

Socio-Economic Impact Assessment



PROPOSED GAMMA 400 kV GRIDLINE PROJECT

Draft Socio-economic Impact Assessment

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Socio-economic Impact Assessment Report for the proposed Gamma 400kV Gridline Project

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EXECUTIVE SUMMARY

Red Cap (Pty) Ltd is proposing to construct a 400 kV transmission line between the approved Nuweveld Collector Substation north of Beaufort West to the existing Gamma Substation ~90 km to the east (the Project). The project is intended to expand the capacity and improve the functionality of the Eskom grid by creating a 400 kV ring-line between the Droërivier Substation in the south, Gamma Substation and the Nuweveld Collector Substation, and in so doing create opportunities for other wind farm developments (such as the proposed Red Cap Hoogland projects) to tie-into the grid. As such, the proposed new Gamma Grid powerline will allow Eskom to release further renewable energy potential in an area that is becoming a renewable energy development node in South Africa, thereby helping to alleviate South Africa's power crisis.

A corridor for the proposed Gamma 400 kV powerline of approximately 110 km in length and varying widths that range between 4 and 10 km has been identified for assessment. Although the gridline starts and ends in the Western Cape (Central Karoo District and Beaufort West Local Municipalities), large portions of the line traverses land in the Northern Cape (Pixley ka Seme District and Ubuntu Local Municipalities).

INDEX *Social Consulting Services* was appointed to undertake the Socio-economic Impact Assessment (SEIA) for this Project. The purpose of this SEIA is to identify and assess potential social and socio-economic impacts that could manifest as a result of the Project. The aim is for the developer to optimise the benefits of the Project and implement mitigation that would minimise the possible negative impacts before they manifest. Sensitive receptors and areas that should be avoided are also identified to aid the identification of the most suitable route within the corridor.

Typical small, sparsely populated Karoo towns are scattered throughout region, 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 18 – 24 month construction period, various positive and negative social and socio-economic impacts have been identified, as summarised below:

Impact – Construction phase	Without mitigation	With mitigation
Temporary employment	Medium - positive	Medium - positive
Local Procurement	Medium - positive	Medium - positive
Induced local economic impacts	Medium - positive	Medium - positive
Training / Skills development	Low - positive	Low - positive
Employment Equity	Low - positive	Medium - positive
Influx of jobseekers / temporary construction workers	Low - negative	Low - negative
Intrusion impacts	Low - negative	Low - negative

Construction phase positive impacts mainly relate to economic impacts for the local and national economies through direct employment, procurement of capital goods, general construction and building material and infrastructure elements. In addition, downstream opportunities will further result in indirect employment and incomes through induced effects of the Project. A general increase in incomes and livelihoods will manifest for participating households. The agricultural assessment (J. Lanz, August 2022) identified no negative impacts on agricultural production.

Training and skills development will indirectly address poverty alleviation over the medium to long-term, as the workers and other people involved in the Project will acquire skills. Emphasis has been placed on measures to include municipal structures in the processes to enhance participation and transparency.

Negative impacts during construction are typical to those that manifest during large construction projects, are short-term of nature and can generally be mitigated effectively, such as the potential of an influx of jobseekers, intrusion impacts for landowners and potential security risks. Should the construction process not be managed adequately and these impacts occur, negative community mobilisation could manifest.

Operational phase impacts and their significance are reflected in the following table:

Impact - Operational phase	Without mitigation		With mitigation
National power supply	High - positive		High - positive
Impacts on land values	Low - negative		Low - negative
Land use impacts	Very Low - negative		Very Low - negative
Tourism Impacts	Low - negative		Low - negative
Impacts on sense of place	Low - negative		Low - negative

Although devaluation of farmland values are possible, impacts of powerlines on property values are difficult to measure as it is dependent on a variety of factors, such as the receiving environment (location and setting), market conditions and perceptions of affected parties towards the infrastructure. Should it occur, it is likely to be a temporary occurrence that will diminish or disappear over the short to medium-term and can be off-set by compensation. For this Project's operational phase, impacts on tourism and sense of place is largely linked with visual impacts and rated with a low negative significance. Land use impacts will be negligible, as agricultural land uses will continue once the land has been rehabilitated.

As decommissioning is unlikely and the timing with regards to the replacement of infrastructure, if it occurs, cannot be determined at this stage, no rating for decommission phase impacts are done. It is therefore recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impacts on the changing social environment at that stage.

From a social and socio-economic perspective negative impacts that could manifest for this Project are either of low significance or can be mitigated to acceptable levels. No issues of high negative 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 Gamma Gridline and associated infrastructure 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.

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 ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Page ii; and Appendix B
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Appendix C
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 2.2
(cA) an indication of the quality and age of base data used for the specialist report;	Section 2.3.2
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 9
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 2.3.3
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 2.3
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; and Section 6
g) an identification of any areas to be avoided, including buffers;	Section 5.2.2; and Section 6
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 6
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2.4
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 8
k) any mitigation measures for inclusion in the EMPr;	Section 9; and Section 10.1
l) any conditions for inclusion in the environmental authorisation;	Section 11.2

m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 10.1
n) a reasoned opinion- i. (as to) whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 11.2 Section 10
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 2.3.6
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Section 2.3.8
q) any other information requested by the competent authority.	n/a
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.	n/a

CONTENTS

1.	INTRODUCTION	1
2.	ASSESSMENT METHODOLOGY	3
2.1	Specialist Credentials.....	3
2.2	Scope and Purpose of Report.....	3
2.3	Approach and Methodology	3
2.3.1	Scope of the assessment.....	3
2.3.2	Desktop studies and literature review	4
2.3.3	Site visit	4
2.3.4	Definition of the Study Area	4
2.3.5	Identification of Stakeholders and Sensitive Receptors.....	4
2.3.6	Primary data	5
2.3.7	Secondary data	6
2.3.8	Impact variables to be assessed.....	6
2.3.9	Significance rating	6
2.3.10	Mitigation and management.....	7
2.3.11	Conclusion and Recommendations	7
2.3.12	Social Management Plan and Strategies	7
2.4	Assumptions and Limitations	7
3.	LEGAL REQUIREMENT AND GUIDELINES.....	8
3.1	International guidelines	8
3.2	National Policy context.....	8
3.3	Provincial context	11
3.4	District and Local Municipal Context.....	12
3.5	Other Policy Guidelines.....	14
4.	PROJECT DESCRIPTION	15
4.1	Project Location	15
4.2	Project Description	16
4.2.1	Pylon Types.....	16
4.2.2	Access.....	16
4.2.3	Operational Phase.....	17
4.2.4	Summary of components and disturbance footprints.....	17
4.3	Timeframes	17
4.4	Alternatives.....	17

4.5	Social and Socio-economic Process of the Project	18
4.5.1	Identification of the Beneficiary Communities	18
4.5.2	Employment	19
4.5.3	Social responsibility.....	20
5.	DESCRIPTION OF THE RECEIVING ENVIRONMENT	20
5.1	Regional and Local Study Area.....	20
5.1.1	Municipalities.....	20
5.1.2	Towns.....	23
5.2	Site Specific Study Area.....	24
5.2.1	Land Uses	24
5.2.2	Sensitive receptors.....	24
5.3	Renewable Energy Projects and Power Lines in and Around the Study Area	25
6.	BASELINE DATA OF THE STUDY AREA.....	26
6.1	Population data	26
6.1.1	Population size	26
6.1.2	Language and race	27
6.2	Labour Force.....	27
6.2.1	Education	27
6.2.2	Unemployment	28
6.2.3	Youth unemployment	28
6.2.4	Incomes.....	29
6.2.5	Employment per sector	30
6.3	Economic profile and Indicators.....	30
6.4	Social Indicators.....	32
6.4.1	Health, TB and HIV/AIDS.....	32
6.4.2	Crime.....	33
6.5	Institutional Profile	34
6.5.1	Housing, infrastructure and services.....	34
6.5.2	Safety and Security	35
6.5.3	Health Facilities	35
6.5.4	Educational Facilities	35
6.6	Local Economic Development.....	36
6.7	Local social and economic issues.....	37
7.	SPECIALIST FINDINGS AND ASSESSMENT OF IMPACTS.....	38
7.1	Construction Phase	38

