

**SOCIAL ASSESSMENT  
FOR  
SCOPING REPORT  
ESKOM KLEINZEE WIND ENERGY  
FACILITY,  
NORTHERN CAPE PROVINCE**

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**Prepared for**

**SAVANNAH ENVIRONMENTAL (Pty) Ltd**

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## **EXECUTIVE SUMMARY**

Eskom Holdings SOC Limited is proposing the establishment of a Wind Energy Facility (WEF), consisting of clusters of between 150 and 200 turbines and associated infrastructure on a site located approximately 6 km south of the small mining town of Kleinzee. Kleinzee is located along the Atlantic coast in the Northern Cape Province of South Africa. Administratively, the site forms part of the Nama Khoi Local Municipality (NKLM), which in turn forms part of the Namakwa District Municipality of the extensive Northern Cape Province.

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. 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 renewable energy projects in the Northern, Eastern and Western Cape Provinces of South Africa.

The proposed site is comprised of six contiguous cadastral portions, viz. Remainder of Farm Brazil 329, Remainder of Farm Goraap 323, RE of Farm Honde Vlei 325, Remainder of Farm Kannabieduin 324, and Portions 2 and 3 of Farm Rooivlei 327. The area comprised by these cadastral portions covers an area of ~9 300 ha in extent. Only the central portion (roughly bisected by the north-south aligned Kleinzee-Koingnaas Road) of the total area has been targeted for the establishment of the proposed turbines and associated infrastructure. A new 400 kV overhead power line would also need to be constructed in order to feed the energy into the grid at the existing Eskom Gromis substation located ~60 km from the site. Project alternatives will be identified and assessed during the EIA phase.

Part of the proposed site is located within a De Beers Mining Area, and are only accessible by means of a pre-arranged permit. Mining constitutes the dominant land use activity in the Kleinzee area, but the broader region supports farming (small stock) and tourism (mainly wilderness and nature based). Tourism has become an increasingly important economic sector in the area. The regional importance of the mining industry (including associated employment) has been in decline for at least two decades.

The current report is based on a desktop review of sources only. 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 the Western Cape Department of Environmental Affairs and Development Planning (2007). 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/optimization and management measures to be implemented.

## **Key Findings**

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

### **Baseline**

- Demographic data for the study area is largely dated, and mainly available at provincial and municipal levels;
- The region and study area are sparsely populated;
- Available information indicated that the NKLM's population was estimated at ~54 000 in 2007, of which an estimated 20% lived in the town of Springbok;
- The majority of the population was Coloured (84%), and 96% of the total population spoke Afrikaans as a first language (2001);
- Poverty levels were high and education levels low;
- Unlike much of the Northern Cape Province, the NKLM has witnessed significant in-migration since 1995. In this regard, it is estimated that the population has increased by 22.5% over the 12-year period 1995-2007, while the number of households had increased by 35.8%. It may be assumed that much of this growth was the result of migration into the NKLM area;
- Mining traditionally formed the backbone of the NKLM economy, but tourism is currently seen as the "new frontier" for economic development in the municipal area (NKLM Draft 2011/12 IDP).

### **Policy fit**

- The establishment of wind energy facilities are supported at national and provincial levels by relevant policy and planning documents;
- Provincial and local level policy documents emphasize the growing importance of the tourism sector in their economies, and the need to protect scenic assets from encroachment (e.g. the NCGDS).

### **Potential impacts**

- 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 in the area, the impact on local roads (transport of turbine components), and potential opportunistic in-migration and labour stranding;
- The potential positive impacts associated with the operational phase relate to the creation of employment opportunities and 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. These impacts can in turn impact on the tourism potential of the area.

These findings will inform the Social Impact Study and associated field work which will be carried out during the EIA phase of the project.

## **ACRONYMS**

DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)
DEA	Department of Environmental Affairs (National)
DM	District Municipality
EIA	Environmental Impact Assessment
IDP	Integrated Development Plan
kV	Kilovolts
LED	Local Economic Development
LM	Local Municipality
Mtoe	Million tonnes of oil equivalent
MW	Megawatt
NCP	Northern Cape Province
NDM	Namakwa District Municipality
NKLM	Nama Khoi Local Municipality
SDF	Spatial Development Framework
SIA	Social Impact Assessment
WEF	Wind Energy Facility

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# SECTION 1: INTRODUCTION

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## 1.1 INTRODUCTION

Savannah Environmental (Pty) Ltd (hereafter referred to as Savannah) was appointed by Eskom Holdings SOC Limited (hereafter Eskom) as the lead consultant to manage the Environmental Impact Assessment (EIA) process for the establishment of the proposed Kleinsee Wind Energy Facility (WEF) and associated infrastructure, on a proposed site located approximately 6 km to the south of the small Atlantic mining town of Kleinsee in the Namaqualand region of the Northern Cape Province (Figure 1.1).

Tony Barbour Environmental Consultants was appointed by 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 potential 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. A full assessment will be undertaken during the EIA phase.

