

SOCIO-ECONOMIC STUDY:

Basic Assessment for the Proposed Development of the 325MW Kudusberg Wind Energy Facility and associated infrastructure, between Matjiesfontein and Sutherland in the Western and Northern Cape Provinces: BA REPORT

Report prepared for:

CSIR – Environmental Management Services

P O Box 320

Stellenbosch

7599

Report prepared by:

Urban-Econ Development Economists

P O Box 13554

Hatfield

0028

26 October 2018

SPECIALIST EXPERTISE

CONRAD SWART

Profession: Development Economist

Experience: 3 years

Key Skills: Socio-Economic Impact Assessments; Economic Impact Assessments; Qualitative and Quantitative Research; Spatial Development; Spatial Planning; Geographic Information Systems

Brief Profile: Conrad Swart completed his MSc in Geography at Rhodes University in 2015. In addition, he acquired his BSocSci and BSc (Hons) in Spatial Development at the same university in 2012 and 2013 respectively. He completed his BSc (Hons) degree with distinction. During his post-graduate studies, he attained Academic Colours and was placed on the Dean's List as a recognition of his outstanding academic record.

Conrad is a Development Economist with a sturdy background in spatial development and geographic information systems. His robust experience in qualitative and quantitative research has equipped him with data collection, analysis and interpretation skills. This has led to his contribution to numerous development research studies in the academic and private sector arena.

Education:

Rhodes University - 2015	MSc (Geography)
Rhodes University - 2013	BSc Hons (Spatial Development)
Rhodes University - 2012	BSocSci (Geography & Organisational Psychology)

ELENA BROUGHTON

Profession: Unit Manager: Innovation and Sustainable Development; Senior Development Economist

Experience: 14 years

Professional Registration: SAPOA Urban-Econ Development Economists

Key Skills: Socio-Economic Impact Assessments; Economic Impact Assessments; Economic Modelling; Project Management

Brief Profile: Elena Broughton is a senior professional and the manager of the Innovation & Sustainable Development Unit at Urban-Econ. She has extensive knowledge in various fields of economic development that includes 14 years of experience in undertaking socio-economic impact assessment studies for a variety of private clients spanning the mining, manufacturing, energy, infrastructure, and retail sectors. She also acted as a peer reviewer in several socio-economic impact assessment studies and completed a few strategic socio-economic impact assessments. Her involvement in the field allowed her to develop a sound understanding of the South African environmental legislation and developmental policies and equipped her with a widespread knowledge of socio-economic implications and benefits of various new developments.

Education:

University of Pretoria - 2011	MSc (Technology Management)
University of Pretoria - 2007	BScHons (Technology Management) (<i>cum laude</i>)
Nizhny Novgorod University, Russia - 2002	BComHons (Economics)

SPECIALIST DECLARATION

I, Conrad Swart, as the appointed independent specialist, in terms of the 2014 EIA Regulations, hereby declare that I:

- I act as the independent specialist in this application;
- I perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I have no vested interest in the proposed activity proceeding;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:



Name of Specialist: Conrad Swart

Date: 23 August 2018

SPECIALIST DECLARATION

I, Elena Broughton, as the appointed independent specialist, in terms of the 2014 EIA Regulations, hereby declare that I:

- I act as the independent specialist in this application;
- I perform the work relating to the application in an objective manner, even if this results in views and findings that are not favorable to the applicant;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I have no vested interest in the proposed activity proceeding;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:



Name of Specialist: Elena Broughton

Date: 23 August 2018

EXECUTIVE SUMMARY

This Socio-Economic Impact Assessment is prepared by Urban-Econ Development Economists (Urban-Econ) in response to a request by Council for Scientific and Industrial Research (CSIR) on behalf of Kudusberg Wind Farm (Pty) Ltd to inform the Basic Assessment they are undertaking for the development of the proposed 325 MW Kudusberg Wind Energy Facility (WEF). The proposed Kudusberg WEF will be located between Sutherland and Matjiesfontein within Komsberg REDZ (REDZ 2) in the Western Cape (WC) and the Northern Cape (NC) Province. The project footprint (including road upgrades) will affect 26 farm portions and will involve the erection of a maximum of 56 wind turbines as well as the upgrading of existing public and private roads leading to the site.

The review of key national, provincial and local policy documents and strategies indicates that the development of a wind farm is supported across all scales. The Northern Cape Provincial Spatial Development Framework (NC SDF) further posits that the province holds a potential comparative advantage because of the regular occurrence of strong winds which could be a source of renewable energy, more specifically for sustainable electricity production. This is echoed by various Western Cape Strategies and is supported by both district and local municipalities (Namakwa District Municipality, Karoo Hoogland Local Municipality [NC]; Cape Winelands District Municipality, Witzenberg Local Municipality [WC]) that the site will cover. No fatal flaws or contraventions from a socio-economic policy perspective exist for the implementation of the proposed project.

The Karoo Hoogland Local Municipality in the Northern Cape has experienced a population decline (-0.2%) in the past ten years which is largely attributed to push factors such as limited economic opportunities in the area and better economic opportunities in neighbouring municipalities. Witzenberg Local Municipality in the Western Cape has a far higher population (126 571) (which grew by 2.45% CAGR over 10 years) than the Karoo Hoogland Local Municipality (11 785) (which declined by 0.15% CAGR over 10 years), but this population is largely concentrated in the western portion of the municipality (near Ceres) away from the proposed development site. Witzenberg has experienced significant economic growth (4%) over the past ten years compared to Karoo Hoogland (2.6%). Comparatively the unemployment rate in Witzenberg is 7% compared to that of 13% for Karoo Hoogland which are both lower than the national average of 27% (Quantec, 2018).

The proposed Kudusberg WEF will usher in notable positive impacts and contribute to the improvement of some of the main challenges experienced in the region and in both local municipalities. This includes the injection of expenditure which will stimulate production, create business opportunity and boost the economy. Furthermore, local employment creation will likely begin to address unemployment in the area, lead to higher household income and enhance skills development. Numerous stakeholders will evidently benefit, such as business, the community and government. Government revenue will be accrued and will most likely aid socio-economic development.

On the contrary, negative impacts may also be evident. The employment opportunities serve as a pull factor and will most likely attract job seekers. Further to this, migrant labour will need to be accommodated in the area. This culmination will result in an increased demand for services, housing and social facilities. This is exacerbated by the additional 19 similar projects authorised and proposed in the region. The increased number of vehicular and pedestrian traffic on the proposed project site may potentially lead to increases in crime incidents in the surrounding area if not mitigated properly.

Nonetheless, the net effect of the proposed project is positive as it ultimately leads to improved energy supply, increased energy security and indicates a path towards clean energy generation, which the country needs to curb climate change. This subsequently contributes to improved service delivery and socio-economic development. To improve the positive impact particularly for the local

municipality, it is highly recommended that local procurement and employment is concentrated herein, as far as is feasible. **From a socio-economic perspective therefore, no objections are made with regard to the proposed project or its alternatives.**

The following table summarises the reviewed socio-economic impacts and provides an indication of the significance before and after mitigation. It should be noted that the socio-economic specialist study considered the revised layout for the project and determined that it would not affect the range of identified socio-economic impacts and their rating.

Table A: Summary of Socio-Economic Impacts

Socio-economic impact		Impact significance without mitigation	Impact significance with mitigation
Construction Phase			
Direct	Stimulation of economy	High (+)	High (+)
	Temporary employment creation	Low (+)	Low (+)
	Skills development	Low (+)	Moderate (+)
	Impact on agricultural activities	Low (-)	Very Low (-)
Indirect	Attainment of household income	Low (+)	Low (+)
	Increased demand for services	Low (-)	Very Low (-)
	Potential increase in criminal activity	Moderate (-)	Low (+)
	Increased government revenue	Low (+)	Low (+)
	Increased social ills	Moderate (-)	Low (-)
Operational phase			
Direct	Stimulation of economy	Moderate (+)	Moderate (+)
	Long-term employment creation	Very low (+)	Very low (+)
	Skills development	Very low (+)	Very low (+)
	Local upliftment initiatives	Moderate (+)	Moderate (+)
Indirect	Sustainable household income	Very Low (+)	Very low (+)
	Increased government revenue	Very Low (+)	Very low (+)
Decommissioning Phase			
Local economy stimulation		Very low (+)	Very low (+)
Temporary increase in employment and income		Very low (+)	Very low (+)
Cumulative Impacts			
Stimulation of economy		High (+)	High (+)
Employment creation		High (+)	High (+)
Influx of migrant labour and job seekers		Moderate (-)	Low (-)
Improved access to rural areas		Low (+)	Low (+)
Local upliftment initiatives		Moderate (+)	Moderate (+)
No-Go / Status Quo			
All impacts		Neutral	Neutral

LIST OF ABBREVIATIONS

CAGR	Compounded Annual Growth Rate
CAPEX	Capital Expenditure
CSIR	Council for Scientific and Industrial Research
CWDM	Cape Winelands District Municipality
DEA	Department of Environmental Affairs
DM	District Municipality
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMPR	Environmental Management Plan Report
HV	High Voltage
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IRP	Integrated Resource Plan
LM	Local Municipality
MV	Medium Voltage
MW	Megawatt
NC	Northern Cape
NC SDF	Northern Cape Provincial Spatial Development Framework
NDM	Namakwa District Municipality
NDP	National Development Plan
NGPF	New Growth Path Framework
OPEX	Operating Expenditure
PV	Photovoltaic
REDZ	Renewable Energy Development Zones
SEIA	Socio-Economic Impact Assessment
SDF	Spatial Development Framework
WC	Western Cape
WEF	Wind Energy Facility

GLOSSARY

Definitions	
<i>Not Economically Active</i>	The portion of the population who are neither employed nor unemployed but include discouraged job seekers.
<i>Gross Domestic Product</i>	The sum of value added created by all residents within a certain period, which is commonly a year.
<i>Working Age Population</i>	The portion of the population aged between 15 and 64.
<i>Compounded Annual Growth Rate</i>	A measure of growth over multiple time periods.
<i>Capital Expenditure</i>	The cost of developing or providing non-consumable parts for the product or system.
<i>Operating Expenditure</i>	Ongoing costs for running a product, business or system.

COMPLIANCE WITH THE APPENDIX 6 OF THE 2014 EIA REGULATIONS

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Addressed in the Specialist Report
1. (1) A specialist report prepared in terms of these Regulations must contain-	
a) details of-	
i. the specialist who prepared the report; and	Specialist expertise
ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Specialist declaration
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.1
(cA) an indication of the quality and age of base data used for the specialist report;	Section 1.1
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 1.1
d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 1.1 and 1.12
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 1.1
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 1.7
g) an identification of any areas to be avoided, including buffers;	Not applicable
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Not applicable
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.1
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment or activities;	Section 1.6 and 1.7
k) any mitigation measures for inclusion in the EMPr;	Section 1.8 and 1.9
l) any conditions for inclusion in the environmental authorisation;	None
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 1.9
n) a reasoned opinion-	
i. as to whether the proposed activity, activities or portions thereof should be authorised;	
(iiA) regarding the acceptability of the proposed activity or activities; and	
ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 1.10
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 1.4 and 1.12
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Comments received during the review of the Draft BA Report will be incorporated into the specialist report.
q) any other information requested by the competent authority.	Not applicable
2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Yes

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1. SOCIO-ECONOMIC STUDY

1.1 INTRODUCTION AND METHODOLOGY

1.1.1 *Scope and Objectives*

This Socio-Economic Impact Assessment (SEIA) is prepared by **Urban-Econ Development Economists (Urban-Econ)** in response to a request by **Council for Scientific and Industrial Research (CSIR)** on behalf of **Kudusberg Wind Farm (Pty) Ltd** and forms part of a Basic Assessment for the development of the proposed 325 MW Kudusberg WEF. The proposed WEF is located between Sutherland and Matjiesfontein in the Komsberg REDZ (REDZ 2) located in the Western the Northern Cape Provinces.

The purpose of the SEIA is to determine the potential socio-economic implications of the proposed project activities and to compare its effects with the “no-go” alternative. The SEIA report addresses the impacts as set out in the guidelines in terms of the Environmental Impact Assessment Regulations of 2014, as amended. The purpose of the socio-economic basic assessment is as follows:

- Undertake a policy review and assess the alignment of the proposed project with the national, provincial and local socio-economic policies, with a focus on the compatibility of the project with the spatial planning, development objectives and land use management plans of the respective authorities.
- Profile the socio-economic status quo of the study area using secondary data. The guidelines for SEIAs specifically call for information on the level of unemployment and skills availability in the local community, as well as the sectoral economic profile of the local municipality.
- Identify and analyse the potential socio-economic impacts (direct, indirect and cumulative) of the proposed project.
- Evaluate the potential positive impacts versus any negative socio-economic effects that may ensue as a result of the change in status quo of the affected and benefiting communities and economies.

1.1.2 *Terms of Reference*

The scope of work for the socio-economic specialist involves:

- A key task for the specialists is to review the existing sensitivity mapping from the SEA for the project area and provide an updated sensitivity map for the Kudusberg WEF project site.
- Adhere to the requirements of specialist studies in terms of Appendix 6 of the NEMA EIA Regulations (2014), as amended.
- Identify and assess the potential impacts of the proposed Kudusberg WEF project and its associated infrastructure by assessing the impacts during the construction, operational and decommissioning phases.
- Identify and assess cumulative impacts from other Wind and Solar PV projects located within a 50 km radius from the Kudusberg WEF that already have received Environmental Authorisation (EA), are preferred bidders and/or may still be identified as having received a positive Environmental Authorisation at the start of this BA process.
- Propose mitigation measures to address possible negative effects and to enhance positive impacts to increase the benefits derived from the project.
- Use the Impact Assessment Methodology as provided by the CSIR.
- Assess the project alternatives and the no-go alternative.

- Provide a recommendation as to whether the project must receive Environmental Authorisation of not and Identify any aspects which are conditional to the findings of the assessment which are to be included as conditions of the Environmental Authorisation.

Specific Terms of Reference for the socio-economic specialist includes:

- Provide a baseline description of the study area, specifically focusing on the socio-economic environment of the locality where the proposed developments are to be implemented.
- Describe the socio-economic context of the Matjiesfontein, Laingsburg and Sutherland areas, focusing on aspects that are potentially affected by a wind energy project, and taking into consideration the current situation as well as the trends, the local planning (Integrated Development Plan [IDPs] and Spatial Development Framework [SDFs]), other developments in the area. The study should look more broadly than the individual land parcels on which the proposed projects will developed, as most, if not all, of the anticipated social impacts may be experienced in the urban areas nearest to the proposed project.
- Apply a variety of appropriate options for sourcing information, such as review of analogous studies, available databases and social indicators, and use of interviews with key affected parties such as local communities, local landowners & government officials (local and regional) etc.
- The socio-economic study does not lend itself to providing a spatially based sensitivity map. Therefore, instead, the study provides an understanding of the links between the project actions (i.e. interventions) and the receiving social environment (i.e. the socio-ecological system), which may occur at a local, provincial or national scale, and showing how these links can be optimized to enhance benefits and minimize negative impacts.
- Consider social issues such as potential in-migration of job seekers, opportunities offered by training and skills development, phasing of employment over the duration of the REIPPPP program (where possible) cumulative effects with other REIPPPP projects in the local area, implications for local planning and resource use.
- Identify and assess potential social benefits and costs as a result of the proposed development, for all stages of the project, and including the estimated direct employment opportunities.
- Evaluate the implications of the social investment programme associated with REIPPPP projects on the local socio-economic context.

1.1.3 Approach and Methodology

- Data gathering

Impact assessments require the knowledge of the socio-economic environment that will be potentially affected by the proposed project. To create a comprehensive understanding of the socio-economic environment that might be affected by the proposed development, a socio-economic profile of the study areas as well as the zone of influence was developed incorporating both primary and secondary data collection. Primary data collection was done through telephonic interviews with land owners of the affected properties.

- Data analysis

A description of the study area and the zone of influence is given in terms of selected socio-economic variables. The developed profile is later used to interpret the impacts and measure the extent of socio-economic impacts that could be derived from the proposed activities in the context of the local, provincial, and national economies.