7.2	Operational phase	38
8.	IMPACT ASSESSMENT	38
8.1	Construction Phase	38
8.1.1	Temporary Employment	38
8.1.2	Local Procurement	40
8.1.3	Induced Local Economic Impacts	41
8.1.4	Training / Skills Development.....	42
8.1.5	Employment Equity	44
8.1.6	Influx of Jobseekers / Temporary Construction Workers	45
8.1.7	Intrusion Impacts	47
8.1.8	Impacts considered and not assessed.....	48
8.2	Operational Phase	49
8.2.1	Impacts on national power supply.....	49
8.2.2	Impacts on Land Values.....	49
8.2.3	Land Use Impacts	51
8.2.4	Impacts on Tourism.....	52
8.2.5	Impacts on Sense of Place	54
8.2.6	Impacts considered and not assessed.....	55
8.3	Decommissioning Phase.....	55
8.4	Alternatives.....	56
8.5	Cumulative Impacts.....	56
8.5.1	Employment, Economic Contribution and Induced Impacts	56
8.5.2	Impacts for the Local and District Municipalities	57
8.5.3	Impacts on Land Values.....	58
8.5.4	Influx of Jobseekers / Temporary Construction Workers	59
8.5.5	Intrusion Impacts	60
8.5.6	Impacts on Tourism.....	61
8.5.7	Impacts on Sense of Place	62
9.	MITIGATION AND EMPR REQUIREMENTS	63
9.1	Summary of mitigation measures.....	63
10.	CONCLUSION AND SUMMARY	66
10.1	Summary of Findings	66
10.2	Conclusion and Impact Statement	67
11.	REFERENCES.....	68
11.1	Documents	68

11.2	Websites.....	68
11.3	Articles.....	68
11.4	Consultation	69
12.	APPENDICES	70

LIST OF TABLES

Table 1.	Summary of the components and approximate areas of impact within the Gamma Grid Connection Corridor.....	17
Table 2.	Municipalities and affected wards.....	21
Table 3.	Towns near the Project	23
Table 4.	Land Uses and/or Sensitive Receptors within corridor.....	24
Table 5.	Population data of the study area.....	26
Table 6.	Population in the towns	27
Table 7.	Languages and race.....	27
Table 8.	Education levels	27
Table 9.	Higher education levels, Ubuntu LM.....	28
Table 10.	Unemployment rate	28
Table 11.	Sector of employment	30
Table 12.	Contribution to employment.....	30
Table 13.	Contribution to GDP.....	31
Table 14.	Victoria West SAPS crime statistics.....	33
Table 15.	Beaufort West SAPS crime statistics	33
Table 16.	Health care facilities	35
Table 17.	Education facilities.....	35
Table 18.	Construction phase: Temporary employment	40
Table 19.	Anticipated capital expenditure in 2022 prices.....	41
Table 20.	Construction phase: Local Procurement.....	41
Table 21.	Construction phase: Induced local economic impacts	42
Table 22.	Construction phase: Training / Skills development	43
Table 23.	Construction phase: Employment equity	44
Table 24.	Construction phase: Influx of jobseekers / temporary construction workers	46
Table 25.	Construction phase: Intrusion impacts.....	47
Table 26.	Operational phase: Impacts on national power supply.....	49
Table 27.	Operational phase: Impacts on land values	51
Table 28.	Operational phase: Land use impacts	52

Table 29. Holiday accommodation / tourism establishments	52
Table 30. Operational phase: Impacts on tourism	54
Table 31. Operation phase: Impacts on sense of place.....	55
Table 32. Cumulative impacts: Employment, economic contribution and induced impacts ..	57
Table 33. Cumulative impacts: Impacts for the local and district municipalities	58
Table 34. Cumulative impacts: Impacts on land values	59
Table 35. Cumulative impacts: Influx of jobseekers / temporary construction workers.....	60
Table 36. Cumulative impacts: Intrusion impacts	61
Table 37. Cumulative impact: Impacts on tourism	62
Table 38. Cumulative impacts: Impacts on sense of place	63
Table 39. Summary of mitigation measures	63

LIST OF FIGURES

Figure 1. Regional locality	2
Figure 2. Regional locality map	15
Figure 3. Locality map.....	16
Figure 4. 50 km radius from the Gamma Grid Project	19
Figure 5. Locality of Ubuntu Local Municipality.....	21
Figure 6. Ubuntu LM, Ward 3	22
Figure 7. Locality of Beaufort West Local Municipality.....	22
Figure 8. Beaufort West LM (BWLM), Wards 1, 2, 7	23
Figure 9. Typical landscape of the local study area	24
Figure 10. Railway line	25
Figure 11. Beaufort West LM Income levels	29
Figure 12. Ubuntu LM Income levels.....	29
Figure 13. Access to Municipal Services	34
Figure 14. Locality of guest houses / guest farms	53

LIST OF APPENDICES

Appendix A: Assessment criteria
Appendix B: CV of SEIA Specialist
Appendix C: DEA Declaration

LIST OF ABBREVIATIONS

Abbreviation	
ART	Anti-Retroviral Therapy
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
GDP	Growth Domestic Product
GDP-R	Gross Domestic Product by Region
GVA	Gross Value Added
HTVL	High voltage transmission lines
IDP	Integrated Development Plan
IPP	Independent Power Producer
IP4	Independent Power 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
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	Proect 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

1. INTRODUCTION

Red Cap Energy (Pty) Ltd ('Red Cap') has received Environmental Authorisation (EA) for three wind farms and for a 400 kV grid corridor collectively known as Nuweveld Wind Farm Development, located close to Beaufort West in the Western Cape Province. The approved grid corridor links the Nuweveld projects to the Droërivier Substation ~65 km to the south of the wind farms (refer to Figure 1).

Red Cap is also proposing to develop four additional wind farms and associated grid connections, known as the Hoogland Projects. The Hoogland Wind Farms are located north and south of the Nuweveld complex, and the Hoogland grid connections will terminate at the Nuweveld Collector Substation and are the subject of separate applications.

To expand the capacity of Eskom grid and improve the functionality of the grid in the area, an additional 400 kV grid connection is required from the Nuweveld Collector Substation to the Gamma Substation, ~90 km to the east (the Project). A 300 m x 300 m expansion to the Gamma Substation and access tracks for construction and maintenance of the line will also be required and form components of the Project.

This additional line will improve the functionality of the Eskom transmission grid by creating a 400 kV ring-line between the Droërivier Substation, Gamma Substation and Nuweveld Collector Substation and create opportunities for other wind farm developments (such as the proposed Hoogland projects) to tie-into the grid. As such, the proposed new line will allow Eskom to release further renewable energy potential in an area that is becoming a renewable energy development node in South Africa, thereby helping to alleviate South Africa's power crisis.

This Project triggers activities listed in terms of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended. These activities require authorisation from the Department of Forestry, Fisheries and the Environment (DFFE), prior to commencement. An application for EA will be submitted and informed by a Basic Assessment (BA) process as the Project will lie wholly within a strategic transmission corridor¹ specifically identified for the placement of this infrastructure.

Specialist studies have been commissioned to verify the sensitivity of various themes in the Screening Tool Report, and assess the impacts of the Project under the Gazetted specialist protocols (GN R 320 of 2020 and GN R 1150 of 2020), where applicable. INDEX *Social Consulting Services* was appointed by Red Cap to undertake the Socio-economic Impact Assessment (SEIA) for this Project. Note that there is no Protocol for Socio-Economic Impact Assessments, and the report needs to comply with Appendix 6 of the EIA Regulations.

¹ As per the requirements of Government Notice 113 of 16 February 2018 for transmission lines falling within a strategic transmission corridor.