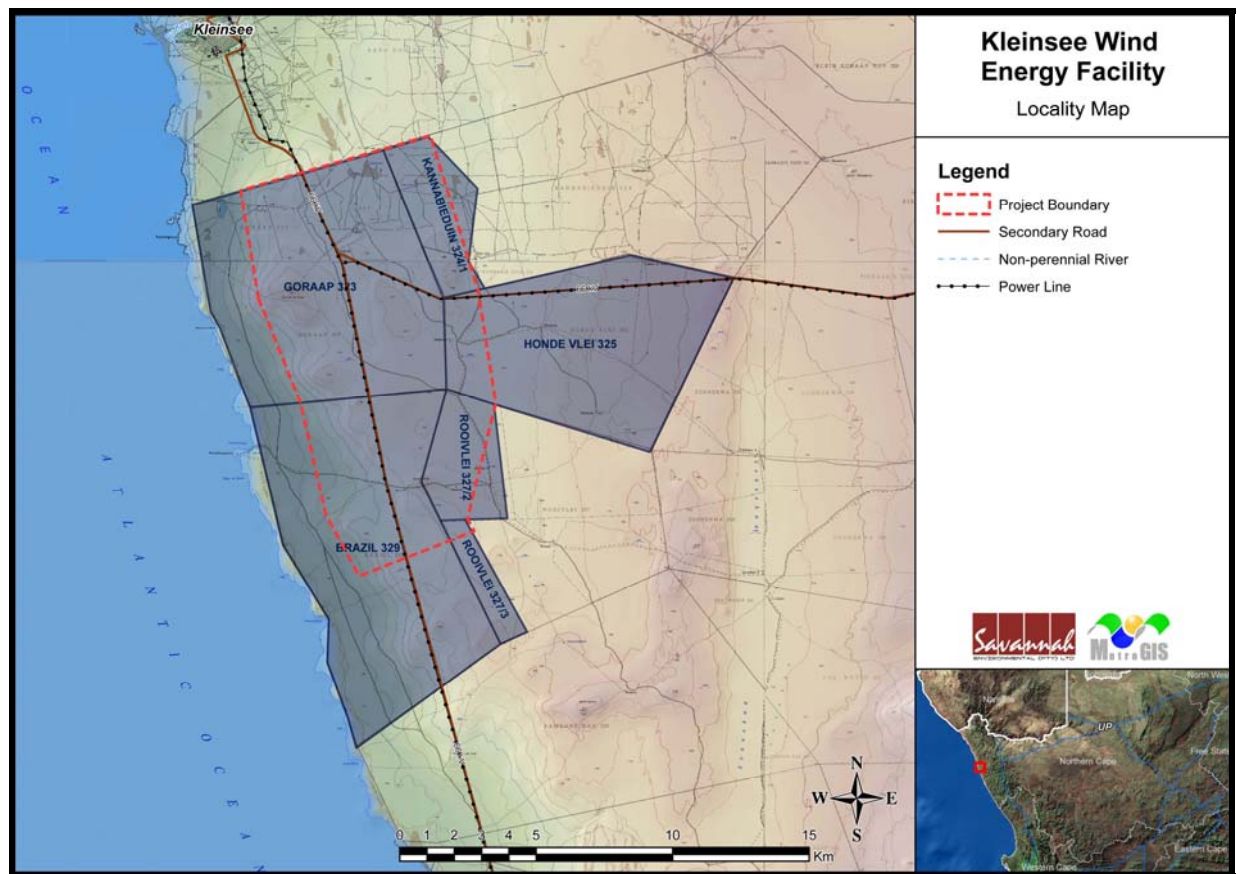


Figure 1.1: Proposed location of Eskom Kleinsee WEF

## 1.2 TERMS OF REFERENCE

The terms of reference for the Scoping Report Assessment require:

- A description of the social 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 that will need to be addressed by the SIA study during the EIA phase.

## 1.3 PROJECT DESCRIPTION

Eskom has identified the potential to establish a new WEF on the proposed Kleinzee site (please refer to Figure 1.1. above). The site is comprised of six contiguous cadastral portions, viz. -

- Remainder (RE) of Farm Brazil 329;
- RE of Farm Goraap 323;
- RE of Farm Honde Vlei 325;
- RE of Farm Kannabieduin 324, and
- Portions 2 and 3 of Farm Rooivlei 327.

These cadastral portions represent a total area of ~9 300 ha in extent. Only the central portion (roughly bisected by the north-south aligned Kleinzee-Koingnaas road) of the total area will likely be used for accommodating the actual turbines and associated infrastructure.

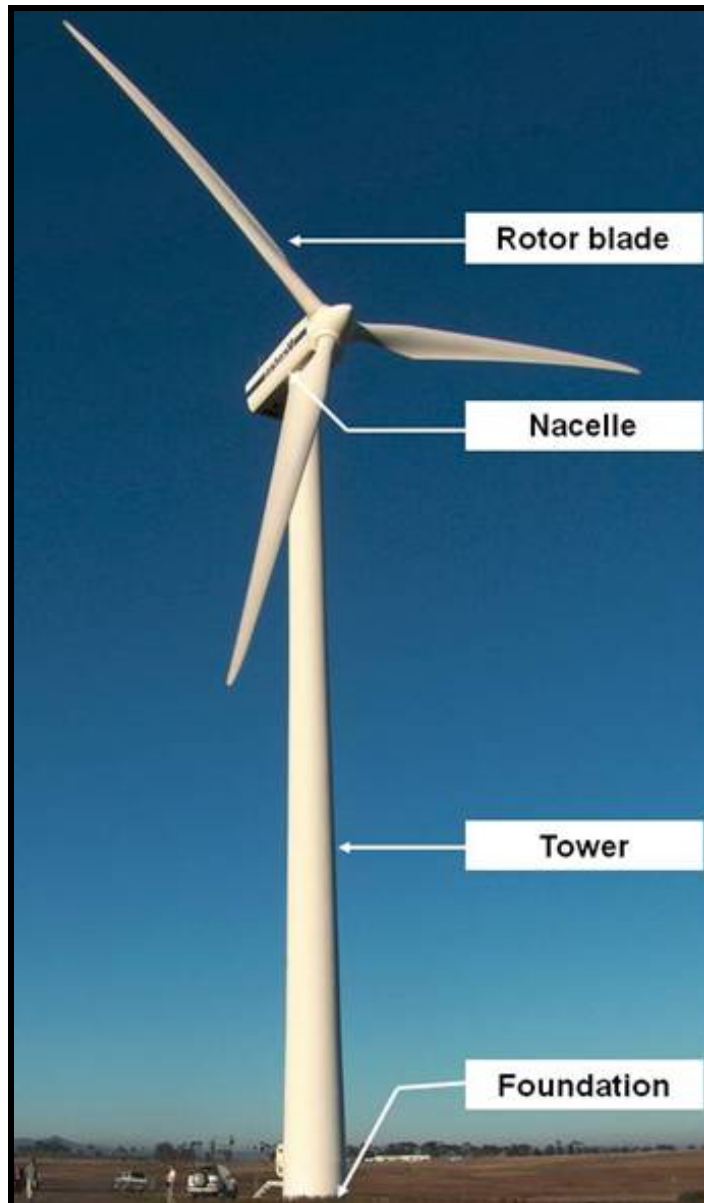
The total study area covers ~9 300 ha in extent. A portion of this area will be identified for the establishment of clusters of between 150 and 200 turbines and associated infrastructure with a generation capacity of up to 300 MW of energy. The exact number and placement of turbines will be investigated in more detail during the EIA phase of the study. The energy will be fed into the Eskom grid via the Gromis substation.