- Impact identification, evaluation and alternative recommendation

This step included the description and evaluation of socio-economic impacts that could be expected during the construction and maintenance phases of the proposed WEF and supporting infrastructure. The assessment of impacts is done following the methodology prescribed by CSIR.

Seasonality is not relevant in this study as data gained from the interviews is representative of all seasons throughout the year (i.e. economic activity during different seasons is obtained).

1.1.4 Assumptions and Limitations

- The secondary data sources used to compile the socio-economic baseline, although not exhaustive, can be viewed as being indicative of broad trends within the study area.
- Possible impacts and stakeholder responses to these impacts cannot be predicted with complete accuracy, even when circumstances are similar, and these predictions are based on research and years of experience, taking the specific set of circumstances into account.
- It is assumed that the motivation and ensuing planning and feasibility studies for the project were done with integrity and that all information provided to the specialist by the project proponent and its consultants to date is accurate.
- With regard to the telephonic interviews undertaken, the following assumption is made:
 - Questions asked during the interviews were answered accurately.

The following approved and proposed energy developments within a 50 km radius were taken into consideration as they have the potential to create supplementary positive or negative socio-economic impacts identified in this study or vice versa. A list of these projects is provided in Appendix 3.

1.1.5 Source of Information

The project made use of both primary and secondary data in order to assess the impacts and desirability of the project. Secondary data analysed was mainly derived from the following sources and programmes:

- Stats SA Census, 2011;
- Stats SA Community Survey 2016;
- Quantec Research Standardised Regional Data (by subscription), 1995-2018;
- Cape Winelands District Municipality Integrated Development Plan 2017/18 – 2021/22;
- Namakwa District Municipality Integrated Development Plan 2017 – 2022;
- Witzenberg Local Municipality Integrated Development Plan 2017 – 2022;
- Karoo Hoogland Local Municipality Integrated Development Plan 2017 – 2022;
- National Development Plan (NDP) 2030;
- South African Police Service - Security and Crime statistics 2017; and
- Project data and maps obtained from applicant and CSIR.

1.2 DESCRIPTION OF PROJECT ASPECTS RELEVANT TO SOCIO-ECONOMIC IMPACTS

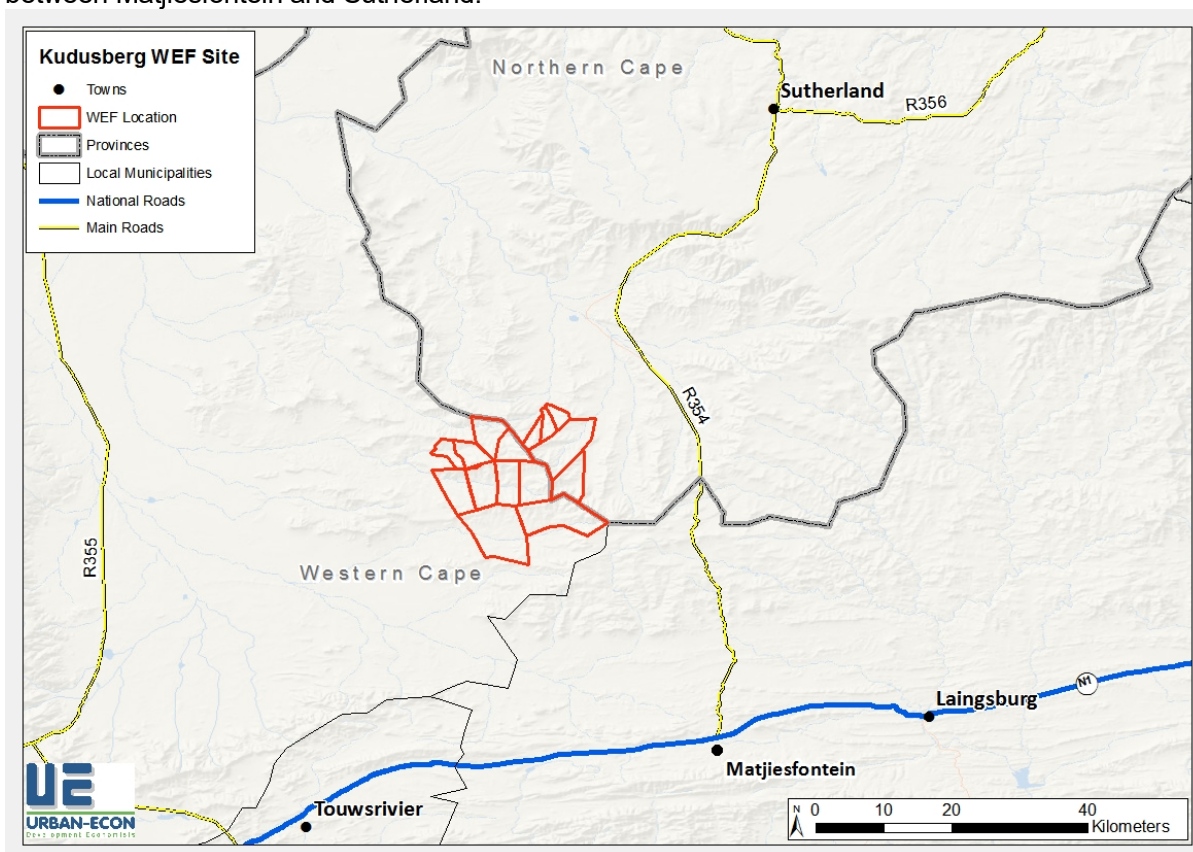
The socio-economic impacts are triggered by aspects emanating from the proposed development of the WEF and associated infrastructure. These include the following:

- During construction:
 - Procurement of goods and services required for the construction and development of the WEF and supporting infrastructure;
 - Transportation of machinery, equipment and other components from various locations in South Africa to the project site;
 - Site/path clearance;
 - Heavy machinery movement on site;

- Electrical infrastructure mounting and installation;
- Hiring of labour - locally and outside the local area;
- Presence of vehicles and personnel on farms; and
- Influx of migrants/job seekers to the area.
- During operation:
 - Hiring of labour to support operations and maintenance; and
 - Periodic presence of maintenance personnel.
- During decommissioning:
 - Procurement of goods and services required for the decommissioning of WEF; and
 - Hiring of labour.

1.3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The site-related information section investigated the various dynamics of the proposed project location. The aspects covered are land use, land capability, the economy, services and infrastructure and crime statistics. The study area is composed of portions from two municipalities in two provinces, namely Karoo Hoogland Local Municipality (Northern Cape) and Witzenberg Local Municipality (Western Cape). The Map 1-1 below indicates the location of the Kudusberg WEF site in a local context. The closest urban areas to the site are that of Matjiesfontein (35 km), Touws Rivier (74 km), Laingsburg (79 km) and Sutherland (108 km). The site is located west of the R354 between Matjiesfontein and Sutherland.

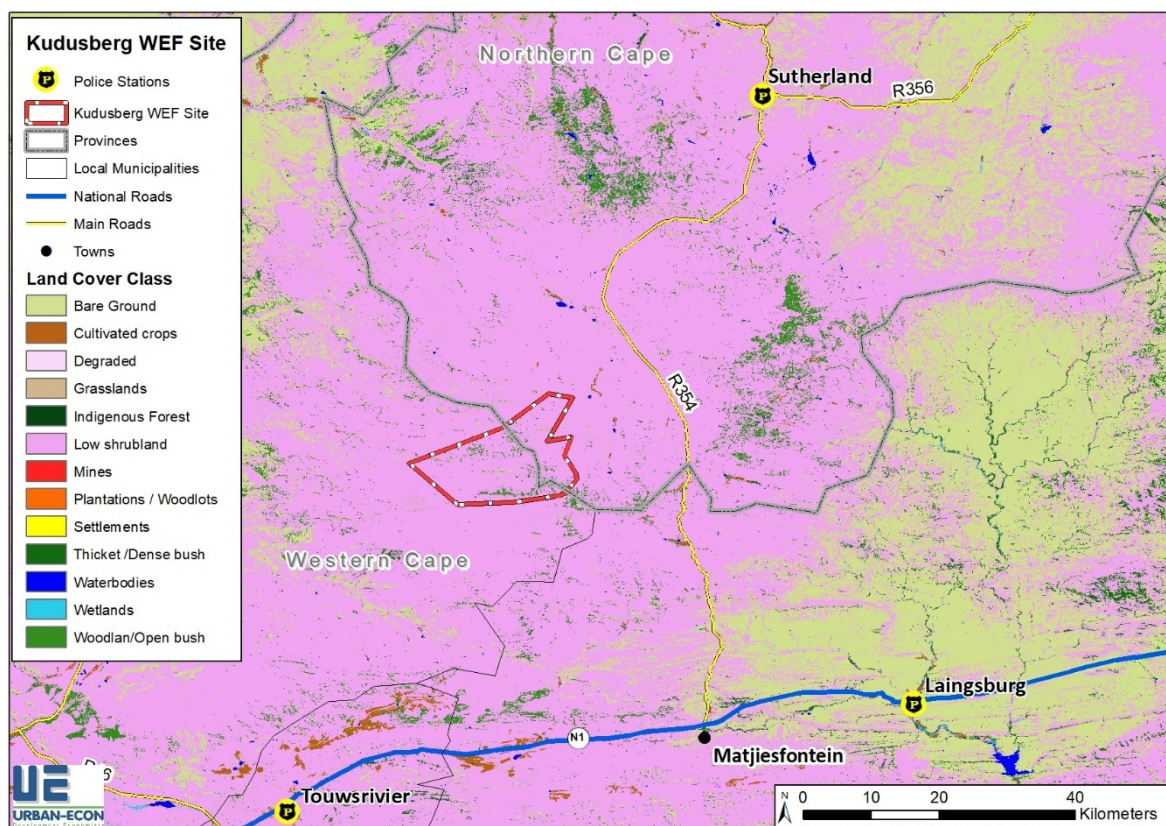


Map 1-1: Location of Kudusberg WEF (ESRI, 2018)

1.3.1 Land Use, Accessibility, and Available Social Facilities in Study Area

The Map 1-2 below serves to demonstrate the land uses at the proposed project site and the surrounding area. The deductions made are firstly that limited activity is taking place from a regional perspective. The immediate site area is predominantly categorised as low shrubland with limited open woodland and brush covering the site. This is also the status quo for the surrounding region

but there are however, some cultivated crops to the north-east and south of the site. The region is undeveloped with limited economic activities present in both the Karoo Hoogland LM portion and Witzenberg LM portion surrounding the site (Department of Environmental Affairs, 2014).



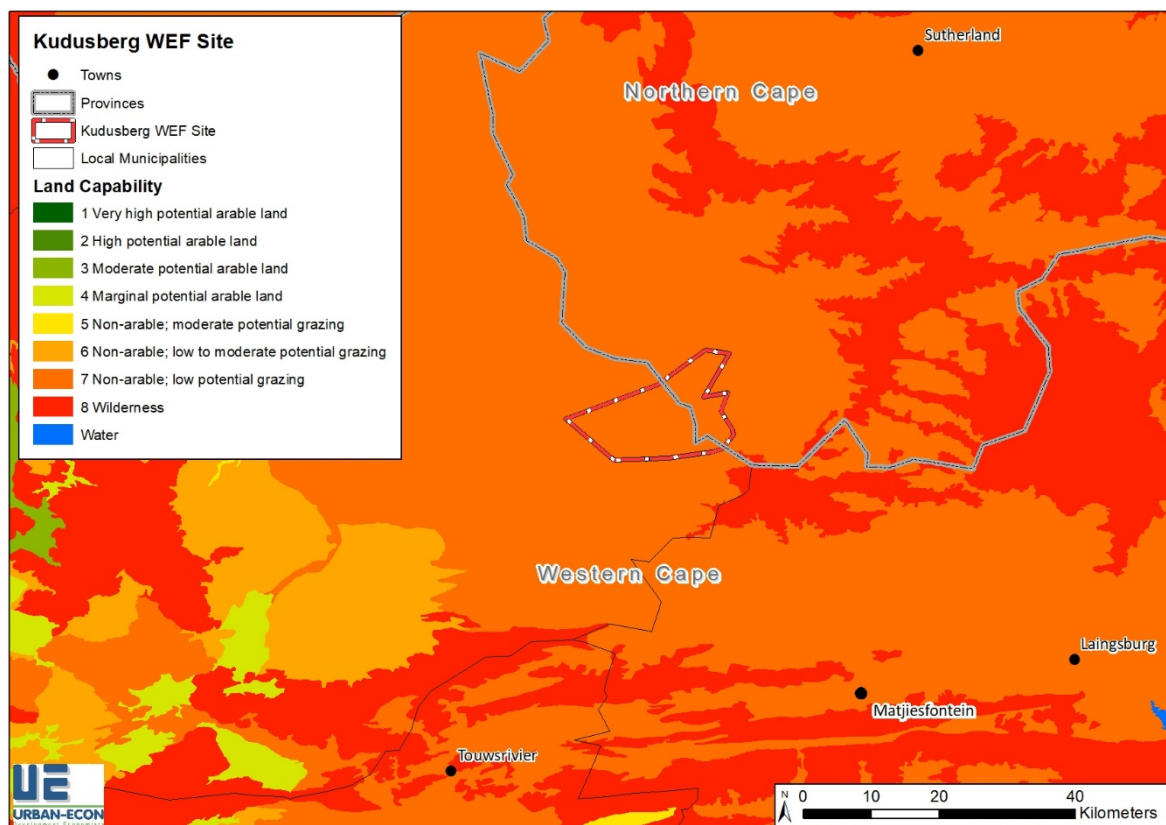
Map 1-2: Land Use Map (Department of Environmental Affairs, 2014) showing majority of the site is low shrubland

With regard to social facilities, there are limited educational facilities serving the surrounding communities. In terms of healthcare, one hospital is located in Laingsburg, over 79 km south-east from the project site. Additional health facilities such as clinics and community health centres are spread across the region most notably in Matjiesfontein, Touws Rivier and Sutherland. Lastly, a total of three police stations are located in the region namely in Touws Rivier, Laingsburg and Sutherland.

In terms of accessibility, the project site is accessible from the R354 and R356 (gravel) and various smaller unpaved gravel roads.

1.3.2 Land Potential and Capability

To understand if valuable land activities will be disturbed, it is salient to understand the land potential that enables the land activities. The map 1-3 below demonstrates that the project site is located in a region with non-arable land, with low potential grazing land. The proposed project site specifically, is similar to the region in that it is characteristic of non-arable land with low grazing potential. In addition, the site is not located in a mineral rich region (Agricultural Research Council, 2005), but a technical cooperation permit has been issued to Falcon Oil and Gas who have applied for prospecting rights to prospect for shale gas in the area. The shale gas reserves are however, still unknown at this point.



1.3.3 Demographics

The Witzenberg LM has a population of approximately 130 175, with a total of 30 904 households (Quantec, 2018). This is indicative of an average household size of 4.2 in the municipality. Witzenberg LM constitutes 14% of the Cape Winelands DM population. The household density is 2.9 households per square kilometre. The population has shown consistent growth of 2.5% between 2007 and 2017 which is higher than that of Cape Winelands DM (2.2%) over the same period (Quantec, 2018).

Karoo Hoogland LM population (11 785) is far smaller than that of Witzenberg LM and as result has far fewer households (3 564). Karoo Hoogland makes up 11% of the Namakwa DM population. The area is sparsely populated as is indicated by a population density of 0.4 people per square kilometre and a household density of 0.1 per square kilometre (Quantec, 2018). Statistics have indicated a reduction in the population of Karoo Hoogland between 2007 and 2017 of -0.2% CAGR which aligns to Namakwa's reduction in population of -0.2% over the same period (Quantec, 2018). This is as a result of net out-immigration of people likely searching for better economic opportunities in larger urban areas such as Cape Town, Kimberley Bloemfontein etc.

