active. Of the Employable Sector (age group 15-65 years),

37% was employed. Of these 71% worked in the Formal Sector, 12% in the Informal Sector and 18% in the Farming (Agricultural) Sector. Recent figures for the area indicate that the level of unemployment in 2008 had risen to 25% compared to the 2001 level of 20%.

The findings of a review of the relevant policy documents pertaining to the energy sector indicate that wind energy and the establishment of wind energy facilities are supported at national, provincial and local levels.

The potential positive social impacts associated with the proposed Aberdeen WEF during the construction phase are largely linked to the creation of employment and skills development opportunities. The potential negative impacts are linked to the impact on local road surfaces associated with the transport of heavy components and the impact on local communities and current farming activities associated with the presence of construction workers on the site.

Potential positive impacts associated with the operational phase are linked to the benefits that will accrue to the local landowners and or the community in terms of the lease agreement with Eskom Holdings. The development will also create employment and skills development opportunities. The establishment of a renewable energy source will also represent a positive social impact. The potential negative impacts are linked to the visual impact on the areas rural sense of place, and, to a lesser extent, the potential impact on the productivity of local farms through the loss of productive land. The visual impacts may also impact negatively on the areas current and future tourism potential. In addition, a transmission line linking the site to the Eskom electricity grid may potentially have negative impacts on land uses and the areas sense of place. These issues will be assessed during the EIA phase of the study.

The investigation and assessment of social impacts during the EIA phase will be guided by the Guidelines for specialist SIA input into EIAs adopted by DEA&DP in the Western Cape. The Guidelines are based on accepted international best practice guidelines, including the Guidelines and Principles for Social Impact Assessment (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). This approach will include:

- Identification of key interested and affected parties;
- Meetings and interviews with interested and affected parties;
- Identification and assessment of key social issues based on feedback from key interested and affected parties.
- Recommendations regarding mitigation/optimisation and management measures to be implemented.

The key conclusions of the Scoping level study are the following:

- The establishment of wind energy facilities are supported at national, provincial and local levels;
- The potential positive impacts associated with the construction phase relate to the creation of employment and skills development opportunities. The potential negative impacts are linked to the presence of construction workers on the site and the impact on farming activities;
- The potential positive impacts associated with the operational phase relate to the creation of employment opportunities, the promotion of clean, renewable energy. The potential negative impacts are linked to the impact on the rural sense of

place and scenic integrity of the landscape. This in turn has the potential to impact on the current and future tourism potential of the region.

ACRONYMS

| | |
|--------|--|
| DM | District Municipality |
| DTI | Department of Trade and Industry |
| DEA&DP | Department of Environmental Affairs and Development Planning |
| EIA | Environmental Impact Assessment |
| IDP | Integrated development Plan |
| IPP | Independent Power Producer |
| kV | Kilovolts |
| LED | Local Economic Development |
| LM | Local Municipality |
| MW | Megawatt |
| SIA | Social Impact Assessment |
| WEF | Wind Energy Facility |

TABLE OF CONTENTS

| | |
|---|----|
| SECTION 1: INTRODUCTION..... | 1 |
| 1.1 INTRODUCTION | 1 |
| 1.2 TERMS OF REFERENCE..... | 1 |
| 1.3 PROJECT DESCRIPTION | 1 |
| 1.4 PROJECT LOCATION AND SURROUNDING LAND USES | 4 |
| 1.5 ASSUMPTIONS AND LIMITATIONS | 5 |
| 1.5.1 Assumptions..... | 5 |
| 1.5.2 Limitations | 6 |
| 1.6 APPROACH TO STUDY | 6 |
| 1.7 REPORT STRUCTURE | 7 |
| SECTION 2: POLICY AND PLANNING OVERVIEW..... | 8 |
| 2.1 INTRODUCTION | 8 |
| 2.2 NATIONAL LEVEL ENERGY POLICY | 8 |
| 2.2.1 National Energy Act (Act 34 of 2008)..... | 8 |
| 2.2.2 The National White Paper on Renewable Energy (2003) | 8 |
| 2.2.3 Regional Methodology for Wind Energy Site Selection (2006)..... | 9 |
| 2.3 PROVINCIAL PLANNING AND POLICY CONTEXT | 12 |
| 2.3.1 Eastern Cape Provincial Growth and Development Programme..... | 12 |
| 2.4 DISTRICT LEVEL PLANNING AND SPATIAL POLICY CONTEXT | 13 |
| 2.4.1 Cacadu District Municipality Integrated Development Plan | 13 |
| 2.4.2 Camdeboo Local Municipality Integrated Development Plan | 14 |
| SECTION 3: OVERVIEW OF THE STUDY AREA | 15 |
| 3.1 INTRODUCTION | 15 |
| 3.2 ADMINISTRATIVE CONTEXT..... | 15 |
| 3.3 PROVINCIAL SOCIO-ECONOMIC CONTEXT..... | 15 |
| 2.5 OVERVIEW OF THE PROPOSED PROJECT AREA..... | 18 |
| 2.5.1 Cacadu District Municipality | 18 |
| 2.5.2 Camdeboo Local Municipality | 20 |
| SECTION 4: IDENTIFICATION OF KEY ISSUES | 22 |
| 4.1 INTRODUCTION | 22 |
| 4.2 IDENTIFICATION OF KEY SOCIAL ISSUES | 22 |
| 4.2.1 Policy and planning issues | 22 |
| 4.2.2 Local and site specific issues..... | 23 |
| 4.3 APPROACH TO ASSESSING IMPACTS | 24 |
| 4.4 INFORMATION REQUIREMENTS..... | 26 |
| ANNEXURE A | 28 |

SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Savannah Environmental (Pty) Ltd were appointed by Eskom Holdings as the lead consultants to manage the Environmental Impact Assessment (EIA) process for the establishment of proposed Wind Energy Facility (WEF) and associated infrastructure ~ 24 west of the town of Aberdeen in the Eastern Cape Province, South Africa (Figure 1.1). The WEF will have a generation capacity of 200 MW.

Tony Barbour was appointed by Savannah Environmental (Pty) Ltd (hereafter referred to as Savannah) to undertake a specialist Social Impact Assessment (SIA) as part of the EIA process. The terms of reference for the study include a scoping level assessment to identify key social issues that would need to be addressed as part of the EIA. This report contains the findings of the initial scoping level social assessment undertaken as part of the EIA process.

1.2 TERMS OF REFERENCE

The terms of reference for the Scoping Report Assessment require:

- A description of the environment that may be affected by the activity and the manner in which the environment may be affected by the proposed facility;
- A description of the potential social issues associated with the proposed facility;
- A description of the approach proposed for assessing the potentially significant issues will be addressed by the SIA in the EIA phase;

1.3 PROJECT DESCRIPTION

The proposed WEF will have a generation capacity of up to 200 MW which would be achieved by means of installing a cluster of between 100 and 150 wind turbines of with an optimal rated capacity of between 1.3MW and 2MW each. An area of ~8198 ha located ~ 24 km west of Aberdeen has been identified. This area is made up of the following farms:

- Portion 3 of Sambokdoorns 92
- Remainder of Portion 4 of Sambokdoorns 92
- Remainder of Sambokdoorns 92
- Remainder 1 of Klipdrift 73
- Remainder 2 of Farm 94, and
- Remainder of Portion 2 of Farm 94.

The exact number and placement of turbines will be investigated in more detail during the EIA phase of the study. The energy will be fed into the Eskom grid. The project is therefore an Independent Power Producer (IPP) project.

