

**SOCIAL ASSESSMENT
FOR
SCOPING REPORT
WALKER BAY WIND ENERGY FACILITY,
WESTERN CAPE PROVINCE
(DRAFT)**

September 2011

Prepared for

SAVANNAH ENVIRONMENTAL (Pty) Ltd

By

Tony Barbour and Daniel Rogatschnig

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

Renewable Energy Systems (RES) Southern Africa (Pty) Ltd is proposing the establishment of a wind energy facility (WEF) with a capacity of ~18MW on a site located ~18 km north east of De Kelders, ~30 km south east of Hermanus and ~40 km west of Bredasdorp in the Overberg region of the Western Cape Province of South Africa. Administratively, the site forms part of the Overstrand Local Municipality (OLM), which in turn forms part of the Overberg District Municipality (ODM) of the greater Western 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 located within a broader agricultural area that supports farming (small stock and grain) and tourism (mainly wilderness and nature based). Tourism is a major driver for economic development within the Local Municipality.

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 district and municipal levels;
- The region and study area are relatively sparsely populated, except for notable urban nodes such as Hermanus and Gansbaai;
- Available information indicated that the OLM's population was estimated at ~74 543 in 2007, of which an estimated 66% lived in the town of Hermanus and surrounds;
- The population was relatively evenly distributed with Coloured accounting for 37% of the population, Whites 34% and Blacks 29%;
- Poverty levels were moderate and education levels average.

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 sustainable development and renewable energy projects

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 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
WCP	Western Cape Province
ODM	Overberg District Municipality
OLM	Overstrand Local Municipality
SDF	Spatial Development Framework
SIA	Social Impact Assessment
WEF	Wind Energy Facility

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SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Savannah Environmental (Pty) Ltd (hereafter referred to as Savannah) was appointed by Renewable Energy Systems (RES) Southern Africa (Pty) Ltd as the lead consultants to manage the Environmental Impact Assessment (EIA) process for the establishment of the proposed Walker Bay Wind Energy Facility. (WEF) and associated infrastructure, on a proposed site located ~18 km north east of De Kelders, ~30 km south east of Hermanus and ~40 km west of Bredasdorp in the Overberg region of the Western 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.

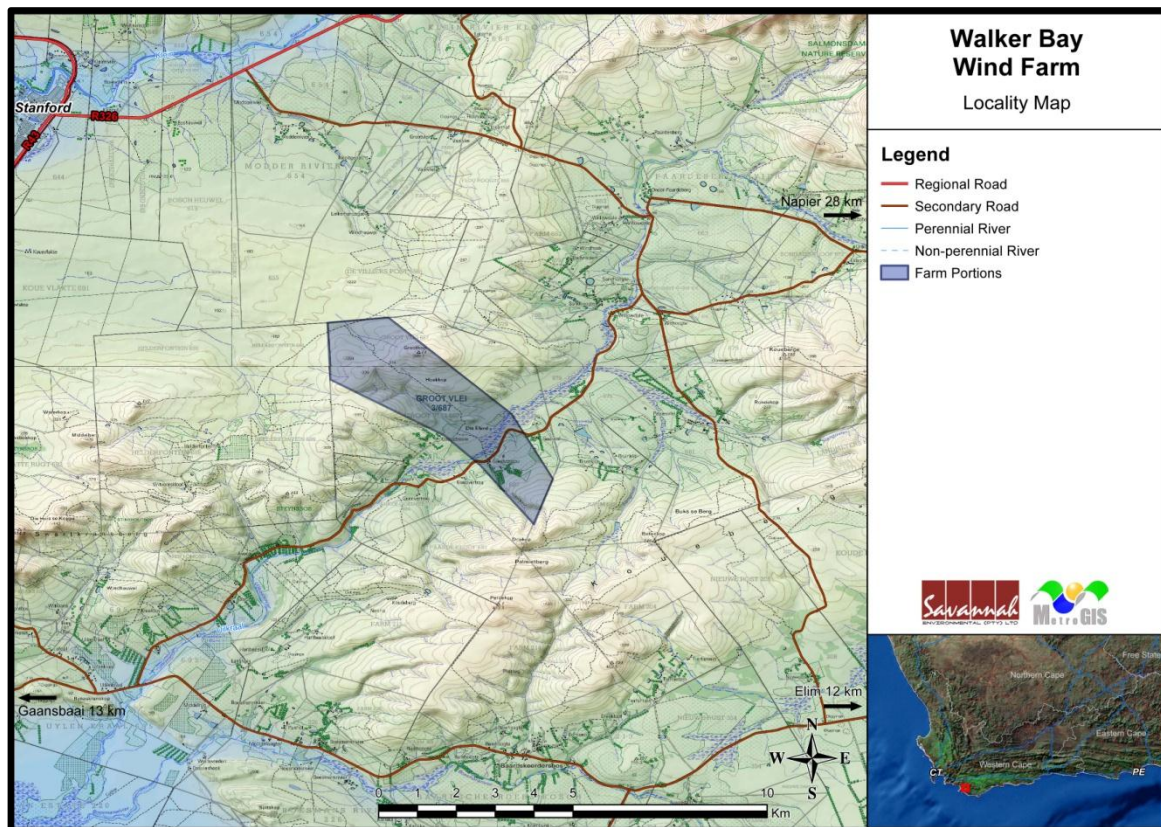


Figure 1.1: Location of proposed Walker Bay WEF site

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 that will need to be addressed by the SIA study during the EIA phase.

1.3 PROJECT DESCRIPTION

The proposed WEF and associated infrastructure (including proposed power line route) is to be established on the farm Groot Vlei 3/687.

This cadastral portion represents a total area of 9 km² in extent. The facility will utilise up to 11 turbines each with a generating capacity of up to 3MW, each with a hub height of up to 120m and a rotor diameter of 116m (i.e. each blade up to 58m in length). The facility would have a capacity of less than 20MW.

