

Arcus GIBB (PTY) LTD

**Environmental Impact Assessment for the Establishment
of the Caledon Wind Farm, Western Cape Province**

**Environmental Scoping Report
Social Impact Assessment Study**

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Environmental Impact Assessment for the Establishment of the Caledon Wind Farm, Western Cape Province: Social Scoping Report

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ABBREVIATIONS

DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)
EIA	Environmental Impact Assessment
IDP	Integrated Development Plan
kVA	Kilovolt Ampères
LM	Local Municipality
MW	Megawatt
NEMA	National Environmental Management Act
ODM	Overberg District Municipality
PSDF	Provincial Spatial Development Framework (Western Cape)
SIA	Social Impact Assessment
WEF	Wind Energy Facility

EXECUTIVE SUMMARY

Tony Barbour Environmental Consultants were appointed by Arcus GIBB to undertake a specialist Social Impact Assessment (SIA) as part of the EIA process. This report contains the findings of the initial scoping level social assessment undertaken as part of the EIA process. The scoping study was based on a review of desktop sources only. These included the development proposal, key policy documents, as well as contextual and demographic sources such as the 2001 Census. The authors further drew on personal experience of the study area and EIAs for other wind farm developments in the Western Cape.

Genesis Wind is proposing the construction of a 150 turbine, 300 MW Wind Energy Facility (WEF) in the Theewaterskloof Municipality of the Western Cape. The proposed site is located between the two towns of Botrivier and Caledon. The Theewaterskloof is essentially a rural area with a sparse settlement pattern. Poverty levels and unemployment levels are high, and education and skills levels low. High levels of economically motivated in-migration currently pose a significant developmental challenge to the Municipality. The local economy is growing at a relatively slow pace (3.5% p.a.), and achieving financial viability has been identified as the key immediate challenge facing the Municipality. Agriculture forms the traditional economic backbone of the area. Tourism is currently promoted as a significant diversification strategy. The development of light industry, specifically including renewable energy generation, has been identified as a key economic driver strategy.

The findings of a review of the relevant policy documents pertaining to the energy sector indicate that wind energy and the establishment of wind energy facilities are supported at national, provincial and local levels. Identified potential social impacts associated with the proposed Caledon WEF during the construction phase are mainly related the transport of heavy components along local roads (potential road surface degradation) and the presence of construction workers in the area. The management of construction labour – both with regard to recruitment and the adequate management of on-site construction teams – has further been identified as of crucial importance.

Potential operational issues mainly relate to potential adverse impacts on the visual/ scenic integrity of the landscape and associated scenic routes (R406, R43), visual impacts on adjacent properties, and potential adverse impacts on the productivity of local farms (compromised diversification into agri-tourism; loss of productive land). Potentially adverse operational impacts are essentially limited to the turbines, as it is envisaged that existing Eskom transmission lines across the proposed WEF site will be used to feed generated energy into the Eskom grid.

The investigation and assessment of social impacts during the EIA phase will be guided by the Guidelines for specialist SIA input into EIAs adopted by DEA&DP in the Western Cape. This approach will include:

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

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

- The establishment of wind energy facilities are supported at national, provincial and local levels;
- The proposed WEF site appears to be compatible with the spatial development vision of the Theewaterskloof LM;
- Key potential construction phase issues for further investigation during the EIA phase relate to the recruitment and on-site management of construction labour and the management of impacts on local roads;
- Key potential operational phase issues relate to the potential negative impacts on the scenic integrity (visual) of the landscape, and on potential losses in agricultural productivity.

1 INTRODUCTION

1.1 Background

Arcus GIBB Engineering and Science (“Arcus GIBB”) have been commissioned as lead consultants by Genesis Wind, the appointed project managers, to undertake an Environmental Impact Assessment (EIA) process in terms of applicable environmental legislation (viz. NEMA Reg. 386 of 2006) with regards to the proposed establishment of a 300 MW wind energy facility (WEF) and associated infrastructure, on a site comprised of a number of farms located in the vicinity of the towns of Caledon and Botrivier, in the Western Cape Province, South Africa (Figure 1.1).

Tony Barbour Environmental Consultants were appointed by Arcus GIBB to undertake a specialist Social Impact Assessment (SIA) as part of the EIA process. The terms of reference for the study include a scoping level assessment to identify key social issues that would need to be addressed in depth as part of the EIA. This report contains the findings of the initial scoping level social assessment undertaken as part of the EIA process.

1.1.1 Terms of Reference

The terms of reference for the Scoping Report Assessment require:

- A description of the environment which may be affected by the proposed activities;
- A description of the manner in which the relevant environment may be affected by the proposed activities;
- An identification of potentially significant social issues with regards to the proposed activities;
- A description of the approach proposed for investigating and assessing potentially significant social issues during the EIA phase.

1.1.2 Study area location

Genesis Wind has identified the potential to establish a new WEF on a site comprised of 16 farms (consisting of 24 cadastral units in total) in a rural area situated to the north of the National road 2 (N2), and more or less equidistant from the towns of Caledon and Botrivier in the Theewaterskloof Local Municipality (LM) of the Western Cape Province. The general area is traditionally used for the cultivation of wheat and the raising of mainly small stock (sheep).

The relevant farms are: Riet Fontein 259\ 0; Warmoeskraal 259\ 1; Oude Kraal 262\ 0; Lang Road 236\ 3; Riet Fontein 259\ 7; Oude Kraal 262\ 1; Oude Kraal 262\ 2; Warmoeskraal 263\ 1; Paarde Valley 266\ 2; Farm 744\ 0; Rietfontein 260\ 0; De Vleytjies 261\ 0; Warmoeskraal 263\ 0; Farm 259\ 9; Riet Fontein 259\ 3; Physante Kraal 122\ 12.

These farms constitute a contiguous, polygon-shaped area, measuring approximately 17 km across north to south, and approximately 17 km across east to west at its furthest points. It is understood that lease agreements have been concluded between the proponent and the relevant farm owners with regard to the potential use of the land for siting a WEF.