Infrastructure associated with proposed Kleinzee WEF would include:

- Concrete foundations to support the turbines;
- Cabling between the turbines to be laid underground where practical;
- 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 Gromis Substation, approximately 60 km from the site;
- Internal access roads;
- Borrow pits within the site for construction of access roads;
- An Office/Workshop area for maintenance and storage, and
- A Visitors centre.

A WEF consists of multiple wind turbines 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 (Figure 1.2) listed below.

- The (concrete) **foundation unit** upon which the turbine is anchored to the ground;
- The **tower structure**, which in the case of the Kleinzee WEF, may be up to 140 m 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;



**Figure 1.2: Typical turbine structure and components**



- 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 maximize the amount of electricity generated.
- The **rotor** which is comprised of three rotor blades (each up to 70 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/h, 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.

A turbine is designed to operate continuously, unattended and with low maintenance for more than 20 years. The operational phase of the proposed facility would require a dedicated staff of 20-40 locally-based permanent employees.

Complete turbine erection and commissioning is typically one tower per week. Ancillary and supportive infrastructure will be constructed in parallel, as required. A facility consisting of up to 200 turbines will therefore take approximately 3 and a half years (~42 months) to construct and commission. Proposal alternatives (including layout) will be finalized and assessed during the EIA phase.

## 1.4 PROJECT LOCATION AND CONTEXT

### 1.4.1 Administrative context

The proposed Kleinzee WEF site is located approximately 6 km to the south of the small coastal mining town of Kleinzee in the Namaqualand region of the Northern Cape Province (NCP) (see Figure 1.1).

The NCP is the largest of the 9 provinces, and covers an area of ~361,830 km<sup>2</sup> (~30% of total national surface). The NCP is divided into 5 district municipalities (DMs), 26 Category B (i.e. Local) Municipalities, and five District Management Areas (DMAs). The proposed Kleinzee site falls within the Nama Khoi Local Municipality (NKLM) (NC062), which is one of seven Local Municipalities constituting the Namakwa District Municipality (NDM) (DC6). The NDM is bounded to the west by the Atlantic Ocean, to the north by the Gariep River (Orange River) which forms the border with Namibia.

The Nama Khoi Local Municipality (NKLM) is the largest (15 025 km<sup>2</sup>) of the 7 Local Municipalities making up the extensive NDM. Along with the smaller Richtersveld Local Municipality (also NDM), located to the north, the NKLM constitutes the westernmost local-level municipalities in South Africa.

Springbok, located along the N7, essentially constitutes the only sizable town in the NKLM. Other settlements include Steinkopf, Okiep, Rooiwinkel, Concordia, Komaggas, Buffelsrivier, Nababeep, Bulletrap, Vioolsdrift, Goodhouse, Kleinzee and Carolusberg. Springbok is the seat of both the NDM as well as the NKLM.

The NKLM is comprised of 6 Wards. The proposed Kleinzee site falls within Ward 5 (Matjieskloof, Kleinzee). Please refer to Section 2 of this report for a more detailed overview of the region and study area.

#### 1.4.2 Road access

An overview of the study area road network is provided in Figure 1.3. below:



**Figure 1.3: Study area road network**

The proposed Kleinzee site is essentially only accessible from the N7 (via Garies or Springbok). The N7 links Cape Town in the south to Noordoewer (Namibian border) in the north. North of Noordoewer, the N7 continues north to Windhoek as the B1. The road is of crucial importance to the economies of the West Coast and Namakwaland regions, as well as that of Namibia. At Springbok the N7 links up with the N15, which provides a link with Upington to the west (and ultimately the Gauteng Province). Springbok is located approximately 558 km north of Cape Town (N7), and ~450 km north of Saldanha (port).

Kleinzee may be accessed from the N7 via one of three possible routes:

- R355, via Springbok (~97 km). This constitutes the most direct tarred route to Kleinzee;
- Kommagas gravel road off the R355. This would constitute the shortest route from the N7 to Kleinzee and the proposed WEF site;
- Combination of (mainly gravel) roads from Garies (off the N7), via Hondeklipbaai and Koingnaas. This constitutes the most direct road link to the harbours of Cape

Town and Saldanha via the N7. Garies is located approximately 176 km south-east of Kleinzee (by road).

The route proposed for the transport of turbine components and equipment (e.g. cranes) is not known at this stage. These issues will be further investigated during the EIA phase.

#### **1.4.3 Other proposed WEFs in the study area**

In as far as could be established, only two other WEFs are currently proposed in the vicinity of the proposed Kleinzee WEF. In this regard, Just Palm Tree Power is currently proposing the development of a WEF just south-west of Koingnaas, ~40 km south of the proposed Kleinzee WEF site. The proposed Koingnaas WEF would consist of up to 24 turbines, with a total generating capacity of up to 7 MW. A Basic Assessment is currently being conducted by Savannah Environmental on behalf of Just Palm Tree Power.