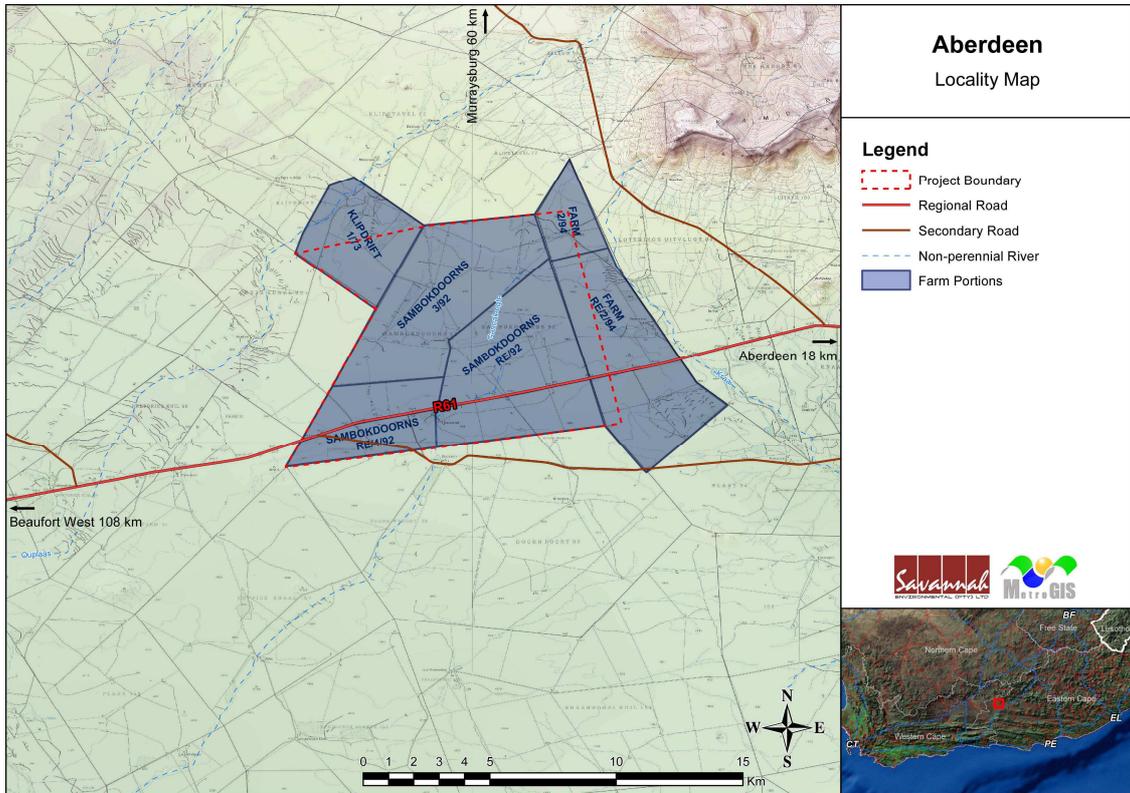


Figure 1.1: Location of proposed Eskom Aberdeen Wind Energy Facility

A Wind Energy Facility consists of multiple wind turbines (Figure 1.2) which are used to capture the kinetic energy of the wind and generate electricity. This captured kinetic energy is used to drive a generator located within the wind turbine and the energy is subsequently converted into electrical energy. A typical wind turbine consists of four primary components:

- The **foundation unit** upon which the turbine is anchored to the ground;
- The **tower** which typically between 80m and 100m in height. The tower is a hollow structure allowing access to the nacelle. The height of the tower is a key factor in determining the amount of electricity a turbine can generate. The tower houses the transformer which converts the electricity to the correct voltage for transmission into the grid;
- The **nacelle** (generator/turbine housing). The nacelle houses the gearbox and generator as well as a wind sensor to identify wind direction. The nacelle turns automatically ensuring the blades always face into the wind to maximise the amount of electricity generated.
- The **rotor** which is comprised of three rotor blades (each up to 60 m in length). The rotor blades use the latest advances in aeronautical engineering materials science to maximise efficiency. The greater the number of turns of the rotor the more electricity is produced.

The amount of energy a turbine can harness is dependent on the wind velocity and the length of the rotor blades. Wind turbines start generating power at wind speeds of between 10 - 15 km/hour, with speeds between 45 - 60 km/hour required for full

power operation. In a situation where wind speeds are excessive, the turbine automatically shuts down to prevent damage.

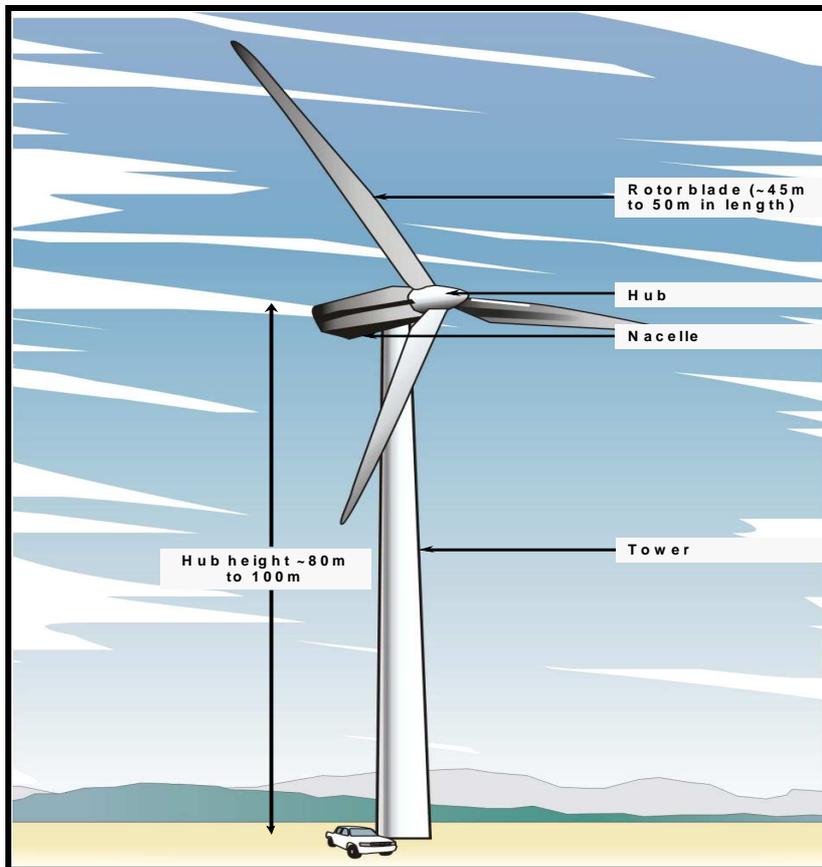


Figure 1.2: Typical turbine structure and components

A turbine is designed to operate continuously, unattended and with low maintenance for more than 20 years or >120 000 hours of operation. Once operating, a WEF can be monitored and controlled remotely, with a mobile team used for maintenance, when required. A facility consisting of up to 17 turbines could take up to 1 year to construct and commission, and requires the expertise of skilled staff.

Based on information provided by Eskom Holdings the basic infrastructure associated with the establishment of the proposed WEF will include:

- An access road to the site from the main road/s within the area (likely to be the R61 which cuts across the southern portions of the affected farms);
- Concrete foundations to support the turbines
- Cabling between the turbines to be laid underground
- An on-site substation to facilitate the connection between the facility and the electricity grid
- An overhead power line (400kV) feeding into Eskom's electricity grid at the Droërvier Substation, approximately 140 km from the site¹

¹ Note that the power line is the subject of a separate EIA process.

- Main access road to site
- Internal access roads between wind turbines
- External roads to access the site may be required
- Borrow pits within the site for the construction of access roads
- Office/Workshop area for operations, maintenance and storage
- Temporary water storage for construction and small storage for Operation
- Storage of fuel during construction
- Small Information centre and Operational & Maintenance building

1.4 PROJECT LOCATION AND SURROUNDING LAND USES

The proposed project site is located within the Camdeboo Local Municipality (EC101) (CLM) approximately ~ 24 km west of the town of Aberdeen in the Eastern Cape Province of South Africa. The CLM is one of 9 local municipalities that fall within the greater Cacadu District Municipality (DC10) (Figure 1.2).

The CLM is located approximately 270km from Port Elizabeth (CBD) and forms part of an area known as the "Karoo Heartland" which defines a scenic route through the Karoo. The northern area of the study area is characterised by a mountainous terrain or high lying hinterland. The rural areas have low densities and are characterised by farming activities. The urban nodes include:

- Graaff-Reinet, including Umasizakhe, Kroonvale, Adendorp and Kendrew;
- Aberdeen, including Lotusville and Thembalesizwe;
- Nieu-Bethesda, including Pienaarsig.

The CLM is renowned for its pristine natural environment, rich heritage, diverse peoples and cultures. Tourism is one of the key economic sectors and visitors are drawn to the area by its scenic landscapes and climate. The town of Graaff-Reinet, which is the 4th oldest town in South-Africa, is referred to as the "Gem of the Karoo" and functions as an important service centre for the CLM.