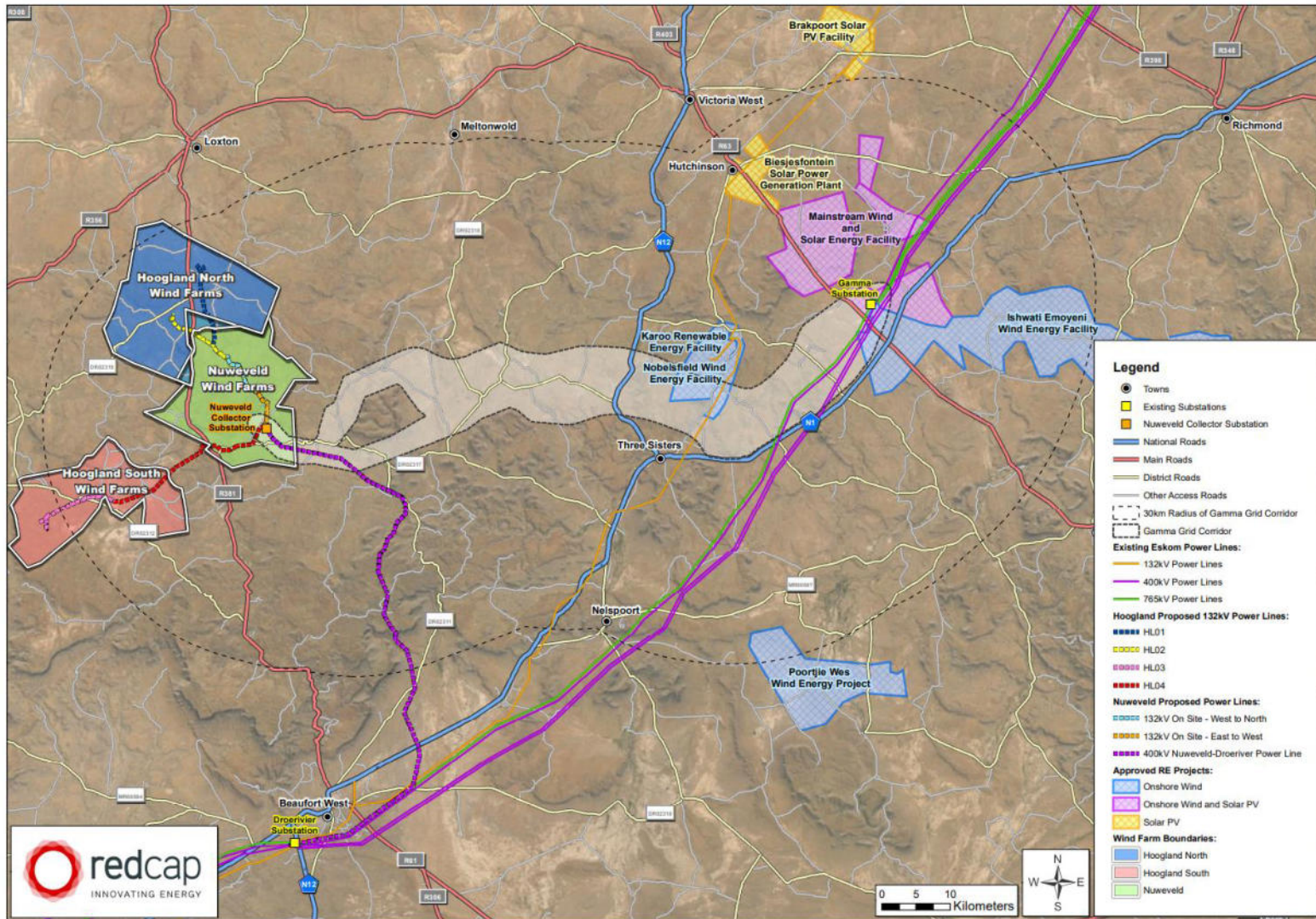


Figure 1. Regional locality

2. ASSESSMENT METHODOLOGY

2.1 Specialist Credentials

The SEIA Specialist's CV is attached in Appendix B (Section 12; Specialist CV).

2.2 Scope and Purpose of Report

A corridor for the proposed Gamma 400kV powerline grid of approximately ~110 km in length and varying widths that range between ~4 and ~10 km has been identified for assessment. The findings of the various Specialists will identify No-Go areas, which will enable the Proponent to establish the most suitable alignment within this corridor subject to landowner negotiations, and for the Environmental Assessment Practitioner (EAP) to assess impacts on this basis.

The purpose of this SEIA is to identify and assess potential social and socio-economic impacts that could manifest as a result of the Project. The effect of the development on a specific group of people or a community's way of life, character or social cohesion can thus be determined prior to the development taking place. The aim is for the developer to optimise the benefits of the Project and implement mitigation that would minimise the possible negative impacts before they manifest. Sensitive receptors and areas that should be avoided are also identified to aid the identification of the most suitable route within the corridor.

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 corridor 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
- Social Management Plan for implementation.

2.3 Approach and Methodology

The 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:

2.3.1 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.

2.3.2 Desktop studies and literature review

Various secondary data sources were used to collect information, determine and analyse 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);
- Specialist reports compiled for this Project's BA;
- 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 12 contains the list of sources consulted.

2.3.3 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.

2.3.4 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, changes in the sense of place and land acquisitions. For this assessment, the site specific study area is the Gamma Grid Corridor that was identified for BA purposes.
- The **local study area (direct area of influence)** is the area that would experience the direct positive economic impacts such as job creation, as well as the negative impacts related to 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 kilometers 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 such as pressure on local service delivery and resources; multiplier effects from the indirect and induced economic impacts from employment and expenditure; 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.

2.3.5 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 the owners of farms
- Residents located in the affected wards
- Workers and their dependents

- Road users (N12, R63 and access roads)
- Ward Councillors
- Ubuntu Local Municipality (LM) – IDP Unit
- Beaufort West Local Municipality (BWLM) – LED Unit

Stakeholders in the regional Study Area

- Pixley ka Seme District Municipality (PSDM)
- Central Karoo District Municipality (CKDM)
- Organized Agriculture
- Existing Independent Power Producers (IPPs)
- Emergency services

2.3.6 Primary data

2.3.6.1 Public participation

In order to elaborate on the baseline social, socio-economic and economic environment comments and issues that emerge (e.g. from landowners) in the Public Participation Process (PPP) to be done for the BA will be included and assessed and this draft SEIA report updated accordingly.

2.3.6.2 Consultation and fieldwork

Consultation with municipal officials took place from July 2022 to September 2022. Meetings, telephonic discussions and questionnaires formed the basis of the consultation up to date.

As landowners in the powerline route had not yet been finalised, it was it was not possible to engage these stakeholders at the time of compiling this draft report (but refer to Section 2.3.6.1 above). Should direct consultation with landowners be considered necessary by the specialist on the basis of comments submitted in the PPP this will be undertaken and the report updated appropriately.

The list of stakeholders consulted is included in Section 12.4 and will be updated during the course of the process.

2.3.6.3 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 databases in each municipality, 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, SMMEs 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;
- Potential increase in crime;

- There is no registered landfill site in Victoria West and there is a concern about waste management at the construction site;
- Currently water service provision is an issue at Victoria West and Loxton (at present pumping water 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 Renewable Energy (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 between the developer and national government;
- Missed opportunities have taken place in previous RE projects. Need to learn from the past to improve future projects; and
- Locals need to be used during the operational phase of projects, as many of the skills required are now locally available due to previous RE projects that have taken place.

2.3.7 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 and merged with findings of the Visual, Traffic and Agricultural Impact Assessments.

2.3.8 Impact variables to be assessed

The following variables were assessed for purposes of this study:

- Economic and socio-economic impacts that relate to local procurement; induced and indirect local economic impacts; incomes earned through land sales; and changes in the economic focus of the community.
- 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; visual impacts; devaluation of farmland values and security risks.
- Individual and family level impacts, including disruption in daily living and movement patterns; tourism and leisure impacts.
- Community / institutional arrangements, such as attitude formation / negative community mobilization.
- Health and safety impacts for workers and the general public.