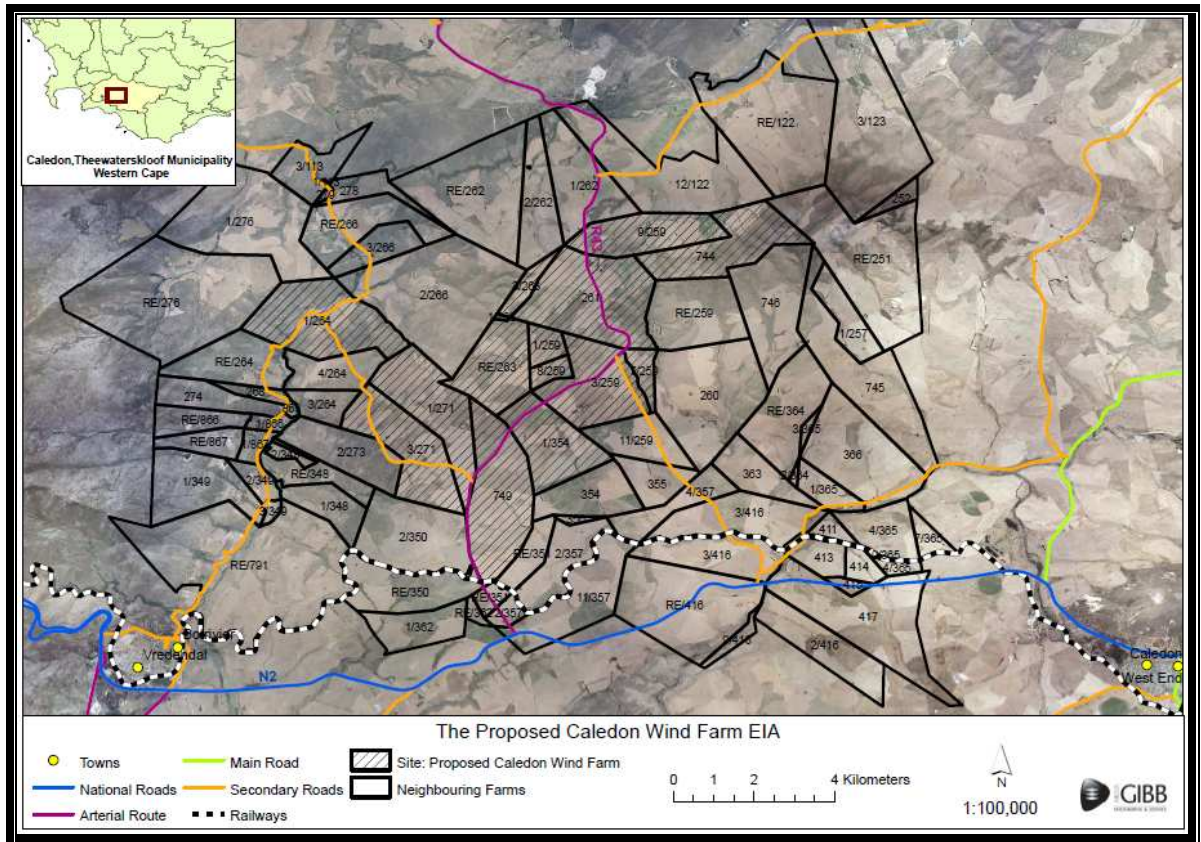


Figure 1.1: Location of proposed wind energy facility

1.1.3 Project description

Development of a facility consisting of a total of 150 x 2 MW wind turbines with a total generation capacity of 300 MW is proposed. It is proposed that the project will be phased into six phases, each phase consisting of 25 turbines yielding a generation capacity of 50 MW. At this stage it is unclear whether the six phases will be developed concurrently or sequentially. Layout alternatives for each of the six phases will be developed once detailed wind data analysis (currently being undertaken) has been concluded. The layout alternatives will pertain to specific footprint alternatives within the larger site, as well as layout design models comprising either clustering or linear placement of the relevant turbines for each site. The layout alternatives will be made available to all relevant project specialists for assessment during the EIA phase.

Key specifications for the 2MW turbines are the following:

- A 70-78m high tower with a hub height of approximately 80m;
- A diameter rotor of approximately 80 m, consisting of 3 x 40 m turbine blades;
- A circular concrete foundation of approximately 17 m for each turbine.

Based on information for other wind energy facilities the basic infrastructure associated with the establishment of the proposed wind energy facility would include:

- A substation that would need to be linked to each wind turbine via underground distribution cables. The proposed location and required footprint is currently being finalised, and will be assessed during the EIA phase;
- An access road to the site from the main road/s within the area. In the case of the relevant site, access is likely to be from the R43 (N2-Villiersdorp). The site is relatively extensive, and additional access roads may be required off existing public gravel roads, one each off the N2 and the R406 (N2 to Genadendal/ Greyton);
- Internal roads linking the wind turbines to one another, as well as each of the six phases to one another and to the substation;
- An overhead 132 kV distribution line that will link the WEF to the Eskom electricity distribution grid. In that regard, the westernmost portion of the proposed site is currently traversed by two existing Eskom lines, namely one 132 kVa and one 400 kVa. These lines provide a link with the Bacchus substation located south-west of Worcester.

It is proposed that the constituent turbine components will be transported by road from temporary storage on a farm located to the west of Caledon to the site. At this stage it is unclear whether the relevant components will be delivered by road or rail to the relevant farm.

1.2 Scope and Limitations

This Scoping Report is based on a review of desktop sources only.

A description of the proposed WEF and relevant site is based on information as had been made available by Arcus GIBB. These consisted of a Background Information Document, as well as a number of maps and figures of the study area.

Overview descriptions of the study area and the demographic profile of potentially affected communities have been derived from Census 2001, Integrated Development Plan (IDP) documents for the relevant municipality (Theewaterskloof), as well as from information contained in the 2007 Western Cape Provincial Treasury document entitled “Socio-Economic Profile: Overberg District”.

In addition, key national, provincial and local level policy and planning documents have been reviewed.

1.2.1 Assumptions

Site selection process

It is assumed that the identification of the proposed site was informed by the criteria-based methodology that was proposed in the 2006 Regional Methodology for Wind Energy Site Selection (Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)), as well as information available regarding local climatic and environmental conditions within the Western Cape.

Strategic importance of the project and no-go option

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

Technical suitability

It is assumed that the proposed site represents a technically suitable site for the establishment of a WEF.

Consultation with affected communities

As noted, this Report is based on a desktop review only. As such, potentially affected communities, relevant local officials, potentially affected landowners and other potentially relevant interest groups have not been consulted with yet. However, from having worked on other wind energy projects in the Western Cape (Darling; Koekenaap; Hopefield); the authors are of the opinion that potentially significant issues for the proposed Caledon WEF will be comparable. Detailed consultation will be undertaken during the assessment component of the SIA.