### **1.5 ASSUMPTIONS AND LIMITATIONS**

#### **1.5.1 Assumptions**

##### **Technical suitability**

It is assumed that the development site identified by Eskom 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.

##### **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 within the study area. However, the authors have worked on a number of other wind energy projects in the Northern and Western Cape Provinces, including the Atlantic coastal area. It is assumed that issues identified on those projects are likely to be similar to those for the proposed Kleinzee WEF. Detailed consultation will be undertaken during the assessment stage of the SIA.

#### **1.5.2 Limitations**

##### **Desktop study**

The information presented in this Scoping level study is based on available desktop sources only. Baseline information presented in this report will be supplemented and amended by information obtained from interviews with key local officials and community members during field interviews envisaged as part of the EIA phase.

## **Demographic data**

The demographic data used in the study is largely based on the findings of the 2001 Census<sup>1</sup>, or on sources which based projections on the Census 2001 data. While this data does provide useful information on the demographic profile of the affected area, the actual data is dated and should be treated with care.

In addition, it is no longer possible to access Census 2001 data at Ward level via the Municipal Demarcation Board. As a result it was not possible to obtain demographic data for Ward 5. The social baseline for this part of the study area is therefore described at Local Municipal level (NKLM) only.

## **1.6 APPROACH TO STUDY**

The approach to the study is based on the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) 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). The scoping level study involved:

- A review of demographic data from the 2001 Census Survey and other available sources;
- A review of relevant planning and policy frameworks for the WCDM;
- A review of information from similar studies;
- A literature review of social issues associated with wind energy facilities.

The identification of potential social issues associated with the proposed WEF is based on a review of relevant documentation, experience with similar projects, and some familiarity with the study area. Annexure 1 contains a list of the secondary information reviewed.

## **1.7 REPORT STRUCTURE**

The report is divided into four? Sections, namely:

- Section 1: Introduction;
- Section 2: Overview of the study area;
- Section 3: Policy and planning environment;
- Section 4: Identification of key social issues which would need to be assessed during the EIA phase. This section also includes information that will be required from the developer to facilitate assessment.

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<sup>1</sup> The last comprehensive national census was conducted in 2001. Census 2001 provided demographic and socio-economic data from National to Municipal Ward level. An interim Community Survey (sample based) was undertaken in 2007, but provided information only on provincial and district municipal levels. The next comprehensive national census is planned for October 2011. It is unlikely that the compiled data would be publicly available before November 2012 ([www.Statsa.gov.za](http://www.Statsa.gov.za)).

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## **SECTION 2: OVERVIEW OF THE STUDY AREA**

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### **2.1 INTRODUCTION**

Section 2 provides an overview of the study area with regard to:

- The relevant regional and local contexts;
- Key land uses in the study area;
- Key demographic information.

### **2.2 GEOGRAPHICAL CONTEXT**

As discussed under Section 1.4, the proposed Kleinzee WEF site is located approximately 6 km to the south of the small Atlantic mining town of Kleinzee in the Namaqualand region of the Northern Cape Province (NCP) (see Figure 1.1). Administratively, the Kleinzee area is located in the Ward 5 area of the Nama Khoi Local Municipality (NKLM), which in turn is located in the Namakwaland District Municipality (NDM), one of the constituent District Municipalities of the NCP.

#### **2.2.1 Namaqualand**

Namaqualand essentially comprises the strip of land inland (~100 – 120 km) from the Atlantic coastline between the mouth of the Olifants river (south) and the Orange river (north). The region includes the scenic Richtersveld area, as well as the lower Gariiep River.

The region is arid, with coastal areas receiving as little as 50 mm per annum of rainfall and inland areas ~250mm per annum. In addition, rainfall is unpredictable, and the area is prone to frequent and recurring droughts. With the exception of coastal mining areas the historical regional settlement pattern was essentially defined by the availability of accessible potable water.

The region is named after the original pre-colonial Nama Khoi-Khoi which inhabited the area and which has largely disappeared or been absorbed into the local Coloured population group. The first farms in the region were officially granted to European settlers around 1850. The first commercial copper mines in the region date to around the same decade. Copper and (later) diamond mining formed the economic backbone of the region for much of the 20<sup>th</sup> century, but its relative and absolute importance appears to be in decline.

The region is internationally renowned for its (rainfall determined) spring displays of wild flowers and for its remarkable, endemic-rich succulent floral diversity (~4 000 species).

The town of Springbok located on the N7 is the most densely populated area and also functions as the sub-regional centre for administrative, commercial and higher order social facilities. The rural settlements in the municipal area are largely mono-

functional rural settlement areas with a poor economic base and depend primarily on the surrounding agricultural resource base to drive the limited economy (NKLM Draft 2011/12 IDP).

Springbok (total population ~11 000 in 2001) was officially proclaimed in 1862 (as Springbokfontein), mainly in order to support recently established local copper mining operations in the area. Set in a narrow valley bisecting the granite domes of the Klein Koperberge (small copper mountains), Springbok is the administrative, commercial, farming and industrial centre of the region. The town is located at the intersection of the N7 and N14 national roads, and is a convenient stop-over for traffic along the Windhoek-Cape Town route.

### **2.2.2 Kleinzee**

Kleinzee is located along the Atlantic coast, approximately 97 km (R355) west of Springbok. The settlement originated after diamond mining started in 1927 on the farm Kleyne Zee. Kleinzee has since evolved into a modern town serving one of the world's foremost alluvial diamond mines, the De Beers Namaqualand Mines. Koingnaas, the southern operation of the mine, commenced diamond mining operations in the early seventies. Koingnaas is located approximately 62 km south of Kleinzee. The two settlements are linked by a gravel road.

