



Socio-Economic Impact Assessment Report

PROPOSED TAAIBOS SOUTH WIND ENERGY FACILITY, NEAR VICTORIA
WEST, NORTHERN CAPE PROVINCE

Marchelle Terblanche | INDEX Social Consulting Services | 5 January 2023

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Socio-economic Impact Assessment Report for the proposed Taaibos North Overhead Transmission Line	
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DECLARATION OF INDEPENDENCE

I, Marchelle Terblanche, in my capacity as the Socio-economic Impact Assessment Consultant, hereby declare that I -

- Act as an independent Social and Socio-economic Assessment Practitioner;
- Have 26 years' experience of practice and experience in Socio-economic Impact Assessments and related community development work. My Blurb is attached as Annexure, Section 11.3.
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Based on information provided to me by the project proponent, and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional judgement.



2022-10-30

Date

LEGAL REQUIREMENTS

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6):

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of 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	Page II
ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 11.3
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page III
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.1 and 3.2
(cA) an indication of the quality and age of base data used for the specialist report;	Section 3.3.2
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 7.5
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 3.3.3
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 3.3
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 5.2
g) an identification of any areas to be avoided, including buffers;	Section 5.2.1 and 5.2.2
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;	Section 5.2.2
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 3.4
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 7
k) any mitigation measures for inclusion in the EMPr;	Section 7
l) any conditions for inclusion in the environmental authorisation;	n/a
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 9
n) a reasoned opinion-	Section 8.2

<p>i. (as to) whether the proposed activity, activities or portions thereof should be authorised;</p> <p>(iA) regarding the acceptability of the proposed activity or activities; and</p> <p>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;</p>	
<p>o) a description of any consultation process that was undertaken during the course of preparing the specialist report;</p>	<p>Section 3.3.6</p>
<p>p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and</p>	<p>Section 3.3.6.3</p>
<p>q) any other information requested by the competent authority.</p>	<p>n/a</p>
<p>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.</p>	<p>n/a</p>

EXECUTIVE SUMMARY

WKN Windcurrent SA (Pty) Ltd is planning to develop five Wind Energy Facilities (WEF's) with associated infrastructure and their respective Overhead Powerlines (OHL's) located between Victoria West and Loxton in the Northern Cape Province. These facilities are referred to as the "Victoria West WEF Cluster". One of the WEF's associated with this Cluster, i.e. the Taaibos South WEF (The Project) is the subject of this Socio-economic Impact Assessment (SEIA) report and is analyzed and rated for Environmental Impact Assessment (EIA) purposes. INDEX *Social Consulting Services* was appointed for this purpose.

The Taaibos South WEF is located approximately 60 km south-west of Victoria West and 27 km south-east of Loxton in the Pixley ka Seme District and Ubuntu local Municipality (LM) in the Northern Cape Province.

Typical small, sparsely populated Karoo towns are scattered throughout the study area, whereas the larger towns serve the purpose of agricultural service centres with higher population densities. The study area in general experiences high levels of unemployment, poverty and social grant dependence and low levels of education. The local economy is largely based on agriculture, mainly goat, sheep and game farming. The manufacturing sector contributes only marginally to employment. Increasing the access to basic services and health, education and social services remain a challenge. Economic empowerment is limited by inadequate available employment opportunities and a lack in entrepreneurship and skills. For this reason the municipalities in the study area are increasing their focus on skills development.

For the 24-month construction period, various positive and negative social and socio-economic impacts have been identified and are summarized below:

Construction impacts	Before mitigation	After mitigation
Temporary employment	SOME BENEFITS	SOME BENEFITS
Local procurement	SOME BENEFITS	SOME BENEFITS
Induced local economic impacts	FEW BENEFITS	FEW BENEFITS
Training / skills development / capacity building	FEW BENEFITS	SOME BENEFITS
Employment equity	FEW BENEFITS	SOME BENEFITS
Impacts associated with an influx of jobseekers / temporary construction workers	MODERATE NEGATIVE	LOW NEGATIVE
Land use impacts	LOW NEGATIVE	LOW NEGATIVE
Intrusion impacts	MODERATE NEGATIVE	MODERATE NEGATIVE
Health and safety risks for workers	MODERATE NEGATIVE	LOW NEGATIVE

Approximately 250 direct construction-related employment opportunities will realize. In addition indirect employment and direct and induced economic impacts will manifest locally and nationally. These impacts will contribute to an increase in the livelihoods of directly and indirectly participating households for the duration of construction. Although limited, training and skills development has the potential to alleviate poverty levels over the medium to long-term, as the people involved in the Project will acquire skills. The Project also has the potential to increase the skills and capacity of the municipal structures if they are

actively involved from the onset of the Project. Strong emphasis is placed on measures to include the Local Economic Development (LED) Units in the processes to enhance participation and transparency.

Negative impacts are short-term in nature and can generally be mitigated effectively. The implementation of an effective employment process in collaboration with the municipal LED Units is essential to address impacts associated with an influx of jobseekers / temporary construction workers and to avoid or minimize residual short to medium term consequences for the municipalities and landowners.

Operational phase impacts over the 25-year lifespan of the Project and their significance ratings are reflected in the following table:

Operational impacts	Before mitigation	After mitigation
New employment and economic impacts	SOME BENEFITS	SOME BENEFITS
Increase in livelihoods for directly benefitting landowners	SOME BENEFITS	SOME BENEFITS
Socio-economic contribution / Community development	FEW BENEFITS	SOME BENEFITS
Training / skills development / capacity building	FEW BENEFITS	SOME BENEFITS
Land use impacts	LOW NEGATIVE	LOW NEGATIVE
Impacts on land values	LOW NEGATIVE	LOW NEGATIVE
Impacts on tourism	NO SIGNIFICANCE	NO SIGNIFICANCE
Intrusion impacts	MODERATE NEGATIVE	MODERATE NEGATIVE
Impacts on sense of place	MODERATE NEGATIVE	MODERATE NEGATIVE
Contribution to the national power supply	SOME BENEFITS	SOME BENEFITS

Various positive impacts of low to moderate significance are likely to manifest. The inclusion of the power produced at the Taaibos South WEF into the national grid will assist to address the national energy crisis, thereby contributing to development and is rated with a moderate positive significance. In addition, employment, procurement and induced positive economic impacts; annual compensation secured through the lease agreements for directly benefitting landowners; SED and ED spent; as well as skills development and capacity building, are some of the additional positive impacts identified.

Negative impacts pertain to land use impacts (although very limited), intrusion impacts and impacts on sense of place. Sense of place remains a personal experience and therefore the degree of confidence is 'undecided'. Available research on the impact of wind farms on farmland values are inconclusive and would depend on a number of variables and it is thus the opinion of the SEIA Specialist that negative impacts on land values during the operational phase of the Taaibos South WEF are unlikely, but that individual negative perceptions towards the development could affect property sales negatively in terms of prolonged sale periods and fewer buyers' interests. The impact has been rated with a 'low negative' significance.

Should the Taaibos South WEF be decommissioned after its 25 years' lifespan, social and socio-economic impacts are expected to be similar to those that took place during the construction phase and can generally

be mitigated effectively. It is not possible to accurately rate and assess decommissioning impacts at this early stage of the process due to a changing social environment and it is therefore recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impacts. No rating is thus be provided for impacts associated with decommissioning.

From a social and socio-economic perspective negative impacts that could manifest for this Project are either of low or moderate significance, or can be mitigated to acceptable levels. No issues of high significance have been identified. Based on the findings of this SEIA it is the opinion of the Specialist that the construction and operation of the Taaibos South WEF may proceed, provided that the mitigation, management measures and requirements as set out in this report be incorporated in the EMPr and implemented wherever applicable.

GLOSSARY OF ABBREVIATIONS

Abbreviation	
ART	Anti-Retroviral Therapy
AIDS	Acquired Immune Deficiency Syndrome
BBBEE	Broad-Based Black Economic Empowerment
BW	Bid window
BWLM	Beaufort West Local Municipality
BA	Basic Assessment
CKDM	Central Karoo District Municipality
CLO	Community Liaison Officer
CPF	Community Policing Forum
CS	Community Survey
CSMP	Contractor Social Management Plan
DFFE	Department of Forestry, Fisheries and the Environment
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ED	Enterprise Development
EMC	Environmental Monitoring Committee
EMPR	Environmental Management Programme report
FET	Further Education and Training
GDP	Growth Domestic Product
GDP-R	Gross Domestic Product by Region
GVA	Gross Value Added
HIV	Human immunodeficiency virus
HTVL	High voltage transmission lines
IDP	Integrated Development Plan
IPP	Independent Power Producer
IPPO	Independent Power Producer Office
IP4	Independent Power Producer Procurement Programme
KPA	Key Performance Areas
LED	Local Economic Development
LGSETA	Local Government Sector Education and Training Authority
LM	Local Municipality
LSDF	Local Spatial Development Framework
LSU	Livestock Unit

MoU	Memorandum of Understanding
NEMA	National Environmental Management Act
NDP	National Development Plan
NGO	Non-government Organizations
NSSD	National Strategy for Sustainable Development
NSDP	National Spatial Development Perspective
PGDS	Provincial Growth and Development Strategy
PKSDM	Pixley ka Seme District Municipality
PLC	Project Liaison Committee
PPP	Public participation process
PSEDS	Provincial Spatial Economic Development Strategy
QLFS	Quarterly Labour Force Survey
RE	Renewable Energy
REI4P	Renewable Energy Independent Power Producer Procurement Programme
SAPS	South African Police Service
SDF	Spatial Development Framework
SED	Socio-economic development
SEIA	Socio-economic Impact Assessment
SMME's	Small, Medium and Micro Enterprises
SMP	Social Management Plan
TB	Tuberculosis

CONTENTS

1	Introduction.....	1
1.1	Project Background	1
1.2	Locality.....	2
2	Description of the Project	3
2.1	Land portions.....	3
2.2	Project details.....	3
2.3	Construction phase	3
2.4	Operational phase	3
2.5	Social and Socio-economic Process.....	4
2.5.1	Identification of the Beneficiary Communities	5
2.5.2	Employment	5
2.5.3	Procurement.....	6
2.5.4	Financial and Socio-economic Contributions	6
3	Methodology for SEIA	7
3.1	Specialist Credentials.....	7
3.2	Scope and Purpose of Report.....	7
3.3	Approach and Methodology.....	8
3.3.1	Scope of the assessment	8
3.3.2	Desktop studies and literature review	8
3.3.3	Site visit	8
3.3.4	Definition of the Study Area	8
3.3.5	Identification of Stakeholders and Sensitive Receptors.....	9
3.3.6	Primary data	9
3.3.7	Secondary data	10
3.3.8	Impact variables to be assessed	11
3.3.9	Significance rating	11
3.3.10	Mitigation and management.....	11
3.3.11	Cumulative impacts.....	11
3.3.12	Alternatives	12
3.3.13	Conclusion and Recommendations.....	12

3.3.14	Social Management Plan and Strategies	12
3.4	Assumptions and Limitations	12
4	Legal framework and policy guidelines	12
4.1	International guidelines	13
4.2	National Policy context.....	14
4.3	Provincial context.....	16
4.4	District and Local Municipal Context.....	17
4.5	Other Policy Guidelines	18
5	Description of the Study Area	19
5.1	Regional and Local Study Area	19
5.1.1	Municipalities	19
5.1.2	Towns	20
5.1.3	Land Uses.....	21
5.2	Site Specific Study Area	21
5.2.1	Sensitive receptors	22
5.2.2	Sensitivity mapping	22
5.3	Renewable Energy Projects and Power Lines in and Around the Study Area.....	23
6	BASELINE DATA OF THE STUDY AREA.....	23
6.1	Population data	23
6.1.1	Population size	23
6.1.2	Language and race.....	24
6.2	Labour Force.....	25
6.2.1	Education.....	25
6.2.2	Unemployment.....	25
6.2.3	Youth unemployment.....	26
6.2.4	Incomes	26
6.2.5	Employment per sector	26
6.3	Economic profile and Indicators.....	27
6.4	Social Indicators.....	29
6.4.1	Health	29
6.4.2	Crime	29

6.5	Institutional Profile.....	30
6.5.1	Housing, infrastructure and services.....	30
6.5.2	Health Facilities	30
6.5.3	Educational Facilities	31
6.6	Local Economic Development	31
6.7	Local social and economic issues	32
7	Socio-Economic Impacts Identified	33
7.1	Construction phase impacts.....	33
7.1.1	Temporary employment.....	33
7.1.2	Local procurement	34
7.1.3	Induced local economic impacts	35
7.1.4	Training / Skills Development / Capacity Building.....	35
7.1.5	Employment Equity	37
7.1.6	Impacts associated with an Influx of Jobseekers / Temporary Construction Workers.....	38
7.1.7	Land use impacts	41
7.1.8	Intrusion impacts.....	41
7.1.9	Health and safety risks	43
7.2	Operational Phase Impacts	44
7.2.1	New employment and economic impacts.....	44
7.2.2	Increase in livelihoods for directly benefitting landowners.....	45
7.2.3	Socio-economic contribution / community development	46
7.2.4	Training / Skills Development / Capacity Building.....	47
7.2.5	Land use impacts	48
7.2.6	Impacts on land values.....	48
7.2.7	Impacts on tourism.....	50
7.2.8	Intrusion impacts.....	50
7.2.9	Impacts on sense of place	51
7.2.10	Contribution to Nation Power Supply	52
7.3	Decommissioning Phase.....	52
7.4	Alternatives	52
7.5	Cumulative Impacts.....	53

7.5.1	Employment, Economic Contribution and Induced Impacts.....	53
7.5.2	Impacts for the local and district Municipalities	53
7.5.3	Impacts associated with an influx of jobseekers / temporary construction workers	54
7.5.4	Intrusion Impacts.....	54
7.5.5	Impacts on Sense of Place	55
7.5.6	Impacts on Land Values.....	55
8	Conclusion and socio-economic Recommendations.....	56
8.1	Summary of findings.....	56
8.2	Conclusion and Impact Statement	58
9	Social Management Plan	59
9.1	Employment, Training / Capacity Building, Local Procurement.....	59
9.2	Awareness / Community engagement.....	61
10	References.....	62
10.1	Documents	62
10.2	Websites	62
10.3	Articles.....	62
10.4	Consultation	63
10.5	Questionnaire responses.....	63
11	Annexures.....	64
11.1	Assessment Criteria.....	64
11.2	Full Impact Assessment – SEIA	69
11.2.1	Construction Phase.....	69
11.2.2	Operation Phase	71
11.3	Blurb of SEIA Specialist.....	73

TABLES

Table 1.	Landownership	3
Table 2.	Design specifications	3
Table 3.	Towns near the Project.....	20
Table 4.	Land Uses and/or Sensitive Receptors	22
Table 5.	Demographic data	23

Table 6. Population in the towns	24
Table 7. Languages and race	24
Table 8. Education levels	25
Table 9. Higher education levels, Ubuntu LM	25
Table 10. Unemployment rate	25
Table 11. Sector of employment	27
Table 12. Contribution to employment.....	27
Table 13. Victoria West SAPS crime statistics	29
Table 14. Health care facilities	31
Table 15. Education facilities.....	31
Table 16. SMP: Employment, training / capacity building, local procurement.....	59
Table 17. SMP: Awareness / community engagement plan	61

FIGURES

Figure 1. Locality of the Victoria West WEF Cluster.....	1
Figure 2. Locality of the Taaibos South WEF	2
Figure 3. 50 km radius from the Taaibos South WEF	5
Figure 4. Locality of Ubuntu Local Municipality	19
Figure 5. Ubuntu LM, Ward 3	20
Figure 6. Typical landscape of the local study area.....	21
Figure 7. Taaibos South WEF: Sensitive receptors	22
Figure 8. Ubuntu LM Income levels.....	26
Figure 9. Access to Municipal Services.....	30

1 INTRODUCTION

1.1 Project Background

WKN Windcurrent SA (Pty) Ltd is planning to develop five Wind Energy Facilities (WEF's) with associated infrastructure and their respective Overhead Powerlines (OHL's) located between Victoria West and Loxton in the Northern Cape Province. These facilities are referred to as the "Victoria West WEF Cluster" and consist of:

- Taaibos North WEF and OHL;
- Taaibos South WEF and OHL;
- Soutrivier North WEF and OHL;
- Soutrivier Central WEF and OHL;
- Soutrivier South WEF and OHL;
- Taaibos to Soutrivier Collector OHL; and
- Soutrivier to Gamma Collector OHL.

The Victoria West WEF Cluster is located approximately 40 km south-west of Victoria West and 20 km south-east of Loxton, south of the R63 as indicated in Figure 1.



Figure 1. Locality of the Victoria West WEF Cluster

Each of the WEF's and their respective OHL's will require their own Environmental Authorization (EA). Environmental Impact Assessment (EIA) applications for the five WEF's and Basic Assessment (BA) applications for the seven OHL's need to be submitted to the National Department of Forestry, Fisheries and Environment (DFFE) in terms of Environmental Impact Assessment Regulations (2014 as amended) under Section 24 of the National Environmental Management Act (No. 107 Of 1998) (NEMA).

A Socio-economic Impact Assessment (SEIA) is one of the Specialist studies required for the NEMA process and INDEX *Social Consulting Services* was appointed for this purpose. The Taaibos South WEF (The Project) is the subject of this SEIA report and is analyzed and rated for EIA purposes.

1.2 Locality

The locality of the Taaibos South WEF is indicated in the figure below.