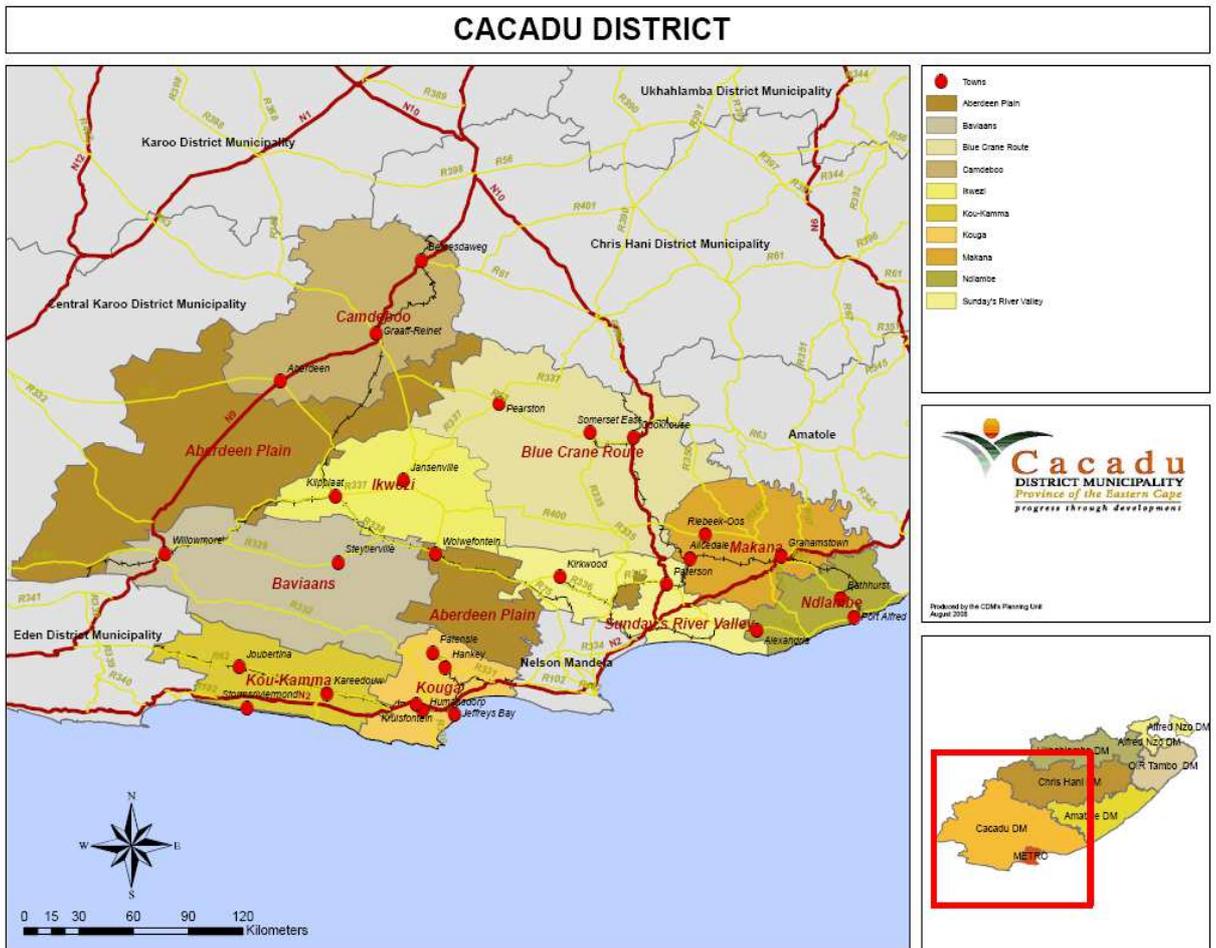


Figure 1.3: Location of Cacadu District Municipality and Camdeboo Local Municipality

1.5 ASSUMPTIONS AND LIMITATIONS

1.5.1 Assumptions

Technical suitability

It is assumed that the development site identified by Eskom Holdings represents a technically suitable site for the establishment of a wind energy facility.

Strategic importance of the project

The strategic importance of promoting wind energy is supported by the national and provincial energy policies.

Fit with planning and policy requirements

Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential

social impacts associated with a proposed development. In this regard a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported.

However, the study recognises the strategic importance of wind energy and the technical, spatial and land use constraints required for wind energy facilities.

Consultation with affected communities

At this stage in the process there has been no interaction by the SIA Consultants with communities and other affected parties that live in the area. However, the author has worked on other wind energy projects and the issues identified by the affected parties in these projects are, in many instances, likely to be similar to those for the associated with the Aberdeen WEF site. Detailed consultation will be undertaken during the assessment component of the SIA.

1.5.2 Limitations

Demographic data

The demographic data used in the study is largely based on the 2001² Census. While this data does provide useful information on the demographic profile of the affected area, the data are dated and should be treated with care.

1.6 APPROACH TO STUDY

The approach to the study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment. The Guidelines are based on accepted international best practice guidelines, including the Guidelines and Principles for Social Impact Assessment (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). In this regard the study involved:

- Review of demographic data from the 2001 Census Survey;
- Review of relevant planning and policy frameworks for the area, specifically for the Cacadu and Camdeboo Municipalities;
- Review of information from similar studies;
- Literature review of social issues associated with wind energy facilities.

The identification of potential social issues associated with proposed wind energy facility is based on review of relevant documentation, experience with similar projects and the area. Annex 1 contains a list of the secondary information reviewed.

² The last comprehensive national census is South Africa was conducted in 2001. The census provided demographic and socio-economic data from National to Municipal Ward level. In 2007 a large-scale Community Survey was conducted in all the provinces of South Africa. A sample population (949 105 people) and households (246 618) were enumerated and the results were then weighted to produce the final data sets. The main objective of the survey was to provide demographic and socio-economic data National to Municipal level only. The next full national census is planned for 2011.

1.7 REPORT STRUCTURE

The report is divided into three Sections, namely:

- Section 1: Introduction;
- Section 2: Policy and planning overview;
- Section 3: Description of the study area;
- Section 4: Description of the key social issues that need to be assessed during the EIA phase.

SECTION 2: POLICY AND PLANNING OVERVIEW

2.1 INTRODUCTION

Section 2 provides an overview of the significant policy and planning documents of relevance to the proposed Aberdeen WEF, namely:

- The National Energy Act (No. 34 of 2008);
- The National White Paper on Renewable Energy (2003);
- The White Paper on Renewable Energy (November 2003);
- Eastern Cape Provincial Growth and Development Strategy (2004-2014);
- Cacadu District Municipality Integrated Development Plan (2007-2011);
- Camdeboo Local Municipality Integrated Development Plan (2007-2011);

Section 2 also provides a summary of some of the key issues relating to the siting of a WEF as identified in a document commissioned by the Department of Environmental Affairs and Development Planning (DEA&DP) of the Western Cape, titled: the Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape. *Towards a Regional Methodology for Wind Energy Site Selection* (May 2006). This document includes some useful policy and methodology guidelines for site selection that may be also applicable to the Eastern Cape Province and inform the SIA.

2.2 NATIONAL LEVEL ENERGY POLICY

2.2.1 National Energy Act (Act 34 of 2008)

The National Energy Act was promulgated in 2008. One of the objectives of the Act was to promote diversity in energy supply and its sources. In this regard, the objectives of the Act, as stated in the preamble, make direct reference to facilitating the “increased generation and consumption of renewable resources”.

2.2.2 The National White Paper on Renewable Energy (2003)

This White Paper on Renewable Energy (further referred to as the White Paper) supplements the *White Paper on Energy Policy* (1998), which recognized the significant medium and long-term potential of renewable energy. The 2003 White Paper sets out Government’s vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa.

As signatory to the Kyoto Protocol, Government is determined to achieve its statement commitment to reducing greenhouse gas emissions. To this purpose, Government has committed itself to the development of a framework in which a national renewable energy framework can be established and operated.

Apart from the reduction of greenhouse gas emissions, the promotion of renewable energy sources is aimed at ensuring energy security through the diversification of supply (in this regard, also refer to the objectives of the National Energy Act).

Government's long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidized alternative to fossil fuels.

The medium-term (10-year) target set in the White Paper is:

*10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, **solar** and small-scale hydro. The renewable energy is to be utilized for power generation and non-electric technologies such as solar water heating and bio-fuels. This is approximately 4% (1667 MW) of the projected electricity demand for 2013 (41539 MW) (Executive Summary, ix).*

The IRP 2010 also allocates 43% of new energy generation facilities in South Africa to renewables.

2.2.3 Regional Methodology for Wind Energy Site Selection (2006)

While no policy or methodology on wind energy site selection exists specifically for the Eastern Cape, the 2006 report series "Towards A Regional Methodology For Wind Energy Site Selection" compiled by the Department of Environmental Affairs and Development Planning (DEA&DP) of the Western Cape, includes some useful policy and methodology guidelines for site selection that may be applicable to the Eastern Cape Province.

The objective of the study commissioned by the DEA&DP was to develop and establish a policy on the implementation of a methodology to be used for the identification of areas suitable for the establishment of wind energy developments. This overall objective was supported by a number of sub-objectives, including:

- To facilitate the practical implementation of wind energy generation technology in a manner that meets the principles of the White Paper on Energy Policy for the Republic of South Africa;
- To introduce wind energy developments at provincial level in a coordinated manner, that meets all requirements of sustainability as reflected in the National Environmental Management Act, 1998 (Act 107 of 1998), and which is based on international best practice;
- To encourage responsible and rational wind energy developments, which are beneficial not only to developers, but to communities at large;
- To discourage the investment of time and money in potentially unsuitable sites;
- To introduce the wind energy industry to the public and thereby increase support for and interest in alternative renewable energy sources; and
- To provide policy guidance in terms of the environmental impact assessment process.