Table 1-1: Demographic Profile of Witzenberg LM and Karoo Hoogland LM

Category	Witzenberg LM	Karoo Hoogland LM
Population	130 175	11 785
Population growth rate (2007-2017)	2.5%	-0.2%
Population density (People per Km ²)	12.1	0.4
Number of households	30 904	3 564
Average household size	4.2	3.3
Household density (Households per Km ²)	2.9	0.1
Dependency ratio	41%	56.8%
Female population	48%	49.8%
Male population	52%	50.2%

Urban-Econ Calculations based on (Quantec, 2018)

The figure 1-1 below indicates the age and gender distribution for Witzenberg LM. The most dominant age group is the 15-34 age cohort indicating a younger working age population in the area (38.4% of the population). The male population is also more dominant in the LM with 52% representation compared to 48% for females (Quantec, 2018).

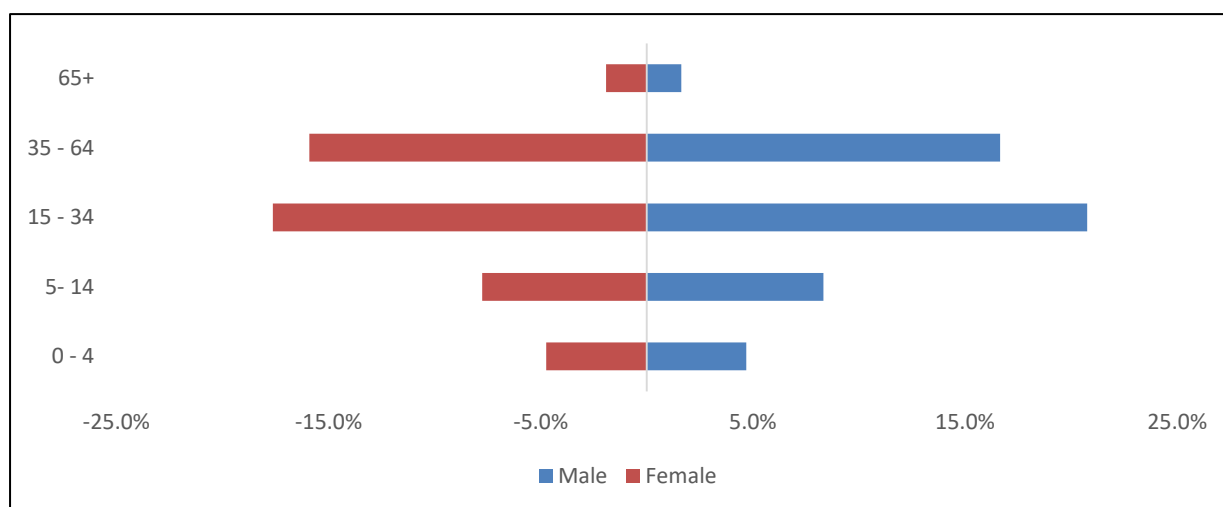


Figure 1-1: Population pyramid for Witzenberg LM (Quantec, 2018)

Compared to Witzenberg LM, Karoo Hoogland LM has an older population. The 35 – 64 age cohort (35.6%) has a higher representation than other age cohorts. There is also a higher proportion of the population older than 65 in Karoo Hoogland (11.3%) compared to that of Witzenberg (3.5%) (Quantec, 2018). This indicates that out-migration is a significant factor in population demographics in Karoo Hoogland as people search for better economic opportunities in neighbouring areas.

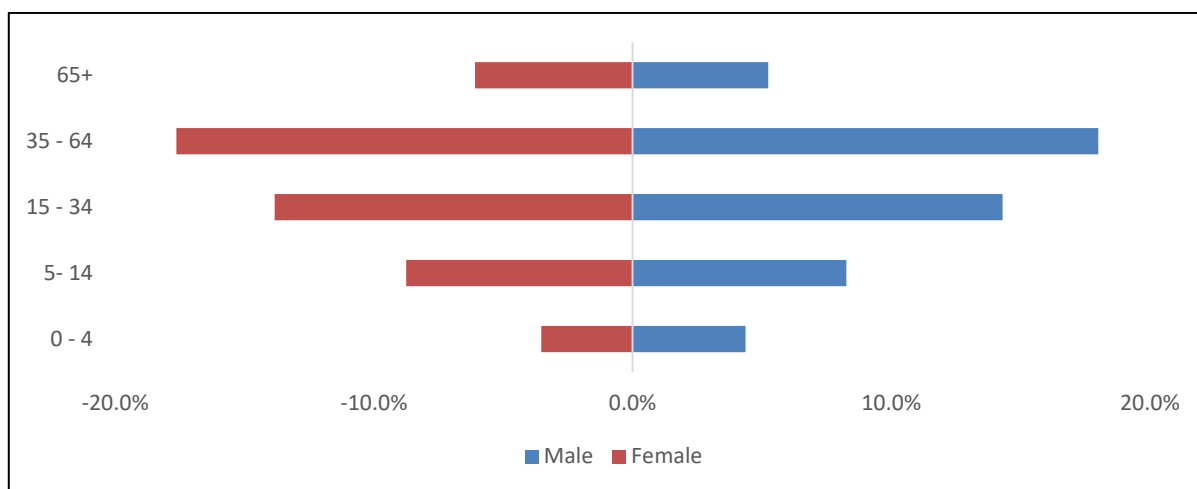


Figure 1-2: Population pyramid for Karoo Hoogland LM (Quantec, 2018)

1.3.4 Income Levels

Overall, 57% of the households within the Witzenberg LM and 65% of the households in Karoo Hoogland LM earned less than R3 200 per month (StatsSA, 2011). In Karoo Hoogland as well as Witzenberg LMs, 6% of the households had no income. In contrast, a much smaller proportion of the population can be classified as middle-income earners and high-income earners, who thus have relatively increased purchasing power, which implies a comfortable livelihood.

Table 1-2: Monthly Income levels for Witzenberg LM and Karoo Hoogland LM

Category	Witzenberg LM	Karoo Hoogland LM
No income	6.4%	5.9%
R1 - R4 800	1.7%	2.6%
R4 801 - R 9 600	4.0%	4.1%
R9 601 - R 19 200	18.7%	26.7%
R19 201 - R 38 400	25.8%	26.1%
R38 401 - R 76 800	20.6%	15.1%
R76 801 - R153 600	10.6%	8.3%
R153 601 - R307 200	6.8%	5.6%
R307 201 - R614 400	3.9%	3.5%
R614 401 - R1 228 800	1.1%	1.5%
R1 228 801 - R2 457 600	0.3%	0.1%
R2 457 601 and more	0.2%	0.4%

Urban-Econ Calculations based on (StatsSA, 2011)

1.3.5 Education Levels

In the Witzenberg LM there is a lower proportion of the population without schooling (9%) compared to Karoo Hoogland LM (18%). The adult population who have completed secondary schooling is also higher (12%) for Witzenberg LM compared Karoo Hoogland LM. The majority of the residents in Witzenberg LM have some secondary schooling (32%), while the majority of the population in Karoo Hoogland LM have some primary education (26 %) (Quantec, 2018). The proportion of the population that have a higher education however, is higher in Karoo Hoogland LM (5%) than in Witzenberg LM (4%). Overall however, the data indicates that the level of education in Witzenberg

LM is higher than Karoo Hoogland LM (Quantec, 2018). The education levels for both LM's are therefore considered moderate to poor.

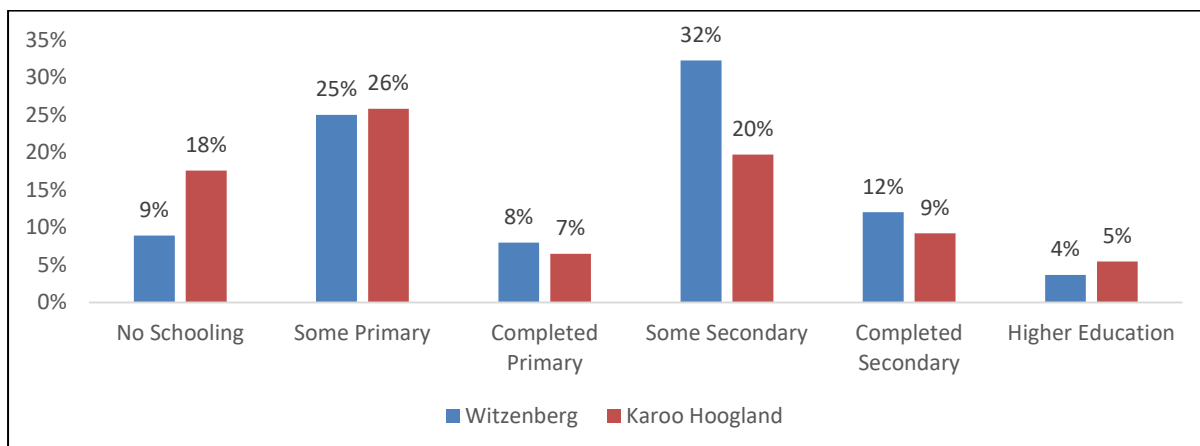


Figure 1-3: Education Levels for Witzenberg LM and Karoo Hoogland LM (Quantec, 2018)

1.3.6 Services and Infrastructure

Access to services are vital for the livelihoods of households. Lack of provision and lack of basic services often impact the poorest households in a given area. The figure 1-4 below indicates the energy used for lighting by households. Households in Witzenberg LM (93%) and Karoo Hoogland LM (65%) predominantly use electricity for lighting although the proportion is lower in Karoo Hoogland LM (Quantec, 2018). A significant number of households in Karoo Hoogland LM utilise candles (22%) and solar (12%) as a means of lighting (Quantec, 2018). This indicates a higher level of electrification in Witzenberg LM, while a significant number do not utilise electricity in Karoo Hoogland LM. This is largely as a result of lack of access to electricity and the cost of utilising electricity compared to candles.

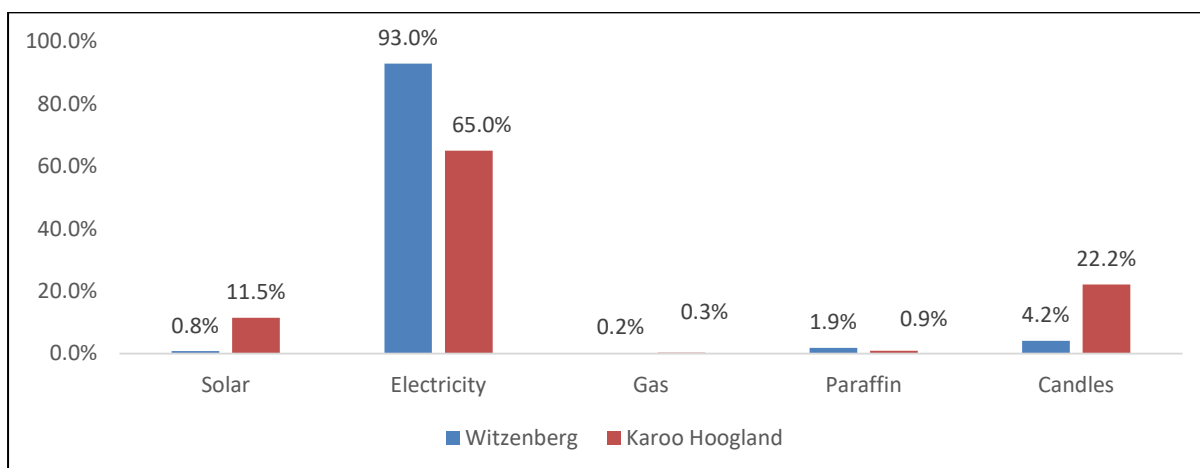


Figure 1-4: Access to Electricity for Lighting (Quantec, 2018)

The figure 1-5 below indicates access to piped water in Witzenberg and Karoo Hoogland LM. The figure indicates that the majority of households in both LMs have access to water in their dwellings and in their yards (90% and 97% respectively) (Quantec, 2018). Witzenberg does however, have a larger proportion of households (8%) which utilise piped water outside their property compared to 1% in Karoo Hoogland. Very few households in either LM utilise dams, boreholes, rivers or tankers for access to water (Quantec, 2018).

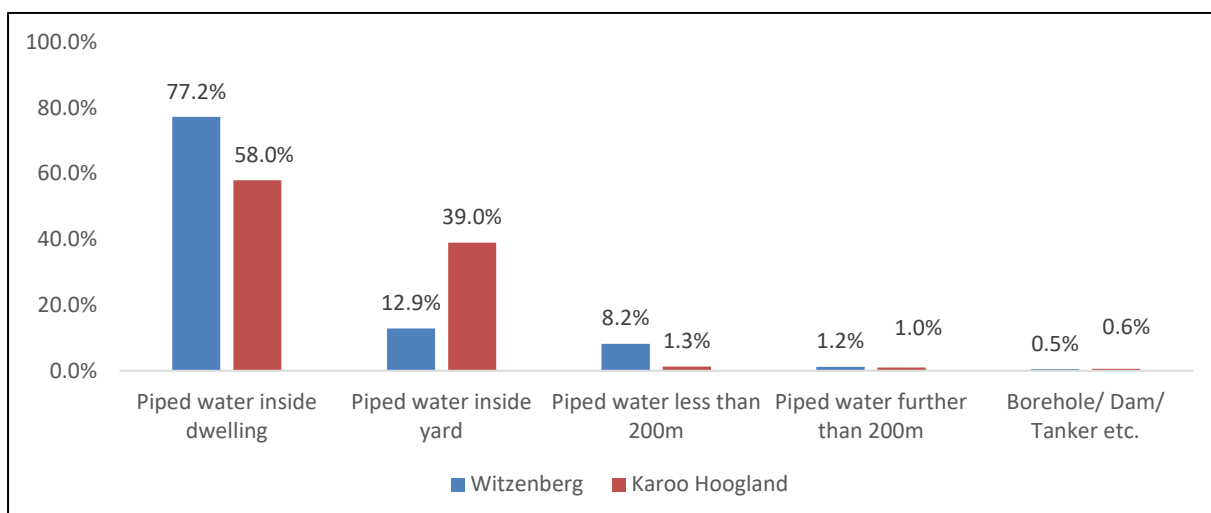


Figure 1-5: Access to Piped Water (Quantec, 2018)

The majority of the population in Witzenberg LM have access to flush or chemical toilets (91%) while a much smaller proportion (55%) have access to the same facilities in Karoo Hoogland LM (Quantec, 2018) as seen in Figure 1-6 below. A significant proportion of the households in Karoo Hoogland LM (33%) utilise pit latrines, while 2% utilise bucket latrines. 10.1% of the households stated that they did not have access to any of these facilities in Karoo Hoogland LM, while only 6% stated the same in Witzenberg LM (Quantec, 2018) as can be seen in the figure below.

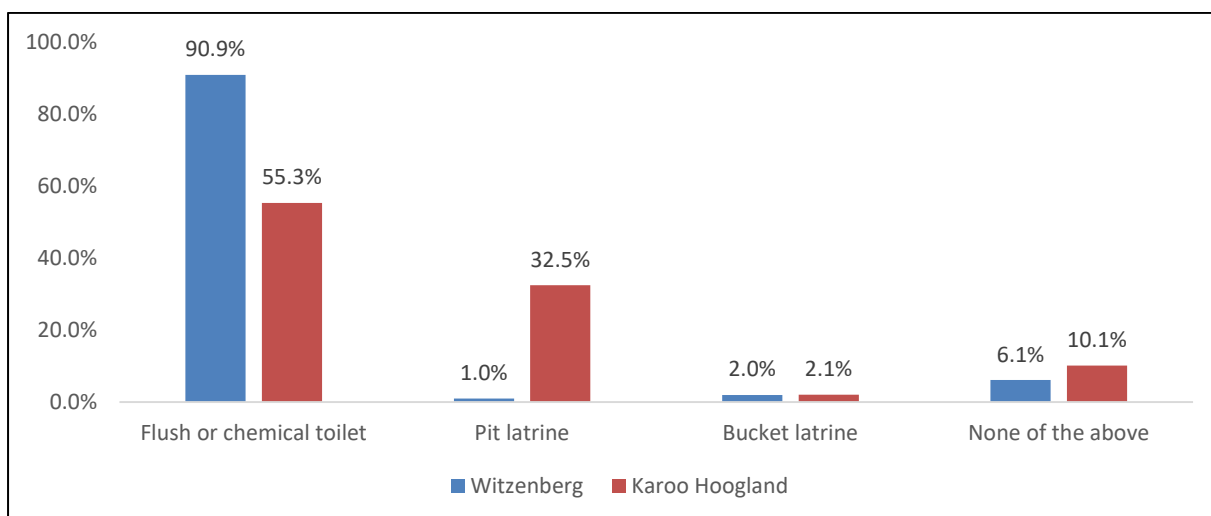


Figure 1-6: Access to Sanitation (Quantec, 2018)

One of the key weaknesses identified by the Karoo Hoogland IDP, was that of roads that link towns are predominantly gravel and that these roads lack basic maintenance that is required of them leading to poor conditions of the roads (Karoo Hoogland Local Municipality, 2017). One of the Karoo Hoogland strategic goals is "Accessible and sustainable infrastructure and basic services". In this goal, the Karoo Hoogland LM has committed to continued construction and maintenance of roads in order to improve their quality and the quality of transport routes in the area (Karoo Hoogland Local Municipality, 2017).