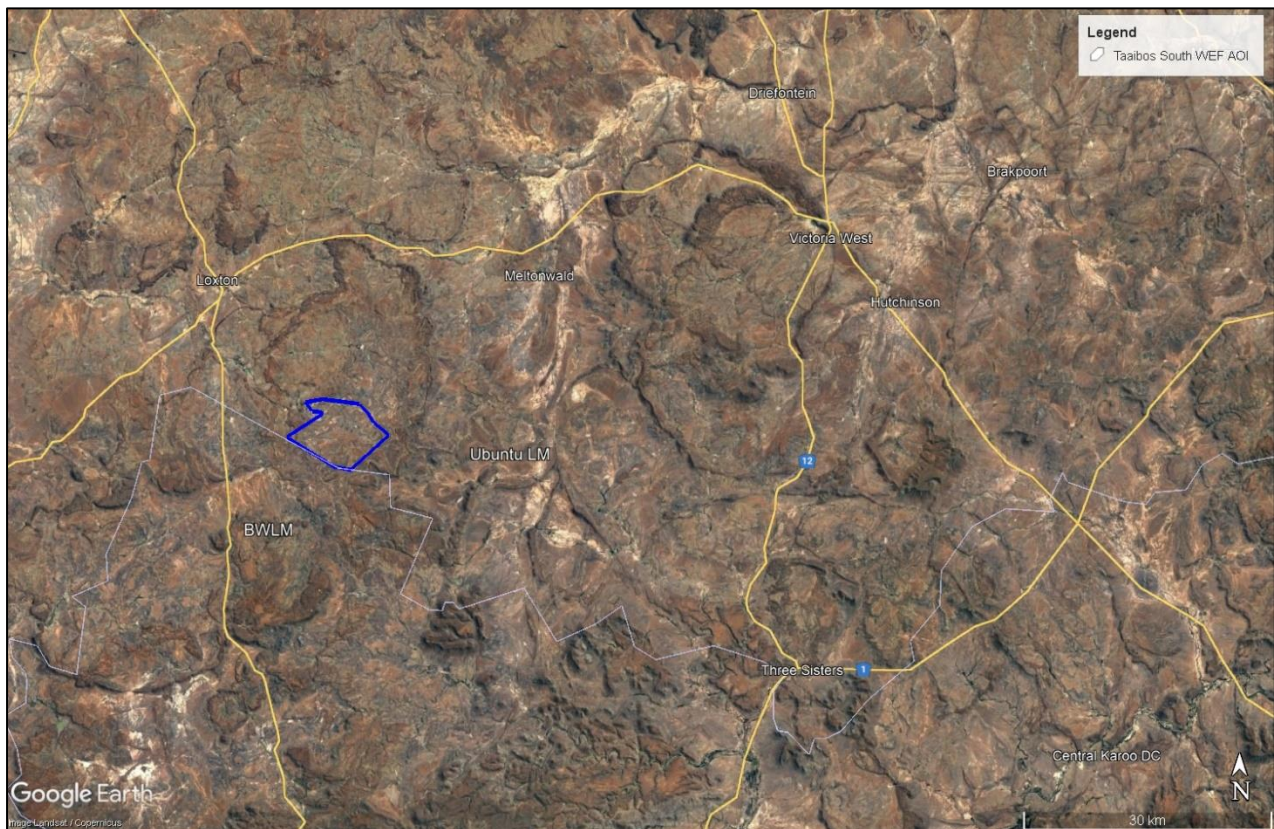


Figure 2. Locality of the Taaibos South WEF

2 DESCRIPTION OF THE PROJECT

2.1 Land portions

Details of land portions directly included in the Project are provided below:

Table 1. Landownership

Farm Name and number	Area (ha)
Portion 4 of Farm No. 145	2 980
Portion 1 of Farm No. 250	4 225
Remainder Farm No. 250	4 714
TOTAL	11 919 ha

2.2 Project details

The design specification of the Taaibos South WEF are indicated in the following table:

Table 2. Design specifications

TAAIBOS SOUTH WEF DESIGN SPECIFICATIONS	
Number of turbines	Up to 36
Power output per turbine	Unspecified
Facility output	Up to 270 MW
Turbine hub height	Up to 200 m
Turbine rotor diameter	Up to 240 m
Turbine blade length	Up to 120 m
Turbine tip height	Up to 320 m
Turbine road width	14 m to be rehabilitated to 8m
BESS Technology	Solid State (Li-Ion) or REDOX-Flow (High level risk assessment for both) – 10 ha / 2700 MW

2.3 Construction phase

Construction of the WEF is anticipated to take place over a 24-month period. It is anticipated that about 250 construction related jobs will become available, of which 15% will be skilled, 30% semi-skilled and 55% unskilled.¹ Lower and semi-skilled workers are usually required to perform civil and electrical duties such as earth mobilisation, excavations for foundations, trenching, access roads, cable installations and so forth. Higher skilled professional entail Project Managers, Engineers, Environmental Control Officers, etc.

2.4 Operational phase

The operational phase of the Taaibos South WEF is approximately 25 years. A limited number of permanent employment opportunities will manifest. Although the employment component of the operational phase is not significant, the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producers Procurement Program (REI4P) implements certain measures to ensure that

¹ Information obtained from client, November 2022.

a portion of the income generated through operational renewable projects is directed towards local economic development. This social / socio-economic process is discussed in the following section of the report.

2.5 Social and Socio-economic Process

The construction and operational phases of Renewable Energy (RE) projects need to conform to the applicable REI4P minimum thresholds, thereby ensuring that social and socio-economic benefits of the Project will be realized in the relevant communities.

In order to select winning bids, the DMRE uniformly ranks all projects submitted according to a scorecard in which (i) 90% of the score is based on the proposed energy Tariff of the respective projects; and (ii) 10% of the score is based on the Economic Development (ED) commitments made by the respective projects on the following seven elements:²

- **Job Creation:** Employment of South African Citizens, Black People, Skilled, Unskilled and people residing in the local communities where the project is located;
- **Local Content:** Components of the facility/project manufactured in South Africa;
- **Preferential Procurement:** Goods and services procured through South African companies that have a Broad-based Black Economic Empowerment (B-BBEE) Generic scorecard or who are Qualifying Small Enterprises, Exempt Micro Enterprises and Woman Owned Venders;
- **Black Ownership:** The percentage of Black Ownership in the project;
- **Black Top Management:** Senior management that are Black people from the Independent Power Producer within the project;
- **Enterprise Development (ED):** the monetary rand contributions made towards Enterprises in the local communities as a percentage of the revenue; and
- **Socio-Economic Development (SED):** the monetary rand contribution made towards socio-economic challenges in the local communities as a percentage of the revenue.

The minimum criteria required for each of these elements do not always stay stagnant and are from time to time adjusted prior to each bidding window commencing. Jobs and the inflow of funds (where applicable) to the local communities do not occur at once, as the process is staggered. During the bid development phase few project developers liaise with communities and cannot commit to promises in terms of local benefits, as the outcomes of the project proposals are uncertain. In the case of a preferred bidder, and during financial close, consultation will commence and construction will result in the employment of workers. Once a wind farm is operational, SED and ED spent will usually increase.

² Based on Round 5 Scorecard, which could be amended for future Bidding Rounds.

2.5.1 Identification of the Beneficiary Communities

In line with the REI4P requirements, communities within a 50 km radius from a RE Project are eligible to become beneficiaries and are usually defined as the recipient / beneficiary communities.

The image below illustrates the 50 km radius and indicates that two municipalities (Ubuntu Local Municipality (LM) and Beaufort West LM (BWL)) and two districts (Pixley ka Seme District Municipality (PKSDM) and Central Karoo District Municipality (CKDM)) located in two provinces (Northern and Western Cape) will be participating.

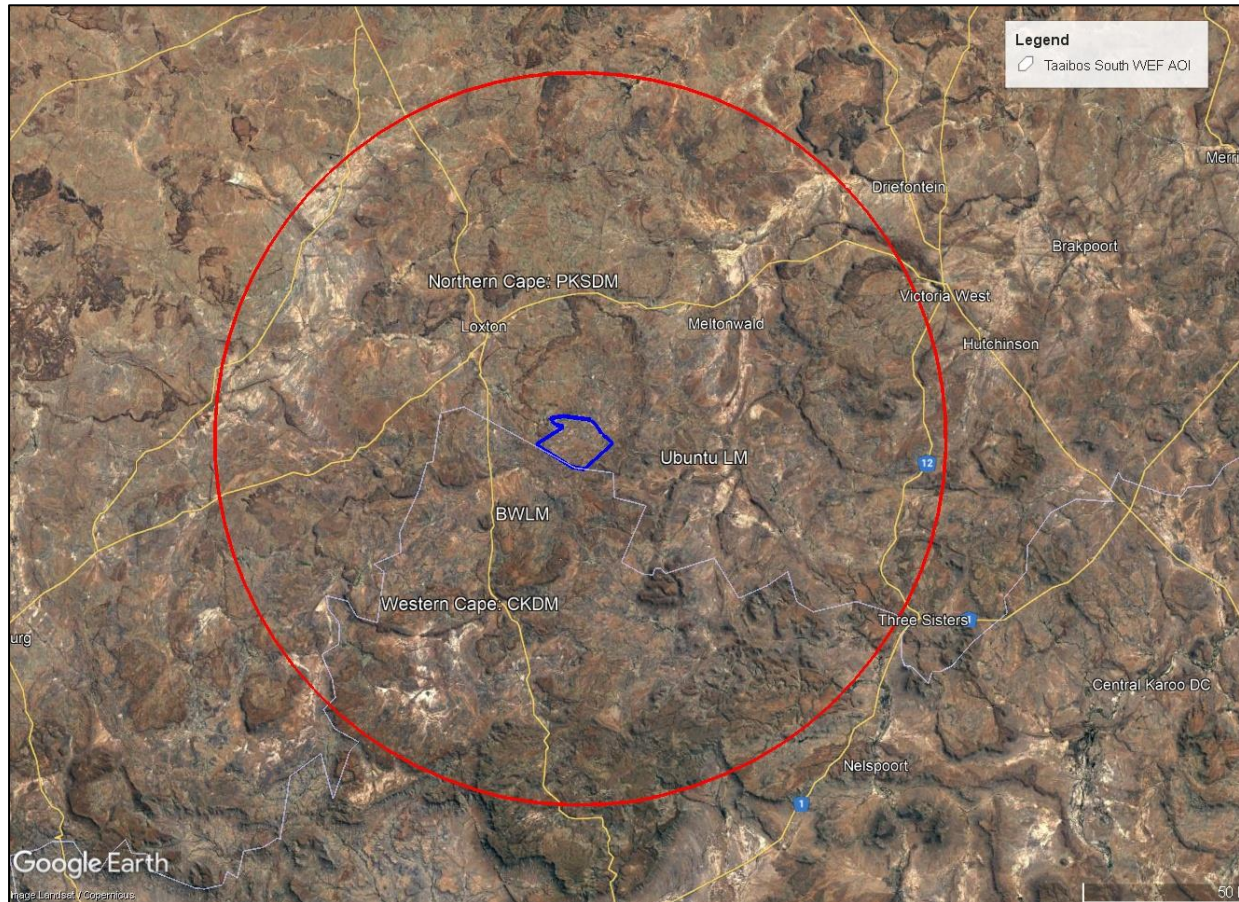


Figure 3. 50 km radius from the Taaibos South WEF

2.5.2 Employment

The employment requirement of the REI4P ensures that a percentage of the South African workforce (at this stage a minimum of 20%) in the Project comes from the local communities and the Taaibos South WEF is thus also required to comply with these minimum thresholds. The inclusion of locals in employment will mitigate many potential negative impacts that could manifest as a result of an influx of outsiders, conflict between locals and an outside workforce and so forth. Communities' proximity to the construction site should therefore be a direct measure of their likelihood to be presented with an opportunity to participate in the construction phase of the Project.

Since inception of the RE Projects in South Africa (Bidding window (BW) 1 – 4), employment thresholds and targets were exceeded consistently. 48 110 job-years during construction, and 15 182 job-years during operations for South African citizens have realized (IPPP Overview, December 2021).

2.5.3 Procurement

In addition to employment, procurement will also be subject to the REI4P, of which local content will weigh 25% of the REI4P Round 5 Economic Development Scorecard for evaluation of wind energy project bids.³ Local procurement includes:

- Procurement of local contractors and Small, Medium and Micro Enterprises (SMME's), wherever possible, to build the WEF; and
- Procurement of material, goods and services from local suppliers and small businesses for construction and maintenance and repairs during the operational phase.

2.5.4 Financial and Socio-economic Contributions

The IPP will ensure community ownership and social responsibility as follow:

- **Community trust:** The mechanism established for the community to hold ownership of projects, which aims to ensure that a portion of the income generated is directed towards local economic development. At this stage at least 2.5% equity should be held by communities.⁴
- **Employment and skills development:** The employment requirement ensures that at least 20% of the South African workforce in the Project comes from the local communities.⁵ At this stage 25% of the scorecard for evaluation of the project is assigned to job creation and 5% to skills development.
- **SED and ED:** SED contributions are allocated towards activities that facilitate sustainable access to the economy for beneficiaries in the areas of rural development, the environment, infrastructure, enterprises, reconstruction of undeveloped areas, development programmes for women or Youth, education, health care, arts and culture. ED refers to contributions to black-owned businesses with the specific objective of assisting or accelerating the development, sustainability and ultimate financial and operational independence of that enterprise. Currently, the target set by the Department in the last version of the tender documents was 2.1% of revenue.⁶

³ REI4P Round 5 Economic Development Scorecard for evaluation of wind energy project bids. Subject to revision for current bidding window.

⁴ There is at this stage uncertainty about the emphasis the DMRE would be placing on community trusts in future, as the benefits of Black Industrialists who may invest larger stakes in renewable energy projects could hold more advantages and could be preferred.

⁵ Currently the number is set at a minimum of 20% and could be amended.

⁶ The percentage allocated towards SED and ED could be amended.

RE projects in general make a considerable contribution towards community development and socio-economic upliftment. Up to date in the Northern Cape Province, the following economic investments and positive socio-economic impacts have realized ⁷ (IPPP Overview, 31 December 2021):

- 65 249 job years;
- Investment (equity and debt) to the value of R139 billion;
- Socio-economic contributions of R14 402 million;
- Community shareholding to the value of R15 133 million.

3 METHODOLOGY FOR SEIA

3.1 Specialist Credentials

The SEIA Specialist's Blurb is attached in Section 11.3: Annexures (Blurb of SEIA Specialist).

3.2 Scope and Purpose of Report

Possible social and socio-economic impacts associated with the Taaibos South WEF are assessed for purposes of this report. The aim is to determine the effect of the proposed development on a specific group of people or a community's way of life, character or social cohesion prior to the development taking place. The developer should therefore optimize the benefits of the Project and implement mitigation that would minimize the possible negative impacts before they manifest.

This SEIA Report provides the following:

- Broad overview of the Project, design and activities to be undertaken;
- Purpose of a SEIA;
- Legal guidelines and policies within which this Project should function from a social and economic perspective;
- Gaps, assumptions and limitations of the study;
- Study scope of work, methodology and the impact significance rating method used;
- Definition of the study area / Project area of influence;
- Identification of sensitive receptors within the site specific study area and a sensitivity map;
- The socio-economic profile of the region and the social characteristics of the affected environment;
- Anticipated positive and negative social and socio-economic impacts for the construction, operation and decommission phases and their significance ratings;
- Mitigation and management measures for each impact category;
- Recommendations from a socio-economic perspective; and

⁷ Cumulative values over the construction phase and the projected operational life of the projects (i.e. 20 years).

- Social Management Plan for implementation.

3.3 Approach and Methodology

This Report complies with Appendix 6 of the NEMA 2014 EIA Regulations (GN R982 of 4 December 2014), as amended. Steps followed for the study are outlined below:

3.3.1 Scope of the assessment

Based on information received from the client, the scope of work was determined. Photographs, aerial maps and a survey of the area and surrounds orientated the consultant and assisted to determine sensitive receptors and the potential social impacts that could emerge.

3.3.2 Desktop studies and literature review

Various secondary data sources were used to collect information, determine and analyze the social and economic characteristics of the study area and to assist in the assessment of impacts, which include:

- Maps, census data and other sources that provided baseline statistics;
- Planning and policy documents (national, provincial and municipal);
- Overview of the Renewable Energy Independent Power Producer Procurement Programme (REI4P);
- Data and results of similar studies extrapolated from documents, articles, publications and case studies locally and internationally; and
- Interviews and questionnaires with stakeholders.

Section 10 contains the list of sources consulted.

3.3.3 Site visit

A site visit was undertaken on 26 and 27 July 2022 to familiarize the specialist with the social environment and to identify sensitive receptors within the Project's area of influence.

3.3.4 Definition of the Study Area

For purposes of the analyses the study area needs to be defined. The following three study areas are relevant for this SEIA:

- The **site specific study area** is the area that experiences direct impacts related to Project activities such as noise, dust, visual impacts, land use impacts and land acquisitions. Due to the size of the turbines the site specific study area is, for purposes of the SEIA, defined as an approximate 2 000 m buffer around the wind farm facility.
- The **local study area (direct area of influence)** is the area that would experience the direct positive economic impacts (job creation, etc.) as well as the negative impacts related to sense of place, an influx of workers and the associated social risks. The geographical area includes the surrounding

farms, smaller towns and settlements located closest to the Project – usually within a few kilometres from the site and located within the affected and surrounding wards.

- The **regional study area (indirect area of influence)** is the area that would experience impacts related to indirect and induced impacts, such as pressure on local service delivery and resources, induced impacts of economic contribution and the benefits of social investment. Certain of the direct impacts, including job creation, effects of an influx of jobseekers and so forth would also manifest here. The geographical area extends to the cities and towns within the local and district municipalities – a radius of approximately 50 km for this Project.

3.3.5 Identification of Stakeholders and Sensitive Receptors

Stakeholders and sensitive receptors within the study area have been identified.

Stakeholders in the site specific and local study areas

- Landowners, including their workers and dependents
- Road users (R63, R381 and access roads)
- Ubuntu LM - IDP Unit
- Ward Councillors (Ubuntu LM)
- Residents located in Ward 3 (Ubuntu LM)

Stakeholders in the regional study area

- Pixley ka Seme District Municipality (PSDM)
- Central Karoo District Municipality (CKDM)
- Beaufort West Local Municipality (BWLM) – LED Unit
- Organized Agriculture
- Existing Independent Power Producers (IPP's)
- Emergency services

3.3.6 Primary data

3.3.6.1 Public participation

In order to elaborate on the baseline social, socio-economic and economic environment links are established with the Public Participation Process (PPP) to be done for the EIA. Comments and issues that emerge will be included and assessed and this draft SEIA report updated accordingly.

3.3.6.2 Consultation and fieldwork

Consultation with key stakeholders took place from July 2022 to October 2022. Meetings, telephonic discussions and questionnaires formed the basis of the consultation up to date.

The list of stakeholders consulted is included in Section 10 (*References*) and will be updated during the course of the process.

3.3.6.3 *Issues and concerns*

At this stage comments and inputs obtained through consultation pertain to:

- Labour, employment and SMME processes. It is often a challenge to identify suitable local labour and the correct channels need to be used (e.g. Department of Labour, existing database in the municipality (local and district), Office of the Mayor and so forth);
- Skills requirements that might not be available locally and a need for training and capacity building for locals, SMME's and municipal Officials;
- Influx of workers and related concerns, such as conflict, pressure on basic service delivery and social issues that emerge;
- Accommodation for an outside workforce, which could become problematic if the contractors do not provide accommodation and locals rent out / sell their houses to people that move in, resulting in potential increase in informal settlements and greater dependence on local government and social grants;
- There is no registered landfill site in Victoria West and there is a concern about waste management at the construction site;
- Water service provision is an issue at Victoria West and Loxton (water is presently being pumped from Hutchinson) and could be problematic for the Project;
- Road damage caused by construction vehicles and an increase in traffic. Roads are not always repaired sufficiently when construction periods have ended;
- District and local hospitals are understaffed and underequipped;
- Local Disaster Management and Fire Prevention are not adequate;
- Gaps within the municipal structures and insufficient capacity and experience relating to RE projects, negotiations and so forth;
- Lack in transparency and communication and the general feeling that municipalities are being bypassed in the decision-making processes;
- Missed opportunities have taken place in previous RE projects. Need to learn from the past to improve future projects;
- Locals need to be used during the operational phase of projects, as many of the skills required are now locally available due to RE projects that have taken place previously;
- Potential security risks and an increase in crime during construction;
- Poor land use management practices (gates left open, etc.) and safety issues for livestock and game;
- Damage to the veld and grazing during construction and the possibility that rehabilitation is not done sufficiently.

3.3.7 *Secondary data*

As part of the SEIA it is required to link with other sources and specialist studies done for this specific Project, since many of the issues of social relevance are interweaved with environmental concerns. Where applicable the SEIA findings and ratings have been aligned with findings of the Visual and Noise Specialists.

3.3.8 Impact variables to be assessed

For purposes of this SEIA the following variables have been assessed:

- Economic and socio-economic impacts that relate to local procurement and induced / indirect local economic impacts.
- Labour force impacts such as temporary / permanent / indirect employment, training and skills development, SMME development and employment equity.
- Population impacts including the inflow or outflow of temporary workers.
- Impacts on the surrounding landowners such as intrusion impacts; land use impacts; devaluation of farmland values; sense of place and security risks.
- Individual and family level impacts, including disruption in daily living and movement patterns; tourism impacts.
- Potential health and safety risks.