The document outlines a number of assessment techniques that were reviewed as part of the study. Some of the key findings and recommendations that have a bearing on the study are summarised below.

National, Regional and Local Perspectives

It is important that at the national level (SA being signatories to the Kyoto Protocol) that positive policy is enacted to encourage wind energy (and indeed all renewable) development. A national perspective should ensure that wind resource rich provinces

and regions are identified in order to ensure a co-ordinated and holistic national strategy.

International Best Practice and Applicability at Provincial Level

- Internationally, the importance of landscapes, particularly their social and strategic value are increasingly being acknowledged, leading to the realisation that the intangible value of landscapes (and living environments) must be addressed in spatial planning;
- Designating areas of suitability for wind energy developments promotes more effective implementation of projects and enhances integration with other land-uses. Environmental and spatial issues can be addressed early in the siting process by introducing them at the strategic regional level;
- In spite of commonality of environmental concerns internationally, the thresholds developed to address them vary significantly between countries, due to differences in legal frameworks and policies, different approaches to forward planning, different geographical sizes, biophysical and cultural characteristics, and degree of landscape modification;
- A large volume of scientific and professional information already exists in most of the developed countries. Sensitive areas and scenically valuable landscapes have already been identified in leading countries, prior to the development of wind energy regional siting criteria;
- The process of identifying "sensitive" areas usually entails analysis by specialists of a defined geographical area on a broad scale, based on regional-level biological, environmental and landscape factors, to define areas of sensitive landscapes ("negative mapping") to exclude wind energy developments. A key foundation in most of the international precedent was the existence of strategic regional landscape assessments. These, often resource intensive, assessments do not generally exist in SA and DEA&DP study expressed concern that a developing country like SA cannot afford expensive studies on landscape sensitivity and capacity and have therefore initiated the investigation of a robust "regional guiding criteria" method. A key challenge to this specialist study is therefore to assess whether a regional level landscape assessment method, that is not unduly resource or time intensive, can be added to a criteria based method.

Cumulative Impact Issues

The experience in Europe is that the very high cumulative impact of wind farms has resulted due to a policy of permitting small wind energy schemes in relatively close proximity to each other (Only 2.5km in Denmark). The "dispersed" European model has clearly created high cumulative visual impact. Scottish National Heritage are now promoting a minimum distance between wind farms of 30km, especially due to the increasing size of turbines themselves, as well as the tendency to develop large wind farms with many turbines (often over 100).

As a result the study recommends that:

- Large installations should be located extremely far apart (30 – 50km), and;
- Smaller installations should be encouraged, even individual turbines, in urban / brownfield areas.

The document also notes that issue of decision-making also needs to be further debated in terms of powers and functions in the Constitution. The political tendency will be for appropriate "concentration" zones to be designated at national and provincial level, and for district and local authorities to be expected to ensure

effective implementation of projects. This needs to be reconciled however with local interests but local interest (potentially "not in my backyard" attitudes) should not be allowed to "trump" broader national and provincial imperatives.

Recommended Urban Focus

The document notes that South African rural and wilderness landscapes have a high aesthetic value. The generally unspoilt nature of these areas are the foundation of the tourism industry in most provinces in SA, as well as a key reason why the second home market is so healthy in rural tourism and wilderness areas.

The Danish wind energy policy, after several decades of driving a "rural" model, has shifted (based on experience of creating visual "clutter" in rural landscapes) to emphasizing urban and industrial locations as "first preference" for wind developments. South Africa should learn and benefit from this experience and avoid the mistake of pursuing a "rural" model without also emphasising urban locations for wind energy development.

Recommended Disturbed Landscape Focus

In addition to the urban focus discussed above, the proposed methodology also departs from some of the international precedent by purposefully focussing on existing disturbed landscapes, and in particular, those rural landscapes that have already been "vertically compromised" by the location, for example, of transmission lines, railway lines, and all phone towers.

Landscape Assessment: Subjective / Qualitative

The role and value of public participation in perceptual based studies to determine landscape character and sensitivity to wind turbines has been highly questionable in overseas experience. It is accordingly recommended that a very high value should be placed on professional judgement from practitioners at the local level when assessing landscape values. This method is likely to be quicker and more effective than attempting a qualitative (GIS) based assessment technique.

Bird Migration Routes and Other Information

In Europe, a large body of knowledge exists in relation to avifauna, particularly nesting sites of many species and migration routes. This information accordingly featured prominently in spatial mapping overlays. Generally, SA does not have this quality of information, but it has been found that, at the strategic level, this is not a major issue. At the local level however, it is recommended that an avifaunal study be conducted to establish whether any resident bird populations would be threatened by a wind energy project.

Protecting Rural Landscape Values (put after "Urban Emphasis)

In the assessment of suitable sites for wind turbines, in Europe, a great degree of emphasis is given to quantifying views from residential locations. This policy emphasis has had the impact of effectively pushing these projects into more "remote" rural locations where a qualitative analysis can show that, in relative terms, only a small minority of people resident in a particular area will see the turbines. A specific finding of the study was that in the SA context this policy was flawed in that it had the effect of "penalising" rural areas, where it is normal to expect that residents have chosen such areas for, inter alia, the relative non-disturbance by urban facilities.

Site Specific Aesthetic Considerations

The document lists the following site-specific recommendations:

Layout

- Stick to linear, non-organic layouts;
- Straight lines of turbines preferred;
- Consistent hub height (all turbines on same contour level).

Turbines

- Same machines to be used on each project;
- The 1/3rd proportion in turbine form is preferred. (Less than 10% variance between hub height (tower length) and blade diameter).

Colour

- Turbine tower: off white to light grey non-reflective, matt paint;
- Blades: same colour as above (avoid red tips);
- Warning lights on turbine: only in exceptional circumstances (where required by authorities).

2.3 PROVINCIAL PLANNING AND POLICY CONTEXT

2.3.1 Eastern Cape Provincial Growth and Development Programme

The Eastern Cape Provincial Growth and Development Programme (PGDP) 2004-2014 sets out the vision and plan for development for the Eastern Cape until 2014. It highlights, in particular, strategies to fight poverty, promote economic and social development, and create jobs.

The strategy document does not highlight any specific measures to promote the development of renewable energy sources. However, an analysis of energy sources within the province reveals that 23% of the population of the province still rely on paraffin for their energy needs while 25% rely on candles for lighting.

Energy demands and electricity infrastructure rollout forms part of the Strategic Infrastructure Programme of the PGDP. The PGDP states that the, "...economic and logistics infrastructure – energy, roads, rail, ports, and air transport among others – is a necessary condition for economic growth and development."

Section 5 of the PGDP (2004-2014) identifies six strategic objective areas of the PGDP. Of these the infrastructure programme is of relevance to the study. The report notes that development of infrastructure, especially in the former homelands, is a necessary condition to eradicate poverty through:

- The elimination of social backlogs in access roads, schools and clinics and water and sanitation;
- To leverage economic growth through access roads and improving the road, rail and air networks of the Province.

Infrastructure development, in turn, will have strong growth promotion effects on the agriculture, manufacturing and tourism sectors by improving market access and by "crowding in" private investment. Poverty alleviation should also be promoted through labour-intensive and community based construction methods.

The PGDP indicates that the programmes have been selected for their potential in leveraging significant resources, creating a large multiplier effect, and providing a foundation for accelerated economic growth. Of specific relevance is the Strategic Infrastructure Programme. This programme indicates that enabling economic and logistics infrastructure – energy, roads, rail, ports, and air transport among others – is a necessary condition for economic growth and development. Specific reference is therefore made to energy infrastructure.

The Strategic Infrastructure Programme also seeks to consolidate and build on this coastal advantage through the provision of world-class infrastructure and logistics capability at the Coega and East London IDZs, and improving connectivity and linkages with major industrial centres, such as Johannesburg.

The high-level objectives of the Strategic Infrastructure Programme include consolidating and building upon the strengths of the Province’s globally-competitive industrial sector through the development of world-class infrastructure and logistics capability in the East London and Coega IDZs. A reliable energy supply will be critical to achieving these objectives. The proposed WEF will contribute to the future energy requirements of the Eastern Cape, and its proximity (270 km) to the Coega IDZs will also benefit these key initiatives.