In the Witzenberg LM IDP, there is recognition that some internal roads are in need of upgrade and replacement, but none of the roads are near the study area (Witzenberg Local Municipality, 2017).

1.3.7 Economic Overview

Interpretation of economic impacts requires a sound understanding of the size of the local economy and its dynamics. Several indicators exist that can describe the economy of a region or an area. The most common variables that are used for the analysis include production and Gross Domestic Product per Region (GDP-R) or Gross Value Added (GVA). The former represents the total value of sales of goods and services or the turnover of all economic agents in a region; while the latter, using the output approach, means the sum of value added created by all residents within a certain period, which is typically a year. The trend at which the GDP-R has been changing in the past is also referred to as an economic growth indicator. It is a measure of both the performance of an area and the well-being of the citizens of an area.

In 2017, The Witzenberg and Karoo Hoogland LM economy were valued at R6.1 Billion and R463 Million in constant prices, respectively. The Witzenberg LM contributes 13.5% to the economy of the Cape Winelands District Municipality. The Karoo Hoogland LM contributes just 5.9% to the Namakwa District Municipality economy (Quantec, 2018). Over a period of ten years (2007-2017), Witzenberg's economy grew at a positive Compounded Average Growth Rate (CAGR) of 4% per year. Between 2008 and 2009 Witzenberg LM's GDP growth rate fell from 10% to 1.3% as a result of the 2009 global financial crisis but recovered in 2011 to 5.9% (Quantec, 2018) which can be seen in the figure below. Between 2016 and 2017 the growth rate grew from 1.6% to 3.2% as seen in Figure 1-7. Karoo Hooglands LM's economy grew by 2.6% CAGR between 2007 and 2017. The growth rate of Karoo Hoogland LM mirrors certain trends from the Witzenberg LM but is more erratic e.g. between 2011 and 2012 the GDP grew from -0.6% to 9.2%. Cape Winelands DM CAGR growth rate was 2.3%, while Namakwa DMs CAGR growth rate was 0.4% over the same period (Quantec, 2018). During the same period South Africa's economic growth rate was 1.68% between 2007 and 2017, which is lower than both Witzenberg and Karoo Hoogland.

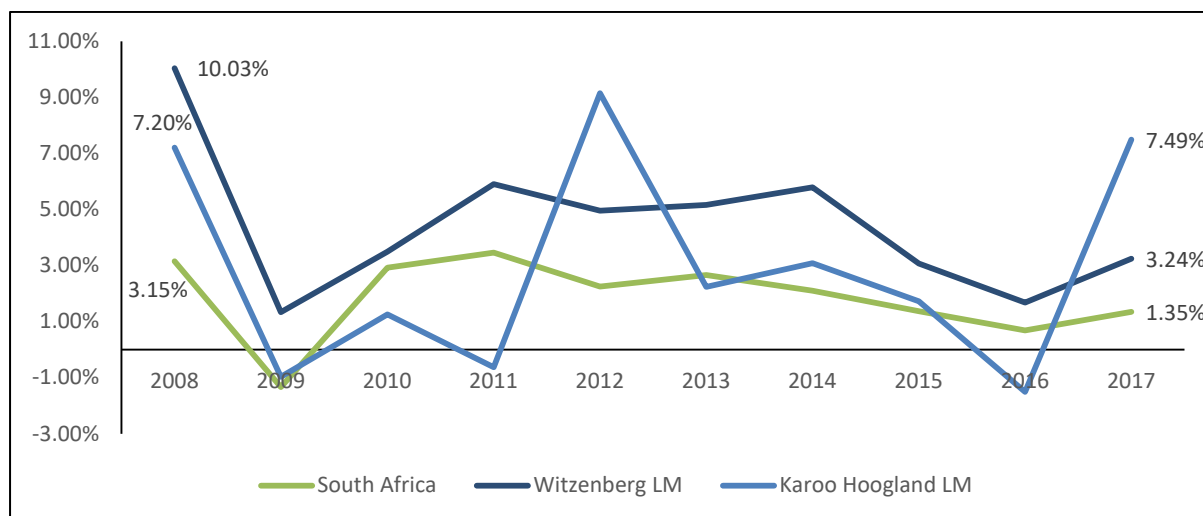


Figure 1-7: Economic Growth Rate Witzenberg LM and Karoo Hoogland LM (Quantec, 2018)

The economic sector with the greatest contribution to the GDP-R of Witzenberg LM is that of finance and business services (21%), while trade has the second highest contribution (17%). The agriculture sector also accounts for a large portion of GDP (16%). The greatest growth between 2007 and 2017 was in the sectors of finance and business services (6.5%) and construction (6.4%). Electricity, gas and water contributes only 2% to GDP, but has been increasing at 2.3% between 2007 and 2017 (Quantec, 2018).

In the Karoo Hoogland LM, the sector with the greatest contribution to GDP is Agriculture (35%) by a large degree. The second highest contribution is that of general government services (24%), while trade (13%) contributes the third highest to GDP. The agriculture sector (4.4%) has had the highest growth between 2007 and 2017. The second highest growth was in the general government sector

for 3.1%. Electricity, gas and water sector contributes only 1% to GDP and has been decreasing at 1.6% between 2007 and 2017 (Quantec, 2018).

Table 1-3: Structure of the Economy

Economic Sector	Witzenberg LM (GDP in 2010 prices)			Karoo Hoogland LM (GDP in 2010 prices)		
	GDP (R'mil)	% of GDP	CAGR (2007-2017)	GDP (R'mil)	% of GDP	CAGR (2007-2017)
Agriculture, forestry and fishing	R 964	16%	2.2%	R 163	35%	4.4%
Mining and quarrying	R 2	0%	4.8%	R 0	0%	0.0%
Manufacturing	R 816	13%	2.3%	R 11	2%	3.4%
Electricity, gas and water	R 138	2%	3.1%	R 4	1%	-1.6%
Construction	R 414	7%	6.4%	R 11	2%	1.6%
Trade	R 1 021	17%	3.8%	R 58	13%	1.3%
Transport and communication	R 386	6%	3.0%	R 39	8%	0.4%
Finance and business services	R 1 278	21%	6.5%	R 30	7%	-0.1%
General government	R 676	11%	4.8%	R 110	24%	3.1%
Community services	R 452	7%	4.3%	R 37	8%	1.8%
TOTAL	R 6 147		4%	R 463		2.6%

Urban-Econ Calculations based on (Quantec, 2018)

1.3.8 Labour Force Composition

Employment is the primary means by which individuals who are of working age may earn an income that will enable them to provide for their basic needs and improve their standard of living. As such, employment and unemployment rates are important indicators of socio-economic well-being. The following paragraphs examine the study area's labour market from several perspectives, including the employment rate and sectoral employment patterns.

According to the Standardised Regional dataset, the working age population of Witzenberg LM was close to 90 000 while Karoo Hoogland LM was considerably smaller with 7 600 (Quantec, 2018). The unemployment rate in Witzenberg LM is 7% compared to the unemployment rate of 13% in Karoo Hoogland LM (which is far lower than the national average of 27.7%). The labour force participation rates for both were 74% and 63%, respectively. The number of employed (both formal and informal) was 62 000 (48% of the population) for Witzenberg LM and 4 200 (35% of the population) for Karoo Hoogland LM (Quantec, 2018). Comparatively, South Africa has an unemployment rate of 27.7% and has only 30% of the population employed. The labour force participation rate is also lower than the two local municipalities at 57.3%.

Table 1-4: Labour Profile for Witzenberg LM and Karoo Hoogland LM

Category	Cape Winelands DM	Witzenberg LM	Namakwa DM	Karoo Hoogland LM
Population - Total	906 651	130 175	110 674	11 785
Population - Working age	616 912	89 754	74 733	7 600
Employed - Formal & informal - Total	384 846	61 930	38 394	4 180
Employed - Formal - Total	278 803	48 468	29 236	3 061

Employed - Informal	106 043	13 462	9 158	1 119
Unemployed	46 024	4 439	7 697	613
Not economically active	186 042	23 386	28 641	2 807
Unemployment rate	11%	7%	17%	13%
Labour force participation rate	70%	74%	62%	63%

Urban-Econ Calculations based on (Quantec, 2018)

1.3.9 Crime Statistics

As mentioned above, there are three (3) police stations, namely in Touws Rivier, Laingsburg and Sutherland which are within 65 – 110 km from the proposed project site. The project site itself falls within the Ceres Precinct (125 km) and the Sutherland Precinct (109 km), despite being closer to the Touws Rivier (75 km) and Laingsburg Stations (81 km).

Ceres precinct reported a total of 6 624 crime incidents in 2017 while Sutherland reported 280 incidents. Touws Rivier and Laingsburg reported a total of 1 355 and 1 394, respectively (SAPS, 2017).

The most pertinent crimes in the Ceres Precinct were:

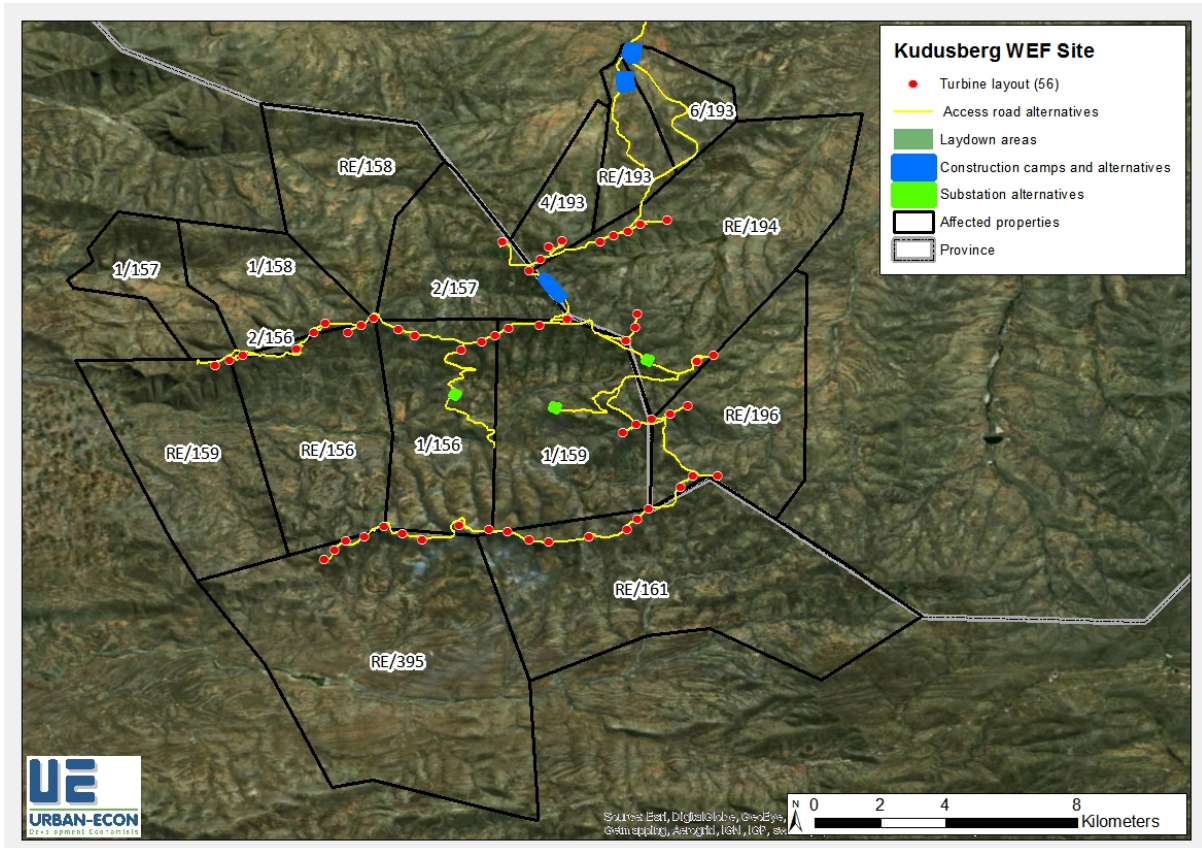
- Community reported serious crimes (2 602 incidents);
- Drug related crimes (1 252 incidents); and
- Burglary at residential premises (370 incidents) (SAPS, 2017).

The most pertinent crimes in the Sutherland Precinct were:

- Community reported serious crimes (101 incidents);
- Drug related crimes (68 incidents); and
- Assault with intent to inflict grievous bodily harm premises (23 incidents) (SAPS, 2017).

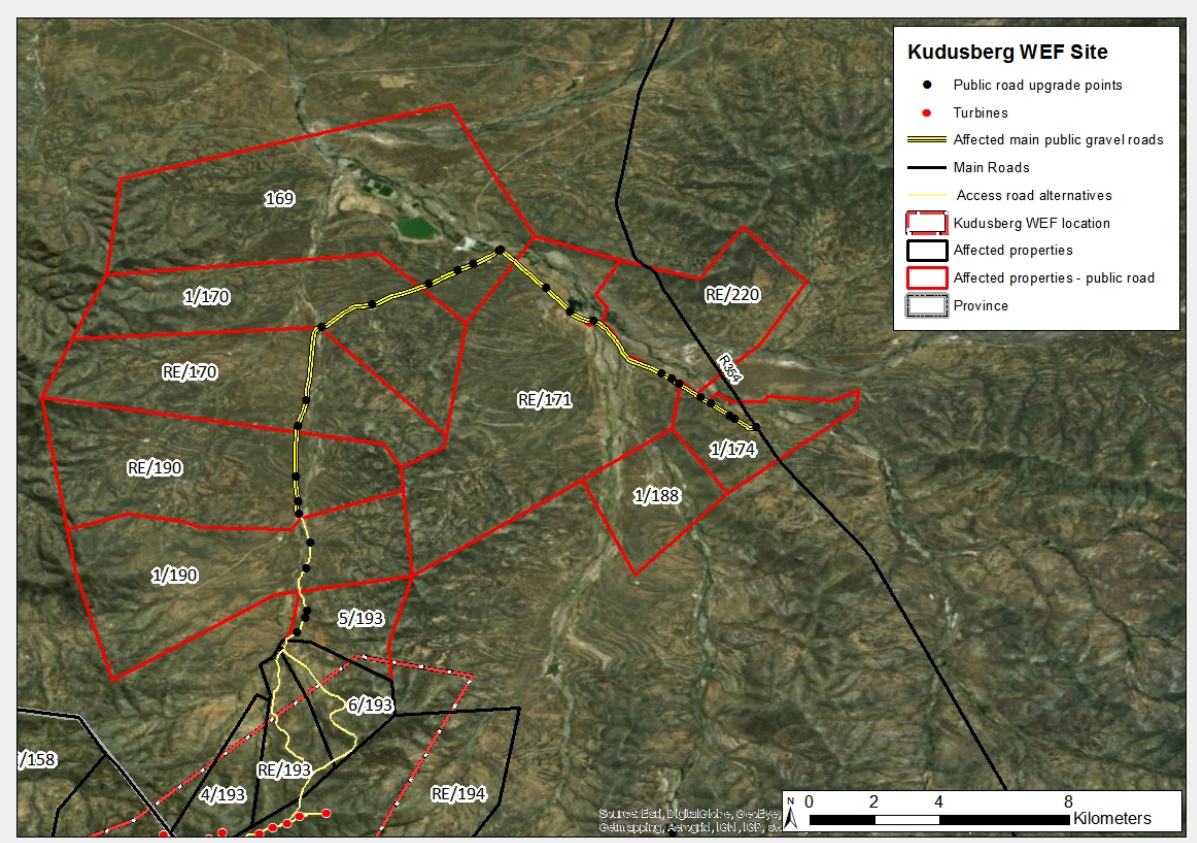
1.4 PROPOSED LAYOUT OF SITE

The Map 1-4 below demonstrates the layout for the proposed WEF. The 56 turbines will be located on the ridges of the hills in the area and roads will run along the ridges in order to access the turbine sites. The construction camps and their alternatives will be located near the north of the site.