2.3.9 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;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts.

The Significance Rating methodology is set out in the Appendix A.

2.3.10 Mitigation and management

For each of the impacts identified mitigation and management measures are proposed and it is indicated how these would change the rating of extent, intensity, duration, or probability if such measures were implemented. Where applicable, specific areas of concern are highlighted. It is recommended that mitigation and management measures be included in the generic Environmental Management Programme (EMPr) for overhead transmission infrastructure.

2.3.11 Conclusion and Recommendations

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

2.3.12 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.

2.4 Assumptions and Limitations

- Baseline socio-economic data for this draft SIA 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. This is especially in light of the fact that consultation with landowners has not commenced at the time when the draft SEIA report was compiled. Additional inputs from stakeholders, where relevant, will be included and could still affect the rating of social and socio-economic impacts.
- Consultation with stakeholders for the SEIA but does not aim to replace the Public Participation Process required by NEMA and the EIA Regulations.
- 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 this 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 is not easily measured.

3. LEGAL REQUIREMENT AND 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.

3.1 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.

3.2 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 channeled into activity corridors and nodes that are adjacent to or that link with main growth centres.

3.3 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.

Western Cape Provincial Strategic Plan (2020-2025):

The 2020-2025 Provincial Strategic Plan provides the strategic framework for the provincial medium-term budget policy priorities, which in turn are aligned to the NDP strategic outcomes. The Provincial Spatial Development Framework serves as the spatial policy framework and focuses on spatial transitions for growing the economy, building better environmental resilience, and pursuing greater inclusivity. Municipal Spatial Development Frameworks (SDFs) and Integrated Development Plans (IDPs) are in turn aligned to these frameworks.

The Western Cape Government commits to building a values-based competent state that enables opportunities and promotes responsibility in a safer Western Cape. This vision is expressed in the five strategic priorities identified for 2020-2025:

- Building safe and cohesive communities;
- The economy and job creation;
- Empowering people;
- Mobility and spatial transformation and human settlements; and
- Innovation and culture.

Even though the Western Cape economy has recorded some excellent successes over the past decade, due to global economic conditions, fiscal pressure and a growing population, new ways to support economic growth and job creation are required. Five priority areas have been identified in order to promote economic development including:

- Investment facilitation and promotion;
- Infrastructure development;
- Export support and promotion;
- Skills development; and
- Resource resilience.

3.4 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.

Central Karoo District Municipality IDP (2022-2027)

The mission of the Central Karoo District Municipality (CKDM) is defined as "a place where we envisage and ensure economic growth and social development and sustainability, whilst maintaining its rural character, seek to ensure urbanisation, embracing and developing the diversity of its people".

The CKDM has formulated the following strategic objectives:

- Facilitate good governance principles and effective stakeholder participation.
- Build a capable workforce, skilled youth and communities.
- Promote socially stable communities, ensure safe roads, minimize the impact of disasters and improve public safety.
- Promote inclusive economic growth and transformation.
- Deliver a sound and effective administration, financial viability and sustainability.
- Ensure infrastructure growth and development

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 Integrated Development Plan (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.

Beaufort West Local Municipality IDP (2017 – 2022)

The Beaufort West Municipality's IDP serves as a strategic guide during the term of office of the current council. It is based on the issues articulated by the stakeholders and is aligned with the national and provincial development imperatives such as the National Development Plan. Its objectives are as follows:

- To guide decision making in respect of service delivery and public sector investment.
- To inform budgets and service delivery programs of various government departments and service agencies.
- To engage communities and other key interested and affected parties in municipal affairs, particularly continuous integrated development process.

Horizontal alignment is pursued through inter-governmental planning and consultation, co-ordination and ensured through aligning the respective vision, mission and strategic objectives of the respective municipalities in the region.

3.5 Other Policy Guidelines

Renewable Energy Independent Power Producer Procurement Programme (REI4P)

The Department of Mineral Resources and Energy's (DMRE's) Independent Power Procurement 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, minimise the cost of that supply, limit water usage and reduce greenhouse gas emissions, while allowing for policy adjustment in support of broader socio-economic 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, forty-eight renewable projects with a combined output of 3 566MW have been procured. 1 459MW of this output is generated by wind energy. In the Western Cape Province, eleven renewable projects with a combined output of 592 MW have been procured, of which 458MW is generated by wind energy.

4. PROJECT DESCRIPTION

4.1 Project Location

The proposed Gamma Grid will stretch from the Nuweveld Collector Substation north of Beaufort West in the Western Cape Province, to the Gamma Substation, located ~90 km to the east of the Nuweveld Collector Substation (Figure 2).

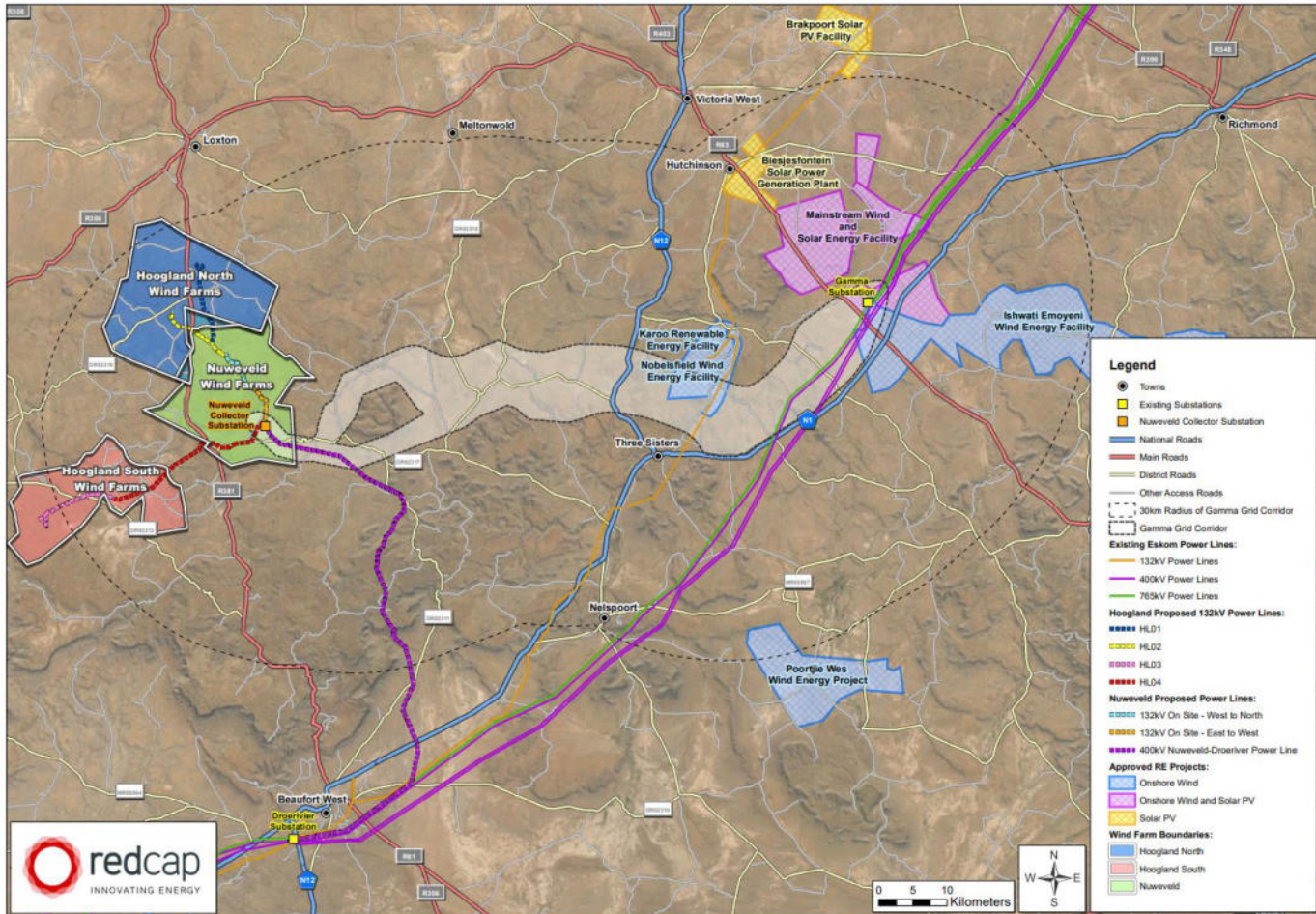


Figure 2. Regional locality map

Although the Grid powerline starts and ends in the Western Cape (CKDM and BWLM), large portions of the line traverses land in the Northern Cape (Pixley ka Seme District Municipality (PKSDM) and Ubuntu Local Municipality (LM)) (Figure 3).