2.4 DISTRICT LEVEL PLANNING AND SPATIAL POLICY CONTEXT

2.4.1 Cacadu District Municipality Integrated Development Plan

The Cacadu District Municipality (CDM) Integrated Development Plan (IDP) (2007-2012) refers to the Medium Term Strategic Framework (MTSF) developed in July 2009 by the Minister of Planning. The aim of the MTSF is to guide planning and resource allocation across all the spheres of government through the identification of ten (10) National Strategic Medium Term Priorities. National, Provincial and Local spheres of government are expected to adapt their planning in line with the Strategic Priorities. The Strategic Priorities that are relevant to the proposed Aberdeen WEF include:

- Speeding up growth and transforming the economy to create decent work and sustainable livelihoods:
- Strengthen the skills and human resource base:
- Sustainable Resource Management and Use:

The sustainable resource management and use is a specifically relevant priority as it makes reference to impact of climate change and South Africa’s ratification of the United Nations Framework on Climate Change in August 1997 and the Kyoto Protocol in March 2002. The main objective of government in terms of this priority is to encourage sustainable resource management and use by focusing on various interventions including the pursuance of renewable energy alternatives and promotion of energy efficiency.

With regard to the CDM not all of the 10 Strategic Priorities are relevant to the role and mandate of the CDM. However, the IDP indicates that seven components of the MTSF have been extracted in the interest of influencing project formulation and resource allocation. Of these the following are relevant to the proposed Aberdeen WEF:

- Identification of Economic Opportunities, specifically efforts to identify and enhance existing economic opportunities, and create employment opportunities;
- Enhancement of Skills and Education Systems, specifically implementation of skills development programmes and initiatives;
- Sustainable Resource Management and Use, specifically the investigation of renewable energy alternatives. This priority also highlights the importance of enhance biodiversity and the preservation of natural habitats.

The CDM IDP therefore specifically makes reference to the need to investigate renewable energy options, such as wind energy. However, the IDP also highlights the importance of tourism to the local economy. The potential impact of the proposed Aberdeen WEF on tourism will be assessed during the assessment phase of the EIA.

2.4.2 Camdeboo Local Municipality Integrated Development Plan

The Vision Statement for the Camdeboo Integrated Development Plan 2007 –2012 states that:

"Camdeboo Municipality strives to ensure the socio-economic development and effective participation of all its inhabitants within an economically viable and sustainable environment, where equal opportunities are promoted. Poverty is eradicated and services provided at an affordable cost within a crime free, healthy environment and well managed administration".

This long-term Vision is linked to development Priorities, Objectives, Strategies and Projects which are listed in the IDP. The key Development Priorities identified during the participation process are, in order of importance:

- Housing (RDP backlog as well as fallen);
- Infrastructure (including services, maintenance and bulk supply);
- Local Economic Development (including, job creation, Black Economic Empowerment (BEE), skills development, tourism, industrial development, heritage, etc.);
- Institution building (including Staff);
- Community building (including community facilities, recreation, HIV/AIDS)

The key development priority of relevance to the proposed Eskom Aberdeen WEF is Local Economic Development (LED). In this regard the IDP notes that the CLM must promote LED by creating an enabling environment through investing in good infrastructure (new as well as maintaining and upgrading the old), ensuring that a high standard of services (water, electricity, health care, etc.) is rendered to all areas and that sufficient land is allocated for enterprise and industrial development. One of the key constraints affecting the economic development of the area that is relevant to the project is the shortage of skills and low education levels.

The IDP also lists the findings of a Community Needs Analysis. In terms of priorities, the key priorities that are relevant to the proposed WEF include job creation, BEE, small enterprise, industrial and sector development (e.g. Tourism and Agriculture) and skills development. The proposed Aberdeen WEF has the potential to contribute towards the creation of jobs, skills development and the promotion of small businesses and BEE. However, due to the visual impacts associated with large WEFs, the proposed development also has the potential to impact negatively on the tourism potential of the area. These issues will be assessed during the assessment phase of the EIA.

SECTION 3: OVERVIEW OF THE STUDY AREA

3.1 INTRODUCTION

Section 3 provides an overview of the study area with regard to:

- The relevant administrative context;
- The provincial socio-economic context; and,
- The municipal-level socio-economic context.

3.2 ADMINISTRATIVE CONTEXT

The study area is located within the Camdeboo Local Municipality (CLM) in the Eastern Cape Province of South Africa. The CLM is one of nine local municipalities that make up the Cacadu District Municipality (CDM), which covers an area of 58 243 km², making it the largest DM in the Eastern Cape Province.

The CLM consists of 6 Wards and covers an area of 7 230 km² and is renowned for its pristine natural environment, rich heritage, diverse peoples and cultures. Important tourist attractions include the beautiful landscapes and a healthy climate. The town of Graaff-Reinet, which is the 4th oldest town in South-Africa and is referred to as the "Gem of the Karoo", is a hub of agri-tourism activity. The town is also the seat of the Municipal Council and serves as an important service centre.

3.3 PROVINCIAL SOCIO-ECONOMIC CONTEXT

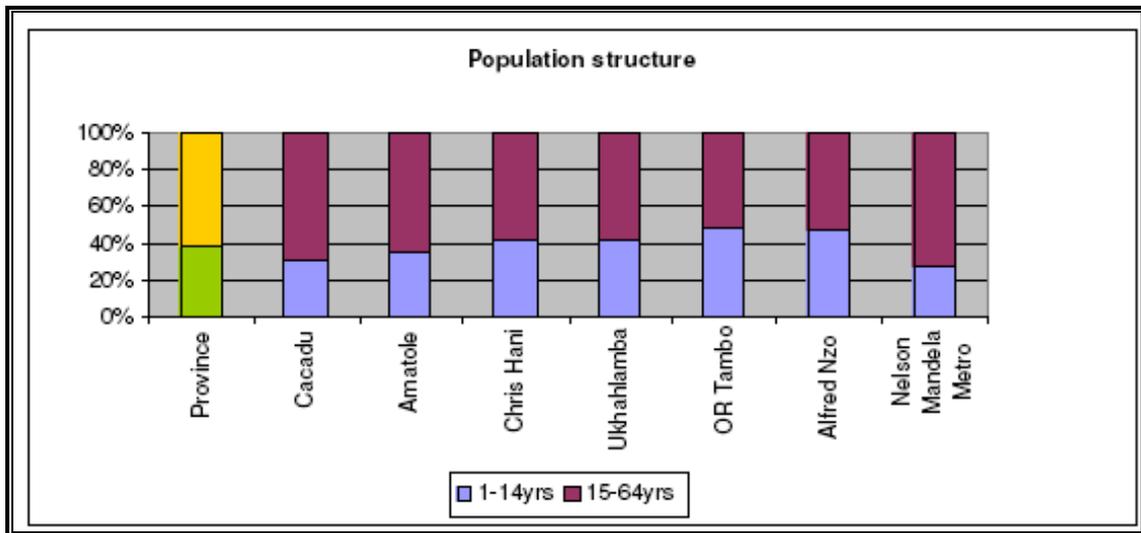
The proposed Aberdeen WEF is located within the Cacadu District Municipality of the Eastern Cape Province of South Africa. The Eastern Cape Province is the second largest province in terms of land area in South Africa (169 580 km²) and makes up 13.9% of South Africa's total land area. The province contributes 7.5 % to the country's total GDP and with 14.1 % of South Africa's population it is the country's third most populous province. Of this total almost 40% are under the age of 14 years. In the case of the Alfred Nzo and OR Tambo (Oliver Tambo) districts, this proportion exceeds 45% (Figure 2.1).

The high proportion of children is reflective of Eastern Cape's historic role as a major source of migrant labour (Austrian Development Agency, 2005). Migration from the Eastern Cape to other provinces, specifically the Western Cape, still continues today. Life expectancy in the province has dropped over the past decade from 60 years in 1995 to 50 years in 2003 (Austrian Development Agency, 2005). There are two major urban centers within the Province, the Nelson Mandela Metropolitan Area and Buffalo City Municipality (BCM). With the exception of the Nelson Mandela Metro and Buffalo City, the province is predominantly rural in character.

The Eastern Cape is also the poorest province in South Africa, with seven of the poorest Local Municipalities in the country located in the province, namely Umzimvubu (Alfred Nzo DM), Ntabankulu (OR Tambo DM), Mbizana (OR Tambo DM), Mbhashe

(Amatole DM), Ngqushwa (Amatole DM), Elundini (Ukhahlamba DM) and Intsika Yethu (Chris Hani DM). The high levels of poverty in the province are linked to the inclusion of the two former apartheid era Bantustan areas, namely the Transkei and Ciskei, into the Eastern Cape (Austrian Development Agency, 2005).