Map 1-4: Proposed Layout of the Kudusberg WEF and Affected Farm Portions

Additionally, the upgrading of public and private roads will also impact the surrounding properties as depicted in the map 1-5 below.



Map 1-5: Affected Farm Portions from Public Road Upgrade

Table 1-5 below indicates the farm portions impacted by the proposed WEF layout and upgrading of roads to the WEF site. This table also includes the associated land use of the sites.

Table 1-5: Farm Portions Affected by Kudusberg WEF and Public Road Upgrade

Windfarm		Public Road Upgrade	
Parcel Number	Farm Name	Parcel Number	Farm Name
6/193	Urias Gat	1/188	Brakwater
RE/395	Klipbanks Fontein	RE/220	FARM 220
RE/158	Amandelboom	1/174	Lange Huis
RE/156	Gats Rivier	RE/170	Roodeheuvel
1/156	Gats Rivier	1/170	Roodeheuvel
RE/159	Oliviers Berg	5/193	Urias Gat
RE/196	Karree Kloof	RE/171	Vinke Kuil
RE/193	Urias Gat	1/190	Wind Heuvel
4/193	Urias Gat	RE/190	Wind Heuvel
1/158	Amandelboom	169	Zeekoegat
RE/194	Matjes Fontein		
1/159	Oliviers Berg		
2/157	Riet Fontein		
2/156	Gats Rivier		
1/157	Riet Fontein		
RE/161	Muishond Rivier		

General Land Use for the Affected Area	
1.	Game farming
2.	Game breeding
3.	Game conservation
4.	Livestock farming
5.	Commercial farming

The most common land use across the site is livestock farming, game breeding and game conservation.

1.4.1 Perspective of landowners on effect on land activities

The list of Interested and Affected Parties (I&APs) (landowners) is provided in Appendix 1 in section 1.12.1 of this report. It should be noted that some of the I&APs representing directly impacted land owners were not willing to engage with the socio-economic specialist and share their information and concerns. Getting hold of the land owners through the contact details made available to the consultant's team was, though, the biggest challenge as numerous attempts to contact the landowners remained unsuccessful.

Nonetheless, according to land owners interviewed, the proposed project will not prohibit the current economic activities observed on their land portions, but some concerns were raised as to the movement of people during construction and operation of the WEF as well as the loss of a sense of place for tourists who may visit the area. The owners of the land portions did however, state that they did not expect the WEF to stop their activities and no loss in employment is expected. A list of the contact land owners is attached in the addendum as well as the survey which was utilised.

1.5 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

A policy review plays an integral role in the early stages of a project. The review provides a high-level indication of whether a project is aligned with the goals and aspirations of the developmental policy within a country through to the local level. Furthermore, the analysis indicates any red-flag or developmental concerns that could jeopardise the development of the project. This assists in amending and preventing costly and unnecessary delays. The table below outlines the objectives and main relevant ideas stipulated per policy, as well as the alignment of the proposed project with these.

Table 1-6: Project Alignment with Policy Objectives

Policy	Key Policy Objectives	Source
National Policy: South Africa		
National Development Plan 2030	<ul style="list-style-type: none"> • Creating jobs and livelihoods • Expanding infrastructure • Transitioning to a low-carbon economy • Transforming urban and rural spaces • Improving education and training • Providing quality health care • Building a capable state • Transforming society and uniting the nation • Fighting corruption and enhancing accountability 	(NPC, 2011)
New Growth Path Framework 2011	<ul style="list-style-type: none"> • Infrastructure investment • Main economic sectors as employment sectors • Seizing the potential of new economies • Investing in social capital and public services • Fostering rural development and regional integration 	(Department of Economic Development, 2011)
Renewable Energy	<ul style="list-style-type: none"> • Renewable energy as an exceptional source of flexible supply 	(World

Policy	Key Policy Objectives	Source
Vision 2030 South Africa	within the context of uncertain energy demand <ul style="list-style-type: none"> • Comprehensive renewable energy base will support a resilient South African future • A sustainable energy mix that excludes undue risks for the environment of society 	Wildlife Fund, 2014)
Integrated Energy Plan 2016 (new draft IRP 2018)	South Africa should continue to track a diversified energy mix which lessens reliance on a few primary energy sources In addition to solar energy facilities, wind energy should continue to contribute in the generation of electricity Allocations to safeguard the development of wind energy projects aligned with the Integrated Resource Plan (IRP) 2010 should continue to be pursued <ul style="list-style-type: none"> • Ensure energy security and supply • Reduce environmental impacts • Endorse job creation and localisation • Lessen cost of energy • Reduce water consumption • Diversify supply sources • Promote energy efficiency • Promote energy access Additionally, the IRP (2018) indicates that: <ul style="list-style-type: none"> • Wind energy will be 15.1% of the energy mix compared to solar at 10.5% by 2030 	(Department of Energy, 2016)
The Constitution of South Africa 1996	“Everyone has the right to an environment that is not harmful to their health or well-being” (S24) The environment should be protected for the benefit of present and future generations, through reasonable legislative and other measures that: <ul style="list-style-type: none"> • Prevent pollution and ecological degradation • Promote conservation • Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development 	(Republic of South Africa, 1996)
White Paper on Energy Policy of the Republic of South Africa 1998	Seeks to ensure that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options Aims to create energy security by diversifying the energy supply and energy carriers	(Department of Minerals and Energy, 1998)
White Paper on the Renewable Energy Policy of RSA 2003	Pledges government support for the development, demonstration and implementation of renewable energy sources for both small and large-scale applications	(Department of Minerals and Energy, 2003)
Provincial Policy: Northern Cape & Western Cape		
Northern Cape Provincial Development and Resource Management Plan 2012	<ul style="list-style-type: none"> • Seeks to create a prosperous, sustainable and expanding provincial economy to eradicate poverty and improve social development • Aims to create a continuous network of natural resource areas throughout the province that maintain ecological processes and provide ecosystem services • Aims to endorse and institute innovative energy technologies to improve access to reliable, sustainable and affordable energy services with the objective to realise sustainable economic growth and development 	(Office of the Premier of the Northern Cape, 2012)
White Paper on Sustainable Energy For the Western Cape Province 2010	Sustainable energy goals from the white paper include: <ul style="list-style-type: none"> • Alleviate energy poverty • Improve the health of the nation • Reduce harmful emissions 	(Province of the Western Cape, 2010)

Policy	Key Policy Objectives	Source
	<ul style="list-style-type: none"> • Reduce negative footprints in our environment • Enhance Energy Security • Improve economic competitiveness and job creation 	
Sustainable Energy Strategy for the Western Cape 2007	<p>The objective that specifically aligns to renewable energy in the strategy is strategic objective 3 specifically the focal point on clean energy supply. Objectives include:</p> <ul style="list-style-type: none"> • Stimulate demand for renewable energy, and reduce carbon emissions from general energy consumption • Support research, development and roll-out of clean energy sources • Initiate efforts to reduce the Province's Carbon footprint 	(Western Cape Department: Environmental Affairs and Development Planning, 2007)
District Municipal Policy		
Cape Winelands District Municipality Integrated Development Plan 2017 - 2022	<p>Economic Infrastructure: Electricity The District Plans to move to less carbon-intensive electricity production through procuring at least 20 000MW of renewable energy, increased hydro imports from the region and increased demand-side measures, including solar water heating.</p>	(Cape Winelands District Municipality , 2017)
Namakwa District Municipality Integrated Development Plan 2017 - 2022	<p>The IDP states that "Renewable energy is recently one of the cornerstones of the economy of the District and there needs to be engagement on National level to ensure that the District benefit from this resource."</p> <p>Output 10 from IDP indicates:</p> <p><i>...To ensure that Environmental assets and natural resources are well protected and continually enhanced, the key partners will focus on the following four key outputs and related sub-outputs:</i></p> <ul style="list-style-type: none"> • <i>Enhanced quality and quantity of water resources</i> • <i>Reduced greenhouse gas emissions, climate change & improved air/atmospheric quality</i> • <i>Sustainable environmental management</i> • <i>Protected biodiversity...</i> 	(Namakwa District Municipality , 2017)
Local Municipal Policy		
Witzenberg Local Municipality Integrated Development Plan 2017 - 2022	<ul style="list-style-type: none"> • Sustainable provision & maintenance of basic infrastructure • Provide for the needs of informal settlements through improved services • Support institutional transformation and development • Ensure financial viability • To maintain and strengthen relations with international & inter-governmental partners as well as the local community through the creation of participative structures • Provide & maintain facilities that make citizens feel like home • Support the poor and vulnerable through programmes and policy • Create and enabling environment to attract investment and support local economy 	(Witzenberg Local Municipality , 2017)
Karoo Hoogland Local Municipality Integrated Development Plan 2017 - 2022	<ul style="list-style-type: none"> • Poverty relief through effective basic service delivery and job creation, • Assist with economic interventions in sector development (agricultural, tourism and renewable energy) • Facilitate education, literacy, skills development and capacity building within the local economy, • Promote business and investment attraction and retention, • Enhance sustainable service delivery through infrastructure development. 	(Karoo Hoogland Local Municipality , 2017)

A correlation between the proposed WEF and the goals of strategic documents is evident. National policy echoes renewable energy sentiments dating from pre-2000. Provincial policy seeks to create an enabling environment for economic growth and environmental preservation. Lastly, local policy places emphasis on service delivery improvement and enhancing the socio-economic conditions for residents, some of which can be achieved due to the proposed project.

The proposed site does not fall into any major planning areas of either local municipality and there are limited opportunities and economic activities currently in place in the area. The potential for mining in the stated area is also relatively low but there have been applications by Falcon Oil and Gas to explore the area for shale gas deposits. The extent of the shale gas reserves is still unknown.

1.6 IDENTIFICATION OF KEY ISSUES

1.6.1 Key Issues Identified

Considering the nature of the projects, the following issues have been identified:

The socio-economic impacts are triggered by aspects emanating from the proposed project. These include the following:

- Site clearance - removal of vegetation and top soil as part of site preparation for turbine, road and camp construction;
- Heavy machinery movement- the construction activities will include the movement of vehicles and machinery;
- Capital expenditure and operating expenditure; and
- Local rates, payroll taxes and income.

The following Table 1-7 below indicates the comments received during the interviews and the responses to those comments.

Table 1-7: Comments raised by land owners during interview process

Comment	Commenter	Response
Loss of sense of place from the development of the WEF	P. Uys	Mitigation measures have been suggested in section 1.6 particularly during construction when it is expected that more activity will be occurring than what is normally conducted in the area. It is suggested that mitigation measures be fully implemented by responsible parties in order to reduce the impact.
	H.J. Visser	
Concerned about unannounced movement of people.	H.J. Visser	Mitigation measures have been suggested in section 1.6 as to the movement of people during construction. Residents should be informed of areas where employees will be working, and employees should adhere to these areas.
The respondent was unhappy that no information on the timeframes for the development of the proposed WEF was available at the time of the study.	J. Bothma	No exact date for the construction of the WEF can be given as it is still in the design and planning phase.

1.6.2 Identification of Potential Impacts

The potential impacts identified during the SEIA are described in detail below for the construction, operational, decommission phase of the proposed development as well as the cumulative impacts.

1.6.2.1 Construction Phase

Positive impacts:

- Stimulation of the economy through increase in production and GDP-R due to capital expenditure activities;
- Temporary employment creation due to construction activities;
- Skills development and enhancement due to construction activities;
- Increased household income attainment due to employment opportunities; and
- Increase in government revenue due to rates and taxes.

Negative impacts:

- Increased demand for housing, services and social facilities due to influx of migrant labour and job seekers;
- Potential increase in theft related crimes due to increased movement of people in area;
- Impact on agricultural activities on the directly affected farms; and
- Increased social ills such as substance abuse and the spread of communicable diseases.

1.6.2.2 Operational Phase

Positive impacts:

- Stimulation of the economy - Increase in production and GDP-R due to operation expenditure;
- Long-term employment creation due to operation and maintenance activities;
- Skills development and enhancement due to operation activities;
- Increased household income attainment and standard of living due to employment opportunities;
- Benefits to local community through upliftment initiatives; and
- Increase in local government revenue due to rates and taxes.

1.6.2.3 Decommissioning Phase

Positive impacts:

- Local economy stimulation due to decommissioning costs; and
- Temporary employment and income from recycling of metals and other components.

1.6.2.4 Cumulative impacts

Positive impacts:

- Employment creation due to numerous developments;
- Stimulation of economy due to capital and operating expenditure from projects;
- Improved access to rural areas through road upgrades; and
- Benefits to local community through local upliftment initiatives.

Negative impacts:

- Influx of migrant labour and job seekers placing pressure on services and social facilities, and potentially increasing crime and social ills in the area.

1.6.2.5 No-Go / Status Quo

Status quo remains, and no impacts mentioned above are experienced.

1.7 ASSESSMENT OF IMPACTS AND IDENTIFICATION OF MANAGEMENT ACTIONS

1.7.1 Results of the Field Study

The primary data gathering for this project was done via telephonic interviews and email questionnaires, as these means were indicated to be preferred methods of communication by the key respondents. The interviews took place from the 14th to the 21st of August 2018.

From the interviews and secondary data, the land activities on affected farm portions are:

- Commercial farming:
 - Livestock farming; and
 - Game breeding (small scale).
- Tourism:
 - Game viewing.
- Holiday farm.

The main sources of income are derived from livestock farming and game farming in the area. Livestock farming is largely composed of sheep farming and owners derive income from this activity. The owners of these farms do not reside on their farms but have employees who stay on the farms.

Tourism products are also present in the area and are predominantly focused on game viewing. The game farm (1/156 Gats Rivier; Re/156 Gats Rivier; Re/159 Olivier's Berg) is utilised all year round and average stay per tourist is 2-3 days.

According to five land owners who were possible to engage with and who were interviewed (refer to Appendix 1), the proposed project will not prohibit the current economic activities observed on their land portions. However, concerns were raised regarding the change in sense of place, movement of workers as a result of construction and operation of the WEF and timeframes of the proposed WEF. Mitigations are proposed for these potential impacts.

1.7.2 Impacts during construction

1.7.2.1 Stimulation of the local economy through increase in production and GDP-R

The establishment of the proposed Kudusberg WEF will be associated with numerous capital expenses. Expenses would usually include expenditure on transport and installation of wind turbines, electrical and grid connection, foundation, civil works, and construction of supporting structures. If goods and services are procured locally, i.e. within South Africa, it increases the production of the respective industries. This has a positive impact on the national economy and economies of the municipalities where inputs are procured. The construction sector in Karoo Hoogland LM experienced a 1.6% increase between 2007 and 2017. The Witzenberg LM experienced a 6.4% increase of this sector in the same period. The proposed project can stimulate this sector even further among other sectors such as the manufacturing, transport and retail trade sector.

It is expected that any capital investment that will be spent in South Africa, will resultantly stimulate the national economy, although for a temporary period of about 18-24 months.