The strandveld vegetation which is not affected by mining operations, as a result of being within the restricted diamond area, is in pristine condition. Potential visitors to the area, including tourists, have to apply for a permit at De Beers at least 1-2 weeks in advance ([www.namakwa-dm.gov.za](http://www.namakwa-dm.gov.za)).

## **2.3 ECONOMIC OVERVIEW**

The Northern Cape's share of national Gross Domestic Product (GDP) in 2002 was 2%, the lowest of all the nine provinces. The NCP's Gross Domestic Product by Region (GDPR) per capita was, however, higher than the national average.

The Northern Cape economy is heavily dependent on the primary sectors, which, in 2002, made up 31.0% of the NCPs GDPR. The largest contributor in 2002 was mining (23.7%). Agriculture, though the spatially most prevalent form of land use, contributed 7.3%. However, there is limited processing of the primary commodity output from the mining and agriculture sector in the Northern Cape. As a result Manufacturing only contributed 4.2% towards provincial GDPR (2002).

Extensive agriculture forms the dominant spatial form of land use, both currently and historically. The arid environment however supports little natural vegetation and few sources of accessible water. Mainly small stock – goats, sheep – is farmed. Carrying capacities are extremely low, and vast tracts of land are needed in order to support a viable operation. Marginal plantings of dry land wheat occur in places in the region, as do limited plantings of irrigated crops. Ostrich farming has also been introduced into the region in recent years. The Gariiep River valley supports a number of irrigated crops, mainly lucerne and grapes.

Mining traditionally formed the economic backbone of the region, and directly gave rise to the establishment of many towns in the region. Commercial copper mining dates back to the 1850's, while the mining of alluvial diamonds in coastal deposits from the late 1920's. The Kleinzee-Koingnaas study area forms part of a De Beers mining area and continues to be used mainly for mining. However, the importance of

the diamond mining sector has declined since the mid 1990's. The NKLM IDP 2011/2012 notes that the regional significance of the sector is being replaced by tourism.

Large parts of the region remain pristine and undeveloped and consist of spectacular landscapes (e.g. the Richtersveld area north of the NKLM). As mentioned above, the region is internationally renowned for its spring flower displays, as well as for its unique, diverse and spectacular succulent vegetation. The region therefore has significant and growing tourism sector. The NKLM IDP 2011/12 identifies tourism as the key emerging driver of economic growth in the municipality.

## **2.4 DEMOGRAPHIC CONTEXT**

As indicated in Section 1.5, statistical information at community level essentially dates back to Census 2001. In addition, ward-level information (Census 2001) is currently no longer available from the Municipal Demarcation Board. Recent Census statistics contained in the various NKLM IDPs are essentially limited to population projections and access to various municipal services.

Information presented in this section is therefore largely at Provincial level and to a lesser extent the various Municipal levels. The objective of this section is to provide a general overview of the regional demographic context. The demographic profiles of the communities in the NKLM, and the Kleinzee area specifically, will be investigated in greater detail during the EIA phase, i.a. by means of sourcing information from local officials.

### **Population**

Despite having the largest surface area, the Northern Cape was home to only about 822 727 people (or 1.8% of the national population) in 2001. The population density was estimated at ~2.27 persons per km<sup>2</sup>, while ~83% of the provincial population was estimated to live in urban areas, of which the most significant the major towns of Kimberley and Upington.

The Namakwa DM was one of the less populous DMs in the NCP, and was home to an estimated 108 111 people in 2001. Census 2001 data indicates that the Coloured population group was by far the most dominant (~84%), followed by White (~12%) and Black African (~4%). Afrikaans was spoken by an overwhelming ~96% of the population as first language.

The Nama Khoi Local Municipality (NKLM) had a population of 44 611 (and 11 563 households) in 2001. This represented ~41% of the District Municipality's population – a fact at least part attributable to the presence of the town of Springbok (~11 000 in 2001) in the NKLM area. The most recent estimates for the NKLM indicate a population of ~54 644 (15 707 households) for 2007. No information in the population for Kleinzee could be obtained. However, it is estimated that the town has a population of 1 000-2 000. More accurate information will be obtained during the assessment phase of the EIA.

### **In-migration trends**

Census 2001 data indicated net out-migration of the NCP population, compared to 1996. Out-migration was significant in specifically the 20 – 24 cohort of the NCP's population, probably driven by the search for better career and job opportunities,

and tertiary education. Urbanisation of the rural NCP population was observed as another significant trend (increasing from 75.2% in 1996 to 82.7% in 2001).

Information contained in the Draft 2011/2012 NKLM IDP indicates that the NKLM's municipal population has been growing dramatically from around 1995 onwards. In this regard, it is estimated that the population has increased by 22.5% over the 12-year period 1995-2007, while the number of households had increased by 35.8%. It may be assumed that much of this growth was the result of migration into the NKLM area, probably in large part from surrounding municipalities within the NDM.

This issue is potentially of key significance with regard to construction activities associated with the proposed sizeable Kleinzee WEF. Specifically, the potential for in-migration during the construction phase and the implications in terms of local service delivery, indigence and competition for scarce local employment opportunities. This issue will be investigated during the EIA phase.

### **Education**

An estimated 15.1% of the Northern Cape population had had no education at all, while 71.3% had only a primary or secondary education (2001). The respective rates were 20% and 62.7% in 1996, thus indicating a significant improvement over the relevant five year period. It is assumed that these figures are broadly representative of the NKLM and Kleinzee study areas as well.

### **Employment levels**

Census 2001 data indicates that of the economically active population in the Northern Cape, 55.5% were employed while 26.1% were formally unemployed. Of significance, a third of the total population was younger than 15 years old, and approximately 45% of the potential labour force was younger than 30 years. At the same time, unemployment was the highest among the youth, with unemployment rates of 54% and 47% in the 15 - 19 and 20 – 24 year-old age groups. No statistics for the NKLM or Kleinzee areas could be obtained, but it is assumed that provincial rates are broadly applicable.