Figure 3. Locality map

4.2 Project Description

The 400 kV gridline will have a $\leq 55\text{m}$ wide servitude, which may be kept clear of taller vegetation (trees) and, where required and feasible, accommodate access tracks needed for construction and maintenance.

4.2.1 Pylon Types

Lattice type pylons are required for the overhead line. Different pylon types will be required at different areas depending on the topography and span characteristics. The EIA document provides more detail with regards the types of tower options being considered with the majority likely to be the Cross-Rope Suspension Tower, with self-supporting towers only being used at turn points in the alignment.

Pylons attach to concrete plinths and foundations of varying sizes depending on pylon type. Guy wires with concrete anchor blocks will also be required for providing additional support and to stabilise some of the pylons/ towers.

The footprints of the 400 kV towers are conservatively assumed to be 100 m^2 each. The average span of the 400 kV line will be 400 m.

Temporary laydown areas will be identified along the powerline route, with the main equipment and construction yards being based in one of the surrounding towns. It is anticipated that the total area required for the temporary laydown areas is up to 5 ha.

4.2.2 Access

The site can be accessed via the well-established existing road network in the area. Access to the west would be via Beaufort West or Loxton using the R381, and access to the central and eastern portions of the corridor would be from the N1 and N12 via Three Sisters.

Existing access roads and tracks (upgraded to $\pm 2\text{-}4\text{ m}$ wide where needed) will be used as far as possible and new access tracks would be established, where needed. For this assessment, Red Cap conservatively

assumes that 4 m wide access tracks will be required for the length of the line with an additional 5 km allowance for deviations from the gridline route².

It is conservatively assumed that the total area required for the access tracks is up to 46 ha (i.e. assuming the new tracks are required for the entire route of the powerline).

4.2.3 Operational Phase

Once operational, electricity will be stepped-up to 400 kV at the Nuweveld Collector Substation for evacuation via the Gamma Gridline to the existing Gamma Substation (as well as the approved Nuweveld Gridline). The new gridline will form part of the national grid.

4.2.4 Summary of components and disturbance footprints

Table 1 below sets out the total disturbance footprint for the project.

Table 1. Summary of the components and approximate areas of impact within the Gamma Grid Connection Corridor

Component	Description	Ha
Substation Infrastructure	300 m x 300 m expansion to the Gamma Substation (including transformers and other standard substation infrastructure)	9 ha (permanent)
Overhead lines and pylons	There will be a 400 kV overhead line supported by mostly lattice structure pylons. The spans (distance between pylons) on the pylons are on average 400 m. Each pylon is conservatively assumed to have a footprint of 100 m ²	110 km 2.75 ha (permanent)
Access roads and tracks	Existing access roads and tracks (upgraded to ± 2-4 m wide where needed) will be used as far as possible and new access tracks would be created where needed (±2-4 m wide).	46 ha (permanent)
Temporary areas	Temporary laydown areas will be identified along the alignment, with the main equipment and construction yards being located along the alignment or based in one of the surrounding towns. It is anticipated that the total area required for the temporary laydown areas is up to 5 ha.	5 ha (temporary)
Total disturbance footprint: Temporary		5 ha
Total disturbance footprint: Permanent		57.75 ha

4.3 Timeframes

Construction is likely to commence no earlier than about 1 year after the issuing of an EA (if approved).

The construction period for the project would be between 18 – 24 months. On completion the gridline would be ceded to Eskom and become part of the National Grid infrastructure, thus it is unlikely that it would be decommissioned.

4.4 Alternatives

A comprehensive iterative design process is being undertaken to inform the location of the refined grid connection corridor, including No-Go areas within the corridor. Integrating the screening and assessment of

² For example, if the line is 110 km long (+ 5km allowance for any deviation), the disturbance footprint (in ha) assumed for access tracks will be (0.004 km x 115 km) x 100 = 46 ha

environmental and social constraints alongside the technical components of the Project early in a project lifecycle allowed for the reduction in risks of the Project and supports the application of the mitigation hierarchy by demonstrating the avoidance and minimisation of impacts.

However, the Project is assessed against the '**No-Go**' alternative. The 'No-Go' alternative is the option of not constructing the Project where the status quo would prevail.

4.5 Social and Socio-economic Process of the Project

The DMRE's REI4P implements certain measures to ensure that a portion of the income generated through operational renewable projects is directed towards local economic development. Although the proposed grid will become an Eskom asset once operational, this gridline would be built by a successful renewable energy project developer who will need to conform to the applicable REI4P minimum thresholds for their renewable project that will use this gridline, thereby ensuring that the REI4P social and socio-economic benefits will be realised in the relevant communities.

The section below provides more detail into the socio-economic process of this Project.

4.5.1 Identification of the Beneficiary Communities

In line with the REI4P requirements, communities within a 50 km radius from the Project are eligible to become beneficiaries. The Gamma Grid should however not be viewed in isolation as the project would be an asset to additional renewable energy projects in a developing RE node – for example, the Red Cap Hoogland projects. For purposes of this Project it would thus be necessary to distinguish between beneficiaries during the construction phase and those anticipated to be recipients of benefits during the operational phase of the broader RE Projects.

For this Project's **construction phase** direct benefits mainly pertain to construction related employment opportunities, as well as induced impacts that relate thereto. As far as possible the employment of locals is encouraged to mitigate potential negative impacts that could manifest as a result of an influx of outsiders, conflict between locals and outsiders 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 Gamma Grid Project. The figure below indicates the 50 km radius, which broadly defines the recipient communities (employment / project sending area).



Figure 4. 50 km radius from the Gamma Grid Project

Emphasis is placed on the efficient management of the construction process since two municipalities (Ubuntu and BWLM's) located in two districts (PKSDM and CKDM) and two provinces (Northern and Western Cape) will be participating. A lack in communication between the various role-players (IPP, municipalities, beneficiary communities, etc.), the creation of unrealistic expectations and the perception that some of the locals are excluded from the benefits of the Project, could result in conflict and negative spin-offs for the construction process.

Once **operational** the maintenance and operation of the Gamma Grid will become Eskom's responsibility and social responsibility in terms of REI4P requirements would not be required.

4.5.2 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 Gamma Grid Project will also comply with these minimum thresholds. For this construction Project 80 – 110 direct jobs are anticipated, broken down into the following skill requirements:³

- 5 – 8 higher skilled;
- 5 – 9 semi-skilled; and
- 70 – 94 lower skilled.

Approximately 60% of the lower skilled positions are anticipated to be filled by workers from local communities.

³ Information obtained from client, 22/07/2022.

Since inception of the RE Projects in South Africa (BW1 – 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 been realized (IPPP Overview, December 2021).

4.5.3 Social responsibility

In addition to employment, this Project will contribute to direct socio-economic benefits, which will be subject to the REI4P, in the following ways:

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

The Project will further enable renewable energy projects, such as the proposed Red Cap Hoogland projects, to export the power generated, thereby indirectly assisting the beneficiaries within 50 km of the wind farms to derive the socio-economic benefits through the operation of renewable energy projects.