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;

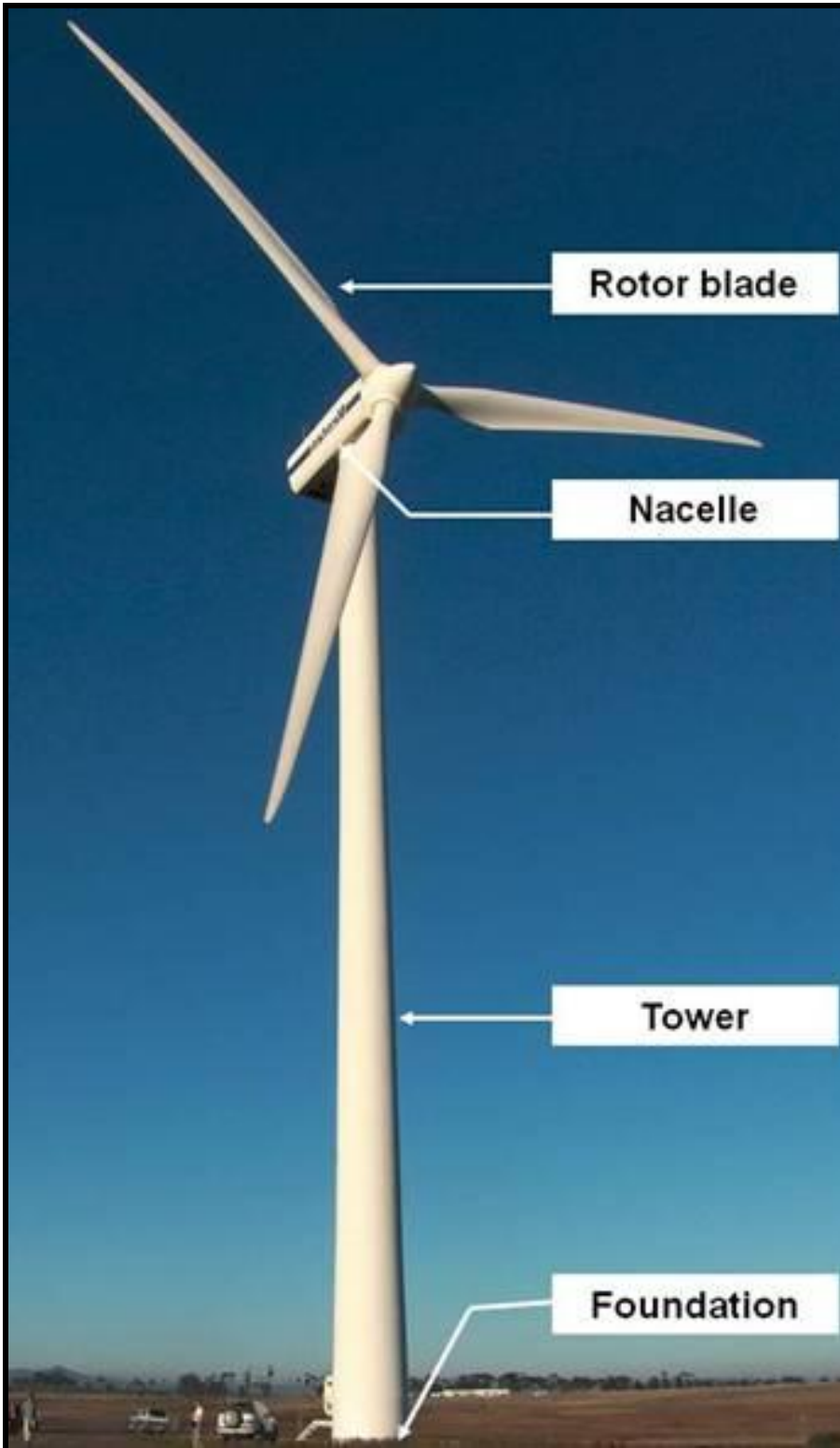


Figure 1.2: Typical turbine structure and components

- 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.

Other infrastructure associated with the wind energy facility is proposed to include:

- **Small transformer** outside each turbine tower, depending on what make and model of turbine which is deemed most suitable for the site. Such a transformer would have its own foundation and housing around it.
- **Crane hard standings.**
- **Cabling** between the turbines, to be laid underground where practical.
- **Internal access roads** to each turbine.
- **Workshop area** for control, maintenance and storage.
- Temporary and permanent **wind monitoring masts** for calibration and site monitoring.
- **Small mast for telecommunications.**
- An on-site **substation** to facilitate the connection between the wind energy facility and the grid.
- New **overhead power line** to connect to Eskom's existing Stanford Substation, which is located approximately 8 km from the site.

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 construction phase is expected to take 6 months to complete. 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 WEF site is located approximately 18 km to the north east of the small coastal town of De Kelders in the Overberg region of the Western Cape Province (WCP) (see Figure 1.1).

The WCP is the 4th largest of the 9 provinces, and covers an area of ~ 129,462 km² (~11% of total national surface). The WCP is divided into 1 metropolitan municipality, 5 district municipalities (DMs), and 24 Category B (i.e. Local Municipalities). The proposed Walker Bay site falls within the Overstrand Local Municipality (OLM) (WC032), which is one of seven Local Municipalities constituting the Overberg District Municipality (ODM) (DC3). The ODM is bounded to the north by the Cape Winelands District Municipality, to the east by the Eden District Municipality, to the south by the Indian and Atlantic Ocean and to the west by City

of Cape Town Metropolitan Area. Bredasdorp is the administrative seat of the ODM while Hermanus is the administrative seat of the OLM.

The Overstrand Local Municipality (OLM) is the smallest (1 707 km²) of the 4 Local Municipalities making up the ODM.

The OLM is comprised of 13 Wards. The proposed Walker Bay site falls within Ward 11 (Stanford, Baardskeerdersbos, Pearly Beach, Viljoenshof and Withoogte) (Figure 1.2). Please refer to Section 2 of this report for a more detailed overview of the region and study area.