### **Income and economic development**

The Human Development Index<sup>2</sup> (HDI) for the NCP (four indexed factors – life expectancy, adult literacy, GDP per capita (adjusted for real income) and education attainment) as a whole is 0.58, which is substantially below the South African average of 0.72. The HDI in the Springbok area (0.62) is above the NCP, but below the national average.

In terms of per capita income, the Northern Cape Province has the third highest per capita income of all nine Provinces, however, income distribution is extremely skewed, with a high percentage of the population living in extreme poverty. An estimated 36% of households in the Namakwa DM was living under the poverty datum or "bread line" of <R800/ month (by head of household) in 2001.

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<sup>2</sup> The closer the HDI to 1.0, the higher the level of "living condition". For example, Sweden has an index of 0.91 defined as high, South Africa at 0.72 is defined as middle and Lesotho at 0.47 is defined as low.



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## **SECTION 3: POLICY AND PLANNING CONTEXT**

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### **3.1 INTRODUCTION**

Section 3 provides an overview of the policy and planning environment affecting the proposed Kleinzee wind energy facility (WEF). For the purposes of the meeting the objectives of the EIA the following policy and planning documents were reviewed, namely:

- The National Energy Act (2008);
- The White Paper on Renewable Energy (November 2003);
- Integrated Resource Plan (IRP) for South Africa (2010-2030);
- Northern Cape Provincial Growth and Development Strategy (2004-2014);
- Nama Khoi Local Municipality IDP 2011/2012.

### **3.2 NATIONAL LEVEL ENERGY POLICY**

#### **3.2.1 National Energy Act (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 renewable resources”.

#### **3.2.2 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 make good the country’s 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 operate.

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, wind and small-scale hydro. The renewable energy is to be utilized for power generation and non-electric technologies such as wind 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.

### **3.2.3 Integrates Resource Plan for Electricity (2010-2030)**

The current iteration of the Integrated Resource Plan (IRP) for South Africa, initiated by the Department of Energy (DoE) after a first round of public participation in June 2010, led to the Revised Balanced Scenario (RBS) that was published in October 2010. The document outlines the proposed generation new build fleet for South Africa for the period 2010 to 2030. This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then “balanced” in accordance with qualitative measures such as local job creation. In addition to all existing and committed power plants, the RBS included a nuclear fleet of 9,6 GW; 6,3 GW of coal; 11,4 GW of renewables; and 11,0 GW of other generation sources.

A second round of public participation was conducted in November/December 2010, which led to several changes to the IRP model assumptions. The main changes were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP) and wind options; the inclusion of learning rates, which mainly affected renewables; and the adjustment of investment costs for nuclear units, which until then represented the costs of a traditional technology reactor and were too low for a newer technology reactor (a possible increase of 40%).

Additional cost-optimal scenarios were generated based on the changes. The outcomes of these scenarios, in conjunction with the following policy considerations, led to the Policy-Adjusted IRP:

- The installation of renewables (solar PV, CSP and wind) were brought forward in order to accelerate a local industry;
- To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6 GW was included in the IRP;
- The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) was maintained;
- Energy efficiency demand-side management (EEDSM) measures were maintained at the level of the RBS.

The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 GW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources. The Policy-Adjusted IRP has therefore resulted in an increase in the contribution from renewables from 11,4 GW to 17,8 GW.

Table 3.1 indicates the new capacities of the Policy commitment. The dates shown in Table 3.1 indicate the latest that the capacity is required in order to avoid security of supply concerns. The document notes that projects could be concluded earlier than indicated.

	New build options							
	Coal (PF, FBC, imports, own build)	Nuclear	Import hydro	Gas – CCGT	Peak – OCGT	Wind	CSP	Solar PV
	MW	MW	MW	MW	MW	MW	MW	MW
2010	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	300
2013	0	0	0	0	0	0	0	300
2014	500 <sup>1</sup>	0	0	0	0	400	0	300
2015	500 <sup>1</sup>	0	0	0	0	400	0	300
2016	0	0	0	0	0	400	100	300
2017	0	0	0	0	0	400	100	300
2018	0	0	0	0	0	400 <sup>4</sup>	100 <sup>4</sup>	300 <sup>4</sup>
2019	250	0	0	237 <sup>2</sup>	0	400 <sup>4</sup>	100 <sup>4</sup>	300 <sup>4</sup>
2020	250	0	0	237 <sup>2</sup>	0	400	100	300
2021	250	0	0	237 <sup>2</sup>	0	400	100	300
2022	250	0	1 143 <sup>2</sup>	0	805	400	100	300
2023	250	1 600	1 183 <sup>2</sup>	0	805	400	100	300
2024	250	1 600	283 <sup>2</sup>	0	0	800	100	300
2025	250	1 600	0	0	805	1 600	100	1 000
2026	1 000	1 600	0	0	0	400	0	500
2027	250	0	0	0	0	1 600	0	500
2028	1 000	1 600	0	474	690	0	0	500
2029	250	1 600	0	237	805	0	0	1 000
2030	1 000	0	0	948	0	0	0	1 000
<b>Total</b>	<b>6 250</b>	<b>9 600</b>	<b>2 609</b>	<b>2 370</b>	<b>3 910</b>	<b>8 400</b>	<b>1 000</b>	<b>8 400</b>

Firm commitment necessary now  
 Final commitment in IRP 2012

1. Built, owned & operated by IPPs 2. Commitment necessary due to required high-voltage infrastructure, which has long lead time  
 3. Commitment necessary due to required gas infrastructure, which has long lead time 4. Possibly required grid upgrade has long lead time and thus makes commitment to power capacity necessary

Source: Integrated Resource Plan (IRP) for South Africa

**Table 3.1: Commitments before next IRP**

The key recommendations contained in the Policy-Adjusted IRP Final Report (March 2011) that have a bearing on the renewable energy sector include:

**General**

- The dark shaded projects in Table 3.1 need to be decided before the next IRP iteration, with the identified capacities thereafter assumed as “committed” projects;
- The light shaded options should be confirmed in the next IRP iteration;
- All non-shaded options could be replaced during the next, and subsequent, IRP iterations if IRP assumptions change and thus impact on the quantitative model results.