3.3.9 Significance rating

Potential impacts associated with the proposed Project are assessed in terms of their overall significance on the socio-economic environments during the construction and operational phases. The criteria used are:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact;
- Probability of the impact occurring;
- Severity of the impact;
- Degree to which impact may cause irreplaceable loss of resources; and
- Degree to which the impact can be mitigated.

The Significance Assessment Criteria is set out in the Annexure, Section 11.1.

3.3.10 Mitigation and management

For each of the impacts identified mitigation and management measures are proposed and it is indicated how these would change the overall significance if such measures were implemented. It is recommended that mitigation and management measures be included in the Environmental Management Programme Report (EMPr) where required.

3.3.11 Cumulative impacts

The projects included in the Victoria West WEF Cluster are considered for the assessment of cumulative impacts. Refer Section 7.5.

3.3.12 Alternatives

No site or layout alternatives for the Taaibos South WEF are assessed, as slight changes to the locality and number of turbines will not impact the SEIA ratings significantly. However, the WEF is assessed against the 'No-Go' alternative in Section 7.4 (*Alternatives*). The 'No-Go' alternative is the option of not constructing the Project and the status quo would prevail.

3.3.13 Conclusion and Recommendations

From a socio-economic perspective, the results of the assessment are concluded and recommendations made where required.

3.3.14 Social Management Plan and Strategies

Management and monitoring measures for the Social Management Plan component of the Project are provided, which includes their timeframes for implementation, the responsible parties and outputs expected.

3.4 Assumptions and Limitations

- Baseline socio-economic data for this draft SEIA Report was obtained from various sources, which include Census 2011, Community Survey (CS) of 2016, municipal planning documents and specialist studies conducted as part of the Project. Even though there are some gaps in the data and some of the statistics contradict each other, data was nevertheless adequate to develop a community profile at a sufficient level of detail for this SEIA.
- Sources (primary and secondary) are not exhaustive and additional information can still come to the fore that can influence the contents and findings of the SEIA study. Additional inputs from stakeholders, where relevant, will be included and assessed.
- Consultation with stakeholders for the SEIA but does not aim to replace the Public Participation Process required by NEMA.
- Technical and other information provided by the client is assumed to be correct.
- The purpose of the SEIA is to identify social and economic impacts and determine how these would impact on the social fabric of the receiving environment. An in-depth analyses of economic impacts and/or an Economic Cost Benefit Analyses fall outside the scope of the SEIA.
- The assessment of the impact on sense of place is mainly based on the specialist's opinion, as sense of place is a personal experience and not easily measured.

4 LEGAL FRAMEWORK AND POLICY GUIDELINES

The legal framework and policy guidelines within which this Project should function from a social and socio-economic perspective are set out in this section of the report.

4.1 International guidelines

Basic Human Rights

Basic human rights can be defined as universal moral principles or norms that describe certain standards of human behaviour. Each human being is entitled to these fundamental rights, simply because he or she is a human being, regardless of nationality, language, religion, locality, ethnic origin or any other status.

A foundational principle of basic human rights is that States must protect against human rights abuse within their territory and/or jurisdiction, including abuses caused by business enterprises. States should thus exercise adequate oversight in order to meet their international human rights obligations when they contract with, or legislate for, business enterprises to provide services that may negatively impact upon human rights.

In 2011 the UN's Human Rights Council endorsed the "Guiding Principles on Business & Human Rights" and stated the following: "As the basis for embedding their responsibility to respect human rights, business enterprises should express their commitment to meet this responsibility through a statement of policy". The operational principles of corporate responsibility to respect human rights are briefly summarized below. Enterprises should:

- **Comply with all applicable laws** and respect internationally recognized human rights, wherever they operate;
- **Formulate and implement policies** to meet their responsibility to respect human rights;
- **Carry out human rights due diligence** to identify, prevent, mitigate and account for how they address their impacts on human rights. Due diligence should be ongoing, recognizing that the human rights risks may change over time as the business enterprise's operations and operating context evolve;
- **Identify and assess actual or potential adverse human rights impacts** as a result of their own activities or due to their business relationships;
- Involve meaningful **consultation** with potentially affected groups and other relevant stakeholders;
- **Take appropriate action** within the organization through internal decision-making, budget allocations and oversight processes;
- **Track the effectiveness of responses** to verify whether adverse human rights impacts are being addressed, based on qualitative and quantitative indicators, and feedback from internal and external sources and stakeholders; and
- Provide for or co-operate in their **remediation through legitimate processes**, where business enterprises identify that they have caused or contributed to adverse impacts.

4.2 National Policy context

The National Environmental Management Act, 1998 (Act 107 of 1998)

NEMA stipulates that positive and negative impacts that the proposed activity could have on aspects of the environment and on the community/ies that may be affected (on geographical, physical, biological, social, economic, heritage and cultural levels) be assessed.

Appendix 6 of GN 982 of December 2014 (Gov. Gaz. 38282), as amended, issued in terms of this Act, defines minimum information requirements for specialist reports.

White Paper on Renewable Energy, November 2003

The White Paper on Renewable Energy recognises that the medium and long-term potential of renewable energy is significant. This Paper sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa. It also informs the public and the international community of the Government's vision, and how the Government intends to achieve these objectives; and informs Government agencies and organs of their roles in achieving the objectives.

What is proposed is a strategic programme of action to develop South Africa's renewable energy resources, particularly for power generation or reducing the need for coal based power generation. This should be done by balancing energy demand with supply resources in concert with safety, health and environmental considerations.

Integrated Energy Planning Report, Department of Energy, 2013

Integrated energy planning is undertaken to determine the best way to meet current and future energy service needs in the most efficient and socially beneficial manner, while maintaining control over economic costs; serving national imperatives such as job creation and poverty alleviation; and minimizing the adverse impacts of the energy sector on the environment.

National Development Plan 2030 (NDP)

The NDP focuses on the critical capabilities needed to transform the economy or society. It assists government in confronting the nine primary challenges by providing broad framework to guide key choices and actions that will help government in its drive to grow the economy, create jobs, address poverty and establish social cohesion, i.e.:

- Create jobs and improve livelihoods;
- Expansion of infrastructure;
- Transition to low carbon economy;
- Reversing the spatial effects of apartheid in urban and rural areas;
- Improving the quality of education, training and innovation;
- Quality health care for all;
- Social protection;

- Building safer communities;
- Reforming the public sector.

In rural areas the NDP states that general productivity has declined due to increased gravitation of productive labour force to urban areas and less investment in rural areas compounded by limited skills and lack of infrastructure. The NDP makes the following recommendations that holds relevance to this Project:

- Identification of non-agricultural opportunities such as tourism, mining and a “green” economy;
- Innovative, targeted and better coordinated provision of infrastructure and service provision by the spatial consolidation of rural settlements to enhance densities and associated services;
- Implementing mechanisms to make land markets work more effectively for the poor especially women.

National Strategy for Sustainable Development and Action Plan (2011) (NSSD)

The NSSD builds on the 2008 South Africa National Framework for Sustainable Development and several initiatives that were launched by the business sector, government, Non-Governmental Organizations (NGO’s), civil society, academia and other key role players to address issues of sustainability in South Africa.

This is a proactive strategy that regards sustainable development as a long-term commitment, which combines environmental protection, social equity and economic efficiency with the vision and values of the country. The NSSD marks the continuation of a national partnership for sustainable development. It is a milestone in an ongoing process of developing support, and initiating and up-scaling actions to achieve sustainable development in South Africa.

The following five strategic objectives are identified in the NSSD:

- Enhancing systems for integrated planning and implementation
- Sustaining our ecosystems and using natural resources efficiently
- Towards a green economy
- Building sustainable communities
- Responding effectively to climate change

National Spatial Development Perspective (2006) (NSDP)

The NSDP is regarded as a major achievement in the continued drive by the State to eradicate the damage wrought by colonial and apartheid settlement patterns and economic activity in South Africa. It is a framework for focused intervention by the State in equitable and sustainable development and represents a key instrument in the drive towards ensuring greater economic growth, buoyant and sustainable job creation and the eradication of poverty.

The NSDP argues that macro-economic considerations are important, but development is strongly shaped by processes on the ground, i.e. in specific regions. Regions are thus the critical foundations of development processes. The NSDP provides:

- A set of principles and mechanisms for guiding infrastructure investment and development decisions;
- A description of the spatial manifestations of the main social, economic and environmental trends that should form the basis for a shared understanding of the national space economy; and
- An interpretation of the spatial realities and the implications for government intervention.

In order to contribute to the broader growth and development policy objectives of the government, the NSDP puts forward a set of five (5) normative principles:

- 1) Rapid economic growth that is sustained and inclusive.
- 2) Provision of basic services to all citizens wherever they reside.
- 3) Government spending on fixed investment focused on localities of economic growth and/or economic potential in order to gear up private-sector investment, to stimulate sustainable economic activities and to create long-term employment opportunities.
- 4) Efforts to address past and current social inequalities should focus on people, not places.
- 5) To overcome spatial distortion of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link with main growth centres.

4.3 Provincial context

Northern Cape Provincial Growth and Development Strategy (PGDS)

The Northern Cape Provincial Growth and Development Strategy (PGDS) is a critical tool to guide and coordinate the allocation of national, provincial and local resources and private sector investment to achieve sustainable development outcomes.

The Pillars of the PGDS are:

- Increasing investment in the province
- Improving skills and capacity building
- Broadening participation in the economy
- Increasing competitiveness

Important key sectors have been identified as drivers of economic growth in the province:

- The Agricultural sector (including agri-processing and land reform)
- The Industrial sector (Including Manufacturing)
- The Tourism sector
- The Service sector (including government services)

Northern Cape Provincial Spatial Economic Development Strategy (PSEDS)

The purpose of the Provincial Spatial Economic Development Strategy (PSEDS) is to:

- Provide spatial context to Growth and Development strategy;
- Address spatial imbalances, curb urban sprawl and ensure sustainable interventions;
- Identify priority areas and types of development;
- Align to municipal spatial development frameworks;
- Guide budgeting processes of the province and municipalities; and
- Influence investment decisions of the private sector.

4.4 District and Local Municipal Context

Pixley ka Seme District Municipality Integrated Development Plan (IDP 2022-2027)

Pixley ka Seme District Municipality's IDP provides the framework to guide the Municipality's planning and budgeting over the course of a set legislative time frame. It is an instrument for making the Municipality more strategic, inclusive, responsive and performance driven. The IDP is therefore the main strategic planning instrument which guides and informs all planning, budgeting and development undertaken by the Municipality in its municipal area. The IDP is guided by the vision of the Municipality: "Developed and Sustainable District for future Generations".

The mission of the District include the provision of support to its local municipalities, to promote and enhance integrated development planning and to align development initiatives in the District to the National Development Plan.

Ubuntu Local Municipality Integrated Development Plan (IDP) (2017 – 2022)

In terms of Section 34 of the Local Government Municipal Systems, 2000 (Act 32 of 2000) each municipality is required to develop a five-year IDP and review it annually to assess its performance against measurable targets and respond to the demands of the changing circumstances. The IDP links the community's needs through stakeholder engagement with the Local Municipality's planning, which has to be integrated with Provincial and National Government. The result of the integrated planning process is an inclusive and strategic plan for the development of the municipality that assists them to:

- (i) Focus on the most important needs of the communities and effectively use resources;
- (ii) Speed up delivery;
- (iii) Attract additional funds;
- (iv) Strengthen democracy;
- (v) Overcome the legacy of the past; and
- (vi) Promote coordination between local, provincial and national government.

The IDP identified the mission of the municipality, to be pursued in an integrated and synergistic manner, to:

- Maximize the utility of the municipal resources in a sustainable, developmental and economic manner to better the life of all;
- Improve institutional effectiveness and efficiency;

- Optimally develop our human, financial and natural resources;
- Create an enabling environment for local economic growth in order to create employment opportunities and alleviate poverty;
- Work with all our existing and prospective partners to establish a vibrant tourism industry;
- Participate in the fight to reduce the HIV/AIDS infection rate and lessen the impact thereof;
- Focus on youth development, women empowerment and enabling the disabled to play a meaningful role in unlocking human potential;
- Ensure a safe, secure and community friendly environment; and
- Maintain sound and sustainable management of financial and fiscal affairs.

Ubuntu Local Municipality Local Economic Development 2011

The Local Economic Development (LED) is the document that guides the process to create better conditions for economic growth and poverty eradication by employment creation through job creation and training. The process is undertaken collectively by the public sector, the community and the private sector for the establishment of successful private enterprises to create wealth, jobs and improved living standards for the local communities.

The aim of LED is thus to facilitate economic growth through activities that build up the economic strength in the local area in order to improve the quality of life and future of the inhabitants.

4.5 Other Policy Guidelines

Renewable Energy Independent Power Producer Procurement Programme (REI4P)

The Department of Mineral Resources and Energy's (DMRE's) Independent Power Producer Procurement Programme (IRP4) was established at the end of 2010 as one of the government's urgent interventions to enhance South Africa's electrical power generation capacity.

Energy and supply is, however, not only about technology, but also has to impact economic growth and socio-economic development. As such, the REI4P has been designed to also include and contribute to the national development objectives, such as job creation, social upliftment, local industry development and increasing opportunities for economic ownership.

The Integrated Resource Plan for electricity (IRP) provides South Africa's long-term plan for electricity generation. It primarily aims to ensure security of electricity supply, minimize the cost of that supply, limit water usage and reduce greenhouse gas emissions, while allowing for policy adjustment in support of broader socioeconomic developmental imperatives. The IRP2019 was promulgated in October 2019 and replaced the IRP2010 as the country's official electricity infrastructure plan.

The IPP projects of the first seven bid windows (BW1, BW2, BW3, BW3.5, BW4, 1S2 and 2S2) were distributed across all nine provinces of South Africa.

Up to date in the Northern Cape Province, 48 renewable projects with a combined output of 3 566MW have been procured. 1 459MW of this output is generated by wind energy.

5 DESCRIPTION OF THE STUDY AREA

5.1 Regional and Local Study Area

5.1.1 Municipalities

The Taaibos South WEF is located in the Ubuntu LM (Ward 3: extent of 16 891 km²), situated in the southern section of the Northern Cape Province. The Ubuntu LM is the largest of the eight municipalities (20 140 km²) that make up the PKSDM, accounting for almost a quarter of its geographical area. About 34% of Ubuntu's population resides in the rural areas, with continued rural-urban migration that is foreseen. Demand for service delivery, housing and infrastructure is highest in the urban areas (Ubuntu LM IDP.2017-2022).



Figure 4. Locality of Ubuntu Local Municipality

(Source: municipalities.co.za)

Some of the main challenges in Ubuntu are the reduction of poverty, basic service delivery (infrastructure), insufficient and clean water, poor access to services such as education and health and sustainable job creation (Ubuntu LM IDP, 2017-2022; Ubuntu LM, July 2022).

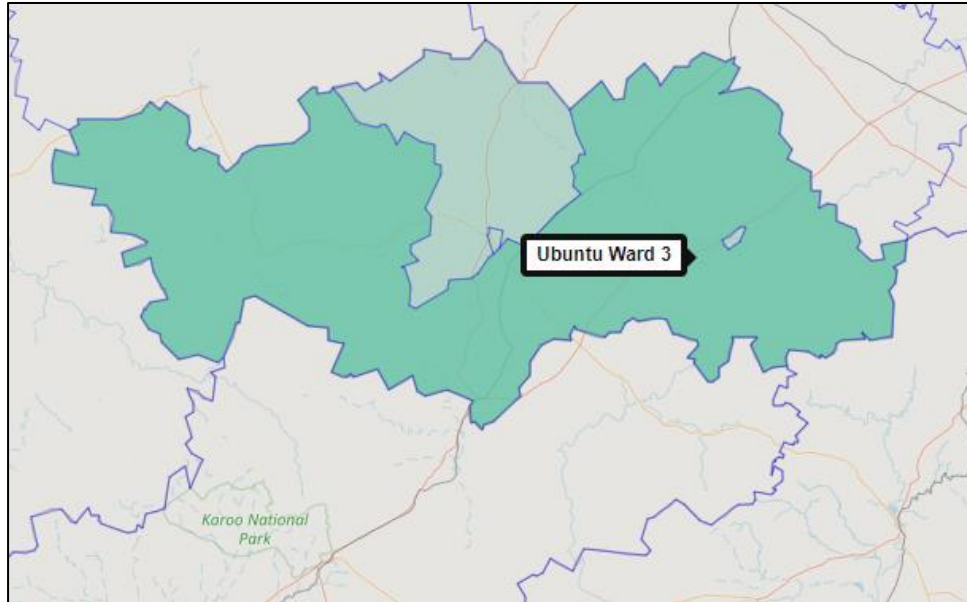


Figure 5. Ubuntu LM, Ward 3

(Source: wazimap.co.za)

5.1.2 Towns

Main towns in Ubuntu LM are Victoria West, Hutchinson, Loxton and Richmond. Victoria West, the seat of the local municipality, is located approximately 55 km north-east of the Project. The town consists of 8 254 residents, of which 69.3% are Coloured people and 82.1% speak Afrikaans as first language (Census 2011). The majority of residents are employed in the Wholesale and Trade industries, followed by Construction, Finance (and other) and Livestock, Farming and Agriculture (Ubuntu LM IDP, 2017-2022).

The closest town to the Project, Loxton, is a typical rural Karoo town situated about 20 km north-west of the Project and has a population of 1 053 people (Census 2011). It is in one of the major wool-producing and one of the largest garlic-producing areas in South Africa (southafrica.co.za/loxtan).

Table 3. Towns near the Project

Town	Approximate distance to Project
Loxton	20 km
Victoria West	55 km
Hutchinson	60 km
Nelspoort	70 km
Carnarvon	75 km
Beaufort West	88 km
Richmond	130 km

5.1.3 Land Uses

The local study area is characterised by large farms on average 6 000 ha to 12 000 ha in extent. The landscape character is typical of the Great Karoo with plains and open valleys, koppies, rocky ridges and outcrops and plateaus. Vegetation consists mainly of bush-veld and grass is very scarce.



Figure 6. Typical landscape of the local study area

Farming is adapted to the situation and mainly revolves around small livestock and game farming (hunting). Dry climatic conditions are such that cropping is very limited and is restricted to valley bottoms often near or around farmsteads. Quality of groundwater is generally poor due to the high salt content. Whilst commercial farmers own most of the farms in the study area, some of the surrounding towns have made commonage available that emerging farmers can rent (Ubuntu LM IDP, 2017-2022).

A limited number of farmsteads are scattered in and around the local study area. A few holiday accommodation / guest farms are prevalent, mainly in closer proximity to arterial roads and in the surrounding towns. Meltonwold, a historical Karoo Guest Farm, is located about 27 km north-east of the Project. The establishment offers 23 rooms in a guest farmhouse, camping and wedding and conference venues (meltonwold.co.za). Jakhalsdans Karoo Guest House, a working sheep and game farm, is located about 13 km north-west of the Project.

Infrastructure features include the N12, R381, R63 roads and a number of local gravel access roads, a railway line and the Nobelsfontein WEF (about 60 km to the east).

5.2 Site Specific Study Area

For this SEIA Report the site specific study area is defined as the Taaibos South WEF and a buffer of about 2 000 m.