Figure 1.3: OLM Wards

1.4.2 Road access

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

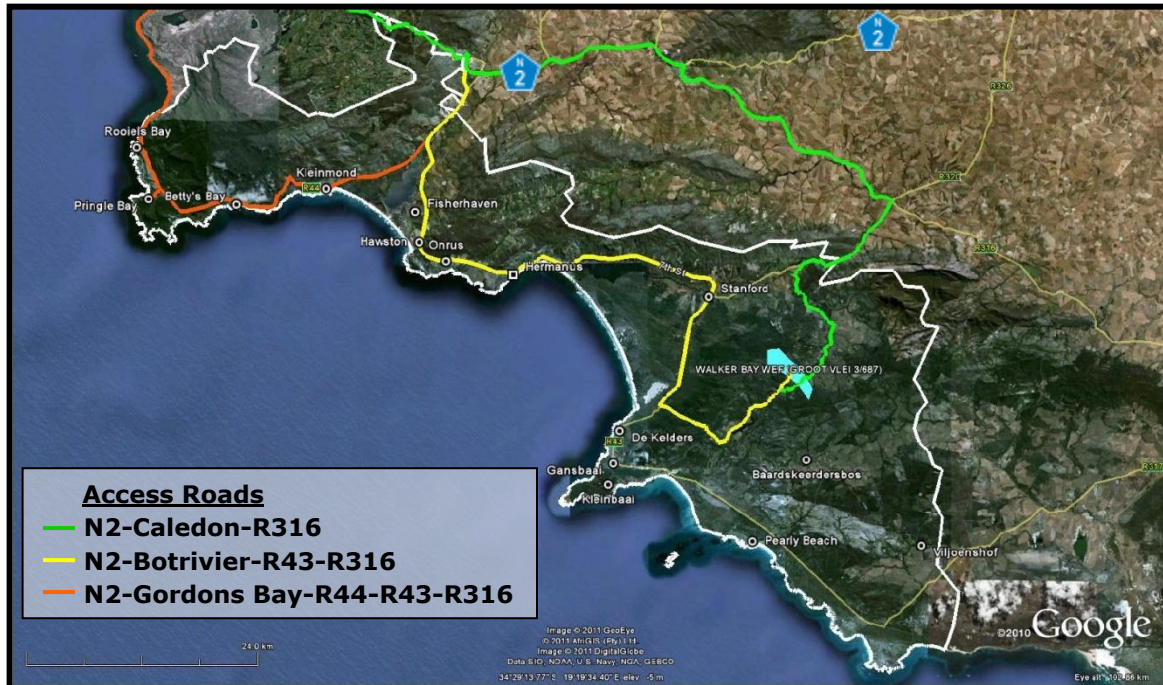


Figure 1.3: Study area access roads

The proposed site is accessible from the N2, which links Cape Town in the Western Cape with Port Elizabeth, East London and Durban, via one of three possible routes:

- Caledon and the R316;
- Botrivier and the R43 (and R316); and
- Gordons Bay and the R44 (and R43, R316).

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

1.4.3 Other proposed WEFs in the study area

In as far as could be established, 1 other WEF is currently proposed in the vicinity of the proposed Walker Bay WEF. Genesis Wind is proposing the construction of a 150 turbine, 300 MW WEF located between the towns of Botrivier and Caledon, 40 km north west of the proposed Walker Bay WEF.

1.5 ASSUMPTIONS AND LIMITATIONS

1.5.1 Assumptions

Technical suitability

It is assumed that the development site identified by RES 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 Western and Eastern Cape Provinces including Indian Ocean coastal areas. It is assumed that issues identified on those projects are likely to be similar to those for the proposed 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. With regard to the study area, the amount of relevant literature available is limited. 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 Census¹, 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 11. The social baseline for this part of the study area is therefore described at Local Municipal level (OLM) only.

1.6 APPROACH TO STUDY

The approach to the study is based on the Western Cape Department of Environmental Affairs and Development (DEA&DP) 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). 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;

¹ 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).

- 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. Annexe 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.

SECTION 2: OVERVIEW OF THE STUDY AREA

2.1 INTRODUCTION

Section 3 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.