**Wind Energy**

- Wind 2014/15: As is the case with solar PV, it is necessary to make a firm commitment to the first post-REFIT wind installations in order to connect the wind farms to the grid by 2014. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first two years from 2014 to 2015 need commitment;
- Wind 2016 to 2019: For the first wind installations until 2015, extensive grid extension is not necessary. For the additional units to come in 2016 to 2019,

these extensions might become necessary. To trigger the associated feasibility studies, planning, and investments in a timely manner, the additional wind units added from 2016 to 2019 should be decided on in the next round of the IRP at the latest;

### ***Solar energy***

- Solar PV programme 2012-2015: In order to facilitate the connection of the first solar PV units to the grid in 2012 a firm commitment to this capacity is necessary. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first four years from 2012 to 2015 require firm commitment;
- Solar PV 2016 to 2019: As with wind, grid upgrades might become necessary for the second round of solar PV installations from 2016 to 2019, depending on their location. To trigger the associated tasks in a timely manner, a firm commitment to these capacities is necessary in the next round of the IRP at the latest. By then, the assumed cost decreases for solar PV will be confirmed;
- CSP 2016: The 100 MW of CSP power, planned for 2016, needs firm commitment because of the long lead time of these projects;
- CSP 2017 to 2019: Because of the long lead time for CSP plants, a commitment to the capacity planned for 2017 to 2019 is necessary in the next round of the IRP at the latest. By then, the cost and technical assumptions for CSP plants will also be grounded on more solid empirical data;

### ***Conclusions***

The key conclusions that are relevant to the renewable energy sector include:

- An accelerated roll-out of renewable energy options should be allowed in order to derive the benefits of localisation in these technologies;
- A solar PV programme as envisaged in the Policy-Adjusted IRP should be pursued (including decentralised generation).

## **3.3 PROVINCIAL LEVEL DEVELOPMENTAL POLICY**

### **3.3.1 Northern Cape Growth and Development Strategy (2004-2014)**

The Northern Cape Provincial Growth and Development Strategy (PGDS) notes that the most significant challenge that the government and its partners in growth and development are confronted with is the **reduction of poverty**. All other societal challenges that the province faces emanate predominantly from the effects of poverty. The PGDS notes that the only effective way to reduce poverty is through long-term sustainable economic growth and development. The sectors where economic growth and development can be promoted include:

- Agriculture and Agro-processing;
- Fishing and Mariculture;
- Mining and mineral processing;
- Transport;
- Manufacturing;
- Tourism.

However, the PGDS also notes that economic development in these sectors also requires:

- Creating opportunities for lifelong learning;
- Improving the skills of the labour force to increase productivity;
- Increasing accessibility to knowledge and information.

The achievement of these primary development objectives depends on the achievement of a number of related objectives that, at a macro-level, describe necessary conditions for growth and development. These are:

- Developing requisite levels of human and social capital;
- Improving the efficiency and effectiveness of governance and other development institutions;
- Enhancing infrastructure for economic growth and social development.

Of specific relevance to the Kleinzee WEF proposal, the NCPGDS make reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPGDS notes "the development of (renewable) energy sources ... could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPGDS also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised.

The NCPGDS also highlights the importance of enterprise development, and notes that the current levels of private sector development and investment in the Northern Cape are low. In addition, the province also lags in the key policy priority areas of SMME Development and Black Economic Empowerment (BEE). The proposed wind energy facility therefore has the potential to create opportunities to promote private sector investment and the development of SMMEs in the Northern Cape Province.

In this regard care will need to be taken to ensure that the proposed wind thermal plant and other renewable energy facilities do not negatively impact on the region's natural environment. In this regard the NCPGDS notes that the sustainable utilisation of the natural resource base on which agriculture depends is critical in the Northern Cape with its fragile eco-systems and vulnerability to climatic variation. The document also indicates that due to the province's exceptional natural and cultural attributes, it has the potential to become the preferred adventure and ecotourism destination in South Africa. Care therefore needs to be taken to ensure that the development of large renewable energy projects, such as the proposed wind energy facility, do not impact on the tourism potential of the province.

### **3.4 LOCAL LEVEL DEVELOPMENTAL POLICY**

#### **3.4.1 Nama Khoi Local Municipality 2011/2012 IDP Revision**

The Municipal Systems Act (Act 32 of 2000) requires of each Municipality to compile an Integrated Development Plan (IDP) for its relevant municipal area. The IDP is meant to provide the overarching strategic framework for the sustainable long-term management of the relevant municipality. As such, it is meant to inform all

development planning and policy within that municipality. Once adopted by Council, the IDP binds and commits the relevant Municipality in the exercise of its executive authority, unless the IDP conflicts with national or provincial legislation.

The Act requires the drafting of a 5-year planning period IDP, as well as for subsequent annual reviews of performance and evolved conditions with regard to the strategic objectives identified in the 5-year plan. However, the most recent Nama Khoi IDP appears to have been approved in 2004. The following key aspects are of specific relevance to the proposed WEF and local (i.e. receiving) context:

The developmental policy contained in the NKLM IDP is underpinned by the national Strategic Plan for Local Government 2006-2011<sup>3</sup>, the Northern Cape Provincial Growth and Development Strategy (see Section 3.3.1. above), the national Accelerate and Shared Growth Initiative – South Africa (2006-2014) (ASGISA), and the 2009 national Local Government Turn Around Strategy (re. service delivery challenges and financially sustainable local government).