The size of the Witzenberg LM's economy was estimated at R6.1 billion in current prices and primarily comprises of the finance, trade and agriculture sectors. Karoo Hoogland LM's economy was estimated at R463 million and is even smaller than Witzenberg LM's. Considering the small economic base of Karoo Hoogland LM, the opportunities for the procurement of goods and services within the local economy will be very limited. Witzenberg LM, while larger is unlikely to cater for all of

the broad needs of the development. It is likely however, that some of the local businesses could benefit from sub-contracting opportunities, if the construction companies appointed by the developer implement a local community procurement policy, and consumer expenditure of the construction crew. Furthermore, the demand for hospitality services including accommodation and catering in the nearby towns of Matjiesfontein, Sutherland, Laingsburg and Touws Rivier is expected to increase and provide for much needed stimulus for the local economy.

1.7.2.2 Temporary creation of employment

The construction of the WEF and associated infrastructure will require temporary employment of construction workers, foremen, and engineers on site. The review of the local skills set, though suggests that it is unlikely that the local area will be able to supply all of the skilled and most of the highly skilled workers for the project. Unskilled and semi-skilled workers can however, be recruited from the local area as they will be required for the work involved on site. Therefore, some improvement in the employment situation in the local municipalities could be expected, albeit for a temporary period. Employment of the individuals, albeit temporary, will increase their household income, improve their standard of living and benefit their families. It is assumed that approximately 250 jobs will be directly created during construction of the WEF.

In addition to those benefitting from direct employment created at the project, various multiplier effects will assist in temporarily supporting existing jobs in the businesses offering services and goods that will be procured during construction activities. The increased temporary income earned by these businesses will in turn stimulate consumption spending, creating another round of multiplier effect. The unemployment rate of 17% will thus to a certain extent be curbed.

As an enhancement measure, a local skills desk, wherein skills of interested and prospective employees are captured, ought to be implemented. This will assist the Human Resources (HR) process of identifying skills at a local level and recruiting at a local level. Therefore, the awareness of the skills desk to the local communities is salient.

1.7.2.3 Skills development and enhancement due to construction activities

The Kudusberg WEF project represents an important opportunity for locals to increase their participation in the labour market and to acquire critical skills and technical qualifications. A variation of skill sets is required ranging from semi-skilled construction workers to highly skilled engineers.

To employ local labour, it is recommended that a focused training programme and skills transfer occur. This will adequately equip employed individuals to effectively conduct required tasks and develop a local skilled construction labour force. All those employed will either develop new skills or enhance current skills. This insinuates that inexperienced workers will have the opportunity to attain and develop new skills, whilst experienced workers will further enhance their current skills.

As production and consumption effects filter through the economy creating a demand for more labour, human resources will be trained and skilled within aligned industries. Ultimately, the WEFs construction will lead to enhanced skills through training and experience in the wider national economy.

In the case where skills development programmes and training take place, the significance of skills development will be high, whereas without focused training, the significance will be moderate.

1.7.2.4 Household income attainment due to employment opportunities

Over half of the households in Witzenberg and Karoo Hoogland LMs are classified as low-income earners. The proposed project provides an opportunity to improve the standard of living for benefitting households, albeit temporary. Numerous households would likely benefit from employment provided by the Kudusberg WEF development. The income earned also results in increased purchasing power in the local community. Therefore, the local business owners and individuals employed at these

businesses will also likely experience some improvement in their income and pass this benefit onto their households.

1.7.2.5 Increase in government revenue due to rates and taxes

In 2017/18, government revenue experienced a considerable shortfall with the revenue gap growing from R30.7 billion experienced in 2016/17 to R48.2 billion (NT, 2018). The shortfall was largely attributed to lower income tax, VAT and customs duties collected as a result of slowing wage increases, weaker consumer spending, and lower import growth (NT, 2018). The situation therefore is considerably grimmer than that observed during the 2008 financial crisis with the gross debt-to-GDP ratio increasing from 26.0% in 2008/09 to unprecedented 53.3% (NT, 2018).

Although, collection of tax is also dependent on tax morality in the country, a vibrant growth stimulated by investment into the economy contributes to the growth of the tax base and leads to increase in gross tax revenue. The project will see an investment of R2.4 billion, some of which will be spent on imported goods and services, and some will be spent on goods and services procured in the country. As a result, the project is likely to lead to the increase in import tax collections, VAT collections, and personal and company tax collection.

Although the spending of the money earned by government through tax collection is difficult to associate with a specific budget item, any revenue received by national government is allocated towards certain budget items, provinces or local municipalities to support and assist with the improvement of their service delivery. This revenue will thus assist government in the improvement of socio-economic conditions for residents.

1.7.2.6 Increased demand for housing, services and social facilities due to influx of migrant labour and job seekers

In a country with an unemployment rate of 26.6%, job seekers are continuously in search of employment prospects (Quantec, 2018). Consequently, the knowledge of the proposed project will attract job seekers into the region. In addition, migrant labour (labour demand which was not met by the local area) will be temporarily accommodated in the area. This influx, depending on its magnitude, can place pressure on local government to provide housing, services and social facilities. Additionally, in the case where employment expectations are not met, the possibility of informal settlement proliferation is high. Therefore, it is recommended that the recruitment process is well communicated and managed. Furthermore, accommodation options for migrant labour should be given due consideration, in order to avoid the imposition of additional pressure on the local housing market.

A male-dominated influx tends to exacerbate social ills such as prostitution and alcohol abuse which tarnish the social fabric. This may place a strain on public social facilities such as health care facilities and education facilities, as well as lead to long-term negative effects such as unwanted pregnancies, spread of disease and addictions. Consultation during the planning phase should be undertaken with the local government to effectively plan for the provision of housing, services and social facilities to meet the potential change in demographics (even if temporary).

1.7.2.7 Potential increase in theft related crimes due to increased movement of people in area

As established, crime incidents have been reported at the Sutherland and Ceres precincts particularly those of drug related crimes, theft and assault. The influx of labour may exacerbate this status if job expectations are not met. Furthermore, inequality, social ills and insufficient job opportunities have a positive correlation with the increase in incidents of various crimes.

The construction phase will create additional movement of people and vehicles to the site, which can also increase the chances of theft in the surrounding properties. This negative impact is moderate and can cause the loss of livestock or valuables. As a counter-action, access to the project site should be

controlled wherein only authorised staff are permitted entry. Moreover, movement to and from the project site should be controlled where construction workers are transported to and from the pick-up area and project site.

Potential affected parties have indicated their concerns over their safety and the safety of their property. Therefore, it would also be advisable to set up regular engagements with the surrounding community and land owners on issues of safety and crime in the area. It is proposed that the developer considers forming a local safety forum, which will develop solutions suitable to immediate community members regarding safety and address any concerns related to possible crime escalation. A community watch could also be set up.

1.7.2.8 Increased social ills such as substance abuse and the spread of communicable diseases.

An increase in the number of people in the area seeking work or working on the WEF is likely to cause an increase in the number of social ills that are present in the area. It is likely that substance abuse and the spread of communicable diseases will be increased in the area. This is likely to cause a certain degree of social upheaval in existing communities and can lead to tensions between the WEF and the surrounding communities. This impact is likely to persist throughout the duration of the construction.

It is suggested that the contractor and developer mitigate this impact by establishing communicating with workers on what behaviour is expected and by managing the amount of time spent off site away from their living areas. It is also suggested that the developers be aware and regularly engage with the surrounding community.

1.7.2.9 Impact on agricultural activities on the directly affected farms

With an increase in the number of workers and construction related traffic on the directly affected farms it is possible that the agricultural activities may be impacted. This could result in reduced ranges for livestock, stress on livestock, and potential livestock theft because of an increased number of workers on the farms. Negative impacts on the livestock in the area could lead to a decrease in on-farm incomes for the land owners.

It is suggested that the mitigations suggested in the Agricultural Impact Assessment be adhered to.

1.7.3 Operation Phase Impacts

1.7.3.1 Increase in production and GDP-R due to operation expenditure

In order to keep the Kudusberg WEF operational, certain costs will be allocated to operations and maintenance. These costs will be spent on procurement of spares, maintaining the facilities, security, and other line items. Additional and new business sales will be created as a result of the indirect multiplier effect stimulated by the operating activities of the wind farm. The long-term number of business sales and production will have moderate significance as an increase in business sales will take place. To enhance the positive impact on the local area, procurement of goods and services from local business will serve to boost the local economy. Nonetheless, the enhancement measure will not alter the significance rating but rather concentrate benefits to the local area, which needs the consistent injection of expenditure.

1.7.3.2 Long-term employment creation due to operation and maintenance activities

Operations and maintenance of WEF will need to be conducted by staff. These positions will likely be technical in nature. It is advisable that as many of these jobs as possible are filled by individuals from the local communities to stimulate the local economy. This may require identifying prospective candidates at the construction phase and up-skilling them in time for the project to start operations.

Sending these employees for on-job training or internships could be considered. Alternatively, skills transfer programmes should be put in place to ensure that all jobs created on site during operations are eventually passed onto the individuals from the local communities.

1.7.3.3 Skills development and enhancement due to operation activities

Skills are imperative for satisfying job requirements and adequately performing tasks that ultimately boost the economy. Employees who are new to the market will develop and attain new skills, whilst workers adept in particular skills will sharpen their abilities. In addition, the employees will improve their marketability for future employment and will be perceived positively by future employers. Successful training and development programmes will develop labour capability in wind farm skills within the region.

1.7.3.4 Household income attainment due to employment opportunities

Household earnings are linked closely with trends in employment and, as such, will be affected positively by the envisaged temporary increase in employment. The creation of employment during the operation period will provide sustainable earnings for the benefitting households. Resultantly, an improvement in the standard of living based on the additional income will accrue. A portion of this income will be earned by households residing in the local communities, thus positively impacting the local economy. This will improve the current income profile of the Witzenberg and Karoo Hoogland LMs, which is dominated by low-income earners and could lessen the dependence of selected local households on social grants.

1.7.3.5 Increase in local government revenue due to rates and taxes

The continual operation of the WEF will likely lead to an increase in the amount of government revenue due to rates and taxes. As mentioned in section 1.5.2.5 the South African government experienced a considerable shortfall with the revenue gap growing from R30.7 experienced in 2016/17 to R48.2 billion (NT, 2018). It is thus assumed that any additional investment that can revenue for the government will be beneficial for the country as a whole. The operation of the WEF will see constant revenue generation for the duration of the operation of the development which will benefit the economy.

Although the spending of the money earned by government through tax collection is difficult to associate with a specific budget item, any revenue received by national government is allocated towards certain budget items, provinces or local municipalities to support and assist with the improvement of their service delivery. This revenue will thus assist government in the improvement of socio-economic conditions for residents.

1.7.4 Decommissioning Phase Impacts

1.7.4.1 Local economy stimulation due to decommissioning costs

After the lifespan of the WEF has been met, termination of the project will take place if the facility cannot be refurbished and a new power purchase agreement signed. A certain amount of funds will be allocated towards the dismantling and decommissioning of the wind farm. This expenditure on decommissioning activities will generate positive impacts on production, GDP, employment and household income, albeit relatively small and for a temporary period. Decommissioning activities will stimulate demand for services of transport and construction companies, amongst others. Resultantly, the local economy will be stimulated for the duration of the decommissioning phase. Decommissioning expenditure such as the disassembly of components will increase the demand for construction services and services offered by other industries.

Some of the project components will be of recyclable value and therefore will also bring some income to the owner. Importantly, the recovery of valuable metallic and non-metallic materials will lead to the

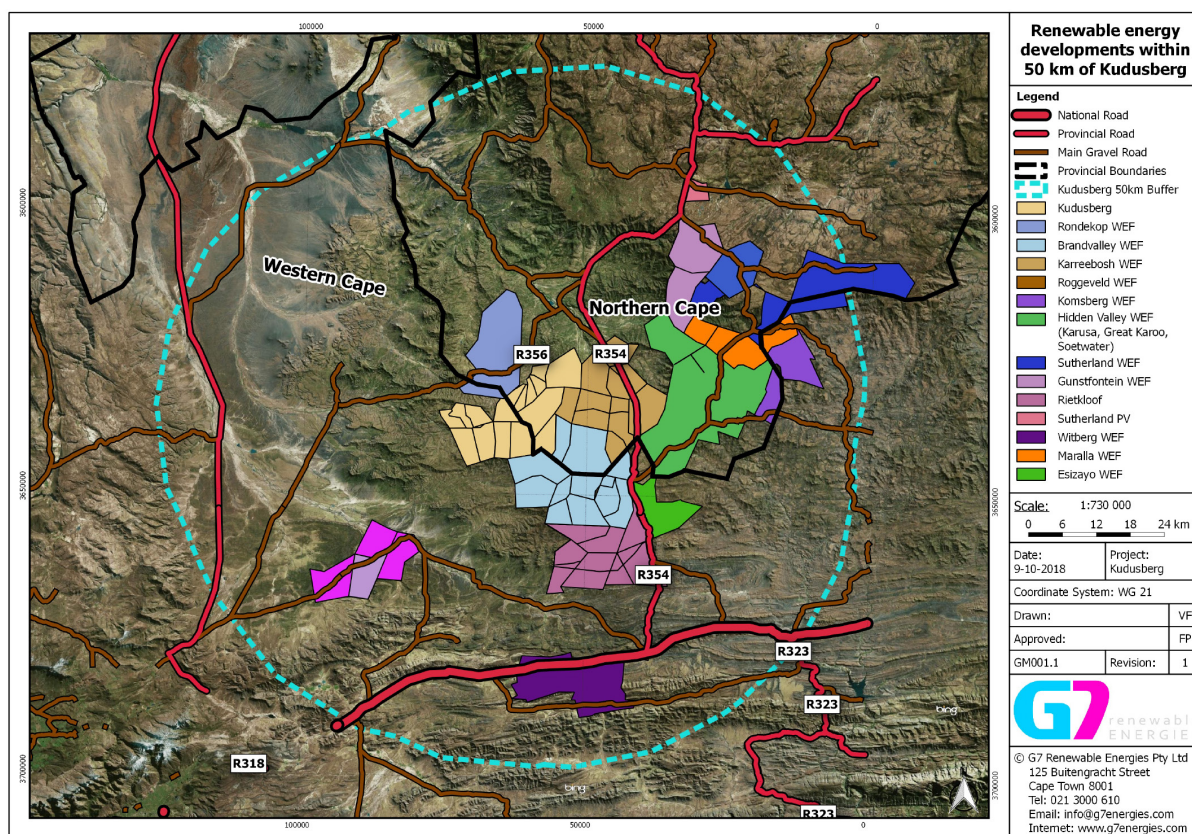
generation of revenue for the owner and allow for savings in production costs of companies that will use the recovered materials in their processes.

1.7.5 Cumulative Impacts

The extent to which a proposed project will impact the zone of influence is based on the baseline conditions of that environment, which includes other constructed and proposed projects in the zone. Such projects, depending on their timing in relation to the project, which is the subject of this impact study, may influence the manifestation and significance of socio-economic impacts that could result from the current project. As such, knowledge of such projects is required to accurately predict and rate socio-economic impacts.

The Department of Environmental Affairs and Tourism's guidelines (DEAT, 2004) suggest that the identification of cumulative effects should focus on important and meaningful issues as "it is not practical to analyse the cumulative effects of an action on every environmental receptor". Furthermore, it is advised that the analysis should focus on "what is needed to ensure long-term productivity or sustainability of the resource" (DEAT, 2004).

In light of the Kudusberg WEF being located in REDZ 2 there are numerous applications for development of renewable energy generation projects in the area. As per the map below, 18 wind energy generation projects are currently being explored within a 50km radius of the site as well as one solar (19 RE projects).



Map 1-6: Location of Existing Approved Applications for Renewable Energy Facilities within 50km of Kudusberg WEF Site (Department of Environmental Affairs, 2018)

Considering the above, the expected cumulative impacts assessed are:

- Negative:
 - Influx of migrant labour and job seekers placing pressure on services and social facilities and increase crime and social ills.

- Positive:
 - Job creation;
 - Economic stimulus and GDP growth;
 - Increased household income attainment and standard of living due to employment opportunities created by surrounding projects; and
 - Increase in government revenue due to rates and taxes.