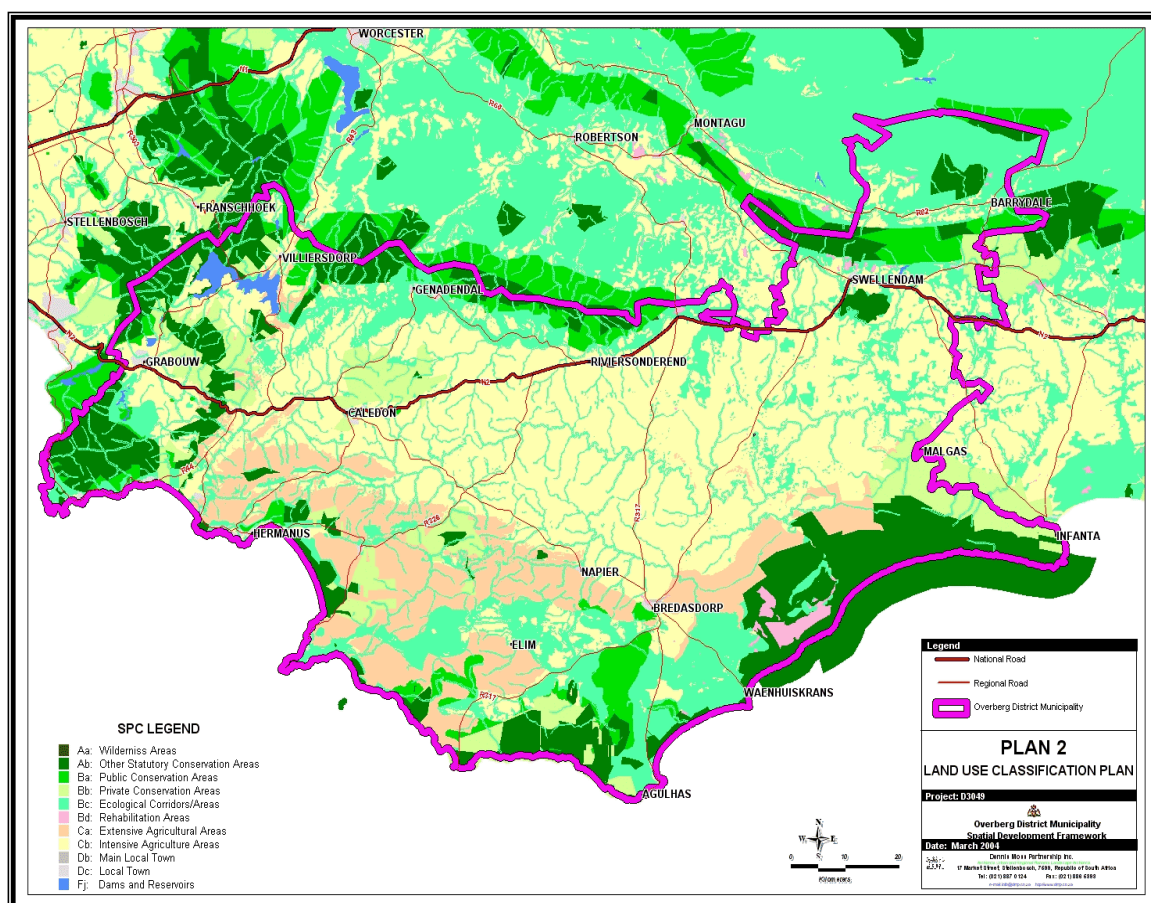
2.2 GEOGRAPHICAL CONTEXT

As discussed under Section 1.4, the proposed Walker Bay WEF site is located approximately 18 km to the north east of the small coastal town of De Kelders in the Overberg region of the Western Cape Province (WCP) (see Figure 1.1). Administratively, the proposed project area is located in Ward 11 of the Overstrand Local Municipality (OLM), which in turn is located in the Overberg District Municipality (ODM), one of the constituent District Municipalities of the WCP.

2.2.1 Overberg District

Overberg is the southernmost of the district municipalities in the Western Cape and covers approximately 11 393 km² (See Figure 2.1). The administrative seat of the Overberg DM is located in Bredasdorp. The DM is comprised of four local level municipalities (LMs), namely the Overstrand LM (Hermanus), the Cape Agulhas LM (Bredasdorp), the Theewaterskloof LM (Caledon) and the Swellendam LM (Swellendam), and one administrative area (centered around the De Hoop nature reserve). Other established urban settlements include Kleinmond, Gansbaai, Stanford, Napier, Barrydale, Botrivier, Elgin and Grabouw. The region also includes a number of smaller settlements of historical and heritage significance, namely Baardskeerdersbos, Elim, Kassiesbaai, Genadendal and Suurbraak.

The region is traversed by the N2 from west to east. The N2 roughly demarcates the Agulhas plain to the south from more mountainous terrain towards the north of the N2 (including for instance the Rivieronderend mountain chain and the Langeberg). A number of tarred roads link major settlements to one another. These include the R316, R326, R319, R43 and the R406. Nevertheless, the majority of public roads in the region are gravel roads (73.6%).



(Source: Overberg DM SDF, 2004)

Figure 2.1: Overberg District Municipality

Roughly the southern half of the region borders onto ocean, viz. the Atlantic and Indian Oceans towards the west and east of Cape Agulhas respectively. The region is well-known for its scenic beauty, and includes a number of recreational coastal locations of national significance. These include the greater Hermanus area, the greater Gansbaai area, Struisbaai and L'Agulhas and Arniston/ Waenhuiskrans. The southernmost tip of the African continent is located within the region (viz. Cape Agulhas). The Agulhas plain south of the Bredasdorp Mountains is an important botanical biodiversity area, and contains large stretches of fynbos of international tourism significance. Agriculture forms the economic backbone of the region, with small grain cultivation (e.g. wheat, canola) and livestock farming (wool sheep, cattle) predominating in the area south of the N2 (Agulhas plain), and fructiculture and viticulture featuring more prominently in the area north of the N2 (for instance Elgin/Grabouw and near Barrydale).

2.2.2 Overstrand Area

The Overstrand Municipal area is located along the south western coastline of the Western Cape Province and covers an area of 1 707 km². The total population is estimated to be ~ 74 543 (2007) people, most of whom reside in the greater Hermanus area.

Hermanus, located along the R43 (between Fisherhaven and Pearly Beach), is a relatively large town with a population of ~49 000 (~66% of the total OLM population) and is famous for its whale-spotting and annual whale festival held at the end of September when the Southern Right whales come into the local bay during the mating season. Other settlements include Baardskeerdersbos, Betty's Bay, De Kelders, Eluxolweni, Fisherhaven, Franskraalstrand, Gansbaai, Hawston, Kleinbaai, Kleinmond, Napier, Onrus, Pearly Beach, Pringle Bay, Rooiels, Sandbaai, Silversands, Stanford, Van Dyksbaai, and Viljoenshof.

The Municipal area has a coastline of approximately 200 km, stretching from Rooi Els in the west to Quinn Point in the east. The coastline is particularly scenic and pristine and boasts 3 Blue Flag² beaches. Moreover, the Kogelberg Biosphere Reserve which is located in the western portion of the OLM is a UNESCO world heritage area.

In addition to the local agricultural economy, tourism is a major economic driver in the area and the area's popularity as a holiday destination often results in a four-fold increase of the local population over the holiday seasons.

2.3 ECONOMIC OVERVIEW

The total regional gross value added in the region (GVA-R) of ODM increased at an annual average of 2.7% from R5.322 billion in 2001 to R6.579 billion in 2009 while the provincial growth rate for the same period was of 4.3%. The ODM economy recorded a significant decline from 4.4% in 2008 to -1.7% in 2009 fairing marginally better than the WCP economy, which recorded a decline from 4.3% to -1.2% over the same period.

The construction sector within ODM experienced the sharpest annual average growth over the 2001 to 2009 period, growing at 9.7 %, followed by finance sector (4.5%), electricity (4%) and Community services sector (3.4 %). The manufacturing and mining sectors grew relatively sluggishly at 0.5% and 1.1% respectively.