1.2.2 Limitations

Project description

At the time the study was compiled, the only available project description was the broad description contained in the Background Information Document.

Demographic data

The demographic data used in the study is largely based on the 2001 Census. While this data does provide useful information on the demographic profile of the affected area, the data is dated and should be treated with caution. More up to date information will be sourced from key officials and community members when fieldwork is conducted during the EIA phase.

1.3 Methodology

The approach to the study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment. In this regard the study involved:

- Review of demographic data from the 2001 Census Survey;
- Review of socio-economic information on the Theewaterskloof Municipality, as compiled by the Provincial Treasury in 2007;
- Review of relevant planning and policy frameworks for the area, specifically for the Theewaterskloof Municipality;
- Review of information from similar studies, including the Darling, Umoya Hopfield, and Eskom West Coast Wind Energy Facility EIAs;
- Literature review of social issues associated with wind energy facilities.

The identification of potential social issues associated with proposed wind energy facility is based on observations during the project site visit, review of relevant documentation, experience with similar projects and the area. Section 6 contains a list of the secondary information reviewed.

1.3.1 Study Area Sensitivity Analysis

The identification of potentially significant social issues, for further investigation and assessment during the EIA phase, was based on consideration of the potential impacts of the proposed activities in relation to the following key receptors:

- Level of fit with national and provincial energy policy context.
- Level of fit with planning and policy provisions for the relevant area; specifically with the developmental objectives of the Theewaterskloof LM;
- Level of addressing/ compromising the needs of socially vulnerable groups, including historically disadvantaged communities and the rural poor in the area around the proposed site;
- Level of reinforcing/ compromising existing livelihood strategies of potentially affected landowners and associated employees;
- Level of reinforcing/ compromising existing enjoyment of property and potential for diversifying economic strategies with regard to potentially affected land owners, specifically with regard to potential adverse visual impacts;
- Level of reinforcing/ compromising the integrity of connectivity links in the general area across and around the site, and specifically local area roads during the construction phase and as a result of construction phase impacts;
- Level of reinforcing/ compromising existing and potential scenic and tourism value of the site within the local, regional and provincial resource contexts, specifically with regard to visual impacts.

A sensitivity typology, based on the relationship between potential impacts and key receptors, is presented in Table 1.1 on the next page.

Table 1.1: Social Study Scoping Sensitivity analysis

	Description
Lower Sensitivity	Adverse impacts with regard to key receptors unlikely/ of low magnitude/ local extent/ short duration and generally reversible or avoidable with the implementation of appropriate mitigation measures
Medium Sensitivity	Adverse impacts with regard to key receptors likely, but of moderate to high magnitude/ spatially extensive/ medium to long term duration, but may be reversed or avoided through the implementation of appropriate mitigation measures
Higher Sensitivity	Adverse impacts with regard to key receptors likely/ of high magnitude/ spatially extensive/ long duration and may be irreversible/ unavoidable despite mitigation measures

2 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section provides an overview of:

- The study area context;
 - The policy and planning environment affecting the proposed wind energy facility (WEF);
 - The relevant socio-economic environment.
-

2.1 Study area context

The study area is located in the western portion of the region of the Western Cape traditionally known as the Overberg. The term “Overberg” historically referred to the inland region to the east of the Hottentots-Holland Mountains (and thus “across the mountain” relative to Cape Town). Today the term is most commonly used to refer to the region circumscribed by the Hottentots-Holland Mountains to the west, the Langeberg range to the north, the lower Breede River to the east, and the Atlantic Ocean to the south. The interior Overberg is traditionally a farming area. Sheep farming and the cultivation of cereal crops have traditionally been dominant. In more recent times, the area has also become established as a major producer of canola (oil seed crop).

The Overberg is bisected by the east-west running N2. The N2 provides a link between the City of Cape Town to the west, and the scenic Garden Route (Mossel Bay and beyond) to the east. The Garden Route is an established tourist route of major significance. Although not forming part of the Garden Route, tourism has become established as a major industry in the Overberg, often as an economic diversification strategy to agriculture.

In that regard, the proposed site is traversed by the R43 linking the N2 with the scenic area of Villiersdorp and the Franschhoek Valley (Photograph 2.1). In addition, the R406 runs approximately 2.5 km to the east of the site. The R406 intersects with the N2 at locations approximately 40 km apart, respectively to the west and east of Caledon, describing an arc, at the apex of which are located the touristically important settlements of Greyton and Genadendal (Photograph 2.2). Due to the road’s alignment, the section of the road passing close to the proposed site carries the bulk of primary traffic from the City of Cape Town, as well as a significant portion of additional traffic accessing the towns from the east and then progressing onto Cape Town in the west. The section of the R406 passing along the WEF may therefore be described as of considerable scenic significance. This importance is further reinforced by the fact that tourism constitutes a key asset to the relatively isolated and historically disadvantaged Genadendal community. Genadendal is located approximately 20 km (linear) from the WEF site.

The landscape comprising the relevant part of the Overberg in which the study area is located consists of gently undulating hills against the backdrop of distant mountains in all directions. The Theewaterskloof dam is located approximately 3 km north of the northern most point of the proposed site, beyond the intervening Eseljagberg. The scenic fruit growing area around Elgin and Grabouw is located approximately 10 km due west of the site, also screened from the site by the intervening mountains. The Overberg is relatively sparsely settled. The nearest town to the proposed site is the small town of Botrivier, located approximately 1 km to the south of the western extremity of the site. The larger and regionally more significant town of Caledon is located approximately 3 km to the east of the south-easternmost extremity of the site.