1.7.5.1 Influx of migrant labour and job seekers placing pressure on services and social facilities, and increase crime and social ills

There is a total of 19 renewable energy projects that are proposed and are located within a 50 km radius from the site of the proposed wind farm. In the case that the proposed projects are constructed and operate at a similar time period, a large number of migrant labours will have to be accommodated in the area. Further to this, job seekers will be drawn to the area due to the numerous job opportunities anticipated from the many developments. This influx of people could lead to a notable shift in demographics in the region. As a result, additional housing, services (water, electricity, roads etc.) and the use of social facilities (clinics, hospitals, police stations etc.) will be required (even if temporary). Given the current backlog in the municipalities, it can be said that a significant pressure will be placed on local government to adequately provide for the increased demand. The situation could be exacerbated if the municipalities continue experiencing challenges with the collection of revenue. An influx of migrant labour and job seekers may also lead to an increase in social ills such as crime and an increase in communicable diseases. This may be exacerbated if development of the 19 proposed renewable energy projects occur simultaneously and place massive pressure on police and social facilities in the surrounding area.

1.7.5.2 Employment creation due to numerous developments

To conduct and fulfil objectives of all proposed and authorised development, labour will be required. This requirement denotes that employment will be created. The exact number of employment opportunities to be made available by the 19 renewable energy projects is currently not known (estimated at 250 jobs per WEF during construction), but it can be stated with confidence that the combined figure would contribute to a notable increase in employment figures. This positive impact can be augmented in the case that the majority of labour is sourced locally.

1.7.5.3 Stimulation of economy due to capital and operating expenditure from projects

The injection of investment from all proposed projects will have a multiplier effect on the economy, wherein numerous economic sectors such as the transport and manufacturing will benefit. The combined expenditure will be colossal and will have a notable impact on GDP and production. Local business will not have the capacity to supply all required services and materials; therefore, the local economy will only benefit to a limited extent. Nonetheless, the GDP of the Witzenberg LM, Karoo Hoogland LM and surrounding municipalities will increase as a result of these projects.

1.7.5.4 Household income attainment due to employment opportunities

The cumulative impacts to household earnings would be positive for those employed to work on the surrounding windfarms. The creation of employment by the development of WEFs in the area will provide sustainable earnings for the benefitting households. Resultantly, an improvement in the standard of living based on the additional income will accrue. A portion of this income will be earned by households residing in the local communities, thus positively impacting the local economy. In the long-term this will improve the current income profile of the Witzenberg and Karoo Hoogland LMs, which is dominated by low-income earners.

1.7.5.5 Increase in government revenue due to rates and taxes

The cumulative impacts of the projects surrounding this development will see an increase in goods and services procured in the country. As a result, the project is likely to lead to the increase in import tax collections, VAT collections, and personal and company tax collection. This revenue will thus assist government in the improvement of socio-economic conditions for residents.

1.7.5.6 No-Go Assessment / Status Quo

Under the No-Go option the Kudusberg WEF would not be developed. As such, all the proposed impacts outlined above would be “neutral” i.e. should the development not occur none of the negative or positive impacts identified during the construction, operational and decommissioning phases would arise.

Furthermore, should the Kudusberg WEF not be developed, the potential job opportunities, and associated improvement in livelihoods, that could be created are forgone. Improvements in energy supply would likewise also be foregone.

1.8 IMPACT ASSESSMENT SUMMARY

The assessment of impacts and recommendation of mitigation measures as discussed above and collated in Table 1-8 to 1-11 below. The ratings below also reflect the revised layout for the project.

Table 1-8. Impact assessment summary table for the Construction Phase

Impact pathway	Nature of potential impact/risk	Status ¹	Extent ²	Duration ³	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment / resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated ?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
SOCIO-ECONOMIC															
CONSTRUCTION PHASE															
Direct Impacts															
Capital investment	Increase in production and GDP-R	Positive	National	Medium-term	Severe	Very likely	High reversibility	Replaceable	High	No	Yes	Procure goods and services, as far as practically possible, from the local municipality.	High	2	High
Construction activities	Temporary employment creation	Positive	National	Medium-term	Moderate	Very likely	High reversibility	Replaceable	Low	No	Yes	Advise on the set-up of a skills desk and where it will be situated. Offer training to increase employability	Low	4	High
Construction activities and employment of construction workers	Skills development	Positive	National	Long term	Moderate	Likely	Low reversibility	Low irreplaceability	Low	Yes	Yes	Devise and implement skills training and skills transfer	Moderate	3	High
Movement of vehicles and workers on farms	Impact on agricultural activities on the directly affected farms	Negative	Site	Medium-term	Moderate	Likely	High reversibility	Replaceable	Low	Yes	Yes	Adhere to recommendations by Agricultural specialist	Very Low	5	Medium
Indirect Impacts															
Construction activities and employment of construction workers	Attainment of household income by benefitting households	Positive	National	Medium term	Moderate	Very likely	High reversibility	Replaceable	Low	No	Yes	Hire majority of local residents who will boost local economy through expenditure	Low	4	High

¹ Status: Positive (+); Negative (-)

² Site; Local (<10 km); Regional (<100); National; International

³ Very short-term (instantaneous); Short-term (<1yr); Medium-term (1-10 years); Long-term (project duration); Permanent (beyond project decommissioning)

Basic Assessment for the Proposed Development of the 325MW Kudusberg Wind Energy Facility and associated infrastructure, between Matjiesfontein and Sutherland in the Western and Northern Cape Provinces

Impact pathway	Nature of potential impact/risk	Status ¹	Extent ²	Duration ³	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment / resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated ?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												that empowers local businesses and economy			
The in-migration of migrant labour and job seekers will place pressure on local government to adequately provide housing, services and social facilities	Increased demand for housing, services and social facilities due to influx of migrant labour and job seekers	Negative	Regional	Medium term	Moderate	Likely	Moderate reversibility	Moderate irreplaceability	Low	Yes	Yes	Manage recruitment process to control expectations and unnecessary in-migration. Ongoing consultation should be undertaken with the local government to effectively plan for the influx. Adequate education for workers on the dangers of substance abuse.	Very low	5	Medium
The increased number of people on site	Potential increase in criminal activity	Negative	Local	Medium term	Substantial	Likely	Low reversibility	High irreplaceability	Moderate	Yes	Yes	Implement controlled access to project site and monitor activity in immediate surrounding sites. Set up local community safety forum.	Low	4	High
The rates, payroll taxes and Value Added Tax paid to local government will increase government revenue	Increase in government revenue	Positive	National	Short term	Moderate	Very likely	High reversibility	Replaceable	Low	No	No	No enhancement measures applicable.	Low	4	Medium
Influx of people to communities	Increased social ills such as substance abuse and the spread of communicable diseases.	Negative	Regional	Medium-term	Moderate	Likely	Moderate reversibility	Moderate irreplaceability	Moderate	Yes	Yes	Implement controlled access to project site Set up local community safety forum Maintain contact with major community stakeholders	Low	4	Medium

Table 1-9. Impact assessment summary table for the Operational Phase

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment / resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
SOCIO-ECONOMIC															
OPERATIONAL PHASE															
Direct Impacts															
Expenditure associated with the operation of the wind farm	Stimulation of the economy - Increase in production and GDP-R due to operation expenditure	Positive	National	Long term	Substantial	Very likely	High reversibility	Replaceable	Moderate	No	Yes	Maximise benefit for local economy through local procurement	Moderate	3	High
Operation and maintenance activities will create long term job opportunities.	Long-term employment creation due to operation and maintenance activities	Positive	Regional	Long term	Slight	Very likely	High reversibility	Replaceable	Very low	No	Yes	Offer skills development programme to serve energy market in region and create local employability.	Very low	5	High
Employment of people for operations and maintenance	Skills development and enhancement due to operation activities	Positive	Regional	Permanent	Slight	Likely	Low reversibility	High irreplaceability	Very low	No	Yes	Offer skills development programme to serve energy market in region and create local employability	Very low	5	High
Investment in local communities from generated revenues by the wind farm	Local upliftment initiative will increase the local communities' access to basic services	Positive	Regional	Long-term	Substantial	Very likely	Moderate reversibility	Replaceable	Moderate	No	Yes	Establishment of upliftment initiatives need to be effectively managed with direct input from relevant stakeholders	Moderate	3	Medium
Indirect Impacts															

Basic Assessment for the Proposed Development of the 325MW Kudusberg Wind Energy Facility and associated infrastructure, between Matjiesfontein and Sutherland in the Western and Northern Cape Provinces

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment / resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
Employment in operations and maintenance of the wind farm	Increased household income attainment and standard of living	Positive	Regional	Long term	Slight	Very likely	High reversibility	Replaceable	Very low	No	Yes	Employing locally will increase benefit to local households and inadvertently the local economy.	Very low	5	High
The rates, payroll taxes and Value Added Tax paid to local government will increase government revenue	Increase in local government revenue	Positive	National	Long term	Slight	Very likely	High reversibility	Replaceable	Very low	No	No	No enhancement measures applicable.	Very low	5	Medium

Table 1-10. Impact assessment summary table for the Decommissioning Phase

Impact pathway	Nature of potential impact/risk	Status ⁴	Extent ⁵	Duration ⁶	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment / resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
SOCIO-ECONOMIC															
DECOMMISSIONING PHASE															
Direct Impacts															
Expenditure on decommissioning of the wind farm	Stimulation of the economy - Increase in production and GDP-R due to operation expenditure	Positive	Regional	Short term	Slight	Very likely	High reversibility	Replaceable	Very low	No	Yes	Develop and implement a material recovery strategy to optimise use of valuable material.	Very low	4	High
On-site decommissioning activities	Temporary employment creation	Positive	National	Short term	Slight	Very likely	High reversibility	Replaceable	Very low	No	Yes	Advise on the set-up of a skills desk and where it will be situated.	Very low	4	High

⁴ Status: Positive (+); Negative (-)

⁵ Site; Local (<10 km); Regional (<100); National; International

⁶ Very short-term (instantaneous); Short-term (<1yr); Medium-term (1-10 years); Long-term (project duration); Permanent (beyond project decommissioning)

Table 1-11. Cumulative impact assessment summary table

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
SOCIO-ECONOMIC															
CUMULATIVE IMPACTS															
Development of multiple renewable energy projects in the area leading to increased construction activities in the region	The influx of migrant workers and job seekers into the region pressure on public services such as police, clinics and hospitals	Negative	Regional	Medium term	Substantial	Very Likely	Moderate reversibility	Low irreplaceability	Moderate	No	Yes	Manage recruitment process to control expectations. Engage with local government during planning stages for adequate preparation to take place.	Low	4	Medium
Construction activities of other renewable energy projects	Employment creation	Positive	National	Long-term	Severe	Likely	Moderate reversibility	Replaceable	High	No	Yes	Offer skills development programme to serve energy market in region and create local employability.	High	2	High
Capital and operating expenditure of numerous projects	Stimulation of economy	Positive	National	Long-term	Extreme	Likely	High reversibility	Replaceable	High	No	Yes	Procure goods and services, as far as practically possible, from the local municipality.	High	2	High
Investment in road infrastructure required for vehicle and people movement for new projects	Improved access to rural areas	Positive	Regional	Medium-term	Moderate	Very likely	High reversibility	Replaceable	Low	No	Yes	Ensure that routes are regularly maintained	Low	4	High
Investment of a portion of revenue by other renewable energy projects into communities	Local upliftment initiatives	Positive	Regional	Long-term	Substantial	Very likely	Moderate reversibility	Replaceable	Moderate	No	Yes	Establishment of upliftment initiatives need to be effectively managed with direct input from relevant stakeholders	Moderate	3	Medium

1.9 INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAM

Below is a description of the key monitoring recommendations for each applicable mitigation measure identified for all phases of the project for inclusion in the Environmental Management Plan Report (EMPr) or Environmental Authorisation (EA).

Impact	Mitigation/Management Objectives	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
A. DESIGN PHASE					
A.1. SOCIO-ECONOMIC IMPACTS					
Employment creation for construction, operation and decommissioning activities.	To reduce the unemployment rate in local municipality. Promote local employment opportunities.	<ul style="list-style-type: none"> Advise on the set-up of a skills desk and where it will be situated. Provide awareness of skills desk for local communities. 	<ul style="list-style-type: none"> Create a skills requirement profile for both construction and operations Set-up skills desk at a central and accessible location. Create awareness of skills desk through posters and media announcements. Skills desk should serve to record local job seeker skills. Identify potential candidates and fill vacancies 	<ul style="list-style-type: none"> Design phase (in place before commencement of construction) 	<ul style="list-style-type: none"> Holder of the EA.

Impact	Mitigation/Management Objectives	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
B. CONSTRUCTION					
B.1. SOCIO-ECONOMIC IMPACTS					
Increase in production and GDP-R	To maximize economic benefit to the local municipality.	<ul style="list-style-type: none"> Procure goods and services, as far as practically possible, from the local municipalities. 	<ul style="list-style-type: none"> Run a supplier day in neighbouring towns and identify prospective companies to engage with during construction Keep record of companies and businesses supplying goods and services Calculate split percentage of local and national/international companies 	<ul style="list-style-type: none"> Once Bi-annually Once 	Holder of the EA
Increase in theft related crime	To prohibit theft of stock and valuables on directly and adjacent farm portions	<ul style="list-style-type: none"> Initiate site access control and monitor movement to and from project site. 	<ul style="list-style-type: none"> Each employee ought to have an access card/ apparel for identification purposes Security should be located at the entrance to only permit authorised personnel and landowners A pick-up point ought to be established wherein, employees will be transported to and from the site Develop a local community safety forum to establish monitoring methods for surrounding community 	<ul style="list-style-type: none"> Throughout the construction phase 	<ul style="list-style-type: none"> Holder of the EA

1.10 CONCLUSION AND RECOMMENDATIONS

This SEIA was prepared by Urban-Econ) in response to a request by CSIR on behalf of G7 Kudusberg Wind Farm (Pty) Ltd as part of a BA for the development of the proposed 325 MW Kudusberg WEF in REDZ 2 located in the Western and the Northern Cape Provinces. The project footprint (including road upgrades) was found to affect 26 farm portions and will involve the erection of a maximum of 56 wind turbines as well as the upgrading of existing public and private roads leading to the site.

The policy review indicates that from national and local levels, renewable energy projects are key to sustainable development of the national economy. A recognition of the potential of renewable energy projects to stimulate the local economy, create new jobs, and contribute to sustainable development, is evident. Approval of the bid windows signals government support and implementation of the national energy policy as articulated in the IRP.

The economy and communities of Karoo Hoogland and Witzenberg LMs need economic injection, particularly considering the limited economic growth and population decline in the Karoo Hoogland LM, the poor access to basic services, and heavy reliance of the entire economic base of the municipality on the purchasing power of its households. It is clear that the economy of the Karoo Hoogland LM needs to be diversified and the development of the WEF in the area will offer such an opportunity. Furthermore, this project could inspire and stimulate the development of similar projects in the area, contributing to the growth of the utilities sector as well as stimulating local economic development further. The project will also have the potential to improve the standard of living of the local communities and slightly decrease unemployment in the area.

The interviews with the potentially directly or indirectly affected land owners indicated no objection to the proposed WEF, but concerns were raised by some of the landowners. These include loss of sense of place from the development of the WEF (refer to the Visual Impact Assessment for discussion on that aspect), concerns about unannounced movement of people and non-confirmed timeframes for the development of the WEF. The proposed WEF will not sterilise the agricultural land currently used for commercial livestock farming and on its own is not envisaged to impact on the production of any potentially directly impacted farm; therefore, no negative effects on the current economic activities in the area are envisaged. However, potential criminal incidents associated with the presence of construction workers will need to be considered and adequately mitigated.

Overall, the project will create temporary jobs during various stages of the construction period and create more permanent jobs during the operational phase. A portion of these jobs will be filled by labourers from the local communities, which will be highly beneficial considering the high unemployment rates prevalent in the local municipalities.