The proportional contribution of the manufacturing sector decreased from 25.6% to 21.5% from 2001 to 2009, while the finance & business services, catering & accommodation sectors increased from 16.2 to 18.6 per cent from 2001 to 2009. The agricultural sector's contribution also decreased marginally from 18.9% to 18.2%. The mining sector was still the smallest contributing sector in 2009 contributing less than 0.5% of the GVA-R in 2001 and 2009.

The OLM regional gross value added figure (GVA-R) 8 amounted to R1.894 billion and accounted for 28.7% of total the regional economy of R6.579 billion in 2009 making it the second largest economic contributor in the broader District.

The construction sector within OLM experienced the sharpest annual average growth over the 2001 to 2009 period at 9.7 %, followed by electricity services (3.7%), Transport (3.6%) and the Community services sector (3.3%). As was the trend within the district between 2001 and 2009, the manufacturing and mining sectors grew very slowly at 0.2% and 1% respectively.

² The Blue Flag is a certification by the Foundation for Environmental Education (FEE) that a beach or marina meets its stringent international standards.

Proportionally, the manufacturing sector's contribution to local economy decreased from 37.4% in 2001 to 32.3% in 2009. The finance sector contribution remained relatively unchanged decreasing from 23.4% to 23% while the community services sector's contribution increased marginally from 10.5% to 11.6%.

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 OLM IDPs are essentially limited to population projections and access to various municipal services.

Information presented in this section is therefore largely at District and Local Municipal level. The objective the section is to provide a general overview of the regional demographic context. The demographic profiles of the communities in the ODM and OLM will be investigated in greater detail during the EIA phase, i.e. by means of sourcing information from local officials.

Population Composition and Growth

The Overberg District Municipality (ODM) accounts for approximately 4% in the WCP (5.1 Million), and is home to an estimated 212 787 people (2007). The District has the second lowest total population in the WCP with population density of ~19/km. The population growth between 2001 and 2007 was calculated at 0.8% indicating that by 2010 the total population within the ODM was 221 434 in 2010. In terms of population composition within the ODM (2007), 59.6% are Coloured, 20.1% are White, and 20% are Black and 0.3% Indian/Asian. The gender composition (2007) is estimated at 97.6 males per 100 females.

The Overstrand Local Municipality (OLM) had a population of 74 546 in 2007, accounting for ~35% of the District Municipality's population, a fact at least partly attributable to the presence of the town of Hermanus (~49 000) in the OLM area. Department of Social Development estimated that the population increased to 87 474 people in 2010. The population composition of the OLM is more evenly distributed when compared to the ODM. Within the ODM (2007), 37% are Coloured, 34% are White, and 29% are Black and less than 1% Indian/Asian. The gender composition shows that there were 35 954 (48.2%) males and 38 592 (51.8%) females in 2007.

Education

In 2010 there were 13 287 (33% of total learners) learners in the foundation phase (Grades R to 3), 14 436 (35.9%) in the primary phase (Grades 4 to 7) and 12 362 (30.7%) in the secondary phase (Grades 8 to 12). An estimated 25.7% of the ODM population were deemed functionally illiterate in 2009, while 43.3% of men and 51.7% of women had only a primary (<Grade 8) education (2007).

In the OLM, the number of learners (from Grade R to 12) enrolled in schools in the municipality increased by an average 4.0 per %/annum from 7 378 learners in year 2000 to 10 965 learners in 2010. In 2010, 3 064 learners (32.9% of total learners) have enrolled in the foundation education phase (Grades R to 3), 4 080 (37.2%) in the primary phase (Grades 4 to 7) and 3 268 (29.8%) in the secondary phase (Grades 8 to 12). The literacy rate for the OLM is 84.5% and

highlights persons 14 years and older who have successfully completed 7 years formal education (passed Grade 7/ Standard 5).

Employment levels

The 2007 Community survey showed that employment in the ODM increased by 1.8% during the period 2001 to 2007, while the unemployment rate declined from 22.4% to 17.7% the same period. Thus, the data implies that the economy has been unable to absorb and employ the full complement of the potential labour force. Of those unemployed in 2007, 44% were male and 56% were female. The major sources of employment in the District are the Agriculture, hunting, forestry and fishing, community services and construction sectors. Of the 96 562 people employed in 2007, low skilled occupations accounted for 23.6% of employment, while skilled and high skilled accounted for 40.5% and 20.4% respectively. A significant number (15.5%) of respondents recorded occupations as "unspecified". In terms of the age cohort distribution of unemployment in the ODM, 56.6% of unemployed individuals were between 20 and 34 years old, while 18.3% were between 35 and 44 years old.

Of the 4 LMs that make up the ODM, the OLM has the highest unemployment rate estimated at 24.1% in 2007. This is significantly higher than the District average (17.7%). In terms of the age cohort distribution of unemployment in the OLM, 60.6% of unemployed individuals were between 20 and 34 years old, while 20.3% were between 35 and 44 years old. No further statistics for the OLM could be obtained, but it is assumed that district rates are broadly applicable.

Income and economic development

The Human Development Index³ (HDI) for the ODM (four indexed factors – life expectancy, adult literacy, GDP per capita (adjusted for real income) and education attainment) as a whole is 0.72, which is on par with the South African average of 0.72. The HDI in the OLM (0.73) is 1/10th higher than that of the broader District and the national average.

In terms of per capita income, an estimated 27.7% of households in the ODM were living under the poverty datum or "bread line" of <R800/ month (by head of household) in 2001. According to the ODM IDP (2011/12), in 2010 there were 13 409 registered indigent households in the ODM, accounting for almost a quarter of all households in the District.

³ 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.

SECTION 3: POLICY AND PLANNING CONTEXT

3.1 INTRODUCTION

Section 2 provides an overview of the policy and planning environment affecting the proposed Walker Bay 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);
- Western Cape Provincial Growth and Development Strategy;
- Western Cape Provincial Spatial Development Plan (2009)
- Climate Change Strategy and Action Plan for the Western Cape (2008);
- White Paper on Sustainable Energy for the Western Cape (Final Draft, 2008);
- Guideline for the Management of Development on Mountains, Hills and Ridges in the Western Cape (2002);
- Regional methodology for Wind energy Site Selection (2007)
- Overberg Strategic Development Framework (SDF) (2004)
- Overstrand 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.