Figure 2.1: Age distribution with the Eastern Cape Province

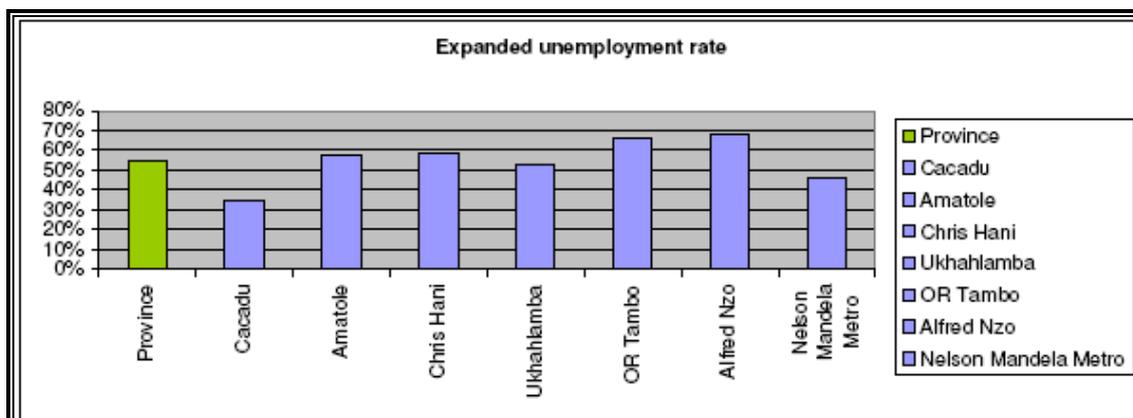


Source: Austrian Development Agency (2005)

Although the Eastern Cape is the poorest province in the country, there is a distinct variation in both the distribution and severity of poverty within the province. In this regard a distinction can be made between those areas that were formerly part of the Ciskei and the Transkei (in particular OR Tambo, Alfred Nzo, but also large parts of Ukhahlamba, Amatole and Chris Hani), and those areas that were administered by the former white South Africa (in particular Cacadu) (Austrian Development Agency, 2005).

In terms of unemployment rates, the OR Tambo and Alfred Nzo Districts have the highest rates, followed by Chris Hani and Amatole. All of these districts have unemployment rates higher than the provincial average (Figure 2.2). The Cacadu District Municipality has the lowest unemployment rate in the province.

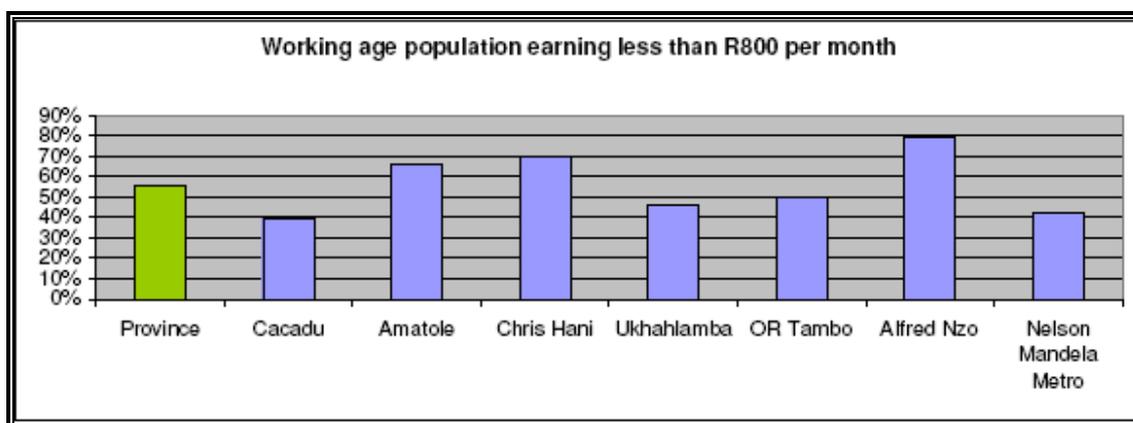
Figure 2.2: Expanded unemployment rate for the Eastern Cape Province



Source: Austrian Development Agency (2005)

In addition to the high unemployment levels, income levels are also low. A large proportion of those that are employed therefore earn less than R800 per month. In the case of Alfred Nzo, Chris Hani and Amatole districts, over 60% of those employed earn less than R800 per month (Figure 2.3). The figure for the Cacadu district is 40%.

Figure 2.3: Percentage of working age population earning less than R800 per month



Source: Austrian Development Agency (2005)

In addition to the high unemployment rates and low-income levels, there has also been an increase in inequality as measured by the Gini coefficient³ since 1995. In 1995 the figure stood at 0.61. By 2001 the coefficient had increased to 0.66. Similarly, in relation to human development indices, the situation has also deteriorated (Austrian Development Agency, 2005).

³ The Gini coefficient is a measure of statistical dispersion most prominently used as a measure of inequality of income distribution or inequality of wealth distribution. It is defined as a ratio with values between 0 and 1: A low Gini coefficient indicates more equal income or wealth distribution, while a high Gini coefficient indicates more unequal distribution (Source, Wikipedia.org)

In response to these challenges, the Eastern Cape Province has been earmarked by the ANC as a priority for growth and economic development. To facilitate development, two spatial development initiatives (SDIs), the Fish River SDI and the Wild Coast SDI, two Industrial Development Zones (IDZs), the Coega IDZ near the Nelson Mandela Metropole (Port Elizabeth) and the West Bank IDZ near East London, and numerous substructure and structure plans have been initiated. The IDZ initiatives are linked to two of the province's three harbours (i.e. Coega and East London). In addition the province has three airports offering direct flights to the main centres, and a well-developed road infrastructure. In terms of context the proposed Aberdeen WEF is located approximately 270 km north-west of the Nelson Mandela Metropole and the Coega IDZ. The facility is therefore well placed to supplement the future energy needs of these two large consumers. The location of the site will also significantly reduce the transmission losses experienced by Eskom in the transmission of electricity from Gauteng and Mpumalanga to the Eastern Cape.

2.5 OVERVIEW OF THE PROPOSED PROJECT AREA

2.5.1 Cacadu District Municipality

The Cacadu District Municipality (CDM), DC10, is the largest (58 243 km²) of the six (6) District Municipalities in the Eastern Cape Province. The District is situated in the western portion of the Province, bordering the Western Cape, Northern Cape and two other District Municipalities in the Eastern Cape, namely Chris Hani District Municipality and Amathole District Municipality (Figure 1.3).

The District consists of nine (9) local municipalities (Category B Municipalities) and four other portions collectively known as the District Management Area (DMA). Two of the four areas are National Parks, namely the Addo Elephant National Park and the Tsitsikamma National Park. These parks are managed by the South African National Parks Board. The District wholly borders the Nelson Mandela Metropolitan Municipality (NMMM), and consequently, land access to the NMMM is via the CDM. The nine local municipalities in CDM and their respective towns are illustrated in Table 2.1.

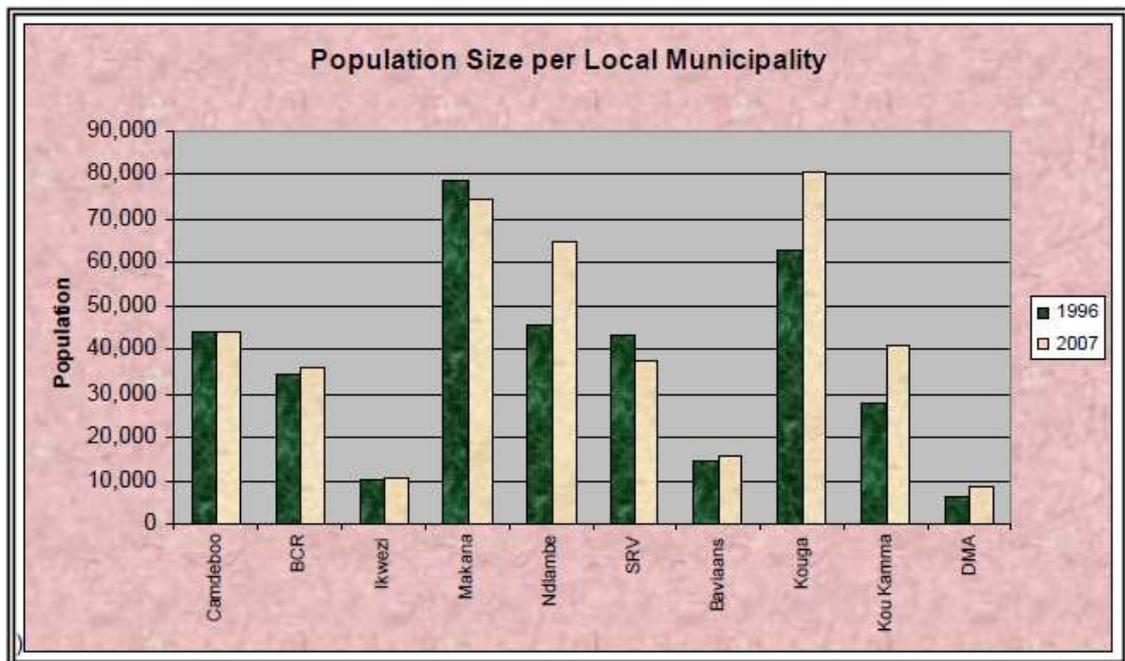
The Cacadu District covers approximately one third of the Eastern Cape's land area, however it only houses 5.4% of the provinces' population. The main population concentrations are in Makana, Kouga and Ndlambe, with more than 50% of residents in the District residing in these Municipalities. The remaining Municipalities all have less than 50 000 inhabitants per Municipality. Figure 2.4 illustrates the population figures for each of the nine local municipal areas.