5.2.1 Sensitive receptors

Sensitive receptors from a social and socio-economic perspective include any existing infrastructure and land uses that could potentially be negatively impacted as a result of construction activities (noise, dust, visual, traffic, etc.) or during the operational phase, which is in the case of a Wind Farm, usually due to visual impacts and potential negative economic impacts (land devaluations, tourism impacts, etc.). Agricultural land uses can generally continue unhindered once the WEF is operational.

The following features within the 1 00 and 2 000 m buffers with social and/or socio-economic relevance have been identified:

Table 4. Land Uses and/or Sensitive Receptors

Land Uses / Sensitive receptors	Details	Locality
Farmstead	House / farmstead Farming infrastructure / buildings Cropping	Northern section, close to center of facility: Approximately 1 000 m from nearest turbine locality
Local access roads	Dirt roads	East-west direct

5.2.2 Sensitivity mapping

The following map was extrapolated from the Noise Impact Assessment Report (de Jager, October 2022), and indicates sensitive receptors relevant to the SEIA within the 1 000 and 2 000 m buffers.

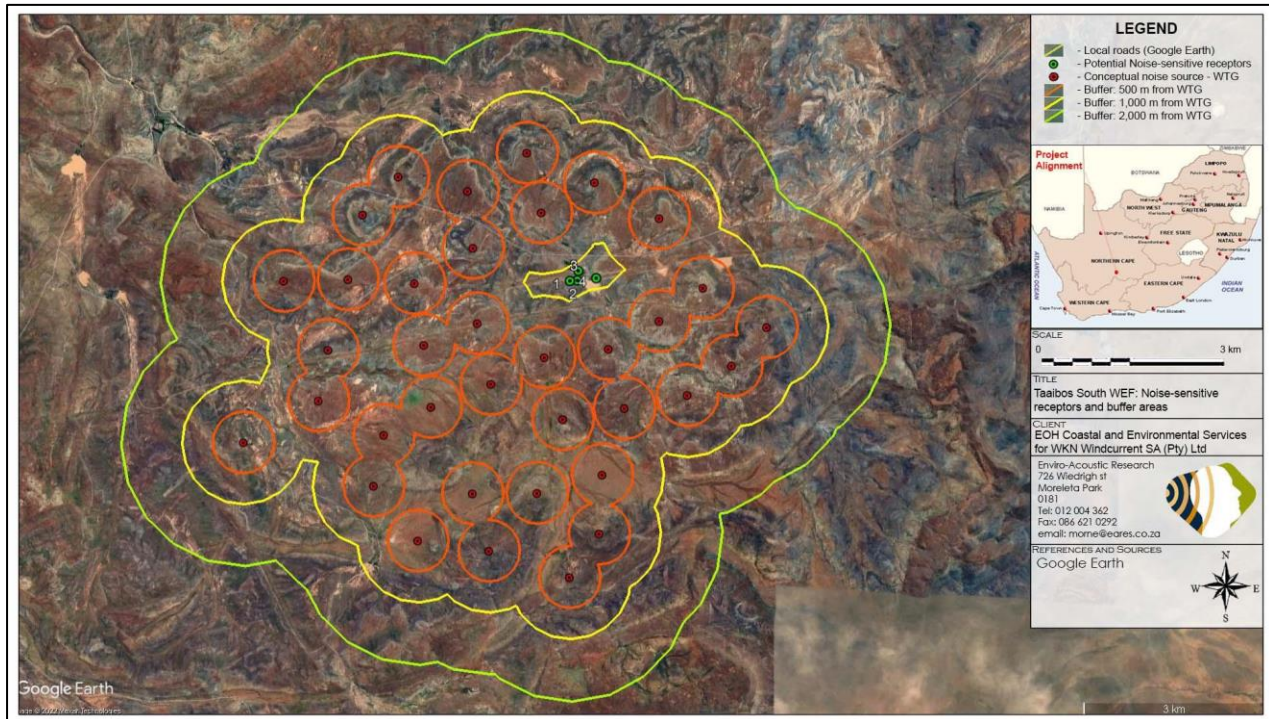


Figure 7. Taaibos South WEF: Sensitive receptors

Source: Taaibos South WEF Noise Impact Assessment: (de Jager, October 2022)

5.3 Renewable Energy Projects and Power Lines in and Around the Study Area

The Taaibos South WEF falls within the Central Strategic Transmission Corridor and just outside the Beaufort West Renewable Energy Development Zone (REDZ) 11. The following existing and authorized Renewable Energy Projects and associated electrical grid connections occur in and around the study area:⁸

- Nobelsfontein Wind Energy Facility;
- Brakpoort Solar PV Facility;
- Mainstream Wind and Solar Energy Facility;
- Aurora Power Solutions (APS) Betelgeuse PV Solar Project Four (east of the Gamma Substation);
- Umsinde Emoyeni Wind Energy Facility Phase 2 (east of APS Betelgeuse PV Solar Project Four);
- Ishwati Emoyeni Wind Energy Facility (east of Umsinde Emoyeni Wind Energy Facility Phase 2);
- Poortjie Wes Wind Energy Facility;
- Nuweveld East, North and West Wind Energy Facilities.

A number of existing High Voltage lines traverses the broader study area, especially towards the south in the direction of Three Sisters, and further towards the east where the powerlines connect with the existing Gamma Substation.

6 BASELINE DATA OF THE STUDY AREA

6.1 Population data

6.1.1 Population size

Demographic data, including migration patterns, determine and influence how fundamental services within a municipal area are delivered. In the context of this Project, these statistics provide a baseline against which some of the impacts of the Project, such as the possible influx of outsiders, over the medium and long-term can be measured.

The table below provides a summary of the relevant population trends in the local study area.

Table 5. Demographic data

Demographics	PKSDM	Ubuntu LM	Ward 3
Population	195 596	19 471	4 715
Households	56 308	6 034	1 609
Average household size	3.5	3.2	2.9
People per km ²	1.9	1	0.3
Age structure (2016)			
- Under 15 yrs	25.8 %	27.7 %	-

⁸ The South African Renewable Energy EIA Application Database (REEA) (REEA_OR_2022_Q1)

- 15 to 64 yrs	68.2 %	66.8 %	-
- Over 65 yrs	6 %	5.5 %	-
Population growth per annum (2011-2016)	1.1 %	1.04 %	-
Female headed households	36.8 %	33.7 %	-
Dependency ratio per 100 (15 – 64 yr) (2016)	46.7	49.7	-

(Source: www.wazimap.co.za; Census 2011; CS 2016)

Provincial data indicates that during the period 2011 to 2016 the PKSDM and Ubuntu LM both experienced higher annual population growth rates than the Northern Cape population, at 1.1% and 1.04% per annum respectively, compared with 0.8% for the Province (CS 2016).

Both the district and local municipalities have experienced considerable declines in their dependency ratios from 2011 to 2016; from 60.4 to 46.7 for the PKSDM and 63.5 to 49.7 for Ubuntu LM. This means that the portion of the population that falls within the working age group / Economic Active Population (15 to 64 years) has been increasing significantly and broadly indicates an improvement of the socio-economic condition of local communities over this time period.

The population in the study area is mostly urbanized. The table below provides the number of people in the main towns.

Table 6. Population in the towns

Town	Population
Beaufort West	34 085
Nelspoort	1 699
Richmond	5 121
Victoria West	11 000
Hutchinson	367
Loxton	1 053
Carnarvon	6 612

(Source: Census 2011)

6.1.2 Language and race

The majority of citizens in the study area are Coloured people, followed by Black people. Afrikaans remains the predominant language spoken.

Table 7. Languages and race

	Languages spoken			Race		
	Afrikaans	IsiXhosa	English	Coloured	Black	White
PKSDM	76%	19%	1%	63%	30%	6%
Ubuntu LM	83%	13%	1%	73%	23%	4%

(Source: wazimap.co.za; CS 2016)

6.2 Labour Force

Data that relates to unemployment, education and skill levels provide an insight into the existing labour force and to what extent the study area would be able to supply in the labour demand.

6.2.1 Education

Education levels in general, as well as tertiary levels, are unacceptably low. Less than 25% of the people above 20 years of age in the study area have obtained a matric qualification and less than 6% have obtained a tertiary education.

Table 8. Education levels

Education (2016)	PKSDM	Ubuntu LM
No schooling	11.9 %	11.8 %
Matric	24 %	23.1 %
Higher education	5.4 %	3.9 %

(Source: CS 2016; municipalites.co.za)

In terms of Tertiary education levels, the following statistics could be obtained for the Ubuntu LM:

Table 9. Higher education levels, Ubuntu LM

Highest Education	Rural Area	Richmond	Sabelo	Victoria West	Loxton
Certificate	12	9	12	30	3
Higher Diploma	54	21	3	117	9
Bachelor's Degree	36	15	0	18	6
Honours Degree	18	3	0	9	3
Higher Degree / Masters / PhD	9	0	3	6	6
Other	3	9	0	15	0
Total	129	57	18	198	27
% of total Ubuntu LM 20+ yr old population	1	0.5	0.2	1.5	0.2

(Source: Ubuntu LM IDP, 2017-2022)

6.2.2 Unemployment

Unemployment figures for the study area are reflected below.

Table 10. Unemployment rate

Unemployment	PKSDM	Ubuntu LM
Unemployment 2011 (official)	28.3 %	29.1 %
Unemployment 2018 (official)	34.1 %	-
Youth unemployment 2011 (official) 15-34 yrs	35.4 %	34.8 %

(Source: Census 2011; PKSDM IDP, 2022-2027)

In 2011 the Ubuntu LM had an unemployment rate of 29%, slightly above the PKSDM figure of 28.3%. Unemployment in PKSDM rose to 34.1% in 2018 (PKSDM IDP, 2022-2027). The 2011 figures are relatively on par with national unemployment at 29.8%. However nationally the unemployment in the 4th quarter of 2018 dropped to 27.1% (www.statssa.gov.za).

6.2.3 Youth unemployment

Unemployment amongst South Africa's Youth continues to be a burden, irrespective of education levels. According to the Quarterly Labour Force Survey (QLFS) for the first quarter of 2022, the national unemployment rate was 63.9% for those aged 15 - 24 years and 42.1% for those aged 25 - 34 years, while the current official national rate stands at 34.5% (StatsSA; www.statssa.gov.za). In 2011 Ubuntu LM had a Youth unemployment rate of 34.8%, whilst the PKSDM rate was 35.4% during the same period (Census 2011). Even though more recent figures are not available for the study area, it could be expected that this rate remained constant or even increased over the last decade considering the economic climate and the negative impact the COVID-19 lockdown has had on economies. With about 75.1% of young people (15 – 24 years) in the labour force nationally being inactive, it is clear that the Youth has become considerably discouraged (lost hope of finding work that suits their skill or in the area they reside) and therefore remains vulnerable.

6.2.4 Incomes

Approximately 44% of the Ubuntu households are classified as Indigent as they earn less than R1 600 per month. The graph below shows that the town of Victoria West can be considered financially healthy in terms of their income per household, although 46% households are still classified as Indigent (Ubuntu LM IDP, 2017-2022).

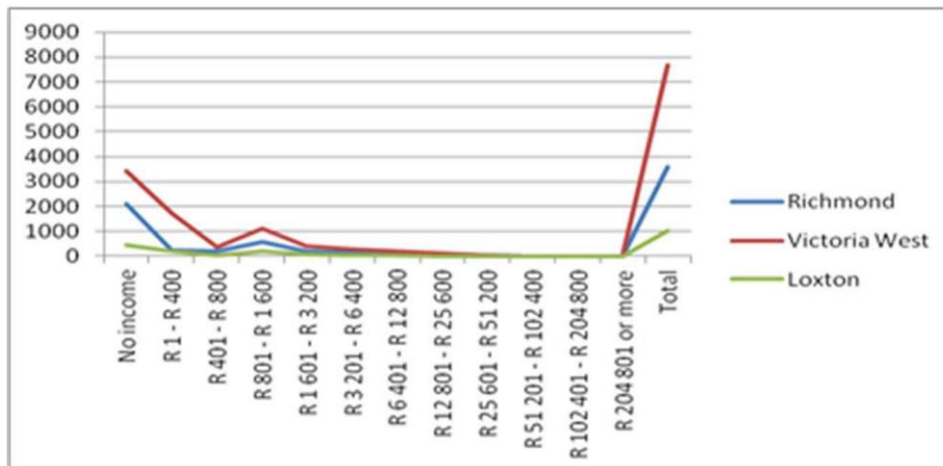


Figure 8. Ubuntu LM Income levels

(Source: Ubuntu LM IDP, 2017-2022)

6.2.5 Employment per sector

Statistics of employment sectors provide a further indication of the available skills in the study area.

Table 11. Sector of employment

Sector of employment	PKSDM	Ubuntu LM
Formal	67 %	69 %
Informal	18 %	19 %
Private household	13 %	11 %

(Source: wazimap.co.za; Census 2011)

Statistics with regards to Ubuntu's contribution to employment could not be obtained. In order to ascertain the regional trend, the Beaufort West Local Municipality (BWLM), located adjacent to the south, the Central Karoo District Municipality (CKDM) and PKSDM's contributions to employment are provided in the table below. Whilst agriculture remains to be a significant contributor to employment in the CKDM, government dominates employment in PKSDM, followed by agriculture, forestry and fishing. Manufacturing's contribution to employment is the lowest, ranging between 1.5 and 2.7% in the BWLM and the two districts reflecting low skill levels in this sector.

Table 12. Contribution to employment⁹

Employment sectors	Beaufort West LM (2017) %	CKDM (2019) %	PKSDM LM (2018) %
Agriculture, forestry & fishing	19.7	24.1	17.7
Manufacturing	2.1	1.5	2.7
Construction	4.2	4.5	9.5
Wholesale, retail trade, catering & accommodation	24.4	22.9	16.6
Transport, storage & communication	5.1	4.4	2.8
Finance, insurance, real estate & business services	10.1	8.5	7.5
General government	18.3	17.5	29.7
Community, social & personal services	15.6	16	10

(Source: BWLM IDP, 2017-2022; PKSDM IDP, 2022-2027)

6.3 Economic profile and Indicators

Main economic sectors in PKSDM are Community services (26.6%), Agriculture (16.6%), Transport (15.1%), Trade (12.9%), Finance (12.8%), Electricity (7%), Construction (3.3%), Manufacturing (3.2%) and Mining (2.6%); whilst Agriculture dominates the Ubuntu LM's economy. Livestock (sheep, goat and cattle) and game are the nucleus of farming activities. All farms are dependent on underground water. The main agricultural products are wool for the export market and meat for the local market.

In the broader district the following take place (PKSDM IDP, 2021-2022):

⁹ Statistics for Ubuntu LM could not be obtained.

- Agriculture is one of the main economic activities despite the largely semi-arid and arid environment in the district. The Orange, Vaal and Riet Rivers contribute to fertile land and the irrigation of grains and vegetables.
- Livestock farming in the region include cattle, sheep and goat farming.
- Game breeding has also been identified as one of the opportunities which could be linked with the tourism sector for Game reserves and hunting activities.
- Agro-processing of various plant and meat products take place.
- Mining in the district is mainly linked to alluvial diamond mining along the Orange River and various semi-precious stones. The region also has various saltpans for the potential of salt production. The development of new Orion Mine in the region provides prospects for job opportunities and procurement opportunities.
- Tourism in the district contributes 15.6% to the provincial Gross Value Added (GVA). Ubuntu LM is not at this stage one of the larger contributors in terms of tourism.
- In terms of Renewable Energy it is stated that by successfully attracting a share of the IPPPP portfolio investment, all municipalities in the district, including Ubuntu, are benefitting from substantial SED and ED contributions leveraged by the IPPPP commitments. The SED and ED contributions provide an opportunity for the identification of viable projects that will promote the economic development of the region.

Consultation with the local and district municipalities indicated a need for greater support for agricultural initiatives.¹⁰ Even though commercial farmers own most of the farms, some of the towns have made commonage available that emerging farmers can rent. The identified issues are (Ubuntu LM IDP, 2017-2022):

- More land for emerging farmers / land reform;
- Skills training for emerging farmers and Youth;
- Upgrading of infrastructure;
- Sub-letting of commonage land by emerging farmers to commercial farmers;
- Stock theft;
- Management of the commonage; and
- Financial assistance for emerging farmers.

¹⁰ Ubuntu LM and PKSDM consultation: 26 / 27 July 2022.

6.4 Social Indicators

6.4.1 Health

HIV/AIDS and tuberculosis (TB) data for the PKSDM and Ubuntu LM could not be obtained. However, the following issues in the health care sector have been identified (Ubuntu LM July 2022; PKSDM July 2022; Zutari (Pty) Ltd):

- Inadequate health facilities;
- Understaffed hospitals and poor conduct of health staff;
- Shortage of medical equipment;
- Shortage of ambulances;
- Underutilized facilities; and
- Poor access to health care facilities (transport).

6.4.2 Crime

Crime statistics of the Victoria West South African Police Service (SAPS) are provided below. Although crime seems to be relatively under control, the Ubuntu IDP (2017-2022) states that crime is more prevalent in Richmond than in its other towns. SAPS stations are located in Victoria West, Richmond and Loxton and three stations are located in Beaufort West.

Table 13. Victoria West SAPS crime statistics

CRIME CATEGORY – VICTORIA WEST	2017/201	2018/201	2019/202	2020/202
	8	9	0	1
CONTACT CRIMES (CRIMES AGAINST THE PERSON)				
Murder	6	5	3	3
Sexual Offences	12	16	16	12
Attempted murder	8	7	14	6
Assault with the intent to inflict grievous bodily harm	54	57	54	55
Common assault	30	34	34	37
Common robbery	7	1	2	3
Robbery with aggravating circumstances	6	2	5	5
Total Contact Crimes (Crimes Against The Person)	123	122	128	121
CONTACT-RELATED CRIMES				
Arson	6	5	3	2
Malicious damage to property	12	16	16	25
Total Contact-Related Crimes	18	21	19	27
PROPERTY-RELATED CRIMES				

Burglary at non-residential premises	34	22	22	45
Burglary at residential premises	49	36	36	39
Theft of motor vehicle and motorcycle	0	2	6	0
Theft out of or from motor vehicle	18	11	11	16
Stock-theft	40	34	31	43
Total Property-Related Crimes	141	105	106	143

(Source: www.saps.gov.za/services/crimestats.php)

6.5 Institutional Profile

6.5.1 Housing, infrastructure and services

In general the level of service delivery has improved for both local municipalities between 2011 and 2016, except for access to piped water inside dwellings, which declined slightly.