South Africa is also a signatory of the Copenhagen Accord, a document that delegates at the 15th session of the Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change agreed to "take note of" at the final plenary on 18 December 2009. The accord endorses the continuation of the Kyoto Protocol and confirms that climate change is one of the greatest challenges facing the world. In terms of the accord South Africa committed itself to a reduction target of 34% compared to business as usual.

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 Integrated 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 ¹	0	0	0	0	400	0	300
2015	500 ¹	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 ⁴	100 ⁴	300 ⁴
2019	250	0	0	237 ³	0	400 ⁴	100 ⁴	300 ⁴
2020	250	0	0	237 ³	0	400	100	300
2021	250	0	0	237 ³	0	400	100	300
2022	250	0	1 143 ²	0	805	400	100	300
2023	250	1 600	1 183 ²	0	805	400	100	300
2024	250	1 600	283 ²	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
Total	6 250	9 600	2 609	2 370	3 910	8 400	1 000	8 400

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 up grade 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 Western Cape Growth and Development Strategy

The PGDS (“iKapa Elihlumayo”) is aimed at defining shared growth and integrated development targets and objectives on a provincial level for the period up to 2014. The PGDS focuses on strengthening growth sectors, resource management and identifying implementation strategies. Key pillars are growth, equity, empowerment and environmental integrity.

Of the 9 key objectives of the PGDS, the following are broadly applicable to aspects of the Walker Bay WEF project:

1. Broaden economic participation and reduce poverty;
6. Ensure sustainable development
7. Ensure greater spatial integration;

The PGDS lays great emphasis on the extreme vulnerability of the province to climate change (generally hotter, drier conditions are generally predicted for the WC), and is aligned with the Western Cape Climate Change Strategy. The PGDS notes that, with current available budgeting a key necessary intervention is that, *"assistance needs to be provided in the development of new economic sectors e.g. **renewable energy sector, solar wind and wave energy and water sector.**"*

The PGDS was intended as a 10 year plan for the period 2004-2014. The PGDS was only adopted by PGWC in 2008. As is discussed below, indications are that the iKapa Elihlumayo strategy is to become replaced by a new provincial strategic plan (currently in Draft form).

3.3.2 Western Cape Draft Strategic Plan (WCDSP) (2010)

Indications are that the Western Cape (Draft) Strategic Plan ("Delivering the Open Opportunity Society for All") is set to replace the 2008 Ikapa Elihlumayo strategy as the Province's overarching strategic plan for achieving economic growth, social equity, and broad-based empowerment of its citizens, while maintaining environmental integrity. The 11 Strategic Objectives embodied in the WCDSP thus embody the key overarching strategic objectives identified by the incumbent Provincial Government for its term in office (i.e. until 2014). The 11 Objectives are broadly aligned with the 12 National Lekgotla Outcomes, but focuses specifically on the Western Cape development context.

Of the 11 Outcomes, the following are broadly applicable to aspects of the Walker Bay WEF project:

1. Creating opportunities for growth and jobs;
6. Developing integrated and sustainable human settlements;
7. Mainstreaming sustainability and optimizing resource use and efficiency;
9. Reducing and alleviating poverty.

According to the plan to achieve the outcomes pertaining to "Mainstreaming sustainability and optimizing resource use and efficiency", key measures include:

- The promotion of energy efficiency in households, commerce, industry and all provincial offices, hospitals and schools; a green building programme and a green low-cost housing programme to increase the chances of the poor against climate change impacts.
- Development of a wind energy sector and energy production from alternative sources as well as net metering supported by a small-scale feed-in tariff to encourage small-scale renewable energy production.

Proposed socio-economic interventions are underpinned by the Administration's beliefs that "economic growth constitutes the foundation of all successful development; that growth is driven primarily by private sector business operating in a market environment; and that the role of the state is (a) to create and maintain an enabling environment for business and (b) to provide demand-led, private sector-driven support for growth sectors, industries and businesses" (PGWC; 2010: 8).

3.3.3 Climate Change Strategy and Action Plan for the Western Cape (2008)

The Climate Change Strategy and Action Plan (Final Draft, December 2008) was commissioned by the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP). The document is aligned with the Western Cape Sustainable Development Strategy, and gives expression to Provincial Government of the Western Cape's (PGWC) acknowledgement that the Western Cape will inevitably be affected by climate change, and thus needs to timeously set in place a sound foundation for future climate change responses in the province.

The document consists of two sections. The first section examines climate change and socio-economic factors in the Western Cape, and establishes the need for a climate change response in the region. The second section outlines the key aspects of the Western Cape's response strategy.

Key points of specific relevance to the current WEF proposal are the following:

The need for a climate change response in the Western Cape

- South Africa is currently ranked as the 19th greatest emitter of greenhouse gasses (absolute terms) in the world;
- While the Western Cape's local direct emissions are relatively low, this is largely the result of the province importing most of its electricity (~90%), mainly from Mpumalanga;
- There is little doubt that the Western Cape will experience the effects of human-induced climate change in the near future, possibly as early as 2030. Current predictions indicate that the Western Cape will generally become hotter and drier. Predictions indicate a mean increase in temperature of at least 1 °C by 2050. Higher mean temperatures will have negative consequences for rainfall (frequency, amount) as well as the soil's ability to retain moisture. Periods of drought are anticipated to become more frequent and intense. Drier, hotter conditions will also increase the risk of more frequent, more severe fires;
- Predicted hotter and drier conditions hold significant risks to the Province's key economic sectors and associated livelihoods. Compromised growing conditions and less water available for irrigation will negatively affect the agricultural sector – with massive negative implications for the regional economy, employment as well as regional food security. Increased sea surface temperatures will likely impact negatively on fish stocks. The tourism sector is likely to suffer from changes in the landscape amenity;
- For these reasons the province need to be committed to doing its share to stabilize or reverse the current trend in global warming;
- With regard to the current situation, the Western Cape's energy infrastructure has demonstrated its reduced capacity to sustain cumulative impacts. The failure in supply of high quality energy that the province relies on, has high social and economic costs, as most of it needs to be imported from coal-burning power stations over very long distances;
- In terms of the Kyoto Protocol, South Africa, as a developing nation, does not have to take active steps to mitigate its carbon emissions. However, valuable export markets in the European Union are already starting to impose carbon emission reduction targets on their suppliers. The Western Cape, whose

important agricultural sector is to a large extent export-orientated (wine, fruit) stands to lose market share on agricultural goods, for example, if no attempt is to be made to achieve at least carbon neutrality (no net emission of carbon for a produced good).