Due the relatively small population size and large geographical area, the population density was 5.6 persons per km² in 2001 in the Cacadu District Municipality. This is significantly lower than that of the Eastern Cape and South Africa (both 32 in 2001). There is a 72.6% Urbanisation level for the Cacadu District.

Table 2.1: List of Local Municipalities within the Cacadu District Municipality

| | MUNICIPALITY | MAJOR SETTLEMENTS / TOWNS |
|-------|----------------------|--|
| EC101 | Camdeboo | Graaff-Reinet, Aberdeen, Nieu-Bethesda |
| EC102 | Blue Crane Route | Somerset-East, Cookhouse, Pearston |
| EC103 | Ikwezi | Jansenville, Klipplaat, Waterford |
| EC104 | Makana | Grahamstown, Alicedale, Riebeeck-East |
| EC105 | Ndlambe | Port Alfred, Kenton-on-Sea, Bushmans River, Alexandria |
| EC106 | Sundays River Valley | Kirkwood, Addo, Paterson |
| EC107 | Baviaans | Willowmore, Steytlerville |
| EC108 | Kouga | Jeffreys Bay, Humansdorp, Hankey, Patensie |
| EC109 | Kou-Kamma | Joubertina, Kareedouw, Louterwater |
| DC10 | Cacadu DMA | Rietbron, Wolwefontein, Vondeling, Glenconner |

Figure 2.4: Population size per local Municipality in the Cacadu District Municipality



2.5.2 Camdeboo Local Municipality

The CLM (EC101) is approximately 270km from Port Elizabeth (CBD) with the N9 national road being the major access route bisecting the study area. The Camdeboo is part of an area known as the "Karoo Heartland" which defines a scenic route through the Karoo. The northern area of the study area is characterised by a mountainous terrain or high lying hinterland. The rural areas have low densities and is characterised by farming activities. The urban nodes include:

- Graaff-Reinet, including Umasizakhe, Kroonvale, Adendorp and Kendrew;
- Aberdeen, including Lotusville and Thembalesizwe;
- Nieu-Bethesda, including Pienaarsig.

The CLM consists of 6 Wards and covers an area of 7 230 km² and is renowned for its pristine natural environment, rich heritage, diverse peoples and cultures. Important tourist attractions include the beautiful landscapes and a healthy climate. The key features of the region include:

- Agriculture : wool, mohair, ostrich, poultry, redmeat production (beef, sheep, goat), crops;
- Tourism : museums (e.g. Reinet House, Owl House), natural and cultural heritage, the Valley of Desolation, Camdeboo National Park;
- Commerce & Industry : established business (large and small), formal & informal sectors;
- Infrastructure & Services : good infrastructure, free basic services (water and electricity) available to all with subsidized support to the indigent;
- Schools, colleges and other educational centres;
- Primary health care clinics, hospitals and other medical facilities;
- Public amenities: libraries, sport & recreational facilities, banks and post offices.

Population

Based on the 2001 Census Statistics the Camdeboo Local Municipality (CLM) had a population of 44 370 in 2001 made up of approximately 10 320 households, giving an average of 4.3 people per house. During 2007 StatsSA conducted a national Community Survey based on random samples taken throughout the country. The findings of the survey released in 2008 indicated that the population of the CLM was 41 764 compared to the 44 370 in 2001. The CLM IDP states that the data from the Community Survey is deemed to be unreliable. Based on current estimates the population of the CLM is estimated to be in the region of 50 000 (CLM IDP 2007-2012).

Of the 2001 total, ~ 67 % were Coloureds, 22 % Black African and 11 % Whites. The dominant language in the area is Afrikaans. In terms of settlements, the largest concentration of people live in Graff-Reinet (24 224), followed by Umasizake (8 237), Aberdeen (4 976), Thembalesizwe (1 345), Nieu-Bethesda (1 009). Approximately 4 579 live in the rural, farming areas of the LM (Census 2001).

Education

Based on the 2001 Census data ~ 50% of population older than 20 years are semi- or completely illiterate, whilst the majority of the remaining 50% do not have secondary, matric or a higher qualification. In this regard ~ 6% of persons older than 20 years have a tertiary education. Due to the low education levels a large number of persons are employed as general labourers, and have to perform menial tasks

with limited responsibility (CLM IDP 2007-2012). Youth development and education have therefore been identified a key priorities by the CLM.

Household incomes

Census 2001 data indicated that of the ~ 10 320 households in the Camdeboo, 39% earned below R800 per month and 43 % earned between R 801 and R 3 200 per month. At the time of the Census, the Poverty Line Income was defined as R800 per month per household. The Department of Social Welfare classifies a household as indigent and living below the poverty line if it has an income of up to R9 600 per year, which is R800 per month. The low income levels in the area are closely linked to the low education levels.

As a result of the low income levels a large portion of the population derives its income from Social Support (Welfare). Based on latest statistics (2010) 42% of the total population (50 000) receive some form of social support from the Government. In terms of totals, a total of ~ R 194 million is paid out per annum in social grants. Of this total, Child Support Grants make up 50% of Grants & Pensions paid out in the CLM. This total is expected to increase as the age threshold is moved up (CLM IDP 2007-2012).

Employment

According to the 2001 National Census, 20% of the employable sector was unemployed and 43% were not economically active. Of the Employable Sector (age group 15-65 years), 37% was employed; of those 71% worked in the Formal Sector, 12% in the Informal Sector and 18% in the Farming (Agricultural) Sector. Recent figures for the area indicate that in 2008 the level of unemployment had risen to 25% compared to the 2001 level of 20%. This is the same as the National Unemployment rate for 1st Quarter of 2011 (25%).

Basic services

The 2001 Census data indicated that an average of 98.7% of households in the CLM had access to piped water within 200m from their dwelling. In terms of sanitation, ~ 89.7% of households had access to a minimum of a VIP pit latrine, while ~ an average of 92.5% of households had access to weekly refuse collection. With regard to electricity, ~ 93.4% of all households had access to electricity. In 2004 ESKOM reported that there were no electrification infrastructure backlogs within CDM. The level of basic services in the CLM is therefore regarded as good.

Road infrastructure

The IDP notes that tourism is one of the main economic drivers in the Camdeboo and it is therefore crucial that roads, signage and markings be of acceptable standard and are maintained properly. The IDP indicates that many rural gravel roads throughout the District are in a very poor state of repair.

SECTION 4: IDENTIFICATION OF KEY ISSUES

4.1 INTRODUCTION

Section 3 identifies the key social issues that will need to be assessed by the SIA specialist study. In identifying the key issues the following assumptions are made:

- The area identified for the proposed wind energy facility meets the technical wind and other technical criteria required for such facilities;
- The issues associated with the proposed facility are likely to be similar to the issues associated with other wind energy facilities in South Africa.

4.2 IDENTIFICATION OF KEY SOCIAL ISSUES

The identification of key social issues that need to be assessed during the EIA include:

- The policy and planning related issues;
- Local, site-specific issues.

4.2.1 Policy and planning issues

As indicated in Section 1.4, legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents.

The review of the relevant planning and policy documents has been undertaken as a part of the Scoping Study assessment. The key documents reviewed included:

- The National Energy Act (2008);
- The White Paper on the Energy Policy of the Republic of South Africa (December 1998);
- The White Paper on Renewable Energy (November 2003);
- Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape. Towards a Regional Methodology for Wind Energy Site Selection (May 2006);
- Eastern Cape Provincial Growth and Development Strategy (2004-2014);
- Cacadu District Municipality Integrated Development Plan (2007-2011);
- Camdeboo Local Municipality Integrated Development Plan (2007-2011);

The findings of the review indicated that wind energy development is strongly supported at a national level.

At a national level the White Paper on Energy Policy (1998) notes:

- Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future;

- The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and **wind** and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

The Strategic Assessment for establishing Wind Farms (May, 2006) undertaken by DEA&DP notes:

- It is important that at the national level (SA being signatories to the Kyoto Protocol) that positive policy is enacted to encourage wind energy (and indeed all renewable) development. A national perspective should ensure that wind resource rich provinces and regions are identified in order to ensure a co-ordinated and holistic national strategy. However, the importance of employing an effective cumulative impact model must be emphasised.