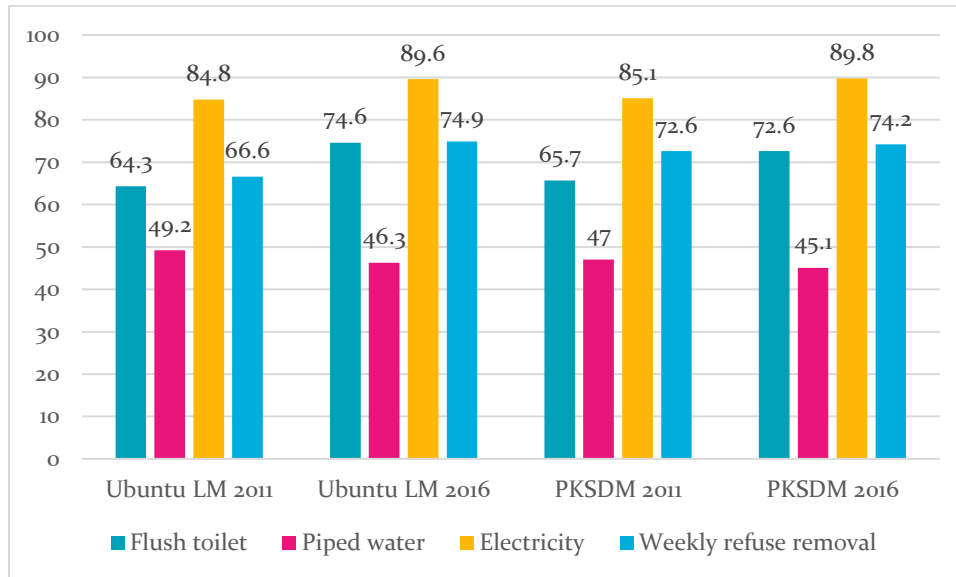


Figure 9. Access to Municipal Services

(Source: StatsSA; Census 2011; CS 2016)

In relation with national trends, relative few households live in informal dwellings in the Ubuntu LM. According to the 2016 CS, 92.9% households in Ubuntu live in formal dwellings.

There is a housing backlog of 2 150 in Ubuntu, of which 1 500 are in Victoria West, 500 in Richmond and 150 in Loxton (Ubuntu LM IDP, 2017-2022).

6.5.2 Health Facilities

Health care facilities in the district are indicated below:

Table 14. Health care facilities

Health care facility	PKSDM
Fixed facility clinics	27
Mobile clinics	5
Hospital (Regional / Local)	8
District hospital	1
Ambulances	2
Ambulances	2

(Source: PKSDM IDP, 2021-2022).

The district hospital in PKSDM is situated in De Aar. Ubuntu LM has two hospitals i.e. in Victoria West and Richmond. Consultation with the local municipal officials identified a shortage of medical staff in Victoria West.¹¹ Inadequate health facilities, limited equipment and the shortage of ambulances are some of the other issues identified for the wider municipal area (Ubuntu LM IDP, 2017-2022). Access to the facilities (transport) is also an existing issue.

6.5.3 Educational Facilities

The following educational facilities occur:

Table 15. Education facilities

Education facilities	Ubuntu LM	BWLM
Primary schools	12	17
Secondary schools	3	
Tertiary	0	0

(Source: Ubuntu LM IDP, 2017-2022; BWLM IDP, 2017-2022)

6.6 Local Economic Development

The Ubuntu LM has formulated the following developmental priorities and strategic objectives which are aligned with National Key Performance Area 2, i.e. LED (Ubuntu LM IDP, 2017-2022):

- Private Sector Investment Upliftment & Acceleration
- Public Sector Investment Upliftment & Acceleration
- Tourism Upliftment & Acceleration
- Agriculture & Agri-processing Upliftment & Acceleration
- Industry Upliftment & Acceleration
- Commerce Upliftment & Acceleration
- SMME Upliftment & Acceleration
- Industrial & Commercial Economic Zone Establishment

¹¹ Ubuntu LM consultation, 26 July 2022.

6.7 Local social and economic issues

Typical small, sparsely populated Karoo towns are scattered throughout the study area, whereas the larger towns serve the purpose of agricultural service centres with higher population densities. The study area in general experiences high levels of unemployment, poverty and social grant dependence and low levels of education. Hence, the most critical challenge remains the reduction of poverty. Despite its strategic locality in terms of national transport corridors, the study area still currently has a low level of development. The local economy is largely based on agriculture, mainly goat, sheep and game farming. The manufacturing sector contributes only marginally to employment.

Increasing the access to basic services and health, education and social services remain a challenge. Economic empowerment is limited by inadequate available employment opportunities and a lack in entrepreneurship and skills. For this reason the Ubuntu LM and PKSDM are increasing their focus on skills development of their labour force, sustainable job creation and employment equity by targeting previously disadvantaged groups, such as women, the disabled and the Youth. Renewable energy investment has been identified as a major opportunity to attain these development goals.

Consultation with the relevant municipalities for this SEIA revealed a great need for Officials to be empowered as they often feel side-stepped in the decision-making processes. The following contributions were made:

- The study area's strength is agriculture and agricultural related projects and initiatives need to become the focus (this is also relevant to SED and ED contributions for RE projects).
- Links with identified IDP and LED initiatives need to be established to ensure continuation of municipal goals and that real community based needs are met.
- A skills / needs analysis prior to commencement of projects are required, instructing municipalities in advance of the exact type and level of skills needed.
- Very strong emphasis is placed on education and specifically the training of SMMEs and the unemployed so that skills transfer and capacity building become a residual positive impact post construction.
- There is a need for the establishment of a coordinated SMME training "Village" that service the broader district and region.
- Links with existing training institutions such as tertiary institutions need to be established (SED and ED programmes).
- In order to aid improved cooperation between parties and avoid duplication of initiatives, a central Forum / Development Committee or similar structure is required for the RE node.
- Improved communication and transparency between the IPP's and municipal structures are required. This include involvement from the on-set of projects; drafting of a Memorandum of Understanding (MoU) so that parties are aware of their roles, responsibilities and timeframes; appointment of a dedicated Community Liaison Officer (CLO) / Project Liaison Committee (PLC); and so forth.

7 SOCIO-ECONOMIC IMPACTS IDENTIFIED

7.1 Construction phase impacts

This section of the SEIA discusses and provides the potential social and socio-economic impacts anticipated for the 24-month construction period. The SEIA significance impact assessment rating table is included in Section 11.2.1 (*Full impact assessment – SEIA: Construction phase*).

7.1.1 Temporary employment

Cause and comment:

It has been established that approximately 250 employment opportunities will become available over the 24-month construction period. Of these about 55% will be allocated to unskilled, 30% to semi-skilled and 15% to skilled workers. Semi- and lower skilled workers are usually required to perform electrical and civil duties (site clearing, excavation and casting of concrete foundations, stormwater reticulation, trenching, access roads, cable installations, structural steelwork, buildings, fencing, etc.); whereas higher skilled professionals entail Project Managers, Engineers, Environmental Control Officers and so forth.

Labour force data reflected in Section 6.2 indicates that the project sending area will be able to supply in the demand for lower and semi-skilled workers, but that skilled employees will most likely be deployed from other areas. The local labour force in general has low education levels and limited skills and manufacturing's contribution to employment is marginal (ranging between 1.5 and 2.7%). Databases with available workers and SMME's exists (albeit limited in the Ubuntu LM), and the municipalities indicated that, since skill levels are low, capacity building / training is a priority. It is also worth mentioning that the procedures to advertise and obtain local labour differs between the municipalities and early discussions with the stakeholders to determine the way forward in this regard is advisable.¹²

For the evaluation of RE project bids, 25% of the REIP4 Round 5 Economic Development Scorecard is based on job creation, and another 25% on local content¹³. Indications are that about 3 to 5% of the project value will be spent on salaries and wages¹⁴ and at this stage at least 20% of the South African workforce has to be residents of local communities. It would thus be in the interest of the Project to maximise the local labour force to ensure that the majority of the benefits associated with employment manifests for local beneficiary communities.

In addition to direct employment, the construction phase will have a positive spin-off effect on the economy (local, regional and national) through procurement of goods and services, with indirect and induced employment creation as result.

¹² Consultation for SEIA: June – September 2022.

¹³ The REIP4 Scorecard is subject for revision for the current bid window.

¹⁴ Information obtained from client, November 2022.

Definite short term positive impacts will manifest locally and nationally, with an overall significance rating of 'moderate benefits'.

Impact 1: Temporary employment	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

Mitigation measures:

- Maximise local employment and local content (the Project's direct sending area) through the Preferential Procurement Plan and Contractor Services Management Plan (CSMP) for all contractors that are used.
- Involve the Ubuntu LM and PKSDM from the early processes (from financial close already if possible). Determine their existing processes with regards to a labour desk and streamline employment processes between the various stakeholders.
- Appoint a Community Employer Relations Officer / CLO. Communicate with communities through this one channel to ensure transparency, limit unrealistic expectations and to avoid conflict.

7.1.2 Local procurement

Cause and comment:

As mentioned in the previous section, 25% of the DMRE's scorecard is based on local content (how much is manufactured in SA; amount of goods and services procured through South African companies that have a BBBEE Generic scorecard or who are Qualifying SMME's and Women Owned Vendors). In order to meet or better targets set by the DMRE, the Developer is aiming for approximately 40% of total capital expenditure to be local.¹⁵

It is anticipated that many of the high-technology turbine components would be imported and that other technical components will be sourced from larger industrial areas in other parts of the province / country. Rock crushing and cement casting of cement turbine towers could potentially happen close to site to meet local procurement figures. General construction material and goods, building material and general infrastructure elements will also be sourced locally, wherever possible and available.

Even though the Preferential Procurement Policy will only be formulated closer to the time, positive impacts on local and national economies are 'definite' since 25% of the DMRE scorecard is based on local content. The overall significance holds 'moderate benefits' nationally.

Impact 2: Local Procurement	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

¹⁵ Information obtained from client, November 2022.

Mitigation measures:

- Maximise local content of procurement by procuring from the local and regional study areas as far as possible.
- Do a value-chain analysis of services required (directly and indirectly related to construction such as transport, laundry, catering, etc.). Communicate this to the PKSDM and Ubuntu LED Units at least 4 months prior to the tender process commencing in order for SMME's to prepare.
- Include minimum thresholds in the CSMP for local employment, BBEEE procurement, SMME targets, local services providers, etc.

7.1.3 Induced local economic impacts**Cause and comment:**

Expenditure during construction and the increase in household earnings due to temporary employment result in various induced economic impacts and spin-offs for the local and regional economies, such as:

- Business opportunities for the service and manufacturing industries (locally and nationally), e.g. transport, Personal Protective Equipment, maintenance work, general consumables, civil works;
- Wages that are spent locally and a general improvement of income levels with higher spending benefits and spin-offs for local businesses, retail, sales, leisure and hospitality, real estate, etc.;
- Local accommodation facilities that house the workers sourced from outside the direct Project sending area and spin-offs for the tourism industry.

Since at least 20% of the South African workforce has to be residents from local communities a large portion of these induced impacts will manifest locally. Definite positive impacts of 'low significance' will manifest.

Impact 3: Induced local economic impacts	
Before mitigation	After mitigation
FEW BENEFITS	FEW BENEFITS

Mitigation measures:

- Maximise the Project's local content as far as possible.

7.1.4 Training / Skills Development / Capacity Building**Cause and comment:**

An important outcome of training and skills development is that it increases the employability of a region's workforce, resulting in enhanced economic opportunities and thus addressing poverty alleviation over the medium to long term. During the construction phase the following training initiatives would usually take place:

- On-site training so that workers can safely perform their duties; and

- Training by contractors to maintain their own BBEEE level, such as health and safety legislation training, first aid, fire-fighting, construction skills, basic electrical training, quality management, legal compliance or business skills.

These types of training are usually at the discretion of the individual contractor or sub-contractor.

Consultation with the affected local and district municipalities however identified a great need for training and capacity building as most of the workers and SMME’s on their databases are poorly educated with limited skills. These constraints result in gaps between the Developers' requirements and the local communities' / SMME’s abilities to provide the required services. It would thus be to the advantage of the Project if on-the-job training is implemented, especially for unskilled workers.

In addition to capacity building of the local labour force, capacity and knowledge constraints within local government also exists. Officials are faced with challenges and responsibilities during the planning, construction and employment processes and do not always have the required skills, experience and capacities to fulfill these duties. These duties and responsibilities relate to:

- Collaboration with the IPP for permits for the submission of a compliant bid;
- Management of stakeholder and community relations;
- Involvement in the employment process by assisting the Community Employer Relations Officer with the job seeker registration database;
- Participation in SMME training and SMME support programmes;
- Monitoring of the construction site and processes to ensure compliance with municipal bylaws;
- Monitoring and managing the influx jobseekers from outside the Project’s target area, and so forth.

The Ubuntu LM indicated that the South African Local Government Association (SALGA) plays an active role to assist them in the negotiations processes, but that the Developer/s commitment to improve municipal skills and capacities would be welcomed. There is thus a need for the Developer to involve local government structures more effectively to transfer skills, so that they would become better equipped to assist and participate in future projects.

Pre-mitigation positive impacts of ‘slight’ severity will manifest, resulting in ‘few benefits’ for the region. Post-mitigation the significance could increase to a ‘moderate positive’.

Impact 4: Training / Skills development	
Before mitigation	After mitigation
FEW BENEFITS	SOME BENEFITS

Mitigation measures:

Where feasible, the Developer should:

- Make the skill requirements clear to the municipalities in advance and do a skills analysis of the available labour force.

- Implement a SMME skills development programme and do certification (training on how to tender, understanding contracts, basic business skills, etc.) at least 4 months prior inviting SMMEs to tender and involve the relevant LED Units in the programmes.
- Do a Value-chain analysis of services required (directly and indirectly related to construction) and communicate this to local and district municipalities in advance so that they are prepared and equipped to take part in the tender process.
- Require larger contractors to work with small SMMEs to train and transfer skills and include this in their respective CSMP's.
- Implement on-the-job training for unskilled workers.
- Capacitate the local government structures by involving them as early as possible in the Project; remain transparent throughout the processes.
- Negotiate a MoU with the municipalities so that each role-player is clearly aware of its roles, responsibilities and timelines in the Project processes.
- Establish an EMC or similar Forum for the duration of construction to aid communication and transparency. Members of the EMC / Forum to meet on a quarterly basis to discuss issues that may arise during the course of the construction period (if feasible).

7.1.5 Employment Equity

Cause and comment:

Statistics obtained from the IP4 overview (DMRE, December 2021) indicate that during the construction phases, Black South African citizens, Youths and rural local communities have primarily been the beneficiaries of RE projects, as they respectively represent 81%, 44% and 48% of total job opportunities created by IPP's to date. However, woman and the disabled could still be significantly empowered as they represent a mere 10% and 0.4% of total jobs created.

A minimum threshold of 30%, with a target of 50%, has been set for Black citizens in construction at the early stages of operations. An 18% minimum threshold and 30% target have been set for skilled Black citizens. In both these categories the thresholds have significantly been exceeded with the real share of Black people and Black skilled people ranging between 71 and 85% for the construction and operational phases (DMRE, December 2021).

Although minimum thresholds are prescribed for Black people, no guidelines / thresholds currently exist to address employment equity for women, Youth and the disabled. However, the DMRE encourages the Project to procure with suppliers that have a BBBEE Generic scorecard or who are Qualified Small Enterprises, Exempt Micro Enterprises and Women Owned Vendors and the Developer has expressed their commitment to satisfy and/or better REIP4 tender requirements.

Pre-mitigation positive impacts of employment equity will hold benefits of 'low overall significance' if only the DMRE's minimum requirements are implemented. With mitigation, the intensity of the impact will increase and the overall significance can be increased to hold 'moderate benefits'.

Impact 5: Employment Equity	
Before mitigation	After mitigation
FEW BENEFITS	SOME BENEFITS

Mitigation measures:

- Obtain inputs from the local and district municipalities on the contents of the Procurement strategy and Employment Equity Plan to be implemented.
- Set targets for the employment of Youth, women and the disabled in the respective CSMPs.

7.1.6 Impacts associated with an Influx of Jobseekers / Temporary Construction Workers**Cause and comment:**

Negative impacts that could manifest for local communities and the local and district municipalities due to an influx of jobseekers / temporary construction workers include:

- Conflict between locals and 'outsiders' if the outside labour force receives preference;
- Conflict due to cultural differences;
- Increase in the size and number of informal settlements and additional pressure on local government for housing and related services;
- Increase in the unemployment rate if jobseekers and/or workers do not return to their places of residence post construction;
- Unwanted pregnancies, an increase in HIV/AIDS and other sexually transmitted diseases (STDs) and additional pressure on health care services;
- An increase in single parent households and a subsequent reliance on social grants;
- An increase in drug and alcohol abuse and other social issues should unemployment levels increase.

Poor conduct of construction workers and inadequate management of the construction site could result in health and safety risks for landowners that include:

- Unauthorized access / trespassing resulting in theft, stock poaching, safety and security issues as well as potential damage to the veld and natural grazing;
- Fire hazards at the construction site and the possibility of fires spreading and damaging surrounding farmland and infrastructure;
- Pollution problems, flies, rodents and pests and possible contamination of water resources (insufficient sanitation facilities, littering and refuse) and so forth.

In terms of security, landowners and community members could easily consider this construction project as the catalyst should local crime levels and stock theft increase and affect their quality of life. Landowners

in and around the study area describe their environment as extremely safe and peaceful with minimal / low levels of crime.¹⁶ This concurs with SAPS crime statistics as reflected in Section 6.4.2.

Municipal stakeholders interviewed for SEIA purposes highlighted an increase in a number of social issues that manifested and remained after large construction projects were completed in the district.¹⁷ These issues pertain to unwanted pregnancies, increases in illegitimate children and child-headed households, subsequent pressure on social grants and charity services and increases in school drop-out rates. Small towns, such Petrusville, Richmond and Hanover, where citizens were already vulnerable due to prevalent unemployment and existing poverty levels, primarily fell victim to this trend.

Impacts that relate to an influx of construction workers would increase if contractors and sub-contractors refrain from using the labour desk and prefer to bring in their own workforce. The Developer's commitment to maximize local labour, design the recruitment process in conjunction with the municipalities and implement relevant security measures for the duration of construction is thus essential.

Pre-mitigation negative impacts associated with an influx of jobseekers / temporary construction workers are rated with a 'moderate negative significance'. Mitigation is achievable and will reduce the overall significance to 'low negative'.

Impact 6: Impacts associated with an influx of jobseekers / temporary construction workers	
Before mitigation	After mitigation
MODERATE NEGATIVE	LOW NEGATIVE

Mitigation measures:

Employment / Temporary construction workers:

- Clearly identify the beneficiary communities / labour sending area and compile the employment strategy in collaboration with the affected municipalities' LED Units.
- Contractually oblige contractors and sub-contractors to only source labour through the labour desk / job registration database and make this known to the target communities.
- Work through limited communication channels (e.g. Ward Councillors and the Employer Relations Officer / CLO).
- Be vigilant not to raise unrealistic expectations amongst the local communities and workers with regards to employment, skills requirements, local procurement and so forth. Ensure transparency through the Ward Councillors, CLO and the EMC / Forum.
- No recruitment of temporary workers at the access to the construction site.
- As part of their Social Management Plan's (SMP's), contractors to provide a transport and housing plan: (i) no workers are allowed to be housed on site or in informal housing / settlements; (ii) allow

¹⁶ Consultation and questionnaires completed by landowners.

¹⁷ Ubuntu LM and PKSDM (26 & 27 July 2022).

workers that do not live nearby time to return to their families at regular intervals or over weekends.

- No workers to remain on site after shifts.
- It is also recommended that the Developer embarks on a Social Awareness Campaign for the workforce that focuses on sexual health, unwanted pregnancies and related social issues.