The response strategy and action plan

- The Province's response strategy and associated action plan is based on two thrusts, namely adaptation and mitigation;
- Four programmes are prioritised. Of specific significance to the development of renewable energy resources, the reduction of the province's carbon footprint is identified as the key mitigatory response. Associated strategies include promotion of energy efficiency (including demand management), the development of renewable and alternate sustainable energy resources, effective waste management strategies, and cleaner fuel programmes for households and transport;
- Solar and wind energy are identified as the most suitable renewable technologies for the Western Cape. No development targets are set.

3.3.4 White Paper on Sustainable Energy for the Western Cape

The White Paper on Sustainable Energy compliments the Climate Change Strategy and Action Plan, specifically by setting targets for renewable energy generation. The White Paper is currently in Final Draft form. Once approved by Provincial cabinet, it will constitute the formal Western Cape's policy document on which the Western Cape Sustainable Energy Facilitation Bill will be based. The purpose of the White Paper and the envisaged Bill is to create an enabling policy environment in the Western Cape in order to promote and facilitate energy generation from renewable sources, as well as efficient energy use technologies and initiatives.

The White Paper forms part of PGWC's strategy aimed at removing a number of barriers (e.g. energy pricing, legal, institutional, low levels of investment confidence, insufficient knowledge) currently frustrating the province's energy goals by preventing the adoption and commercialization of clean energy (including electricity generation from renewable sources such as wind and solar) technologies and initiatives. The White Paper notes that, with regard to sources of renewable energy, wind and solar both represent commercially viable options in the province. The document proposes that special focus should be given to these renewables subsectors and specific associated technologies in particular in order to achieve critical mass of installation, and thus drive down establishment costs and ensure permanent employment opportunities.

In terms of targets, the PGWC agreed to targets for electricity from renewable sources and for energy efficiency to be achieved by 2014. Of these, two are of direct relevance to the proposed WEF:

- Target for electricity generated from renewable sources: *15% of the electricity consumed in the Western Cape will come from renewable energy sources in 2014, measured against the 2006 provincial electricity consumption (p. 21)*
- Target for reducing carbon emissions: *The carbon emissions are reduced by 10% by 2014 measured against the 2000 emission levels (p. 23).*

3.3.5 Western Cape Spatial Development Framework (PSDF) (2009)

The Western Cape Provincial Spatial Development Framework (PSDF) was approved as a structure plan in terms of Section 4(6) of the Western Cape Land Use Planning Ordinance (LUPO) in June 2009, and consequently has statutory status. The PSDF is a long-term planning instrument, which is to be reviewed every five years. The next revision is due in 2014.

The overarching function of the PSDF is to provide a spatial planning guidance aimed at sustainable development, including social justice and equity, at provincial level. The scale is too coarse - approximately 1:2 500 000 - in order to address the study area specifically.

The purpose of the PSDF is, amongst others, to:

- Provide spatial expression to the Provincial Growth and Development Strategy;
- Guide municipal (district, local and metropolitan) Integrated Development Plans and Spatial Development Frameworks and provincial and municipal Spatial Development Plans;
- Provide clear signals to the private sector about desired development directions;
- Increase predictability in the development environment, for example by establishing "no go", "maybe" and "go" areas for development; and,
- Redress the spatial legacy of apartheid.

According to the PSDF, development can only be acceptable and in the public interest if it is environmentally sustainable - that is ecologically justifiable, socially equitable as well as economically viable - and then in a hierarchical relationship where economic efficiency (prosperity) is underpinned by social equity (human capital), which in turn is underpinned by ecological integrity (ecological capital - or health of ecological systems). The PSDF emphasises that in the South African context, the aspect of social equity is of extreme relevance, as it emphasises the need to redress the wrongs of the past (social justice) as a central component of social sustainability.

The PSDF, and specifically the objectives and directives contained in it, are aimed precisely at providing such guidance, as applicable to the spatial development situation prevailing in the Western Cape at present.

Land use orientated objectives and developments are set out in Volume 2 ("Directives and Guidelines Report") of the PSDF. Nine key objectives and associated policy directives are contained in the Report. The following are of specific relevance to the proposed Caledon WEF:

Objective 5: Conserve and strengthen the sense of place of important landscapes

The PSDF notes the vital importance of tourism to the Provincial economy. It further notes that scenic routes and the adjacent countryside are memorable gateways to Cape Town and the Garden Route respectively; that urban development has already substantially detracted from their visual quality and that no further deterioration should be permitted.

The PSDF therefore stipulates that, with regard to the siting and design of future power lines and other visibly substantial infrastructural development, the relevant provincial guidelines should be followed, and proposals should include provision for environmental, visual and heritage impact assessments.

Two policy directives are of direct relevance the proposed WEF:

Transmission lines and wind farms

HR26 (...) transmission lines (...) should be aligned along existing and proposed transport corridors rather than along point to point cross-country routes. (Mandatory directive)

HR27 Wind farms should be located where they will cause least visual impact taking into consideration the viability of the project. (Guiding directive)

The PSDF notes that the current practice of following a shortest-distance approach to the siting of power lines raises issues of visual blight, unviable-shaped land parcels, the need for access roads and the degradation of cultural landscapes. The PSDF therefore stipulates that, where possible, future power lines should be aligned within existing and proposed combined road and/or rail linkage corridors.