Photograph 2.1: View from R43 between Villiersdorp and N2, looking east towards Caledon



Photograph 2.2: View looking north from R 406 that links the N2 with Genadendal and Greyton. The site is located west of R 406

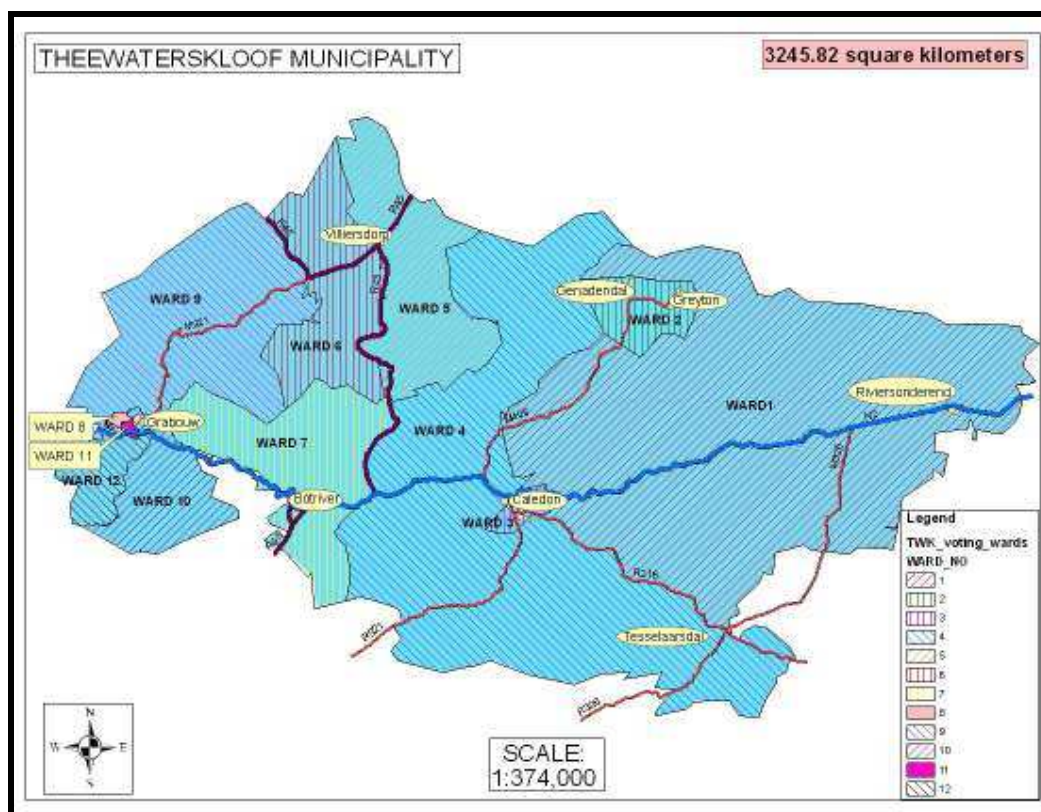
2.1.1 Administrative context

In administrative terms, the proposed site is located within the Theewaterskloof Local Municipality (LM), which, in turn, is one of four LMs that make up the Overberg District Municipality (ODM). The administrative headquarters of the ODM are located in Bredasdorp. The remaining three LMs are comprised by the Cape Agulhas LM (Bredasdorp), Swellendam LM (Swellendam) and Overstrand LM (Hermanus).

The Theewaterskloof LM is comprised of 12 wards. The site proposed for the WEF straddles Wards 4 and 7.

The Theewaterskloof LM is the largest of the four municipalities constituting the ODM, both in terms of geographical size as well as population. It covers approximately 3 248.3 km², and was estimated to have a population of 103 281¹ in 2007 (43.5% of the ODM's population) (Provincial Treasury, 2007).

Figure 2.1. Overview of the Theewaterskloof Municipality



Source: *Theewaterskloof 2009 IDP Revision*

The most recent available data indicates that the Theewaterskloof's economy accounted for 40.6% (R1.47 billion) of the ODM's GDP in 2005, and 0.98% of that of the Province. Of the

¹ This figure is disputed in the Theewaterskloof 2009 IDP. The Theewaterskloof LM's own estimate for 2007 is around 135 000 people. This higher figure is based on what is perceived to be significant and continuous in-migration into the fruit-growing areas around Grabouw and Villiersdorp.

four constituent LMs in the ODM, it had the slowest recorded growth rate in the period 2004-2005 (viz. 3.4%). Agriculture has traditionally been, and continues to be, the main provider of employment opportunities and contributor to GDP in the Theewaterskloof. The LM's economy is essentially built on agriculture, agri-processing and tourism (Provincial Treasury, 2007). Tourism is strongly linked to the agricultural sector, primarily with regard to the scenic landscapes associated with its main agricultural activities (e.g. picturesque orchards in the Grabouw valley and around Villiersdorp; rolling wheat and canola fields and pastoral scenes associated with small stock grazing in for instance the area between Caledon and Botrivier).

With the exception of land use associated with the fruit producing area around Grabouw in the LM's extreme west, the settlement pattern is relatively sparse, and is mainly comprised of open space, farms and smallholdings. Of the entire municipal area (3 248.3 km² = 324 830 ha), only 3 246 ha (=1%) is constituted by demarcated urban land use. Caledon constitutes the largest town in the study area, and is of regional significance as service centre to the surrounding hinterland. Other urban settlements in the LM include Botrivier, Riviersonderend, Greyton, Genadendal and Villiersdorp.

2.2 Policy context

Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported. However, the study recognises the strategic importance of wind energy and the technical, spatial and land use constraints required for wind energy facilities.

For the purposes of the meeting the objectives of the SIA the following policy and planning documents were reviewed, namely:

- The White Paper on the Energy Policy of the Republic of South Africa (December 1998);
- Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape. Towards a Regional Methodology for Wind Energy Site Selection (May 2006);
- Draft Western Cape Integrated Energy Strategy. Provincial Government Western Cape Department of Environmental Affairs and Development Planning (January 2007);
- The Growth Potential of Towns in the Western Cape (2004);
- The Western Cape Provincial Spatial Development Framework (2009);
- The Theewaterskloof Municipality Integrated Development Plan (IDP) (2006-2011).

2.2.1 Policy for the Republic of South Africa (1998)

Investment in renewable energy initiatives, such as the proposed wind energy facility, is supported by the White Paper on Energy Policy for South Africa (December 2006). In this regard the document notes:

“Government policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential”.

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

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

Government policy on renewable energy is thus concerned with meeting the following challenges:

- Ensuring that economically feasible technologies and applications are implemented;
- Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options; and,
- Addressing constraints on the development of the renewable industry.

The White Paper also acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country's renewable energy resource base is extensive and many appropriate applications exist.

The White Paper also notes that renewable energy applications have specific characteristics that need to be considered. Advantages include:

- Minimal environmental impacts in operation in comparison with traditional supply technologies;
- Generally lower running costs, and high labour intensities.

Disadvantages include:

- Higher capital costs in some cases;
- Lower energy densities; and;
- Lower levels of availability, depending on specific conditions, especially with sun and wind based systems.