Security, safety and environmental health:

- 24-hour security, demarcate and fence the construction site (if possible), material stores to be secured, access control and no trespassing of workers outside designated construction areas.
- Join the local community policing forum or similar initiative for the duration of construction.
- Keep the local SAPS, other emergency services, Ward Councillors, landowners and other relevant stakeholders informed about the construction progress and time-lines.
- Develop a Fire / Emergency Management Plan in conjunction with affected and neighbouring landowners.
- Dispose of the various types of waste generated in the appropriate manner at licensed waste landfill sites at regular intervals. Comply with the waste management plan compiled for the construction phase.
- Display “danger” warning signs and “no public access” signs at all potential accesses, paths and along the periphery of the construction areas in English and the local languages.
- If water for construction is obtained from a natural water resource, comply with the Water Use Licence conditions for the duration of the construction period.
- Ensure implementation of the provisions of the Occupational Health and Safety Act No. 85 of 1993 and adhere to the Emergency and Safety plan procedures for the duration of the construction phase.

Awareness / community engagement:

- Keep open communication channels with the landowners and address any potential issues as a matter of priority.
- Make contact details of the main contractor and procedures to lodge complaints available to landowners and the local communities through the Ward Councillors and EMC / Forum.
- Make a complaints register / log book available at the entrance to the construction site and act immediately should issues arise.
- Consult with surrounding landowners whose livestock, private residences and other infrastructure could be affected by dust, noise and other impacts that result from traffic movement and general construction activities.
- Where required, draw up a land use management plan with individual landowners to protect livestock and farmland, which addresses restricted access areas, procedures when farm gates are opened and closed and so forth.
- Rehabilitate the veld to its original state post construction.

7.1.7 Land use impacts

Cause and comment:

Main land uses in the study area pertain to livestock farming (mainly sheep and goat) and grazing for game. The land has a long term grazing capacity of 24 to 28 hectares per large stock unit (LSU). Small patches of cultivation can be found along water courses and in close proximity to some farmsteads.

Farms are also used for residential and leisure purposes, albeit farmsteads are scattered and dispersed and the nearest farmstead is located about 1 km from a turbine. No direct impacts on residential land uses are therefore foreseen.

For the duration of the short-term construction period no grazing is possible at the construction site/s. Should 36 turbines be constructed, the area cleared of vegetation for construction amounts to 138.6 ha (5 LSU), which has a negligible direct impact on grazing land uses.

Land use impacts are rated with a 'low overall negative significance'. No mitigation is possible during the construction period.

Impact 7: Land use impacts	
Before mitigation	After mitigation
LOW NEGATIVE	LOW NEGATIVE

Mitigation measures:

- Rehabilitate the veld to its original state post construction.

7.1.8 Intrusion impacts

Cause and comment:

Intrusion impacts during construction refer to temporary nuisance issues experienced with regard to an increase in traffic, noise, dust / fume emission and visual / aesthetic / light impacts as a result of movement of construction vehicles on site and along access roads, earthworks and general construction activities. Although short-term in nature, the severity of the impact would increase if sensitive receptors and agricultural land uses occur in close proximity to the construction areas. The nearest turbine construction area is located about 1 000 m from a farmstead; and about seven turbine construction areas are located between 500 and 1 000 m from the local access roads.

Intrusion impacts could indirectly impact agricultural land uses, thereby having a negative effect on incomes of landowners, such as:

- Negligent construction workers that do not close / lock farm gates resulting in animals that go missing and/or mix with animals in different breeding groups / cycles, potentially introducing diseases into herds;
- Livestock that is killed on access roads if drivers do not adhere to speed limits and traffic rules;

- Dust that impact the quality of wool and/or dust that settle on grazing land and have an impact on livestock carrying capacity;
- Possible noise impacts; and
- Construction activities that hamper the farmers' access to their own farms.

The increase in traffic could result in the degradation of road surfaces and speeding / negligent drivers could cause accidents and fatalities, subsequently placing pressure on local emergency, disaster management and health care services (fire, ambulance, police services, etc.). Abnormal vehicles that transport large project infrastructure could also necessitate intermittent road closures.

The Noise Impact Assessment (NIA) done for the Taaibos South WEF (de Jager, October 2022) rated noise impacts for daytime and night-time construction activities with a low negative significance.

The Visual Impact Assessment (VIA) (Nuleaf Planning & Environmental, October 2022) rated potential visual impacts on the identified sensitive visual receptors within 5 km (road users, residents in certain of the homesteads) due to the construction activities (increase in heavy vehicles utilizing access roads, dust, etc.) with a high negative significance pre-mitigation, which can be reduced to a moderate negative significance post mitigation.

Traffic, noise and dust impacts can generally be mitigated more effectively than visual impacts. It is important that potential nuisance / intrusion factors be addressed proactively as it could result in negative attitude formation towards the Developer and subsequent community mobilization against the Project.

For purposes of the SEIA, the overall significance of intrusion impacts (pre and post-mitigation) is rated with a 'moderate negative significance'.

Impact 8: Intrusion impacts	
Before mitigation	After mitigation
MODERATE NEGATIVE	MODERATE NEGATIVE

Mitigation measures:

- Comply with the EMP requirements to address any potential noise and dust impacts.
- Proper planning, management and rehabilitation of all construction sites to forego the visual impacts of the construction activities, as proposed in the VIA (Nuleaf Planning & Environmental, October 2022).
- Implement all mitigation measures as proposed in Section 7.1.6 (*Impacts associated with an influx of jobseekers / temporary construction workers*).
- Discuss construction timelines with landowners so that grazing of livestock can take place away from construction areas.
- Collaborate with the necessary road management agencies when road closures are required and advertise alternative routes in advance.
- Impose penalties for reckless drivers as a way to enforce compliance to traffic rules.

- Inspect trucks and other heavy vehicles on a regular basis to avoid oil spillages and un-roadworthy vehicles that could lead to accidents.
- Display a contact number on the construction vehicles where motorists can report reckless driving.
- Erect signboards indicating accesses to the construction site/s.
- Upgrade the access roads prior to the construction period commencing and maintain the roads during the length of the construction period. Once construction is finalised, ensure that damaged road surfaces are repaired.

7.1.9 Health and safety risks

Cause and comment:

Health and safety risks for workers and the broader community are possible to manifest. Community health and safety risks are associated with the inflow of workers and the impact and relevant mitigation measures have thus been addressed in Section 7.1.6 (*Impacts associated with an influx of jobseekers / temporary construction workers*). The Occupational Health and Safety Act (Act No. 85 of 1993) makes provision for the health and safety of workers at construction sites. These risks are broadly associated with:

- Construction related accidents due to structural safety of Project infrastructure, possibly resulting in fatalities;
- Dust generation and air pollution resulting in respiratory diseases;
- High ambient noise levels caused by machinery and construction equipment, resulting in loss of hearing or other similar health issues;
- Dehydration, sunburn and related issues for workers due to unsafe and insufficient drinking water and high temperatures during summer months; and
- An increase in HIV/AIDS and other STDs due to prostitution activities and temporary sexual relationships with local women and unwanted pregnancies that place further pressure on Basic Health Care Services.

The impact of workers' health and safety is rated with a 'moderate negative' overall significance. Post mitigation the significance of the impact can be reduced to 'low negative'.

Impact 9: Health and safety risks for workers	
Before mitigation	After mitigation
MODERATE NEGATIVE	LOW NEGATIVE

Mitigation measures:

- Ensure implementation of the provisions of the Occupational Health and Safety Act (Act No. 85 of 1993) and adhere to the Emergency and Safety plan procedures for the duration of the construction phase.
- Promote good conduct of employees through awareness campaigns. It is also recommended that the Developer embarks on a Social Awareness Campaign for the workforce that focuses on sexual health, unwanted pregnancies and related social issues.

- Contractors to provide a housing plan that makes provision for workers that do not live nearby to return to their families at regular intervals or over weekends.
- Provide safe and clean drinking water and instil regular water breaks to keep workers hydrated.
- Provide sufficient ablution facilities (chemical/portable toilets, etc.) at strategic locations that are cleaned regularly.
- Keep the local police, emergency and ambulance services informed of construction times and progress.

7.2 Operational Phase Impacts

It is anticipated that the Taaibos South WEF will have a lifespan of about 25 years. This section of the report discusses the long-term impacts associated with the facility and provides mitigation measures. The SEIA significance impact assessment rating table is included in Section 11.2.2 (*Full impact assessment – SEIA: Operational phase*).

7.2.1 New employment and economic impacts

Cause and comment:

Direct and indirect employment opportunities will manifest during the operational lifespan of the Project and result in an increase in household earnings and improved livelihoods for the affected households through salaries and wages.

- WEF Projects of this nature employ between ten to fifteen permanent workers, of which about 50% would be skilled (Operations Manager, technicians, electricians, engineers, mechanics, Health & Safety Officer, etc.) and 50% semi-skilled (security, site maintenance, etc.).
- Temporary workers would be sourced through service providers to perform contract maintenance work such as civil works, site maintenance, site clearing to minimise the potential of veld fires, painting of buildings, plumbing and so forth.
- Job creation as a result of the funding spent on SED projects, such as construction / infrastructure projects, literacy / education programmes, sport development, etc.
- Indirect and induced employment created through procurement of components, equipment, goods and services to maintain the infrastructure and access roads.

In addition to employment, economic impacts will manifest for the local and national economies through the manufacturing and services industries. Furthermore, agricultural land will be rezoned for renewable energy purposes, thereby increasing farm values and resulting in higher payable taxes for the local municipality.

Induced economic impacts will realise locally and regionally through employment and procurement and as a result more benefits for retail sales, leisure and hospitality, real estate, etc. will occur as more money circulates in the local economy.

It is definite that positive employment and economic impacts of moderate significance ('some benefits') will occur for the region and nationally.

Impact 1: New employment and economic impacts	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

Mitigation measures:

- Maximise local employment and procurement (from the local and district municipalities) wherever possible.
- Coordinate the effort to obtain temporary employment, service providers, SMME's etc. required for maintenance work, with the municipal LED Units.

7.2.2 Increase in livelihoods for directly benefitting landowners**Cause and comment:**

During the operational period the IPP will sign a long-term lease agreement with the affected landowners where turbines (up to 36) and associate infrastructure are located, thereby compensating them through an annual fee. Details of the option-to-lease agreements are confidential. However, the compensation will increase the landowners' incomes and revenue and can be used to further invest in their properties, increase productivity and employment, or improve financial security.

It is however also worth noting that the rezoning of agricultural land for renewable energy infrastructure purposes usually results in higher payable property taxes, which, if not considered during the negotiation process, could result in a negative trade-off for landowners.¹⁸

It is definite that positive economic impacts with moderate significance ('some benefits') will manifest for the limited number of directly benefitting landowners. Since details of the option-to-lease agreements are confidential, confidence in the rating is 'undecided' (between 40 to 70 % sure).

Impact 2: Increase in livelihoods for directly benefitting landowners	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

Mitigation measures:

- Consider the potential increase in rates and taxes when lease agreements are negotiated with landowners.

¹⁸ Mr. S van der Westhuyzen (Venter & Vennote Attorneys), October 2022.

7.2.3 Socio-economic contribution / community development

Cause and comment:

A needs assessment will be done with the affected parties (municipalities, beneficiary communities, etc.) to identify suitable projects for SED and ED, which is usually aligned with IDP and LED priorities. Once the identified beneficiaries have been evaluated according to stringent evaluation criteria a contract is entered with them for the specified duration of the projects. Monitoring is done to ensure that the projects deliver as per their proposals.

The IPP is required to report quarterly to the DMRE's Independent Power Producer Office (IPPO), which allows the IPPO to monitor use of SED and ED funds as committed by the Project (approximately 2.1% of revenue), as well as monitor the impact such contributions have on the communities through funding of existing projects and enterprises.

Consultation with municipal stakeholders for this Project¹⁹ and for previous RE projects in other provinces²⁰ identified the need for:

- More transparency during the annual monitoring processes so that it is clear for municipalities whether the budget allocated towards SED and ED has been used adequately;
- A greater commitment to link with the LED initiatives already identified in the IDP;
- Coordination between SED and ED initiatives of the various RE projects in the region through a central Forum or similar structure so that initiatives are not duplicated. This will also enable the implementation of larger projects that will have a greater impact for the region.

Although definite, pre-mitigation SED and ED spent will hold impacts of 'low positive significance' for the region. Post-mitigation, the severity of the impact will increase, with an overall 'medium positive significance'. Even though the amount allocated towards SED and ED is unknown, confidence in the rating is about 70% sure ('confident').

Impact 3: Socio-economic contributions / Community development	
Before mitigation	After mitigation
FEW BENEFITS	SOME BENEFITS

Mitigation measures:

- Involve the local and district municipalities' LED Units in all processes when SED and ED projects and suitable candidates for projects and/or training programmes are identified.
- Make gender and Youth issues a specific outcome of the needs analysis to ensure that these groups are targeted.

¹⁹ Messrs. H. Greeff and A. Sibeko: PKSDM, 27 July 2022.

²⁰ SEIA Specialist's experience in previous RE projects.

- In conjunction with other IPP's in the region or in the RE corridor / RE Zone set up and establish a Forum (or similar structure) to coordinate community development initiatives. Meet on a quarterly basis to provide feedback and ensure transparency.
- Ensure further transparency and effective information sharing through industry associated websites, emailed newsletters, municipal noticeboards, information events and meetings and existing community channels used by the various wards.
- Become involved in local initiatives that address existing backlogs, such as the establishment and training of an Emergency Unit / Response Team for fire prevention and emergencies (e.g. with volunteers such as farmers), hospital support (e.g. equipment, training of staff where there are staff shortages, etc.) and so forth to ensure that real community based needs are met.
- Link with existing NGO's and pre-established projects but make it a requirement (and set targets) for the establishment of new community-driven development processes and for NGO's to assist in skills transfer to these new groups and processes.

7.2.4 Training / Skills Development / Capacity Building

Cause and comment:

Training and skills development initiatives during operations are likely to occur in the following ways:

- Formal and on-the-job training for permanent and temporary employees to allow them to perform their tasks safely and adequately;
- Training / education programmes through ED contributions;
- Offering of bursaries and internships;
- Skills development and capacity building of municipal Officials during the negotiation processes and stakeholder relations.

The implementation and operation of RE projects require local government involvement to assist with managing stakeholder and community relations. This poses various challenges, as there might be shortfalls in terms of capacity and management experience within the municipalities. Emphasis is therefore again placed on the involvement of local government throughout operations to enable the Officials to gain experience and develop skills that will be to the advantage of the Project as well as for the municipalities over the long-term.

Even though training / capacity building during the operational phase is not deemed to be significant ('low significance'), the implementation of mitigation measures will increase the impact to have a 'moderate positive significance'.

Impact 4: Training / skills development / capacity building	
Before mitigation	After mitigation
FEW BENEFITS	SOME BENEFITS

Mitigation measures:

- Identify existing NGO's to assist in training and skills transfer to communities and Officials.
- Link with existing training workshops and programmes for SMME development that are done by municipal LED Units.
- In collaboration with other IPPs operational in the region, establish a SMME "Village" and training centre to coordinate training efforts of SMMEs and individuals. Link with bigger institutions such as Universities and Further Education and Training (FET) institutes to increase the impact of training and skills development in the region.

7.2.5 Land use impacts**Cause and comment:**

The total footprint of the turbines and ancillary infrastructure is 84.64 ha post-construction. With a grazing capacity of 26 to 28 hectares per LSU, the loss in land amounts to a loss of only about 3 LSU. No high potential agricultural or cultivated land will be lost.

Direct land use impacts are rated with a 'low negative significance' and is regarded as insignificant.

Impact 5: Land use impacts	
Before mitigation	After mitigation
LOW NEGATIVE	LOW NEGATIVE

7.2.6 Impacts on land values**Cause and comment:**

Incomes earned through long-term lease agreements will have an economic benefit and could increase farmland values and returns for the duration of operations. However, impacts on farmland values remain an inconclusive topic, since emotional factors and negative perceptions associated with the wind farm facility (such as aesthetics, visual impacts, noise, sense of place and so forth) could affect individual prospective buyers' interests and possibly prolong sales periods, which could be to the detriment of land values. In addition to negative perceptions, other variables such as the impact on land uses, location, proximity of wind turbines and lease agreement terms can have a significant impact on the marketability of rural land holdings (Peardon, 2013).

However, Lawrence Berkeley National Laboratory completed a study in 2013 that used data collected from the sale of more than 50 000 homes in 27 counties, in nine different states. These homes were within 10 miles of wind projects, with 1 198 sales within one mile and 331 within half of a mile. This study also used data from before a project; the post-announcement; pre-construction period; and during operation. The study found no evidence of an effect on prices of homes in proximity to wind turbines (Nelsen, 2018; www.cfra.org).

More recently, in 2018, a study to determine the impact on farmland values was conducted in Illinois where 27 wind projects produce 4 026 MW annually²¹. After tracking fifteen years since the first wind project launched, significant data indicated added value to farmland with turbines; an increase in the selling price per hectare compared with similar farmland sales without lease payments; and a much higher income capitalization rate (investor's expected rate of return) than similar farms in the broader Illinois. However, the location of turbines and contract terms also influenced values. In contrast to this, certain areas of Illinois valued the additional income differently and wind leases generated little to no additional premium (www.farmprogress.com).

In terms of the locality and proximity to turbines, Peardon (2013) states that the impact on adjoining and/or nearby land holders has not been measured accurately in the past, but that proponents of wind farms are beginning to acknowledge this impact. In certain regions in Australia compensation deals have been offered to adjoining and nearby land holders who have a residence within 2 km of wind turbines, since a detriment in market value for these properties have been observed.

However, on a more local level, consultation with estate agents done for previous wind farm project purposes in the Eastern Cape Province revealed no evidence of a decrease in farmland values for affected or adjacent farmland.²² In De Aar, Northern Cape Province, where the landscape and scenic value of the surrounds are more comparable with the study area, an established local estate agent²³ who has been involved with transactions between landowners and RE companies since inception of RE projects about a decade ago, states that a definite increase in farmland values has manifested, but that no impact, whether positive or negative, has been observed for adjacent farmland values.

It is thus the opinion of the SEIA Specialist that negative impacts on land values during the operational phase of the Taaibos South WEF are unlikely, but that individual negative perceptions towards the infrastructure could affect property sales negatively in terms of possible prolonged sale periods and fewer buyers' interests.

For purposes of this SEIA the impact on land values is rated with a 'low negative significance'. Confidence in the rating is 'undecided' (40 to 70% sure) as available research on the topic is inconclusive and would depend on a number of variables. No mitigation is possible.

Impact 6: Impacts on land values	
Before mitigation	After mitigation
LOW NEGATIVE	LOW NEGATIVE

²¹ Illinois' wind energy production is the sixth highest in the USA.

²² For previous wind farm projects, the SEIA Specialist interviewed estate agents in Jeffrey's Bay, Cookhouse, Uitenhage and Kirkwood who had experience in this field.

²³ Mr. S. van der Westhuyzen (Venter & Vennote Attorneys), October 2022.

7.2.7 Impacts on tourism

Cause and comment:

Should impacts on tourism as a result of this project manifest, it will likely be due to visual impacts and impacts on sense of place. At this stage tourism in the PKSDM district contributes 15.6% to the provincial GVA, of which the Ubuntu LM is only a small contributor.

Only two accommodation / tourism establishments have been identified in the study area, i.e. Meltonwold, a historical Karoo Guest Farm located about 27 km north-east of the nearest wind turbine; and Jakhalsdans Karoo Guest House, a working sheep and game farm located about 13 km north-west of the nearest wind turbine. The VIA (Nuleaf, October 2022) determined that the potential visual impact on sensitive receptors within the district (10 – 20 km) and region (beyond 20 km offset) is likely to be of moderate to low significance.