Socio-economic developmental planning in the NKLM is further underpinned by the objectives of national Medium-term Strategic Framework, namely:

- Speeding up growth and transforming the economy to create decent work and sustainable livelihoods;
- A massive programme to build economic and social infrastructure;
- A comprehensive rural development strategy linked to land and agrarian reform and food security;
- To strengthen the skills and human resource base;
- To improve the health profile of all South Africans;
- To intensify the fight against crime and corruption;
- To build cohesive, caring and sustainable communities;
- Pursuing African advancement and enhanced international cooperation;
- Sustainable Resource Management and use;
- Building a developmental state including improvement of public services and strengthening democratic institutions.

Of specific relevance to the proposed Kleinzee WEF, the IDP notes that mining used to form the backbone of the economy, but that tourism is currently seen as the “new frontier” for economic development in the municipal area (NKLM Draft 2011/12 IDP).

The IDP makes no mention of renewable energy projects or policy pertaining thereto.

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<sup>3</sup> The SPLG 2006-2011 identified 5 national Key Performance Areas – or KPA – to guide reporting in the drafting of IDP documents and to monitor (and adjust, where applicable) annual municipal delivery performance against set developmental goals in the relevant KPAs.

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## **SECTION 4: IDENTIFICATION OF KEY ISSUES**

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### **4.1 INTRODUCTION**

Section 4 identifies the key social issues that will need to be assessed by the SIA specialist study during the EIA phase. 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 the Western Cape (specifically along the West Coast) and Northern Cape Provinces.

### **4.2 IDENTIFICATION OF KEY SOCIAL ISSUES**

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

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

#### **4.2.1 Policy and planning issues**

The review of key national and provincial level energy policy documents indicated that the development of energy from renewable sources is strongly supported at both levels.

On 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 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.

At a provincial level, the NCPGDP notes that availability of inexpensive energy is a key requirement in order to promote economic growth in the Northern Cape. The NCGDS goes onto indicate that "the development of (renewable) energy sources (...) could be some of the means by which new economic opportunity and activity is generated in the Northern Cape".

Based on this it is reasonable to assume that the establishment of WEFs is supported. However, the NCPGDS also states that the sustainable utilisation of the natural resource base on which agriculture depends is critical in the Northern Cape with its fragile ecosystems and vulnerability to climatic variation. The document also indicates that due to the Province's exceptional natural and cultural attributes, it has

the potential to become the preferred adventure and ecotourism destination in South Africa. Care therefore needs to be taken to ensure that the development of large renewable energy projects, such as the proposed wind energy facility, do not impact on the tourism potential of the Province.

At a local level, the NKLM IDP (2011/2012) notes that tourism is overtaking the historical role of mining in terms of sectoral growth and land use.

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 appropriately sited WEFs are supported at national and provincial levels.

However, given the proposed scale (up to 200 turbines) of the proposed development, and further given the proposed size of the turbines (hub heights of up to 140 m), the potential of the project to negatively impact on established and potential tourism uses need to be closely assessed during the EIA phase.

#### **4.2.2 Local and site specific issues**

Based on a review of desktop sources, a number of key issues that will need to be investigated during the EIA phase have been identified. These include:

##### **Construction phase:**

- Development and implementation of appropriate labour recruitment strategies in order to maximize opportunities for local residents in the area and minimize the potential negative impacts associated with opportunistic in-migration of labour from outside the region;
- The development of suitable training strategies, specifically bearing in mind the generally low education and skills levels in the local area;
- The appropriate siting of construction camps on the site should they be required;
- Adequate on-site management of construction crews in order to manage risks related to infrastructural damage, veld fires and stock and game losses on site adjacent properties;
- Managing potential health risks associated with large groups of construction workers, including the spread of STDs, HIV/Aids and TB;
- Maximizing opportunities to local and regional Small Medium and Micro Enterprises (SMMEs) and other businesses to provide a range of services, which may include, but not limited to, catering, laundry, transport;
- Potential impacts on road surfaces in the study area, associated with the movement of heavy equipment onto the site;
- Potential impacts on traffic flows along roads in the study area associated, with the movement of heavy equipment onto the site.

##### **Operational Phase**

- Development and implementation of appropriate labour recruitment strategies, specifically bearing in mind the need for extensive training with regard to the local communities, and setting appropriate local training and employment targets;
- Potential impact on agricultural and other land use options of the site during the operational phase, as well as after decommissioning;
- Potential impacts on existing tourism and tourism potential of the area;



- Potential visual and sense of place impacts on existing receptors, including nearby rural and urban residences. In this regard it is recognized that the site is located the De Beers mining area, and that the regional settlement pattern is sparse;
- Creation of opportunities to local business (NKLM area) during the operational phase, including but not limited to, provision of security, staff transport, and other services;
- Potential up and down-stream economic opportunities for the local, regional and national economy;
- Provision of clean, renewable energy source for the national grid.

#### **4.3 APPROACH TO ASSESSING IMPACTS**

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 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.);
- 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/optimization and management measures to be implemented.
- Finalisation of SIA Report.

As indicated above, the detailed public consultation process 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 those with regard to the Final Scoping Report;
- A draft illustration (plan) of the proposed lay-out(s) of the turbines (including an indication of the phasing sequence on the site), supporting structures and infrastructure;

- 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;
- Total capital expenditure estimate for construction phase;
- Indication of where construction workers will be housed (on site or in nearest town?);
- Opportunities for onsite 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.

### ***Operational phase***

- Operating budget per annum;
- Total number of people employed;
- Breakdown of number of people employed 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;
- Information on the lease / rental agreements with local landowners and or communities. This information is required so as to indicate how local landowners and communities stand to benefit from the project.

## ANNEXURE A

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