2.2.2 Draft Western Cape Integrated Energy Strategy (2006)

The strategy document notes that due to the recent energy crisis in the Western Cape, the process of introducing a renewable energy policy, strategy and programme of action has been fast-tracked. It is believed that this is necessary to ensure that measures to reduce energy consumption and increase the supply of clean, renewable energy can be taken as soon as possible.

The document outlines the key energy concerns and opportunities facing the Western Cape and proposes a range of policies, strategies and actions that will allow the Province to develop a sustainable portfolio of energy solutions while also reducing pollution and increasing access to energy for all citizens in the Province.

In terms of energy supply the Western Cape buys most of its electricity from Eskom, much of which comes from coal generated energy plants elsewhere in the country (predominantly from Mpumalanga). However, a portion of the provinces electricity is generated locally, including energy from the Koeberg Nuclear Power Plant, the Acacia Gas Turbines, the Ankerlig OCGT Power Station, the Palmiet Pumped Storage Facility and the Klipheuvel Demonstration Wind Farm. The City of Cape Town also produces a small amount of

electricity through the Steenbras Pumped Storage facility and local Gas turbines. Although Eskom has line strengthening plans in place to help secure electricity for the Western Cape, there are a range of other options that may be preferable, including diversifying the supply mix and broadening the energy generation options. The document goes on to list the potential opportunities for increasing supply, including wind energy. In this regard the document states that the wind energy potential in the Western Cape is high (3 000 MW). The potential advantages associated with wind include:

- Technology & capital costs are reducing rapidly;
- Low maintenance;
- Clean energy option;
- Can be quickly installed in areas needing new supply.

In terms of recommendations the Provincial Government of the Western Cape is committed to energy efficiency and renewable energy, and to reducing the Province's carbon footprint and eradicating energy poverty. In order to achieve this vision, the PGWC will:

- Support an approach to energy planning, which takes into account environmental, social and economic considerations.
- Support research and development around renewable energy and energy efficiency technologies.

2.2.3 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 emphasising urban locations for wind energy development.

Recommended Disturbed Landscape Focus

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

Landscape Assessment: Subjective / Qualitative

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

Bird Migration Routes and Other Information

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

Protecting Rural Landscape Values (put after "Urban Emphasis)

In the assessment of suitable sites for wind turbines, in Europe, a great degree of emphasis is given to quantifying views from residential locations. This policy emphasis has had the impact of effectively pushing these projects into more "remote" rural locations where a qualitative analysis can show that, in relative terms, only a small minority of people resident in a particular area will see the turbines. A specific finding of the study was that in the SA context this policy was flawed in that 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).

2.2.4 Western Cape Provincial Spatial Development Plan (2009)

The Western Cape Provincial Spatial Development Framework (PSDF) was approved as a structure plan in terms of 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.

2.2.5 Theewaterskloof Municipality Integrated Development Plan (2009/2010 Revision)

The Municipal Systems Act (Act 32 of 2000) requires of each Municipality to compile an Integrated Development Plan (IDP) for its relevant 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 provided the IDP is not in conflict with national or provincial legislation. In addition, the IDP needs to be aligned with, and give local level expression to key developmental policies formulated at national and provincial levels, inclusive of associated developmental goals and targets.

The Act requires the drafting of a 5-year planning period IDP, as well as for subsequent annual reviews. The Theewaterskloof LM's s current five-year IDP came into effect in 2007.

The 2009/ 2010 Revision document was drafted within the policy context set out in the five-year IDP in order to serve as the strategic annual plan for the 2009-2010 financial year, and review the 5-year IDP strategy in relation to changes in the implementation environment. A summary of this Revision (further referred to as the “2009 IDP”) is provided below. Focus is on aspects of relevance to the Caledon WEF proposal.

Vision statement

The vision statement for the 2007-2011 IDP cycle is:

A prosperous economy which sustains the natural environment and agricultural character of the area; creates opportunities and meets the needs of all residents; and enables a financially viable Municipality.

Key challenges

The 2009 IDP specifically emphasises the aspect of financial viability as an immediate strategic focus and objective. During the 2007/2008 financial year, only 58% of the annual budget was recovered. This is linked to a number of factors, most importantly; relatively slow economic growth, generally low household income levels, and the influx of indigent households into the LM. At present, the LM is not able to fulfil its service delivery and other obligations satisfactorily.

The IDP notes that initial modelling suggests the local economy would need to grow by at least 5% per annum (current growth is at 3.5%) for the Municipality to be in a position to service the loans and remain financially viable in 2016. A similar growth rate is needed to halve unemployment.

Specific key challenges facing the LM are identified as:

- Large and sustained in-migration of specifically Black Africans into the LM. The majority of migrants have low skills levels and are in search of employment in the Agricultural sector, mainly into the fruit growing areas around Grabouw and Villiersdorp. The sector's ability to provide employment opportunities has however been largely saturated.
- Provision of subsidized housing remains the biggest project and challenge for the municipality. The population growth due to the influx of migrant labour and the subsequent demand for housing has a tremendous impact on the demand for land, and informal settlements are associated with all the major urban areas. The estimated low-cost housing waiting list is currently estimated at 11 883 – 1 495 for Caledon, and 504 for Botrivier. The control of informal settlements has been identified as a critical priority for both Wards 4 and 7;
- Difficult service provision conditions and negative feedback impacts on economic development. Service provision is hampered by slow economic growth, the extensiveness of the LM, excessive poverty amongst the ratepayer base, and the growth of indigence as a result of in-migration. In turn, constraints in the bulk services infrastructure capacity currently poses one of the largest obstacles to economic growth, especially in Caledon and Grabouw, and one of the biggest barriers to the retention of disposable income in the local economy.
- A very high unemployment rate. The official unemployment rate (using the broader definition) is estimated at just under 40%. Local estimates of out-of-season unemployment are even higher.
- Generally low literacy and skills levels, with extensive prevalence of functional illiteracy. The IDP notes that businesses are increasingly looking for higher skilled people, and that developing the human capital base will be critical to turning the economy around.

- Extensive poverty within the LM. 20% of households were registered as indigent in 2009. Large disparities between the first and second economies exist.
- Difficulties facing the key agricultural sector. These are associated with high input costs, amongst others as a result of the high level of imports into the local economy such as packaging materials, fertiliser and supplies.
- Steep increases in drug related crime. Figures for 2007 indicate that drug related crime accounted for significantly more cases than either theft or burglary. Drug related crime has been identified as a specific area of concern within the Municipal Area.