Objective 9: Minimise Consumption of Scarce Environmental Resources

The PSDF notes that greenhouse gas emissions are partially responsible for global warming which is resulting in major negativities and even disasters in the short and medium term. In line with national government's Climate Change Response Strategy, the PSDF makes provisions for a strategy based on demand management and the development of renewable resources, such as solar and wind. With regard to renewable sources, the PSDF proposes that 25% of the Province's energy generation should consist of renewables by 2020. With regard to wind energy facilities, the PSDF notes that, if carefully sited and designed, turbines would not necessarily have a negative visual impact.

3.3.6 Regional Methodology for Wind Energy Site Selection (2007)

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 to the Western Cape 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 summarized 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. In this regard, it is accepted that the Cape West Coast (the study area and beyond to the north – indeed to the Orange River) will inevitably be attractive to wind energy developers due to the prevalence of coastal wind regimes. However, the importance of employing an effective cumulative impact model must be emphasised.

International Best Practice and Applicability to the Western Cape

- 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 have 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 in the Western Cape is the foundation of the tourism industry, 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 emphasizing 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. SA and the Western Cape do 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 has 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).

3.3.7 Guideline for the Management of Development on Mountains, Hills and Ridges in the Western Cape

The key aspects reflected in the Guidelines that have a potential bearing on the proposed WEF development are listed below:

The aim of the Guideline is to provide a decision-making framework with regard to developments which include listed activities in terms of National Environmental Management Act Regulations, and which are proposed in an environment which is characterised by mountains, hills and ridges.

The Guideline notes that mountains, hills and ridges are subject to a range of development pressures. A guiding framework is therefore needed to control development in these areas. Key reasons listed are:

- Provide catchment areas for valuable water resources;
- Often characterized by unique and sensitive ecosystems;
- Have aesthetic / scenic value; and
- Provide "wilderness" experience opportunities.

The Guideline defines a mountain, hill or ridge as "*a physical feature that is elevated above the surrounding landscape*".

The Guideline is divided into 2 sections. The second deals with key decision-making criteria which need to be taken into account when adjudicating the suitability of developments in such areas. Key criteria which are of specific relevance to the proposed WEF include:

- Development on the crest of a mountain, hill or ridge should be strongly discouraged;
- Preserve landform features through ensuring that the siting of facilities is related to environmental resilience and visual screening capabilities of the landscape;
- Adopt the precautionary principle to decision making;
- The criteria used to assess developments in these areas include, amongst others, density of the development, aesthetics, location, value in terms of "sense of place", character of adjacent land use, character of the general area, and cumulative impacts which may arise from other existing and planned developments in the area.

It should be noted here that the proposed WEF site is located in a landscape characterised by rolling hills in an agricultural setting.

3.4 LOCAL LEVEL DEVELOPMENTAL POLICY

3.4.1 Overberg District Municipality Strategic Development Framework (2004)

The Overberg DM SDF is based on a bioregional planning approach, which entails "the 'matching' of human settlement and land use patterns to the parameters of ecological systems, and the planning, design and development of the human-made environment within these parameters in a manner that ensures environmental sustainability" (Overberg SDF, Executive Summary).

In order to achieve the goal of sustainable development a number of objectives were identified to inform the spatial framework. These objectives are clustered into four interrelated categories, and are presented in Chapter 15 of the SDF document. Of these, the following are of specific relevance to this study:

Social sustainability

- Improve the quality of human life, including poverty elimination;
- Recognise the extent of cultural diversity and respond accordingly;
- Protect and promote human health through a healthy environment;
- Implement skills training and capacity enhancement for historically disadvantaged people.

Economic sustainability

- Ensure that projects combine into a financially viable local economy that benefits all stakeholders, including the community;
- **Promote employment creation** and, where practically possible, labour intensive construction;

Biophysical sustainability

- Minimise use of the four generic resources, namely energy, water, land and materials;
- **Use renewable resources in preference to non-renewable resources;**

- Minimise damage to sensitive landscapes, including **scenic**, cultural, historical, and architectural aspects.

Technical sustainability

- **Construct durable, reliable and functional structures;**
- Use serviceability to promote sustainable construction" (Overberg SDF Main Report, 2004).

The SDF recommends the creation of a system of protected nature area systems, which are to include statutory conservation areas, linking corridors, land rehabilitation areas and priority conservation areas (e.g. highly irreplaceable plant communities/habitats). The SDF also recommends formal support for the establishment of conservancies in the Overberg as a strategy to promote sustainable land-use and biodiversity conservation outside of statutory protected areas.

On a second level of approach, the SDF strives to address key issues for the Overberg that has been identified within the framework of the region's Integrated Development Programme (IDP) process. Of the 22 key issues, the following are of specific relevance to this study:

- Electricity supply;
- Strategy for regional development;
- Training and empowerment to promote economic and human development.

The SDF identifies agriculture as the main contributor to GDP in the region, and the provider of most employment opportunities (both primary and secondary sectors). The preservation of the productive integrity of agricultural land is therefore identified as of utmost importance. The SDF also identifies tourism as one of the major growth industries in the Overberg region. Minimizing visual impacts, protecting scenic areas and preserving the integrity of historic settlements are identified as important points to consider with regard to all new development applications in these areas.

3.4.2 Overstrand Local Municipality 2011/2012 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. The most recent Overstrand IDP appears to have been approved for the financial year 2009/2010. A Draft IDP for 2011/2012 is in the process of being finalized and will include a review of the 2006-2011 IDP cycle. The following key aspects are of specific relevance to the proposed WEF and local (i.e. receiving) context:

The developmental policy contained in the OLM IDP is underpinned by the national Strategic Plan for Local Government 2006-2011⁴, the Western 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 OLM 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 Walker Bay WEF, the IDP notes that in terms of its Local Economic Development strategy, "*The integration of sustainable principles and practices will bring in credibility to the work of the Overstrand as it is aimed at preserving the natural beauty and environment for the use and enjoyment of the future generation. Examples of such practices will include but not limited to – **carbon credits, alternative energy** and sustainable living.*" (OLM Draft 2011/12 IDP).

⁴ 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.

SECTION 4: IDENTIFICATION OF KEY ISSUES

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 Western 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 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 a national, provincial and local level.

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 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.

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.
- Creation of opportunities to local business (OLM 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 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 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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