Based on the limited number of tourism establishments and the findings of the VIA, this SEIA rates the potential negative impacts on tourism as 'insignificant'.

Impact 7: Impacts on tourism	
Before mitigation	After mitigation
NO SIGNIFICANCE	NO SIGNIFICANCE

7.2.8 Intrusion impacts

Cause and comment:

Intrusion impacts during operations refer to nuisance issues experienced with regard to an increase in traffic and movement of people, noise and visual / aesthetic / light impacts due to the presence of turbines and nighttime shadow flicker. Intrusion impacts could indirectly impact agricultural land uses, such as:

- Gates that are left open or not locked resulting in animals that go missing;
- Livestock that is killed on access roads if drivers do not adhere to speed limits and traffic rules; and
- Increased access to farms and farming infrastructure and an increase in stock theft and local crime levels.

The NIA (de Jager, October 2022) rated both daytime and night-time operational activities (noises from wind turbines) when considering the worst-case scenario with a low significance.

The VIA (Nuleaf Planning & Environmental, October 2022) rated the visual impact on visual receptors in close proximity (within 5km) with a very high negative significance and those located between 5 and 20 km ranging from high, moderate to low negative significance. The visual impact of shadow flicker is rated with a low significance.

Traffic on local access roads will not increase significantly as maintenance and repairs to infrastructure will be done intermittently.

For purposes of the SEIA the pre and post-mitigation intrusion impacts are rated with a 'moderate negative' significance. Mitigation is limited and mainly relates to the implementation of land use management practices.

Impact 8: Intrusion impacts	
Before mitigation	After mitigation
MODERATE NEGATIVE	MODERATE NEGATIVE

Mitigation measures:

- Implement an effective Land Use Management programme (procedures when gates are opened and closed, road maintenance, methods to address potential veld fires, no-go areas, etc.) in collaboration with the landowners.
- Implement all mitigation and management measures as proposed in the VIA and NIA Specialist reports.

7.2.9 Impacts on sense of place

Cause and comment:

Sense of place is the community / landowners' perception of their living environment and how they make meaning of their experiences in that environment. Sense of place may vary amongst people and may change over the course of time and is a very personal experience.

The Project is located in an area with low crime levels and has an overall feeling of solitude and stillness. The social impact associated with the long-term impact on the sense of place for this WEF project would thus relate to a potential change in the landscape character, intrusion impacts and any changes to the safety and social surroundings of community members.

From a social perspective the impact on sense of place is rated as 'moderate negative', but the degree of confidence is 'undecided' as sense of place remains a personal experience. Mitigation is 'very difficult' as the visual screening of turbines are not possible.

Impact 9: Sense of place	
Before mitigation	After mitigation
MODERATE NEGATIVE	MODERATE NEGATIVE

Mitigation measures:

- Implement an effective Land Use Management programme in collaboration with the landowners.
- Implement all mitigation and management measures as proposed in Section 7.2.8 (*Intrusion impacts*).
- Rehabilitate the veld to its original state post the operational phase.

7.2.10 Contribution to Nation Power Supply

Cause and comment:

The proposed Taaibos South WEF will generate electricity and enhance the reliability and stability of supply that would contribute to economic development in the country as a whole.

Positive long term impacts of 'moderate significance' will manifest nationally.

Impact 10: Contribution to national power supply	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

7.3 Decommissioning Phase

Decommissioning of the Taaibos South WEF will entail the dismantling of infrastructure, which will be recycled or disposed of in the appropriate ways. The affected land will be rehabilitated to its pre-project state. Social and socio-economic impacts are expected to be similar to those that took place during the construction phase and can generally be mitigated effectively. Negative impacts include:

- Impacts associated with an influx of workers, including health and safety risks for landowners and communities;
- Traffic and intrusion impacts and general impacts on the sense of place;
- Land use impacts; and
- Impacts on road infrastructure / living and movement patterns.

Short-term positive impacts would occur for the local and regional economies as a result of temporary employment, procurement, SMME opportunities, and an increase in household incomes, economic spin-offs and induced economic impacts related thereto.

No rating will be provided for socio-economic impacts associated with decommissioning, as it is not possible to accurately rate these impacts at this early stage of the process due to a changing social environment. It is therefore recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impact significances.

7.4 Alternatives

No site or layout alternatives for the Taaibos South WEF are assessed, as slight changes to the locality and number of the turbines will not impact the SEIA ratings significantly.

However, the WEF is assessed against the 'No-Go' alternative. The 'No-Go' alternative is the option of not constructing the Project and the status quo would prevail. The benefits of the Project would thus not manifest and no positive contribution of renewable energy towards the national energy crisis would be made. Recipients of the negative impacts associated with the Project (such as sense of place, traffic, visual impacts, intrusion impacts etc.) would most likely view this as a positive aspect.

However, from a social and socio-economic point of view job creation, local procurement, indirect spin-offs for local businesses and any induced impacts associated with manufacturing and service delivery and the subsequent improvement of the quality of lives of benefitting households, directly and indirectly, would not materialize. Potential negative and positive impacts associated with the Project would not be incurred and the ratings would be neutral.

7.5 Cumulative Impacts

The projects considered for the assessment of cumulative impacts include the five wind farms that form part of the Victoria West WEF Cluster, i.e. Taaibos North and South WEF's and the Soutrivier North, South and Central WEF's.

7.5.1 *Employment, Economic Contribution and Induced Impacts*

As a result of construction, maintenance and repairs, the construction and operational phases of the various projects will result in positive cumulative economic impacts nationally and locally in terms of:

- Permanent, temporary and indirect employment creation;
- Creation of new business opportunities locally and nationally, as well as further downstream opportunities through indirect and induced impacts especially with regards to the manufacturing and service industries; and
- Improvement of livelihoods that result in increasing spending power, with spin-off effects on local and regional businesses such as retail, leisure, real estate and so forth.

A definite positive impact with 'high significance' will manifest nationally.

Impact 1: Employment, economic contribution and induced impacts	
Before mitigation	After mitigation
BENEFICIAL	BENEFICIAL

7.5.2 *Impacts for the local and district Municipalities*

In addition to positive economic impacts, the local and district municipalities would experience positive cumulative impacts associated with:

- Skills development, training and capacity building for citizens and SMME's directly and indirectly involved in employment (construction and operational phases) that result in a population that is better skilled, increased employability of the local labour force and a general increase in employment levels; and
- Capacity building of municipal staff when they are exposed and involved in the employment, permitting, communication/liaison/negotiations, training and support programmes and monitoring processes of the various WEF projects.

It is probable that positive impacts with ‘moderate benefits’ will manifest for the local and district municipalities.

Impact 2: Impacts for the local and district municipalities	
Before mitigation	After mitigation
SOME BENEFITS	SOME BENEFITS

7.5.3 Impacts associated with an influx of jobseekers / temporary construction workers

Long-term negative social issues that remain once an ‘outside’ construction workforce leave the area is evident in other areas of the Northern Cape (such as Pofadder)²⁴ and was also confirmed by the Ubuntu LM and PKSDM as a potential major issue.

Additional issues that could manifest include conflict (as a result of cultural differences between locals and ‘outsiders’), unusual population growth rates coupled with an increase in the unemployed, social issues (increase in HIV/AIDS, unwanted pregnancies and absent fathers) culminating in pressure on local government services such as health care, infrastructure and housing provision.

Impacts associated with an influx of jobseekers / temporary construction workers of ‘moderate negative significance’ have the potential to manifest, but can be mitigated.

Impact 3: Impacts associated with an influx of jobseekers / temporary construction workers	
Before mitigation	After mitigation
MODERATE NEGATIVE	LOW NEGATIVE

7.5.4 Intrusion Impacts

Since impacts associated with traffic, noise, air / dust pollution and shadow flicker are usually mitigated satisfactorily for wind farm projects, the assumption is drawn that mitigation will also be done sufficiently for the various Victoria West WEF projects. Visual impacts can, however, not be mitigated easily and it is thus probable that that negative cumulative visual impacts will be high. Visual impacts are however assessed in a scientific manner by the Visual Specialist.

For purposes of the SEIA, intrusion impacts are rated with a ‘moderate negative significance’.

Impact 4: Intrusion impacts	
Before mitigation	After mitigation
MODERATE NEGATIVE	MODERATE NEGATIVE

²⁴ SEIA Specialist’s experience at previously executed RE projects.

7.5.5 Impacts on Sense of Place

The cumulative impact on sense of place would be associated with changes in the landscape character as a result of visual impacts of the various wind farm developments, as well as negative intrusion impacts that changes the community's perception of their living environment. Landowners could also easily attribute an increase in stock theft and crime levels to these collective developments due to the inflow of people and poor land use management practices (gates that are left open and endanger livestock, an increase in pollution, degradation of the environment), which could further result in negative effects on the current peaceful, serene and safe environment they experience.

Cumulative negative impacts on sense of place is rated with a 'high negative significance'.

Impact 5: Impacts on the sense of place	
Before mitigation	After mitigation
HIGH NEGATIVE	HIGH NEGATIVE

7.5.6 Impacts on Land Values

Challenges with regards to the assessment of land values as a result of a wind farm have been discussed in Section 7.2.6 and the potential devaluation of farmland as a direct result of the Taaibos South WEF, if it occurs, was rated as 'low negative'.

Considering various national and international literature and consultation done for similar projects (refer to *References*: Section 10), it is the opinion of the SEIA Specialist that a negative cumulative impact on land values are possible for individual properties. This will in all likelihood depend on buyers' perceptions towards the wind farm developments. However, it is also recognized that development at this scale (Victoria West WEF Cluster) will provide a significant boost to the local economy with the potential to improve property values (Zurari (Pty) Ltd, April 2021).

Another factor to consider is that the increase in demand for land for renewable energy purposes in and around the study area could possibly increase the asking price of specific farm portions over the short to medium-term.²⁵

The assessment of the cumulative impact on farmland values are therefore inconclusive as there are too many variables that could affect the impact, whether positive or negative.

²⁵ SEIA Specialist's informal discussions with landowners in and around the study area, July 2022.

8 CONCLUSION AND SOCIO-ECONOMIC RECOMMENDATIONS

8.1 Summary of findings

WKN Windcurrent SA (Pty) Ltd is planning to develop five Wind Energy Facilities (WEF's) with associated infrastructure and their respective Overhead Powerlines (OHL's) located between Victoria West and Loxton in the Northern Cape Province. These facilities are referred to as the "Victoria West WEF Cluster". One of the WEF's associated with this Cluster, i.e. the Taaibos South WEF (The Project) is the subject of this Socio-economic Impact Assessment (SEIA) report and is analyzed and rated for Environmental Impact Assessment (EIA) purposes. INDEX *Social Consulting Services* was appointed for this purpose.

The Taaibos South WEF is located approximately 60 km south-west of Victoria West and 27 km south-east of Loxton in the Pixley ka Seme District and Ubuntu local Municipality (LM) in the Northern Cape Province.

Typical small, sparsely populated Karoo towns are scattered throughout the study area, whereas the larger towns serve the purpose of agricultural service centres with higher population densities. The study area in general experiences high levels of unemployment, poverty and social grant dependence and low levels of education. The local economy is largely based on agriculture, mainly goat, sheep and game farming. The manufacturing sector contributes only marginally to employment. Increasing the access to basic services and health, education and social services remain a challenge. Economic empowerment is limited by inadequate available employment opportunities and a lack in entrepreneurship and skills. For this reason the municipalities in the study area are increasing their focus on skills development.

For the 24-month construction period, various positive and negative social and socio-economic impacts have been identified and are summarized below:

Construction impacts	Before mitigation	After mitigation
Temporary employment	SOME BENEFITS	SOME BENEFITS
Local procurement	SOME BENEFITS	SOME BENEFITS
Induced local economic impacts	FEW BENEFITS	FEW BENEFITS
Training / skills development / capacity building	FEW BENEFITS	SOME BENEFITS
Employment equity	FEW BENEFITS	SOME BENEFITS
Impacts associated with an influx of jobseekers / temporary construction workers	MODERATE NEGATIVE	LOW NEGATIVE
Land use impacts	LOW NEGATIVE	LOW NEGATIVE
Intrusion impacts	MODERATE NEGATIVE	MODERATE NEGATIVE
Health and safety risks for workers	MODERATE NEGATIVE	LOW NEGATIVE

Approximately 250 direct construction-related employment opportunities will realize. In addition indirect employment and direct and induced economic impacts will manifest locally and nationally. These impacts will contribute to an increase in the livelihoods of directly and indirectly participating households for the duration of construction. Although limited, training and skills development has the potential to alleviate

poverty levels over the medium to long-term, as the people involved in the Project will acquire skills. The Project also has the potential to increase the skills and capacity of the municipal structures if they are actively involved from the onset of the Project. Strong emphasis is placed on measures to include the Local Economic Development (LED) Units in the processes to enhance participation and transparency.

Negative impacts are short-term in nature and can generally be mitigated effectively. The implementation of an effective employment process in collaboration with the municipal LED Units is essential to address impacts associated with an influx of jobseekers / temporary construction workers and to avoid or minimize residual short to medium term consequences for the municipalities and landowners.

Operational phase impacts over the 25-year lifespan of the Project and their significance ratings are reflected in the following table:

Operational impacts	Before mitigation	After mitigation
New employment and economic impacts	SOME BENEFITS	SOME BENEFITS
Increase in livelihoods for directly benefitting landowners	SOME BENEFITS	SOME BENEFITS
Socio-economic contribution / Community development	FEW BENEFITS	SOME BENEFITS
Training / skills development / capacity building	FEW BENEFITS	SOME BENEFITS
Land use impacts	LOW NEGATIVE	LOW NEGATIVE
Impacts on land values	LOW NEGATIVE	LOW NEGATIVE
Impacts on tourism	NO SIGNIFICANCE	NO SIGNIFICANCE
Intrusion impacts	MODERATE NEGATIVE	MODERATE NEGATIVE
Impacts on sense of place	MODERATE NEGATIVE	MODERATE NEGATIVE
Contribution to the national power supply	SOME BENEFITS	SOME BENEFITS

Various positive impacts of low to moderate significance are likely to manifest. The inclusion of the power produced at the Taaibos South WEF into the national grid will assist to address the national energy crisis, thereby contributing to development and is rated with a moderate positive significance. In addition, employment, procurement and induced positive economic impacts; annual compensation secured through the lease agreements for directly benefitting landowners; SED and ED spent; as well as skills development and capacity building, are some of the additional positive impacts identified.

Negative impacts pertain to land use impacts (although very limited), intrusion impacts and impacts on sense of place. Sense of place remains a personal experience and therefore the degree of confidence is 'undecided'. Available research on the impact of wind farms on farmland values are inconclusive and would depend on a number of variables and it is thus the opinion of the SEIA Specialist that negative impacts on land values during the operational phase of the Taaibos South WEF are unlikely, but that individual negative perceptions towards the development could affect property sales negatively in terms of prolonged sale periods and fewer buyers' interests. The impact has been rated with a 'low negative' significance.

Should the Taaibos South WEF be decommissioned after its 25 years' lifespan, social and socio-economic impacts are expected to be similar to those that took place during the construction phase and can generally be mitigated effectively. It is not possible to accurately rate and assess decommissioning impacts at this early stage of the process due to a changing social environment and it is therefore recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impacts. No rating is thus be provided for impacts associated with decommissioning.

8.2 Conclusion and Impact Statement

From a social and socio-economic perspective negative impacts that could manifest for this Project are either of low or moderate significance, or can be mitigated to acceptable levels. No issues of high significance have been identified. Based on the findings of this SEIA it is the opinion of the Specialist that the construction and operation of the Taaibos South WEF may proceed, provided that the mitigation, management measures and requirements as set out in this report be incorporated in the EMP and implemented wherever applicable.

9 SOCIAL MANAGEMENT PLAN

Following are the management and monitoring measures for the Social Management Plan component of the Project.

9.1 Employment, Training / Capacity Building, Local Procurement

Objectives are:

- Maximise local employment and the use of SMMEs / local small businesses that are empowered through skills development and training initiatives.
- Maximise local Procurement.
- Employment equity.
- Avoidance of conflict between communities as well as disruptions of the construction process.
- Minimize influx of an outside workforce.

Table 16. SMP: Employment, training / capacity building, local procurement

Activities	Timeframe	Responsible / Parties Involved	Output
<ul style="list-style-type: none"> • Identify the beneficiary communities. • Define the direct project sending area. • Consult with the local and district municipalities. Determine their employment procedures and the way forward to establish a labour desk. • Draw up a MoU with the municipal structures that set out roles, responsibilities and timelines. • Appoint a CLO / Community Employer Relations Officer. • Do a skills analysis of the local workforce to identify available skills and gaps. • Select individuals through the established means (random selection software, produce a 	<ul style="list-style-type: none"> • Financial close • Pre-construction 	<ul style="list-style-type: none"> • Developer • Main contractor • Municipal LED Units (local and district) • Ward Councillors • Community Employer Relations Officer / CLO 	<ul style="list-style-type: none"> • Defined beneficiary groups / communities. • Workable employment strategy. • Identification of skill requirements that have to be sourced outside the local workforce. • Recruitment, SMME, training targets, employment equity, transport and housing plan and KPA's included in CSMP. Penalties where contracts are breached. • Implementation of an Employment Equity Plan. • Local Preferential Procurement Strategy. • Informed beneficiary communities. • Low / no levels of social conflict. • No large-scale influx of jobseekers from outside the Project area. • Municipal Officials that are empowered.

<p>shortlist of candidates, medical examinations, and so forth).</p> <ul style="list-style-type: none"> • Do value-chain analysis of services required and inform the local municipal structures 4 months prior to tender process commencing. • Obtain the available databases of SMME's and identify gaps (training, etc.). • Implement SMME skills development programme (training on how to tender, understanding contracts, basic business skills). • Compile strategies to address employment equity of HDSA's (women, youth, disabled). • Provide feedback when tenders are awarded to promote transparency. 			
<ul style="list-style-type: none"> • Establish Forum / EMC that meets on a quarterly basis for monitoring purposes. • On-site training of locals where required. • Specific training / capacity building to groups of individuals / SMMEs related to their field (e.g. fire-fighting, basic electrical training, health and safety etc.) where required. • Encourage sub-contractors to implement training wherever possible and include it in the CSMP. • Issuance of certificates / references to workers once their contracts expire. • Compile and implement social awareness programme for the duration of construction that focuses on sexual health, unwanted pregnancies and related issues. 	<ul style="list-style-type: none"> • Construction phase 	<p><u>Forum /EMC members:</u></p> <ul style="list-style-type: none"> • Municipal LED Units (local and district) • Ward Councillors • Community Employer Relations Officer / CLO • Main Contractor <p><u>Training:</u></p> <ul style="list-style-type: none"> • Contractors and sub-contractors • Municipal Officials • Construction workers 	<ul style="list-style-type: none"> • Local labour force, SMMEs and groups of individuals that are trained, equipped and enable to work on the Project and on similar construction projects in the future. • Municipal Officials that are empowered. • No additional pressure on local health care services and social grants post construction as a result of a rise in HIV/AIDS prevalence, unwanted pregnancies and so forth.

9.2 Awareness / Community engagement

Objectives are:

- Promotion of transparency and community engagement for the duration of the Project;
- No levels of social conflict; and
- Good land use management practices.