Key immediate developmental objectives

The overarching objective of the LM is to become financially viable without compromising sustainability. Key short term goals include:

- Increasing the local GDP to 5%;
- Increasing employment, with a target of 80% of households earning an income and at least half of these earning above the indigent level.

Growth strategy

The proposed economic turn-around strategy for the LM is underpinned by the principles of sustainability and the development of human capital, and is based on the pursuit of 3 main economic thrusts :

- Retaining and growing the existing agricultural and agri-processing sectors. These sectors form the current backbone of the economy, and need to be retained as valuable contributors to employment and GDP;
- Development and growth of niche tourism, focusing specifically on markets in the outdoor adventure and agri-tourism niches. The development of a Theewaterskloof Scenic Route is proposed as a key strategy;
- Incentivising and innovating light industrial development. This is seen as the growth driver of the economy. This thrust is aimed at providing the base to attract new investment, innovation and diversification to the economy. Identified key focus areas include value adding to agricultural produce and development of the **renewable energy** sector.

Spatial developmental vision

The 2009 IDP notes that the 2006 Theewaterskloof SDF is currently in the process of being fundamentally redrafted, specifically in order to rectify a number of shortcomings, related to inadequate provision for urban growth, alignment with local economic development objectives and to include a land use survey with regard to heritage resources. The lack of a clear spatial growth strategy has been identified as a major constraint to economic growth within the LM.

Of specific relevance to the proposed WEF, the new SDF will be aligned to the following two existing spatial policy objectives:

Development of a growth corridor along the N2 with Grabouw as the priority node for residential and business activity supported by Caledon as a secondary residential node and Botriver as a secondary industrial/ business node.

Botrivier as a future site for light industrial expansion. The IDP notes that alternative technologies and associated opportunities are being explored by the Municipality, in conjunction with stakeholders. In that regard, the potential development of a **wind farm** (i.e.

the proposed Caledon WEF) is specifically mentioned. The Municipality's role in this regard is defined as that of enabler, facilitator and regulator of economic development.

2.3 Demographic overview of potentially affected communities

The proposed site comprises quite an extensive area. It is located in a rural area, traditionally used for sheep raising and wheat cultivation. The nearest town to the proposed site is the small town of Botrivier, located approximately 1 km to the south of the western extremity of the site. The larger and regionally more significant town of Caledon is located approximately 3 km to the east of the south-easternmost extremity of the site. Presentation below focuses on these two towns.

According to Census data, the total population of Botrivier was 4 052, and that of Caledon 10 647 in 2001. The majority of inhabitants in both towns were Coloured (79% and 68% respectively). In absolute terms, the White population group was the second most numerous in the study area, although it was of less relative importance than the Black group in the smaller town of Botrivier. Afrikaans is traditionally spoken by the Coloured and White communities as first language, and is the dominant language in both towns.

Table 2.1: Population for Botrivier and Caledon

Population Group	Botrivier		Caledon	
	Number	%	Number	%
Black African	564	14	648	6
Coloured	3 202	79	7 204	68
Indian or Asian	9	<1	33	<1
White	277	7	2 762	26
Total	4 052	100	10 647	100

Source: Census 2001

As may be seen in Table 2.2 below, Census 2001 indicated that the dependency ratio² for Botrivier was 47.5, and that for Caledon 45.3. Of significance, more than a quarter of the population of both towns was younger than 15 years. As a result, there is a strong youthful component to the dependency ratio, and consequently a large need for educational facilities, especially within the Coloured and African population groups.

² The dependency ratio is calculated as the number of 0 to 14-year olds, plus the number of 65-year olds and older (i.e. sum of people to young and too old to work), divided by the number of people in the 15 to 64-year (i.e. working age) cohort, times 100. This provides a rough indication of dependency in a community, but does not account for working age adults not participating in the economy, or for household income derived from pensions. A value of 100 theoretically indicates one person of working age to every person of depending age; a value of 50 two to one, one of 33 three to one, etc. Thus, the lower the value, the greater the number of potential providers to probable dependents.

Table 2.2: Botrivier and Caledon Age distribution

Age Group	Botrivier %	Caledon %
0-4	8.9	7.4
5-9	9.2	8.6
10-14	8.5	9.6
[Youthful dependents]	[26.6]	[25.6]
15-19	9.4	11.2
20-24	9.2	8
25-29	8.9	8.4
30-34	8	9
35-39	8	8.4
40-44	7.4	7.3
45-49	5.3	5.4
50-54	4.1	4.6
55-59	3.8	3.5
60-64	3	2.7
65-69	2	2
70-74	2	1.6
75-79	1	1
80 and over	0.6	1

Source: Census 2001

As seen in Table 2.3 below, according to Census data, approximately 23.3% of the population of Botrivier aged 15 and older was estimated to be functionally illiterate/innumerate. The relevant percentage for Caledon was somewhat lower, namely 18.4%. Given the strong correlation between education and skills levels, it may be assumed that a significant portion of the study area's working age population have only sufficient skills for elementary jobs.

Table 2.3: Botrivier and Caledon education levels (population 15 years and older)

Description	Botrivier %	Caledon %
No schooling	4.8	3.6
Some primary	18.5	14.8
[% functional illiteracy/ innumeracy] ³	[23.3%]	[18.4%]
Complete primary	12	8.3
Some secondary	43.2	42.3
Std 10/Grade 12	16	23.2
Higher	5.5	7.8

Source: Census 2001

³ In the South African context, having obtained a primary qualification (i.e. having successfully passed Grade 7) is generally held as the absolute minimum requirement for functional literacy/ numeracy. The National Department of Education's ABET (Adult Basic Education and Training) programme provides education and training up to the equivalent of Grade 9. In this more onerous definition, Grade 9 is required as the minimum qualification for having obtained a basic education (www.abet.co.za).

The employment statistics presented in Table 2.4 below indicate that in 2001 50% of the Botrivier population was employed, and 52.5% of that of Caledon. Botrivier had a significantly higher unemployment rate (viz. 17.5%) than Caledon (10%). The recorded unemployment rate of Botrivier was comparable with the Provincial average for 2001 (viz. 17%), while that for Caledon more than twice as low. As a result of rationalisation in the provincial agricultural sector during the past decade, and in the light of the current global economic downturn, current unemployment rate is likely to be significantly higher.