At a provincial level the PGDP does not make specific reference to renewable energy, however, investment in energy infrastructure is identified as one of the key requirements. Based on this it is reasonable to assume that the establishment of WEF is supported. At a local level the Cacadu District Municipality IDP identifies 7 key strategic priorities. The key priority that is relevant to the proposed WEF is:

- Sustainable Resource Management and Use, specifically to investigate the option of renewable energy alternatives.

The findings of the review of the relevant policies and documents pertaining to the energy sector therefore indicate that wind energy and the establishment of WEFs are supported at a national, provincial and local level. It is therefore the opinion of the authors that the establishment of a WEF on the proposed area is supported by national, provincial and local policies and planning guidelines.

4.2.2 Local and site specific issues

Based on review of information relating to wind energy facilities and experience with SIA's undertaken for other wind energy facilities, the most important issues that are likely to be raised and will need to be assessed during the EIA include:

- Impact on rural sense of place (this will be closely linked to the visual impacts). The impact on sense of place is also linked to the associated power lines.
- Impact on tourism, both locally and regionally. This impact will be linked to the visual impacts and impact on the areas sense of place and the landscape. As indicated in the CLM, tourism is one of the key economic sectors in the region;
- Impact on farming activities;
- Impact on property prices;
- Influx of job seekers into the area during the construction phase. The influx of job seekers may result in an increase in sexually transmitted diseases, including HIV/AIDS; increase in prostitution; increase in alcohol and drug related incidents; increase in crime; and creation of tension and conflict in the community;
- Creation of employment and business opportunities during the construction phase;
- Creation of employment and business creation opportunities during the operational phase;
- Creation of potential training and skills development opportunities for local communities and businesses;

- Potential up and down-stream economic opportunities for the local, regional and national economy;
- Provision of clean, renewable energy source for the national grid.

In terms of potential impacts on local farmers in the area the following issues will need to be assessed:

- Potential threat to farm safety due to increased number of people in the area and construction workers;
- Potential stock losses (during the construction and operational phase);
- Potential damage to water and other farm infrastructure (during the construction and operational phase);
- Potential damage to roads by heavy equipment and increased traffic volumes (during the construction and operational phase);
- Potential impact on farming operations and loss of productive land (during the construction and operational phase).

4.3 APPROACH TO ASSESSING IMPACTS

Definition of social impacts

Social change is recognised as a natural and on-going process, however, it is important to recognize and understand that projects have the potential to influence and alter both the rate and direction of social change. It is, therefore, important to recognize and understand that the development and implementation of projects can result in specific social changes (both positive and negative) as opposed to merely being aware that development *per se* will be accompanied by social change.

Social impacts can be defined as the consequences to human populations of any public or private actions (these include policies, programs, plans and or projects) that alter the way in which people live, work, play relate to one another, organise to meet their needs and generally live and cope as members of society. These impacts are felt at various levels, including, individual, family or household, community and organisation or society level (Vanclay, 2002)⁴.

Categories of social impacts

- **People's way of life** – how people live, work, play and relate to other people on a day-to-day basis;
- **Their culture** – shared beliefs, customs, values, and language or dialect;
- **Their community** – its cohesion, stability, character, services and facilities;
- **Their political system** – extent to which people are able to participate in decisions affecting their lives, the level of democratization and the resources available;
- **Their environment** – quality of the natural environment in which people live, including the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the

⁴ Vanclay, F. 2002. Conceptualising Social Impacts. *Environmental Impact Assessment Review*, 22. 183-221.

adequacy of sanitation, their physical safety and their access and control over resources;

- **Their health and well being** – health is defined as a state of complete physical, mental, social and spiritual well being and not merely the absence of disease or infirmity;
- **Their personal and property rights** – particularly in cases where people are economically affected, or experience personal disadvantage, which may include a violation of their civil liberties.
- **Their fears and aspirations** – fears and perceptions about their safety and well being and the future of their community, and their hopes for their future and the future of their children and the community.

The identification and assessment of social impacts will be guided by the Guidelines for specialist SIA input into EIAs adopted by DEA&DP in the Western Cape in 2007. The Guidelines are based on accepted international best practice guidelines, including the Guidelines and Principles for Social Impact Assessment (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). The guidelines have also been endorsed by the national Department of Environment and Water Affairs (DWEA). The approach will include:

- Review of existing project information, including the Planning and Scoping Documents;
- Collection and review of reports and baseline socio-economic data on the area (IDPs, Spatial Development Frameworks etc, See Box 1);
- Site visit and interviews with key stakeholders in the area including local land owners and authorities, local community leaders and councillors, local resident associations and residents, local businesses, community workers etc;
- Identification and assessment of the key social issues and opportunities;
- Preparation of Draft Social Impact Assessment (SIA) Report, including identification of mitigation/optimisation and management measures to be implemented.
- Finalisation SIA Report.

As indicated above, the detailed public consultation process will be undertaken during the EIA phase of the project.

Box 1: Typical social and economic baseline information

- Social and economic characteristics of the affected area;
- Demographic profile of the area (population numbers, race, age, gender, income, education and employment levels etc);
- Policy and planning framework for the site and surrounds (see below);
- Social and economic trends (historic and current) in the affected area;
- Social and economic drivers, both current and historical, in the affected areas, including key economic sectors;
- Social context of how people run their lives and the key factors that affect them on a day-to-day basis (livelihood strategies);
- An understanding of social networks, intra- and inter-household, community and extend support systems affected by the proposed development;
- Institutional arrangements, structures and capacity of the local authorities;
- An understanding of the institutional, local leadership and other power relationships that may be affected by the development;
- Level of services (housing, water, electricity, schools, clinics, policing etc) and current state of infrastructure in the area;
- Social and economic initiatives and opportunities;
- Local, regional and national social and economic policies, programmes, and plans affecting the area;
- Individuals, communities, organisation's and institutions who are likely to be affected by the project/plan/policy, with specific emphasis on vulnerable individuals, communities, organisation's and institutions;
- Land uses and ownership patterns in the area;
- Use and access to natural resources and livelihood strategies, especially in rural areas; and,
- Cultural beliefs and value systems.

The identification and assessment of social impacts will be guided by the Guidelines for specialist SIA input into EIAs adopted by DEA&DP in the Western Cape. These guidelines are based on international best practice for SIA's. This will include:

- Identification of key interested and affected parties, specifically landowners;
- Meetings and interviews with interested and affected parties;
- Identification and assessment of key social issues based on feedback from key interested and affected parties.
- Recommendations regarding mitigation/optimisation and management measures to be implemented.

As indicated above, the detailed public consultation process by the SIA consultant will be undertaken during the EIA phase of the project.

4.4 INFORMATION REQUIREMENTS

The following typical, generic project information is required in order to inform the Social Impact Assessment.

Construction phase

(Including all related infrastructure such as transmission lines, access roads, office and warehouse components)

- Comments received from I&APs during the public participation process, including comments reflected in the Final Scoping Report;
- A draft illustration (plan) of the proposed lay-out(s) of the wind turbines;
- Duration of the construction phase (months);
- Number of people employed during the construction phase;
- Breakdown of number of people employed in terms of low skilled, semi-skilled and skilled;
- Estimate of the total wage bill for the construction phase and breakdown in % as per skills categories;
- Estimate of total capital expenditure for construction phase;
- Indication of where construction workers will be housed (on site or in nearest town?);
- Opportunities for on-site skills development and training;
- Description of the typical activities associated with the construction phase, specifically on-site construction activities. This includes a description of how the large components associated with a WEF will be transported to the site and assembled on the site;
- The size of the vehicles needed to transport the components and the routes that will be used to transport the large components to the site, and an estimate of the number of vehicle trips required and duration of each trip;
- Information on the nature of the agreements with the affected landowners, specifically with regard to compensation for damage to land, infrastructure etc.

Operational phase

- Operating budget per annum;
- Total number of people employed;
- Breakdown in terms of skills levels (see above);
- Annual wage bill;
- Typical activities associated with the operational phase;
- Information on opportunities for skills development and training;
- Typical lifespan of proposed WEF plant;
- Information on the lease / rental agreements with local landowners and or communities, specifically with regard to issues relating to compensation for damage to infrastructure and loss of livestock etc. This information is required so as to indicate how local landowners and communities stand to benefit from the project.

ANNEXURE A

REFERENCES

- Cacadu District Municipality Integrated Development Plan (2007-2011);
- Camdeboo Local Municipality Integrated Development Plan (2007-2011);
- Eastern Cape Provincial Growth and Development Strategy (2004-2014);
- Kouga Local Municipality Integrated Development Plan (IDP) (2007-2012);
- Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape. Towards a Regional Methodology for Wind Energy Site Selection (May 2006);
- The White Paper on the Energy Policy of the Republic of South Africa, December 1998.

Internet sources

- www.demarcation.org.za (Census 2001 data).
- <http://www.ecprov.gov.za>
- <http://www.cacadu.co.za>