Table 17. SMP: Awareness / community engagement plan

Activities	Timeframe	Responsible / Parties Involved	Output
<ul style="list-style-type: none"> • Establishment of an EMC / similar Forum that meets quarterly. • Appointment of a CLO. • Compile protocol for stakeholders / landowners / communities / other role players to raise complaints and make the procedures publicly available. • Compile Land Use Management procedures in conjunction with the affected landowners. 	<ul style="list-style-type: none"> • Construction phase 	<ul style="list-style-type: none"> • Developer • Main contractor • EMC / Forum • Municipal structures (LED Unit) • Ward Councillors • Landowners 	<ul style="list-style-type: none"> • Informed landowners, communities and stakeholders. • Low / no levels of social conflict. Issues that arise are addressed speedily. • Appropriate security and land use management measures are in place for the duration of the Project. • No environmental degradation.
<ul style="list-style-type: none"> • Compile Land Use Management procedures in conjunction with the affected landowners. 	<ul style="list-style-type: none"> • Operational phase 	<ul style="list-style-type: none"> • IPP • Landowners 	<ul style="list-style-type: none"> • No environmental degradation. • No trespassing on private land. • Crime levels do not increase. • Safety of livestock are ensured.

10 REFERENCES

10.1 Documents

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- 5) Nuleaf Planning and Environmental (Pty) Ltd. October 2022. Visual Impact Assessment for the proposed Taaibos South Wind Energy Facility, Northern Cape.
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10.2 Websites

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- 2) www.farmprogress.com
- 3) www.forensic-appraisal.com/power-lines
- 4) southafrica.co.za
- 5) municipalities.co.za
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- 7) meltonwold.co.za
- 8) www.property24.com
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10.3 Articles

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- 2) Farmprogress.com. How wind energy projects impact farmland values. February 2018. Obtained from www.farmprogress.com/land-management/how-wind-energy-projects-impact-farmland-values.
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10.4 Consultation

- 1) Ms. N Mkontwana: Acting Municipal Manager: Ubuntu Local Municipality
- 2) Clr. Soutie Weldon Kock: Ward 3 Councillor: Ubuntu Local Municipality
- 3) Mr. Siphon Nkili: IDP / Compliance Officer: Ubuntu Local Municipality
- 4) Mr. H Greeff: Snr. Manager: Infrastructure, Planning, Development & Housing: Pixley ka Seme District Municipality
- 5) Mr. A Sibeko: LED Manager: Pixley ka Seme District Municipality
- 6) Mr. Stefan van der Westhuyzen: Venter & Vennote Attorneys (De Aar).

10.5 Questionnaire responses

- 1) Altona Trust
- 2) Dawid Christo le Roux
- 3) Vaalbult Trust
- 4) Vaalbult Vrugtekwekers Bk
- 5) Bonnievale Trust
- 6) Spes Bona Trust
- 7) Boetmar Trust
- 8) Bonnza Boerdery (Pty) Ltd
- 9) Taaiboschfontein Farm Holdings (Pty) Ltd

11 ANNEXURES

11.1 Assessment Criteria

Criterion 1: Nature

Negative or positive impact on the environment.

Criterion 2: Type

Direct, indirect and/or cumulative effect of impact on the environment.

Criteria 3, 4, & 5: Temporal, Spatial, and Likelihood Scales

These four factors need to be considered when assessing the significance of impacts, namely:

- Relationship of the impact to temporal scales - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
- Relationship of the impact to spatial scales - the spatial scale defines the physical extent of the impact.
- The likelihood of the impact occurring - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts could occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance. In this case likelihood equates to some extent with risk. If the impact is definite, then there is a high risk that it will occur. However, likelihood and risk are not to be confused, and for certain impacts (e.g. risk of a vehicle accident) a risk assessment will be required (see Section 4).

The table below provides definitions for Criteria 3,4 & 5,

Duration (Temporal Scale)		Score
<i>Short term</i>	<i>Less than 5 years</i>	1
<i>Medium term</i>	<i>Between 5-20 years</i>	2
<i>Long term</i>	<i>Between 20 and 40 years (a generation) and from a human perspective also permanent</i>	3
<i>Permanent</i>	<i>Over 40 years and resulting in a permanent and lasting change that will always be there</i>	4
Extent (Spatial Scale)		
<i>Localised</i>	<i>At localised scale and a few hectares in extent</i>	1
<i>Study Area</i>	<i>The proposed site and its immediate environs</i>	2
<i>Regional</i>	<i>District and Provincial level</i>	3
<i>National</i>	<i>Country</i>	3
<i>International</i>	<i>Internationally</i>	4
Probability (Likelihood)		
<i>Unlikely</i>	<i>The likelihood of these impacts occurring is slight</i>	1
<i>May Occur</i>	<i>The likelihood of these impacts occurring is possible</i>	2
<i>Probable</i>	<i>The likelihood of these impacts occurring is probable</i>	3
<i>Definite</i>	<i>The likelihood is that this impact will definitely occur</i>	4

Criteria 6: Severity Scales

- The severity of the impact - the severity/beneficial scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party. The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it, and how effective the mitigation might be. The word 'mitigation' means not just 'compensation', but includes concepts of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. However, mitigation or optimization must be practical, technically feasible and economically viable (**Error! Reference source not found.**).

Impact Severity		Score
<i>(The severity of negative impacts, or how beneficial positive impacts would be on a particular affected system or affected party)</i>		
Very severe	Very beneficial	4
An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated. For example the permanent loss of land.	A permanent and very substantial benefit to the affected system(s) or party(ies), with no real alternative to achieving this benefit. For example the vast improvement of sewage effluent quality.	
Severe	Beneficial	3
Long term impacts on the affected system(s) or party(ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming, or some combination of these. For example, the clearing of forest vegetation.	A long term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these. For example an increase in the local economy.	
Moderately severe	Moderately beneficial	2
Medium to long term impacts on the affected system(s) or party (ies), which could be mitigated. For example constructing the sewage treatment facility where there was vegetation with a low conservation value.	A medium to long term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are equally difficult, expensive and time consuming (or some combination of these), as achieving them in this way. For example a 'slight' improvement in sewage effluent quality.	
Slight	Slightly beneficial	1
Medium or short term impacts on the affected system(s) or party(ies). Mitigation is very easy, cheap, less time consuming or not necessary. For example a temporary fluctuation in the water table due to water abstraction.	A short to medium term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.	
No effect	Don't know/Can't know	
The system(s) or party(ies) is not affected by the proposed development.	In certain cases it may not be possible to determine the severity of an impact.	

** In certain cases it may not be possible to determine the severity of an impact thus it may be determined: Don't know/Can't know*

Applying the criteria to ASSESS environmental significance before mitigation

The scores for the three criteria in **Error! Reference source not found.** are added to obtain a composite score. They must then be considered against the severity rating to determine the overall significance of an activity. This is because the severity of the impact is far more important than the other three criteria. The overall significance is then obtained by reading off the matrix presented in **Error! Reference source not found.** The overall significance is either negative or positive (Criterion 1) and direct, indirect or cumulative (Criterion 2).

Matrix used to determine the overall significance of the impact based on the likelihood and effect of the impact

SEVERITY	COMPOSITE DURATION, EXTENT & PROBABILITY SCORE										
	3	4	5	6	7	8	9	10	11	12	
Slight	3	4	5	6	7	8	9	10	11	12	
Mod severe	3	4	5	6	7	8	9	10	11	12	
Severe	3	4	5	6	7	8	9	10	11	12	
Very severe	3	4	5	6	7	8	9	10	11	12	

The **environmental significance** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

It is clear that an impact that has a *slight severity* could be of MODERATE significance because it is permanent (4), has a regional affect (3) and is definite. This elevates it from a LOW to a MODERATE rating. Conversely, a *moderately severe* impact could be rated as LOW since it is short term (1), localised (1) and only probable (3). An impact rated as *severe* could be of VERY HIGH significance because it is permanent (4), of national importance (3) and is definite (4). For example, the impact on a frog species of conservation concern (SCC) might only be rated as *severe* as a result of the project actions, but because the loss is permanent and of national importance (it's a SCC) and is definite, we rate the significance as VERY HIGH and not HIGH. If the impact was long term and not permanent then it would be rated as HIGH.

The Significance Rating Scale is defined in the table below.

OVERALL SIGNIFICANCE (The combination of all the above criteria as an overall significance)	
VERY HIGH NEGATIVE	VERY BENEFICIAL
These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects. <i>Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.</i> <i>Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.</i>	
HIGH NEGATIVE	BENEFICIAL
These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light. <i>Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.</i> <i>Example: The change to soil conditions will impact the natural system, and the impact on affected parties (such as people growing crops in the soil) would be HIGH.</i>	

OVERALL SIGNIFICANCE <i>(The combination of all the above criteria as an overall significance)</i>	
MODERATE NEGATIVE	SOME BENEFITS
<p>These impacts will usually result in medium to long term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are real but not substantial. <i>Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.</i></p>	
LOW NEGATIVE	FEW BENEFITS
<p>These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect. <i>Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.</i> <i>Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people who live some distance away.</i></p>	
NO SIGNIFICANCE	
<p>There are no primary or secondary effects at all that are important to scientists or the public. <i>Example: A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.</i></p>	
DON'T KNOW	
<p>In certain cases it may not be possible to determine the significance of an impact. For example, the primary or secondary impacts on the social or natural environment given the available information. <i>Example: The effect of a particular development on people's psychological perspective of the environment.</i></p>	

Significance Post Mitigation²⁶

Once mitigation measure are proposed, the following criteria are then used to determine the overall post mitigation significance of the impact:

- **Reversibility:** The degree to which an environment can be returned to its original/partially original state.
- **Irreplaceable loss:** The degree of loss which an impact may cause.
- **Mitigation potential:** The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in **Error! Reference source not found.** below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Reversibility	
<i>Reversible</i>	<i>The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.</i>
<i>Irreversible</i>	<i>The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.</i>
Irreplaceable loss	

²⁶ Note that the application of reversibility and irreplaceability must be applied for South Africa impact assessments, as it is a regulatory requirement. For projects in other geographies it is optional.

Resource will not be lost	The resource will not be lost/destroyed provided mitigation measures are implemented.
Resource will be partly lost	The resource will be partially destroyed even though mitigation measures are implemented.
Resource will be lost	The resource will be lost despite the implementation of mitigation measures.
Mitigation potential	
Easily achievable	The impact can be easily, effectively and cost effectively mitigated/reversed.
Achievable	The impact can be effectively mitigated/reversed without much difficulty or cost.
Difficult	The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs.
Very Difficult	The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.

These criteria are applied using the logic represented in the flow chart below in **Error! Reference source not found..** Appendix 1 provides further guidelines and examples.

Degree of Confidence

If you wish, you may also mention the confidence you have in your impact ratings, but this is not a legislative requirement. It does, however, assist in determining the level of certainty of our impact predictions.

Degree of Confidence (The confidence with which one has predicted the significance of an impact)	
Certain	I am more than 90% sure of the facts that underpin my assessment, my data is current and the information I have is comprehensive enough for me to be <i>certain</i> of my impact rating.
Confident	I am more than 70% sure of the facts that underpin my assessment, my data is current and the information I have, although not comprehensive, is enough for me to be <i>confident</i> in my impact rating.
Undecided	I am between 40% and 70% sure of the facts that underpin my assessment, but my data is scant and the information I have is outdated, not very site specific and/or has other limitations so I am <i>undecided</i> if my impact rating is correct. I have therefore adopted a precautionary approach when rating this impact.
Unconvinced	I am less than 40% sure of the facts that underpin my assessment, my data is scant and the information I have is very outdated. I lack site specific information and details on the nature of the impact, as its effect is not well researched. I am therefore <i>unconvinced</i> that my impact rating is correct. I have therefore adopted a precautionary approach when rating this impact.

11.2 Full Impact Assessment – SEIA

11.2.1 Construction Phase

		Nature	Duration	Extent	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: Temporary employment											
Taaibos WEF	South	Positive	Short term	National	Moderately Beneficial	Definite	SOME BENEFITS	Reversible	Resource will not be lost	Difficult	SOME BENEFITS
Impact 2: Local procurement											
Taaibos WEF	South	Positive	Short term	National	Moderately Beneficial	Definite	SOME BENEFITS	Reversible	Resource will not be lost	Achievable	SOME BENEFITS
Impact 3: Induced local economic impacts											
Taaibos WEF	South	Positive	Short term	National	Slightly Beneficial	Definite	FEW BENEFITS	Reversible	Resource will not be lost	Very difficult	FEW BENEFITS
Impact 4: Training / Skills Development											
Taaibos WEF	South	Positive	Short term	Regional	Slightly Beneficial	May Occur	FEW BENEFITS	Reversible	Resource will not be lost	Achievable	SOME BENEFITS
Impact 5: Employment Equity											
Taaibos WEF	South	Positive	Short term	Regional	Slightly Beneficial	Definite	FEW BENEFITS	Reversible	Resource will not be lost	Achievable	SOME BENEFITS
Impact 6: Impacts associated with an influx of jobseekers / temporary construction workers											

Taaibos WEF	South	Negative	Short term	Regional	Moderately Severe	Probable	Moderately NEGATIVE	Reversible	Resource will be partly lost	Achievable	LOW NEGATIVE
Impact 7: Land use impacts											
Taaibos WEF	South	Negative	Short term	Localised	Slight	Definite	LOW NEGATIVE	Reversible	Resource will be lost	Very Difficult	LOW NEGATIVE
Impact 8: Intrusion impacts											
Taaibos WEF	South	Negative	Short term	Study area	Moderately Severe	Definite	Moderate NEGATIVE	Reversible	Resource will not be lost	Difficult	Moderate NEGATIVE
Impact 9: Health and safety risks for workers											
Taaibos WEF	South	Negative	Short term	Localised	Severe	May Occur	Moderate NEGATIVE	Irreversible	Resource will be lost	Achievable	LOW NEGATIVE

11.2.2 Operation Phase

		Nature	Duration	Extent	Severity	Probability	Overall Significance before mitigation	Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance after mitigation
Impact 1: New employment and economic impacts											
Taaibos WEF	South	Positive	Long term	Regional	Moderately Beneficial	Definite	SOME BENEFITS	Reversible	Resource will not be lost	Difficult	SOME BENEFITS
Impact 2: Increase in livelihoods for directly benefitting landowners											
Taaibos WEF	South	Positive	Long term	Localised	Moderately Beneficial	Definite	SOME BENEFITS	Reversible	Resource will not be lost	Very Difficult	SOME BENEFITS
Impact 3: Socio-economic contribution / Community development											
Taaibos WEF	South	Positive	Long term	Regional	Slightly Beneficial	Definite	FEW BENEFITS	Reversible	Resource will not be lost	Achievable	SOME BENEFITS
Impact 4: Training / skills development / capacity building											
Taaibos WEF	South	Positive	Long term	Regional	Slightly Beneficial	May Occur	FEW BENEFITS	Reversible	Resource will not be lost	Achievable	SOME BENEFITS
Impact 5: Land use impacts											
Taaibos WEF	South	Negative	Long term	Localised	Slight	Unlikely	LOW NEGATIVE	Reversible	Resource will not be lost	Very Difficult	LOW NEGATIVE
Impact 6: Impacts on land values											
Taaibos WEF	South	Negative	Long term	Study Area	Slight	May Occur	LOW NEGATIVE	Reversible	Resource will not be lost	Very Difficult	LOW NEGATIVE
Impact 7: Impacts on tourism											

Taaibos WEF	South	Negative	Long term	Study Area	No effect	Unlikely	INSIGNIFICANT	Reversible	Resource will not be lost	Very Difficult	INSIGNIFICANT
Impact 8: Intrusion impacts											
Taaibos WEF	South	Negative	Long term	Study Area	Moderate Severe	Definite	MODERATE NEGATIVE	Reversible	Resource will not be lost	Very Difficult	MODERATE NEGATIVE
Impact 9: Impacts on sense of place											
Taaibos WEF	South	Negative	Long term	Study Area	Moderate Severe	Probable	MODERATE NEGATIVE	Reversible	Resource will not be lost	Very Difficult	MODERATE NEGATIVE
Impact 10: Contribution to national power supply											
Taaibos WEF	South	Positive	Long term	National	Slightly Beneficial	Definite	SOME BENEFITS	Reversible	Resource will not be lost	Very Difficult	SOME BENEFITS

11.3 Blurb of SEIA Specialist

Marchelle Terblanche, a Social and Socio-economic Development Consultant, manages the INDEX *Social Consulting Services* division of the company Integrated Rural and Urban Development Expertise (Pty) Ltd t/a INDEX. She has 27 years' experience in her field that include consulting services for a large number of engineering and environmental organizations, Renewable Energy companies, Town Planners and private landowners.

Marchelle completed her studies in BA (Development Studies) at UJ (previously RAU) in 1993 and did a Project Management course in 1998 with X-Pert Managing by Project Academy. After two years of fulltime employment as a Development Consultant and Social Facilitator, which commenced in 1994, she travelled and worked in Europe for a year. Upon her return to South Africa in 1997 she joined INDEX as an Associate managing the Community and Social Development division working on various projects in all nine provinces.

Her specific fields of interest are Socio-economic Impact Assessments, socio-economic surveys, feasibility studies and public participation processes. She has furthered her skills base in the last 11 years to include the lodging of more than 60 subdivision, rezoning, land use change and long-term lease applications in terms of the Subdivision of Agricultural Land Act (Act No. 70 of 1970) (SALA) with the Department of Agriculture, Land Reform & Rural Development; as well as numerous Water Use Licence Applications (WULA's) in accordance with the National Water Act (Act No. 36 of 1998) with the Department of Water Affairs.

Relevant SEIA projects which have been successfully executed include:

- SEIA for the proposed Impofu Electrical Grid Extension for the proposed Impofu Wind Farms, Nelson Mandela Bay Municipality, Eastern Cape Province. Red Cap Energy (Pty) Ltd / CEN IEM Unit.
- SEIA for the proposed Impofu Battery Storage Facilities, Kouga and Kou-Kamma Local Municipality, Eastern Cape Province. Red Cap Energy (Pty) Ltd / CEN IEM Unit.
- SEIA for the proposed Albany Wind Energy Facility in Makana Local Municipality, Eastern Cape Province. EDF Renewables (Pty) Ltd / CES Environmental.
- SIA for the proposed Dassiesridge Wind Energy Facility near Uitenhage, Eastern Cape Province. Innowind (Pty) Ltd / EOH Coastal and Environmental Services (Pty) Ltd.
- SIA for the proposed Aggeneys PV Solar Energy Facility near Pofadder, Northern Cape. Solar Capital (Pty) Ltd.
- SEIA for the proposed Bayview Wind Farm, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape Province. Bayview Wind Power (Pty) Ltd / EOH Coastal and Environmental Services.
- SIA for the proposed Kameelboom Concentrated Solar Power Plant near Marydale, Northern Cape Province. AE-AMD Renewable Energy (Pty) Ltd / Rock Environmental Consulting (Pty) Ltd.
- SIA for the proposed Umsobomvu Wind Energy Facility near Noupoot, Northern Cape Province. Innowind (Pty) Ltd / EOH Coastal and Environmental Services.
- SIA and public participation for the proposed Vaalkop and Witkop PV Solar Facilities on various sites near Orkney, Northwest Province. Savannah Environmental (Pty) Ltd.

- SIA and public participation for the proposed Kgabalatsane Solar PV 1 and 2 facilities near Brits, Northwest Province. Savannah Environmental (Pty) Ltd.