Table 2.4: Botrivier and Caledon Employment levels (15 – 64 year age group)

Description	Botrivier %	Caledon %
Employed ⁴	50	52.5
Unemployed	17.5	10
Not Economically Active ⁵	32.5	37.5

Source: Census 2001

Census data for 2001, presented in Table 2.5 below, indicated that a significant portion of households in the relevant towns were living below the R1 600/ month minimum subsistence level. In that regard, the breadwinners of 45.9% of Botrivier households, and 34.9% of Caledon households had no access to formal income, or earned less than R1 600/ month.

Table 2.5: Household income (by head of household)

Income per month	Botrivier %	Caledon %
No formal income	10.4	7.8
R 1 – R 400	1.9	2.8
R 401 – R 800	14.2	9.9
R 801 - R 1 600	19.4	14.4
[% households below minimum subsistence level]	[45.9]	[34.9]
R1 601 - R 3 200	25.9	21.9
R 3 201 – R 6 400	18.3	20.6
R 6 401 – R 12 800	7.5	14.6
R 12 801 – R 25 600	1.6	6
R 25 601 and higher	0.8	2

Source: Census 2001

Table 2.6. below provides an overview of proportional employment per economic sector by head of household for the relevant towns. As may be seen, the profiles for Botrivier and Caledon are very dissimilar. Specifically, employment in the primary agricultural sector was the most significant for Botrivier (27.4%), followed by wholesale and retail trade (26.3%). Together, more than 50% of all household heads were employed in either of the two sectors. Manufacturing (14.9%) and Service-related activities (14.8%) constituted other significant sectors. This profile is closely related to Botrivier's rural setting, its function as agricultural

⁴ Census 2001 official definition of an unemployed person: "A person between the ages of 15 and 65 with responses as follows: 'No, did not have work'; 'Could not find work'; 'Have taken active steps to find employment'; 'Could start within one week, if offered work'." (www.statssa.gov.za).

⁵ The term "not economically active" refers to people of working age not actively participating in the economy, such as early retirees, students, the disabled and home-makers.

service center, and the processing of agricultural produce. Caledon's function as seat of the Theewaterskloof LM is reflected by the primacy of Service-related activities (31.3%). Retail and wholesale trade (20.9%) also accounted for a significant proportion of employment. Surprisingly, primary agriculture (6.8%) and manufacturing (10.2%) played relatively minor roles. Nevertheless, the importance of the agricultural sector to the local economy should not be underestimated, as the town, as regional service centre, to a large extent caters for the retail and services needs of its rural hinterland.

Table 2.6: Sectoral contribution to employment

Description	Botrivier %	Caledon %
Agriculture, hunting, forestry and fishing	27.4	6.8
Mining and quarrying	0.3	0.2
Manufacturing	14.9	7.3
Electricity, gas and water supply	0.8	1.7
Construction	8	10.2
Wholesale and retail trade	26.3	20.9
Transport, Storage and communication	2.6	3.6
Fin., real estate and bus. Services	2.9	9
Community, social and personal services	14.8	31.3
Other and not adequately defined	-	-
Private households ⁶	2.1	9.1

Source: Derived from Census 2001

2.3.1 Growth potential of the towns in the vicinity of the proposed WEF site

A study (Centre for Geographical Research, 2004) of the growth potential of the towns in the Western Cape was commissioned by the Department of Environmental Affairs and Development Planning (Western Cape) to provide the Department with a better understanding of the developmental potential and challenges of the Western Cape. The Study was undertaken within the context of the strategic requirements as pointed out in the National Spatial Development Perspective. The findings of the Study played a crucial role in informing the drafting of the PSDF.

The Study investigated 131 towns in the province with regard to assessing their development potential for infrastructural investment, as well as assessing their human need with a view to social investment in their people. The study also investigated and diagnosed rural-urban development issues faced by the province, and made recommendations towards improving the status quo.

Two investment types 'Town/Infrastructural investment' and 'Social/People investment' were used as points of departure in order to identify the appropriate investment type which is best suited to stimulate economic growth and social investment for each of the relevant urban communities/ towns:

⁶ This category mainly comprises domestic workers and gardeners.

- High Need/Low Development: *Social investment required;*
- Low Need/High Development: *Town investment required;*
- High Need/High Development: *Social and Town investment required;*
- Low Need/Low Development: *Minimal investment required.*

The assigning of development potentials to specific towns included quantitative (survey of existing infrastructure, retail and services providers, etc) and qualitative aspects (based on the self-perception of its inhabitants). The following five qualitative categories were defined:

- *“Very Low” and “Low” growth potential:*
Towns with a proven track record of growth, but wishing to retain their present character and therefore rejecting major development; or towns with limited economic and human resources, devoid of the potential to stimulate the urban economy.
- *“Medium” growth potential:*
Consistent and moderate growth prevails in these towns and certain sectors of the economy show signs of growth, or have the potential for it;
- *“High” and “Very High” growth potential:*
Towns displaying sustainable growth combined with an established and proven track record to operate as ‘regional leaders’. Potential to grow at a sustainable and powerful rate in line with the capacity of their resources and to operate as service providers to a relatively extensive hinterland. The difference between ‘High’ and ‘Very High’ status only lies in the diversity and intensity of the town dynamics (Centre for Geoscience Research, 2004,)

An overview of the Study’s findings with regard to the urban communities of particular relevance to the proposed Caledon WEF is provided in Table 2.7 below. Given the proposed site’s location in proximity to the R406, the touristic settlements of Genadendal and Grayton have also been included.

Table 2.7: Growth potential of urban communities in vicinity to proposed WEF

TOWN	HUMAN NEEDS	DEVELOPMENT POTENTIAL		ECONOMIC BASE	PLACE IDENTITY
		Quantitative	Qualitative		
Botrivier	Medium	Low	Very Low	Agricultural service centre ⁷	Overberg rural town
Caledon	Very low	Medium	Medium	Agricultural service centre	Hot springs and casino
Genadendal	Medium	Low	Low	Tourism/ Residential	Historical mission station
Greyton	Low	Low	Low	Retirement/ Second homes	Victorian village with serene lifestyle

Source: *Growth Potential of Towns in the Western Cape (2004)*

⁷ *Agricultural service centre:* “Traditional central place towns serving the daily needs of a surrounding farming community, e.g. providing educational, religious, shopping and professional services.” (*Growth Potential of Towns in the Western Cape (2004)*).