RE projects in general make a considerable contribution towards community development and socio-economic upliftment. Up to date in the Western and Northern Cape Provinces, the following economic investments and positive socio-economic impacts⁴ have realised (IPPP Overview, 31 December 2021):

Western Cape Province

- 10 274 job years;
- Investments (equity and debt) to the value of R14,4 billion;
- Socio-economic contribution of R1 222 million;
- Community shareholding to the value of R1 423 million.

Northern Cape Province:

- 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.

5. DESCRIPTION OF THE RECEIVING ENVIRONMENT

5.1 Regional and Local Study Area

5.1.1 Municipalities

The Gamma Grid corridor encompasses the following municipal areas and wards:

⁴ Cumulative values over the construction phase and the projected operational life of the projects (i.e. 20 years).

Table 2. Municipalities and affected wards

Province	District Municipality	Local Municipality	Wards	Extent of ward	Approximate extent of Gamma corridor within each ward
Western Cape	Central Karoo	Beaufort West	Ward 1	3 157 km ²	17 000 ha
			Ward 2	8 276 km ²	4 000 ha
			Ward 7	8 174 km ²	15 000 ha
Northern Cape	Pixley ka Seme	Ubuntu	Ward 3	16 891 km ²	62 000 ha

The largest portion of the local study area falls within the Ubuntu LM, situated in the PKSDM 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 5. 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 6. Ubuntu LM, Ward 3

(Source: wazimap.co.za)

The BWLM is located in the north-eastern section of the Western Cape Province and consists of seven wards and accommodates about 70% of the SKDM's population. At 21 931 km² it is the largest municipality of three in the Central Karoo District, making up more than half its geographical area.

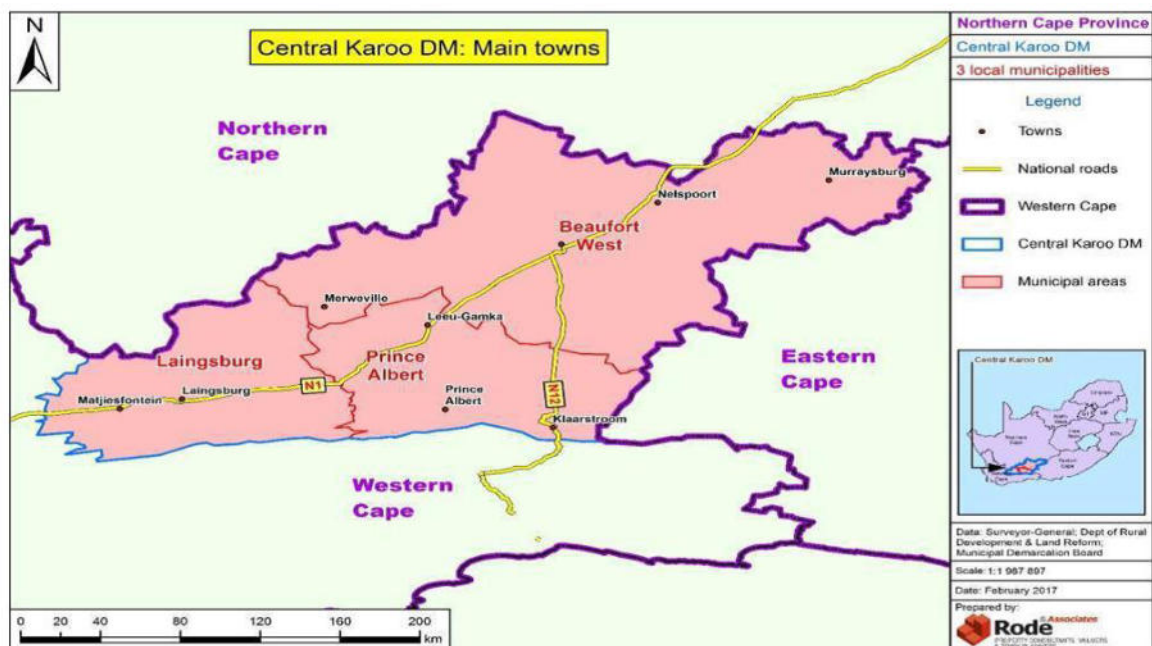


Figure 7. Locality of Beaufort West Local Municipality

(Source: BWLM IDP 2017-2022)

Population growth in the local municipality is attributed to the merging of administrative areas and in-migration from other provinces. The population increased at an annual growth rate of 1.4% in the ten year period between census 2001 and 2011. BWLM experienced a growth rate of 0.59% per annum between census 2011 and 2016. This population growth is expected to slow down slightly, although it will still have a significant

impact on the demand and the level of service delivery. Currently there is still a huge services backlog (BWLM IDP, 2017-2022).

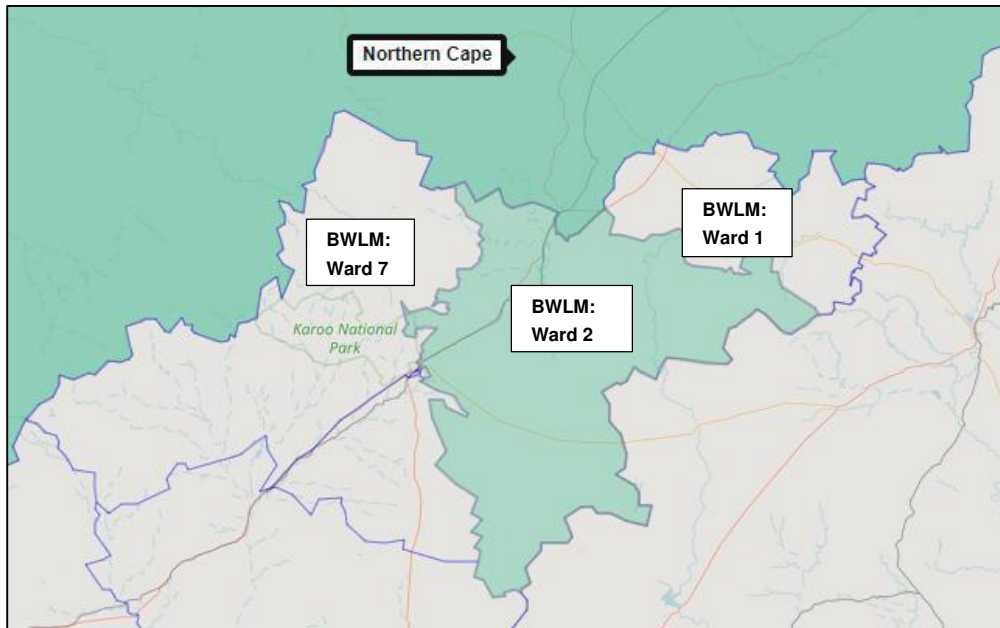


Figure 8. Beaufort West LM (BWLM), Wards 1, 2, 7

(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 45 km north of the Gamma grid. The town consists of 8 254 residents, of which 69.3% are Coloured 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).

Main towns in Beaufort West LM are Beaufort West, Merweville, Murraysburg and Nelspoort. Beaufort West, located about 60 km south of the proposed Nuweveld substation, consists of 34 085 residents, of which the majority are Coloured (72.7%) and speak Afrikaans as first language (81.2%) (Census 2011). The town is the centre of an agricultural district based mainly on sheep farming.

Table 3. Towns near the Project

Town	Approximate distance to Project
Beaufort West	60 km
Richmond	64 km
Victoria West	45 km
Hutchinson	25 km
Loxton	45 km
Nelspoort	30 km

5.2 Site Specific Study Area

For this SEIA Report the site specific study area is defined as the Gamma Grid Corridor (approximately 98 702 ha).

5.2.1 Land Uses

The current land use along the corridor is characterised by large farms on average 6 000 ha to 12 000 ha in extent. The landscape character of the corridor is typical of Great Karoo and comprises sections of plains and open valleys with dispersed drainage systems and rougher terrain including mesas (table type mountains/hills), koppies, rocky ridges and outcrops and plateaus. The vegetation is adapted to the dry region and consists mainly of bush-veld and grass is very scarce.



Figure 9. 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).