During operations, the project will employ less workers than during construction. While seemingly small in number (compared to the construction phase), considering that the project is located in the REDZ 2 and the other wind farms that are already approved and being investigated for the development, the positive cumulative effect of these developments could be considerable and could set the local community on a more positive developmental path. Increased presence of construction workers and job seekers is likely to occur in the area since Roggeveld WEF, Soetwater and Karusa WEF (part of the larger Hidden Valley WEF) are due to start construction in early 2019, while Perdekraal WEF has already begun construction. Additionally, should the development of various other projects be constructed the influx of job seekers will need to be managed as it could lead to an increase in social ills and result in deterioration of local standard of living. Cooperation, continuous communication, and working towards a common goal of community upliftment expressed by the local community representatives, land owners, local authorities, and local developers will be the prerequisite to avoiding and mitigating potential negative effects that could be associated with an increase in WEF development activities in the area.

Overall, the benefits of the project outweigh the negative socio-economic effects that the development of the proposed Kudusberg WEF could create; thus, **no objections from a socio-economic perspective can be raised with respect to the proposed project and the alternatives. It is therefore recommended that the proposed Kusuberg WEF can be authorised.** However, the recommended mitigation measures will need to be considered and implemented.

The following table 1-12 below summarises the reviewed socio-economic impacts and provides an indication of the significance before and after mitigation. It should be noted that the socio-economic specialist study considered the revised layout for the project and determined that it would not affect the range of identified socio-economic impacts and their rating.

Table 1-12: Summary of Socio-Economic Impacts for the Kudusberg WEF

Socio-economic impact		Impact significance without mitigation	Impact significance with mitigation
Construction Phase			
Direct	Stimulation of economy	High (+)	High (+)
	Temporary employment creation	Low (+)	Low (+)
	Skills development	Low (+)	Moderate (+)
	Impact on agricultural activities	Low (-)	Very Low (-)
Indirect	Attainment of household income	Low (+)	Low (+)
	Increased demand for services	Low (-)	Very Low (-)
	Potential increase in criminal activity	Moderate (-)	Low (+)
	Increased government revenue	Low (+)	Low (+)
	Increased social ills	Moderate (-)	Low (-)
Operational phase			
Direct	Stimulation of economy	Moderate (+)	Moderate (+)
	Long-term employment creation	Very low (+)	Very low (+)
	Skills development	Very low (+)	Very low (+)
	Local upliftment initiatives	Moderate (+)	Moderate (+)
Indirect	Sustainable household income	Very Low (+)	Very low (+)
	Increased government revenue	Very Low (+)	Very low (+)
Decommissioning Phase			
Local economy stimulation		Very low (+)	Very low (+)
Temporary increase in employment and income		Very low (+)	Very low (+)
Cumulative Impacts			
Stimulation of economy		High (+)	High (+)
Employment creation		High (+)	High (+)
Influx of migrant labour and job seekers		Moderate (-)	Low (-)
Improved access to rural areas		Low (+)	Low (+)

Socio-economic impact	Impact significance without mitigation	Impact significance with mitigation
Local upliftment initiatives	Moderate (+)	Moderate (+)
No-Go / Status Quo		
All impacts	Neutral	Neutral

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1.12 APPENDICES

1.12.1.1 Appendix 1 – Land Owners Contacted

Land owners were contacted between 15th and 20th of August 2018. Those who were unavailable were contacted on subsequent days.

Name	Affiliation	Contacted	Result
Dr vd Walt/ John Hamman	Re/395 Klipbanks Fontein	Contacted	No answer
Van der Vyver CJ Trust - Dawie vd Vyver	Re/161 Muishond Rivier	Contacted	Voicemail
Hendrik Visser	1/156 Gats Rivier; Re/156 Gats Rivier; Re/159 Oliviers Berg	Contacted	Survey complete
P U Uys Familietrust - Pieter Uys	1/159 Oliviers Berg	Contacted	Survey complete
J&B Trust - Jaapie and Bernise Bothma	Re/196 Karree Kloof	Contacted	Survey complete
Spitskop Trust - Thinus van der Merwe	1/157 Riet Fontein, 2/157 Rietfontein; 2/156 Gats Rivier	Contacted	Unwilling to participate
Francois du Toit Trust - Francois du Toit	Re/158 Amandelboom	Contacted	Survey complete
M M Esterhuyse Trust - Duppie Du Plessis	Re/194 Matjies Fontein	Contacted	Unwilling to participate
Johan le Roux	Re/193 Urias Gat	Contacted	No answer
De List Trust - Dirkie Bothma	6/193 Urias Gat; 5/193 Urias Gat; 1/190 Wind Heuvel	Contacted	No answer
Kosie van der Merwe	Re/190 Wind Heuvel	Contacted	Survey complete
Moneyflow Six (Pty) Ltd	169 Zeekoegat	Contacted	No answer
Tuinplaas Trust	Re/171 Vinke Kuil	Contacted	No answer
Virginia Trust	1/174 Lange Huis	Contacted	No answer
Basie Esterhuyse	1/170 Roodeheuvel	Contacted	Voicemail
Eduard Esterhuyse	Re/170 Roodeheuvel	Contacted	No answer

1.12.1.2 Appendix 2 – Survey

LAND USE SURVEY: FARMERS

INSTRUCTIONS:

Official Use Only:
Questionnaire nr: Q_____

- The contents of this questionnaire to be kept strictly confidential
- Please use capital letters.
- Unless otherwise specified, circle all answers.
- Provide answers only in the shaded areas.

INTERVIEWER:

	NAME	CONTACT NUMBER
Name of interviewer		
Name of interviewee		

PART 1: GENERAL INFORMATION

1.1. What is the size of your farm/property? _____ V1

1.2. Is the property used for farming purposes? V2

Yes	1
No	2

1.3 If no, what is the property used for? _____

1.4 If yes, for what type of farming

Commercial farming	1
Communal farming	2
Not applicable	3

1.5 What type of farming activity is you're farm used for? V3

Game breeding	1
Game hunting	2
Dry crops/Irrigation	3
Livestock	4
Not applicable	5

1.6 Please indicate the type of residence the property is used for?

Permanent residence	1
Leisure/occasional residence	2
Not applicable	3

PART 2: RESIDENCY INFORMATION

2.1. How many adults (aged 15 to 65) are employed on the farm per gender? V8

Permanent		Temporary	
Males	Female	Males	Female

2.1 What is the average duration of temporary employment?

2.1. How many people permanently live on the farm (excluding labourers)

2.2 Do the labourers live on the farm? v6

Yes	1
No	2

2.3 If yes how many of the labourers? _____

2.4 If no, where do they live? _____

2.5 Do family members of the labourers live on the farm?

Yes	1
No	2

2.6 If yes, how many? _____

2.7 If no, in which area does the family members live? _____

PART 3: EMPLOYMENT AND REVENUE

3.2 What is the monthly income per labourer?

Permanent		Temporary	
Males (R)	Female (R)	Males (R)	Female (R)

3.2 From what do you derive your main income?

3.3 What is the extent of your commercial activities?

Activity	Area (ha)	Animal units/ Annual yields
Game hunting/viewing		
Game breeding		
Livestock farming		

Crop production – dry land		
Crop production - irrigation		

3.4 What is the average annual revenue do you derive from activities on the farm?

3.5 Which of the activities are the main source of your income?

PART 4: ECONOMIC INDICATORS (GAME FARM)

4.1 Do you receive tourists for gaming purposes? V12

Yes	1
No	2

4.3 How many tourists do you receive for the following purposes?

Purpose	International	Domestic
Trophy hunters		
Leisure/Game viewing		

4.4 What time of year do the tourists visit the farm by purpose?

Purpose	International	Domestic
Trophy hunters		
Leisure/Game viewing		

4.5 What is the average duration of stay for the following visitors?

Purpose	International (days)	Domestic (days)
Trophy hunters		
Leisure/Game viewing		

4.5 What is the average amount a tourist spends by purpose per visit?

Purpose	International (R)	Domestic (R)
Trophy hunters		
Leisure/Game viewing		

4.6 Are visiting packages obtainable? If yes please describe in regards to the following

Package visiting days	Cost	What package includes	Number of trophies that can be made	Cost per trophy

PART 5: ECONOMIC INDICATORS (LIVESTOCK FARM)

5.1 What type of livestock farming is considered?

Activity	Land area under use (ha)	Livestock numbers/production
Livestock breeding		
Game breeding		
Meat production		
Irrigation		

5.2 What other revenue generating activities occur on the farm?

PART 6: CONCERNS

6.1 What are your concerns regarding the development?

6.2 Would you stop with any activity on the farm as a result of the project? Which one and to what degree?

6.3 Would any of your employees lose employment as a result of the proposed project?

6.4 Is there anything further you would like to share with us?

1.12.1.3 Appendix 3 – Other Renewable Energy Projects within a Radius of 50 km from the Proposed Kudusberg WEF Site

DEA REFERENCE NUMBER	EIA PROCESS	APPLICANT	PROJECT TITLE	EAP	TECHNOLOGY	MEGAWATT	STATUS
WIND PROJECTS							
14/12/16/3/3/2/967	Scoping and EIA	Biotherm Energy (Pty) Ltd	Proposed 140 MW Esizayo Wind Energy Facility and its associated infrastructure near Laingsburg within the Laingsburg Local Municipality in the Western Cape	WSP/Parsons Brinckerhoff	Wind	140 MW	Approved
East -14/12/16/3/3/2/962 West- 14/12/16/3/3/2/693	Scoping and EIA	Biotherm Energy (Pty) Ltd	East: Proposed 140 MW Maralla West Wind Energy Facility on the remainder of the farm Welgemoed 268, the remainder of the farm Schalkwykskraal 204 and the remainder of the farm Drie Roode Heuvels 180 north of the town of Laingsburg within the Laingsburg and Karoo Hoodland Local Municipalities in the Western and Northern Cape Provinces	WSP/Parsons Brinckerhoff	Wind	140 MW	Approved

DEA REFERENCE NUMBER	EIA PROCESS	APPLICANT	PROJECT TITLE	EAP	TECHNOLOGY	MEGAWATT	STATUS
			West: Proposed 140 MW Maralla West Wind Energy Facility on the remainder of the Farm Drie Roode Heuvels 180, the remainder of the farm Annex Drie Roode Heuvels 181, portion 1 of the farm Wolven Hoek 182 and portion 2 of the farm Wolven Hoek 182 north of the town of Laingsburg within the Karoo Hoodland Local Municipality in the Northern Cape Province				
12/12/20/1966/AM5	Amendment	Witberg Wind Power (Pty) Ltd	Proposed establishment of the Witberg Wind Energy Facility, Laingsburg Local Municipality, Western Cape Province	Environmental Resource Management (Pty) Ltd / Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Approved
12/12/20/1783/2/AM1	Scoping and EIA	South Africa Mainstream Renewable Power Perdekraal West (Pty) Ltd	Proposed development of a Renewable Energy Facility (Wind) at the Perdekraal Site 2, Western Cape Province	Environmental Resource Management (Pty) Ltd	Wind	110 MW	Under construction
12/12/20/1783/1	Scoping and EIA	South Africa Mainstream Renewable Power Perdekraal East (Pty) Ltd	Proposed development of a Renewable Energy Facility (Wind) at the Perdekraal Site 2, Western Cape Province	Savannah Environmental Consultants (Pty) Ltd	Wind	150 MW	Approved

DEA REFERENCE NUMBER	EIA PROCESS	APPLICANT	PROJECT TITLE	EAP	TECHNOLOGY	MEGAWATT	STATUS
14/12/16/3/3/2/899	Scoping and EIA	Rietkloof Wind Farm (Pty) Ltd	Proposed Rietkloof Wind Energy (36 MW) Facility within the Laingsburg Local Municipality in the Western Cape Province	EOH Coastal & Environmental Services	Wind	36 MW	Approved
TBC	BA		Proposed Rietkloof Wind Energy Facility, Western Cape, South Africa	WSP	Wind	140 MW	In progress
14/12/16/3/3/2/826	Scoping and EIA	Gunstfontein Wind Farm (Pty) Ltd	Proposed 200 MW Gunstfontein Wind Energy Facility on the Remainder of Farm Gunstfontein 131 south of the town of Sutherland within the Karoo Hooglands Local Municipality in the Northern Cape Province, south of Sutherland.	Savannah Environmental Consultants (Pty) Ltd	Wind	200 W	Approved
12/12/20/1782/AM2	Scoping and EIA	Mainstream Power Sutherland	Proposed development of 140 MW Sutherland Wind Energy Facility, Sutherland, Northern and Western Cape Provinces	CSIR	Wind	140 MW	Approved
Karusa - 12/12/20/2370/1 Soetwater - 12/12/20/2370/2	Scoping and EIA	African Clean Energy Developments Renewables Hidden Valley (Pty) Ltd	Proposed Hidden Valley Wind Energy Facility on a site south of Sutherland, Northern Cape Provinces (Karusa & Soetwater)	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW each	Preferred bidders. Construction to commence in 2019
12/12/20/2370/3	Scoping and EIA	African Clean Energy Developments Renewables	Proposed Hidden Valley Wind Energy Facility on a site south of Sutherland, Northern Cape Provinces (Greater Karoo))	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Approved

DEA REFERENCE NUMBER	EIA PROCESS	APPLICANT	PROJECT TITLE	EAP	TECHNOLOGY	MEGAWATT	STATUS
		Hidden Valley (Pty) Ltd					
West -14/12/16/3/3/2/856 East - 14/12/16/3/3/2/857	Scoping and EIA	Komsberg Wind Farm (Pty) Ltd	Proposed 275 MW Komsberg West Wind Energy Facility near Sutherland within the Northern and Western Cape Provinces Proposed 275 MW Komsberg East Wind Energy Facility near Sutherland within the Northern and Western Cape Provinces	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW each	Approved
12/12/20/1988/1/AM1	Amendment	Roggeveld Wind Power (Pty) Ltd	Proposed Construction of the 140 MW Roggeveld Wind Farm within the Karoo Hoogland Local Municipality and the Laingsburg Local Municipality in the Western and Northern Cape Provinces	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Preferred bidders. Construction to commence in 2019.
14/12/16/3/3/2/807/AM1	Scoping and EIA Amendment	Karreebosch Wind Farm (Pty) Ltd	Proposed Karreebosch Wind Farm (Roggeveld Phase 2) and its associated infrastructure within the Karoo Hoogland and Laingsburg Local Municipalities in the Northern and Western Cape Provinces	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Approved
14/12/16/3/3/2/900	Scoping and EIA	Brandvalley Wind Farm (Pty) Ltd	Proposed 147 MW Brandvalley Wind Energy Facility North of the Town of Matjiesfontein within the	EOH Coastal & Environmental Services	Wind	140 MW	Approved

DEA REFERENCE NUMBER	EIA PROCESS	APPLICANT	PROJECT TITLE	EAP	TECHNOLOGY	MEGAWATT	STATUS
			Karoo Hoogland, Witzenberg and Laingsburg Local Municipalities in the Northern and Western Cape Provinces				
TBA	Scoping and EIA	Rondekop Wind Farm (Pty) Ltd	Proposed establishment of the Rondekop WEF, south-west of Sutherland in the Northern Cape	SiVEST SA (Pty) Ltd	Wind	325 MW	In process
West 14/12/16/3/3/2/856 East 14/12/16/3/3/2/857	Scoping and EIA	Komsberg Wind Farms (Pty) Ltd	Komsberg East and West WEF	Arcus Consulting Services (pty) Ltd	Wind	140 MW each	
TBC	BA	ENERTRAG SA (Pty) Ltd	Proposed Development of the Tooverberg Wind Energy Facility and the associated grid connection near Touws River, Wester Cape Province)	SiVEST SA (Pty) Ltd	Wind	140 MW	In process
SOLAR PROJECTS							
12/12/20/2235	BA	Inca Sutherland Solar (Pty) Ltd	Proposed Photovoltaic (PV) Solar Energy Facility on A Site South Of Sutherland, Within The Karoo Hoogland Municipality Of The Namakwa District Municipality, Northern Cape Province	CSIR	Solar	10 MW	Approved