3 IMPACTS AND ISSUES IDENTIFICATION

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

- The area identified for the proposed wind energy facility meets the technical wind and other technical criteria required for such facilities;
 - The selection of the area for the establishment of the proposed wind energy facility has been informed by the Regional Guidelines for wind farms prepared by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape; and,
 - The issues associated with the proposed facility are likely to be similar to the issues identified for the Darling Wind Farm, the Eskom West Coast facility (Koekenaap) and Umoya WEF (Hopefield).
-

3.1 Key Planning and Policy Issues

As indicated in Section 3.2., legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents.

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

- The White Paper on the Energy Policy of the Republic of South Africa, December 1998;
- Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape. Towards a Regional Methodology for Wind Energy Site Selection (May 2006)
- Draft Western Cape Integrated Energy Strategy. Provincial Government Western Cape Department of Environmental Affairs and Development Planning (January 2007);
- The Statutory Provincial Spatial Development Framework (2009);
- The Theewaterskloof Municipality 2009/2010 Integrated Development Plan (2009).

The findings of the review indicated that wind energy was strongly supported at both a national and provincial level.

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

- Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future;
- The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and **wind** and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

At a provincial level the Draft Western Cape Integrated Energy Strategy (January 2007) notes:

- Wind energy potential in the Western Cape is high (3 000 MW). The potential advantages associated with wind include:
 - Technology and capital costs are reducing rapidly;
 - Low maintenance;
 - Clean option;
 - Can be quickly installed in areas needing new supply.

- The Provincial Government of the Western Cape is committed to energy efficiency and renewable energy, and to reducing the Province's carbon footprint and eradicating energy poverty. In order to achieve this vision, the PGWC will:
 - Support an approach to energy planning, which takes into account environmental, social and economic considerations;
 - Support research and development around renewable energy and energy efficiency technologies.

- The Strategic Assessment for establishing Wind Farms (May, 2006) undertaken by DEA&DP notes:
 - It is important that at the national level (SA being signatories to the Kyoto Protocol) that positive policy is enacted to encourage wind energy (and indeed all renewable) development. A national perspective should ensure that wind resource rich provinces and regions are identified in order to ensure a co-ordinated and holistic national strategy. 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.

- The PSDF (2009) recognises the importance of developing renewable energy generation resources, including wind energy generation facilities. In that regard, provincial government has set a target of 25% renewable energy generation for the Province by 2020. The PSDF however also notes the importance of preserving the integrity of the province's scenic resources, including landscapes, and therefore provides that associated infrastructure should be sensitively sited.

The Theewaterskloof IDP emphasises the critical importance of increasing the rate of local economic development. Three key economic developmental thrusts are identified, maintaining and growing the existing agricultural backbone sector, promoting and developing niche tourism as a vital diversification strategy, and incentivising the development of light industry, including the promotion of sensitively sited renewable energy generating facilities. Botrivier is identified as a specific growth node focus in this regard. A development corridor between Grabouw, via Botrivier to Caledon is further proposed along the N2.

The findings of the review of the relevant policies and documents pertaining to the energy sector indicate that wind energy and the establishment of wind energy facilities are supported at a national, provincial and local level. The Theewaterskloof IDP specifically provides for the development of renewable energy generating facilities in the Botrivier area. The site proposed for the Caledon WEF is spatially aligned with the identified development corridor. Inclusive of light industry, proposed along the N2 between Grabouw and Caledon.

3.2 Local and site specific issues

Based on review of information relating to wind energy facilities, experience with the Darling and Eskom Wind Facilities' EIAs and the findings from a review of the development proposal as well as contextual and demographic data for the study area, the most important issues that are likely to be raised and will need to be assessed during the EIA include:

3.2.1 Local communities and individuals

- Potential impact on rural sense of place (this will be closely linked to the visual impacts);
- Potential Impact on tourism, both locally and regionally (this will be closely linked to the visual impacts from routes currently serving a scenic/ touristic function, specifically the R406, but also the R43 and the N2);
- Impact on property prices (Botrivier town and adjacent/ near-adjacent rural areas where the scenic resource may be considered of significant value with regard to rural lifestyle land use);
- Influx of job seekers into the area during the construction phase. The influx of job seekers may result in an increase in sexually transmitted diseases, including HIV/AIDS; increase in prostitution; increase in alcohol and drug related incidents; increase in crime; and creation of tension and conflict in the community. This issue is potentially of great importance, given the high established migration influx level currently experienced by the Theewaterskloof LM;
- Creation of employment and business opportunities during the construction phase;
- Creation of employment and business creation opportunities during the operational phase;
- Creation of potential training and skills development opportunities for local communities and businesses;
- Potential up and down-stream economic opportunities for the local, regional and national economy;
- Provision of clean, renewable energy source for the national grid.

3.2.2 Farmers on and adjacent to the WEF site

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

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

4 TERMS OF REFERENCE FOR IMPACT ASSESSMENT PHASE

The approach to the Social Impact Assessment (SIA) study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February, 2007). These guidelines are based on international best practice and have also been endorsed by DWEA. The key activities in the SIA process embodied in the guidelines include:

- Describing and obtaining an understanding of the proposed intervention (type, scale, location), the communities likely to be affected and determining the need and scope of the SIA;
- Collecting baseline data on the current social environment and historical social trends;
- Identifying and collecting data on the Social Impact Assessment variables and social change processes related to the proposed intervention. This requires consultation with affected individuals and communities;
- Assessing and documenting the significance of social impacts associated with the proposed intervention;
- Identifying alternatives and mitigation measures.

In this regard the study will include:

- Review of demographic data from the 2001 Census Survey and other relevant sources, including local IDP documents etc;
- Review of relevant planning and policy frameworks for the area, including the Western Cape Provincial SDF;
- Site specific information collected during the site visits to the area;
- Review of information from similar projects;
- Interviews with key interested and affected parties and stakeholders;
- Identification of social issues associated with the proposed project;
- Identification of potential mitigation and or enhancement measures.

The detailed public consultation process will be undertaken during the EIA phase of the project. Issues raised through this process will feed into the SIA for the proposed power lines.

5 CONCLUSIONS AND RECOMMENDATIONS

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

- The establishment of wind energy facilities are supported at national, provincial and local levels;
- The proposed WEF site appears to be compatible with the spatial development vision of the Theewaterskloof LM;
- Key potential construction phase issues for further investigation during the EIA phase relate to the recruitment and on-site management of construction labour and the management of impacts on local roads;
- Key potential operational phase issues relate to the potential negative impacts on the scenic integrity (visual) of the landscape, and on potential losses in agricultural productivity.

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