Few and a limited number of farmsteads are scattered in and around the local study area. A few holiday accommodation / guest farms are located on the outskirts of the corridor. Infrastructure features such as the N12 and R62 roads, a railway line, Nobelsfontein wind turbines, Eskom powerlines, the Gamma substation and Victoria Series Capacitator Substation are present in the eastern portion of the corridor.

5.2.2 Sensitive receptors

The following features within the Corridor with social and/or socio-economic relevance have been identified:

Table 4. Land Uses and/or Sensitive Receptors within corridor

Land Uses / Sensitive receptors	Details	Number of sensitive receptors and their localities within the corridor
Farmsteads / houses (with related infrastructure)	Scattered residences, farm infrastructure, including some cropping near farmsteads	10 – west of N12 5 – east of N12

Tourism / accommodation establishments	Holiday accommodation, guest farms on periphery of corridor	1 – western section (Booiskraal Farm Stay) 1 – eastern section (GaMamadi)
Infrastructure	N12 – traverse north to south	Centre
	R63 – traverse north to south-east	Eastern section
	Various gravel and smaller access roads	Various
	Railway line – traverse north to south	Eastern section
	9 Turbines (Nobelsfontein Wind Farm)	Eastern section
	2 Substations	East of R63



Figure 10. Railway line

Refer to the Visual Impact Assessment (VIA) for the sensitivity map (Lawson and Oberholzer, August 2022).

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

Within a 30 km radius of the proposed corridor, the following existing and authorised Renewable Energy Projects and associated electrical grid connections) occur⁵ (see Figure 1):

- Biesiespoort PV Facility (east of Nobelsfontein);⁶
- Modderfontein Wind Energy Facility (south of Nobelsfontein)⁷;
- Mainstream Wind and Solar Energy Facility (north and northwest of the Gamma Substation);
- 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);
and
- Ishwati Emoyeni Wind Energy Facility (east of Umsinde Emoyeni Wind Energy Facility Phase 2).

⁵ The South African Renewable Energy EIA Application Database (REEA) (“REEA_OR_2022_Q1”)

⁶ It is understood that the Biesiespoort Project will not proceed as the EA has lapsed.

⁷ Red Cap has been advised that the Modderfontein Project will not proceed as the EA has lapsed.

In terms of existing High Voltage lines in the area, the Kromrivier Traction / Nobelsfontein 1 132 kV live traverses the corridor near Three Sisters, and in the east the refined Gamma Corridor follows the routing of the Gamma / Kappa 1 765 kV and the Droërivier / Hydra 2 400 kV powerlines. Another 765 kV line is proposed by Eskom in this corridor. Further to the east, the Hydra / Droerivier 1 and the Droerivier / Hydra 3 400 kV lines also fall within the refined Gamma Corridor (see Figure 1).

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.

Table 5 provides a summary of the relevant population trends in the local study area.

Table 5. Population data of the study area

Demographics	BWLM	Ward 1	Ward 2	Ward 7	Ubuntu LM	Ward 3
Population	51 080	6 838	6 975	10 377	19 471	4 715
Households	14 935	1 791	2 020	2 778	6 034	1 609
Average household size	3.4	3.8	3.4	3.7	3.2	2.9
People per km ²	2.3	2.2	0.8	1.3	1	0.3
Age structure (2016)						
- Under 15 yrs	26.6 %	-	-	-	27.7 %	-
- 15 to 64 yrs	66.5 %	-	-	-	66.8 %	-
- Over 65 yrs	6.9 %	-	-	-	5.5 %	-
Population growth per annum (2011-2016)	0.67 %	-	-	-	1.04 %	-
Female headed households	39.8 %	-	-	-	33.7 %	-
Dependency ratio per 100 (15 – 64 yr) (2016)	50.5	-	-	-	49.7	-

(Source: www.wazimap.co.za; Census 2011; CS 2016; BWLM IDP 2017-2022)

Provincial data indicates that during the period 2011 to 2016 the annual population growth rate of the Western Cape Province at 1.45%, was much higher than the BWLM at 0.67%. This can most likely be attributed to the in-migration of people from other provinces into the Cape Town Metro (BWLM IDP, 2017-2022). In contrast to this, during the same period the Ubuntu LM experienced higher growth than the Northern Cape population, at 1.04% per annum compared with 0.8% in the Province. Population growth in the two affected districts, i.e. PKSDM and Central Karoo District, were relatively on par with each other at 1.1% and 1.01% respectively (CS 2016).

The Economic Active Portion of the population for both municipalities stands at about 67%, which is on par with the PKSDM at 68% and CKDM at 67% (CS 2016; municipalities.co.za).

The dependency ratio in the BWLM has reduced consistently from 59.7 to 50.5 between 2011 to 2016. The Ubuntu LM has however experienced a considerable decline in their dependency ratio from 63.5 to 49.7 over

the same period. This means that the portion of the population that falls within the working age group (15 to 64 years) have been increasing significantly – broadly indicating an improvement of the socio-economic condition of local communities over the time period.

The population in the study area is mostly urbanised. Table 6 indicates 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

(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
Beaufort West LM	83%	13.1%	2%	75%	18%	7%
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 during the Project's construction and operational phases.

6.2.1 Education

Although the Beaufort West population is generally better educated than the Ubuntu LM population (lower illiteracy levels, and higher Matric pass rates), education levels in general, as well as tertiary levels, are unacceptably low in both local municipalities.

Table 8. Education levels

Education (2016)	Beaufort West LM	Ubuntu LM
No schooling	5.4 %	11.8 %
Matric	31.8 %	23.1 %
Higher education	3.8 %	3.9 %

(Source: CS 2016; municipalities.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	Beaufort West LM	Ubuntu LM
Unemployment 2011 (official)	25.5 %	29.1 %
Unemployment 2017 (official)	23.3 %	-
Unemployment 2018 (official)	22.9 %	-
Youth unemployment 2011 (official) 15-34 yrs	34.5 %	34.8 %

(Source: Census 2011; BWLM IDP, 2017-2022).

The BWLM's unemployment rate has decreased by 2.6% between 2011 and 2018. However, in 2018 unemployment in BWLM (22.9%) remains above the Central Karoo District (20.7%) and significantly above the Western Cape Province (17.7%) (Beaufort West LM IDP, 2017-2022).

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 the BWLM and Ubuntu LM had Youth unemployment rates of 34.5 and 34.8% respectively, whilst the CKDM and PKSDM rates were 30.9% and 35.4% during the same period (Census 2011). Whilst more recent local figures are not available, 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

Figure 11 illustrates that the BWLM's monthly household income increased in the 2011 Census. While those earning a monthly income of R1 600 and below has shown a decline since 2001, there was an increase in those households earning R1 601 to R10 2400 per month. This indicates that more households have members who are employed and thus not solely dependent on social grants as compared to households in 2001.

The number of Indigent households have however increased with 2 340 between the period 2015 to 2019 (BWLM IDP, 2017-2022).

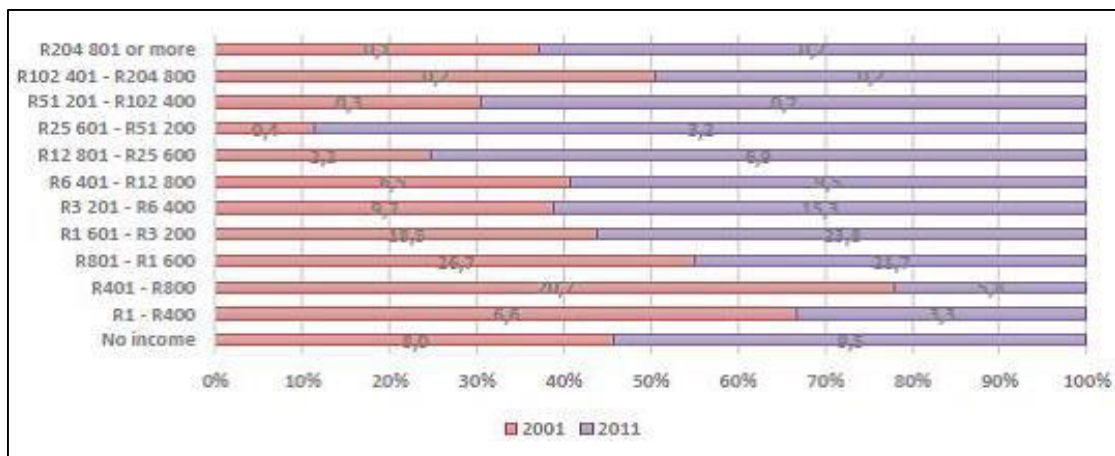


Figure 11. Beaufort West LM Income levels

(Source: BWLM IDP, 2017-2022)

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).

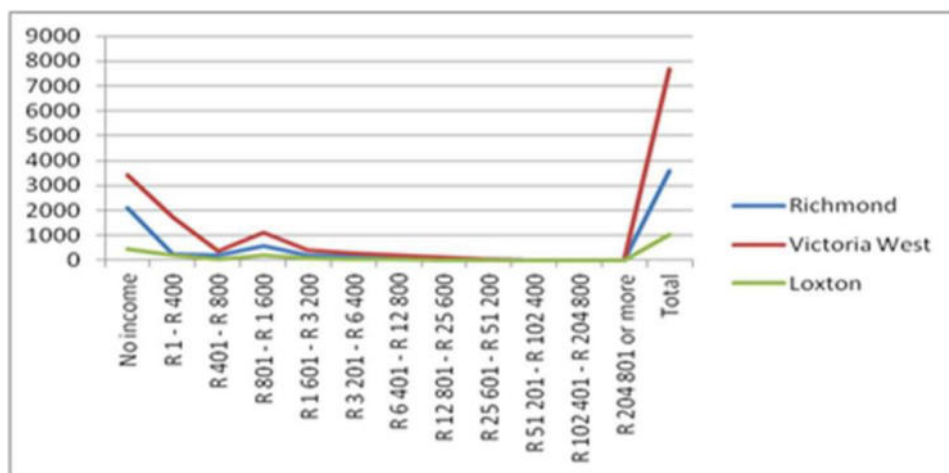


Figure 12. Ubuntu LM Income levels

(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	Beaufort West LM	Ubuntu LM
Formal	73 %	69 %
Informal	16 %	19 %
Private household	8 %	11 %

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

The sector that contributes the most to employment in BWLM is wholesale, retail trade, catering and accommodation (3 059), followed by agriculture, forestry and fisheries (2 190). Since the Ubuntu's contribution to employment could not be obtained, the BWLM statistics are compared with the two district municipalities in the table below, to ascertain the regional trends. Whilst agriculture remains to be a significant contributor to employment in the districts, government dominates employment in PKSDM.

Manufacturing's contribution to employment is the lowest, ranging between 1.5 and 2.7% in BWLM and the two districts reflecting low skills levels in this sector.

Table 12. Contribution to employment⁸

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)

Most of the formal employment in the BWLM are low (36.9%) and semi-skilled (42.7%) positions. Skilled positions only contribute to 20.4% of the jobs in the local municipality (BWLM IDP, 2017-2022). Even though Ubuntu LM's sectoral contribution to employment is not available, a similar trend could be expected. This, together with the poor education levels, indicate that the study area will in all likelihood not be able to supply in the Project's demand for higher skilled workers.

6.3 Economic profile and Indicators

Economic profile and related information available for the BWLM was more comprehensive than for the Ubuntu. The overall economy of the BWLM grew by 1.9% between 2008 and 2017, slightly below the Central Karoo District average of 2.2%. The agriculture, forestry and fishing sector was the fastest growing sector in the BWLM during the same period, growing at a pace of 7.8% year-on-year. The accelerated levels of growth within the agriculture, forestry and fishing sector however diminished in more recent times (0.9%) (2014 –

⁸ Statistics for Ubuntu LM could not be obtained.

2018) due to the impact of the drought. The Beaufort West Gross Domestic Product by Region (GDPR) growth was expected to remain mostly stagnant in 2018 (BWLM IDP, 2017-2022).

Table 13. Contribution to GDPR⁹

Main economic sectors	Beaufort West LM (2017) %
Finance, insurance, real estate & business services	12.6
Transport, storage & communication	17.1
Wholesale, retail, trade, catering & accommodation	15
General government	21
Community, social & personal services	9
Agriculture, forestry & fishing	12.9
Mining & quarrying	0.1
Manufacturing	3
Electricity, gas & water	5.1
Construction	4.2

(Source: BWLM IDP, 2017-2022)

Livestock (sheep, goat and cattle) and game are the nucleus of farming activities in the Ubuntu LM. 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 (PKSDM) the following take place (PKSDM IDP, 2021-2022):

- 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.

⁹ GDPR statistics for Ubuntu LM could not be obtained.

Consultation with the 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.

6.4 Social Indicators

6.4.1 Health, TB and HIV/AIDS

HIV/AIDS is among the top ten causes of death in the Western Cape Province, accounting for 8% of deaths in 2016. HIV/AIDS management is crucial given its implications for the labour force and the demand for healthcare services.

HIV prevalence as measured in 2016/17 was around 2.5% for the Central Karoo, which is lower than the Western Cape's 5.1%. Preventative care, social awareness and treatment provided to vulnerable communities include (BWLM IDP, 2017-2022):

- Condom distributions;
- Campaigns to encourage the practice of safe sex;
- Antiretroviral therapy (ART) to people living with HIV. There were a total of 1 631 people receiving ART in the CKDM during March 2017, out of a total of 23 931 in the Western Cape.

The CKDM experienced an HIV transmission rate of 1.4% in 2016. This was down from 3.4% in 2014 and 4.3% in 2015. The transmission rates experienced in 2014 and 2015 were higher than any of the Districts in the Western Cape, the others experiencing rates of between 0.6% and 1.7% in those years.

Tuberculosis accounted for 7.6% of the premature deaths in the Western Cape Province in 2016. The number of TB patients within the Beaufort West municipal area has gradually been decreasing from 415 in 2016/17 to 404 in 2017/18 and 357 in 2018/19 (BWLM IDP, 2017-2022).

Similar health data for the Ubuntu LM and PKSDM could not be obtained. However, comparable trends are expected and 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;
- Shortage of medical equipment;
- Shortage of ambulances;

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

- Underutilized facilities;
- Access to health care facilities (transport).

6.4.2 Crime

Crime statistics of the two main urban centres in the study area (i.e. Victoria West and Beaufort West) 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. Since 2017 reported incidences in most crime categories reduced year-on-year in Beaufort West.

Table 14. Victoria West SAPS crime statistics

CRIME CATEGORY – VICTORIA WEST	2017/2018	2018/2019	2019/2020	2020/2021
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)

Table 15. Beaufort West SAPS crime statistics

CRIME CATEGORY - BEAUFORT WEST	2017/2018	2018/2019	2019/2020	2020/2021
CONTACT CRIMES (CRIMES AGAINST THE PERSON)				
Murder	22	11	17	11
Sexual Offences	57	58	40	37
Attempted murder	26	13	10	28
Assault with the intent to inflict grievous bodily harm	387	408	326	276
Common assault	493	445	455	395
Common robbery	87	78	63	56

Robbery with aggravating circumstances	143	105	73	63
Total Contact Crimes (Crimes Against The Person)	1215	1118	984	866
CONTACT-RELATED CRIMES				
Arson	22	11	17	7
Malicious damage to property	57	58	40	267
Total Contact-Related Crimes	79	69	57	274
PROPERTY-RELATED CRIMES				
Burglary at non-residential premises	139	120	95	95
Burglary at residential premises	499	362	392	267
Theft of motor vehicle and motorcycle	3	5	0	1
Theft out of or from motor vehicle	369	349	268	211
Stock-theft	81	68	58	57
Total Property-Related Crimes	1091	904	813	631

(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.

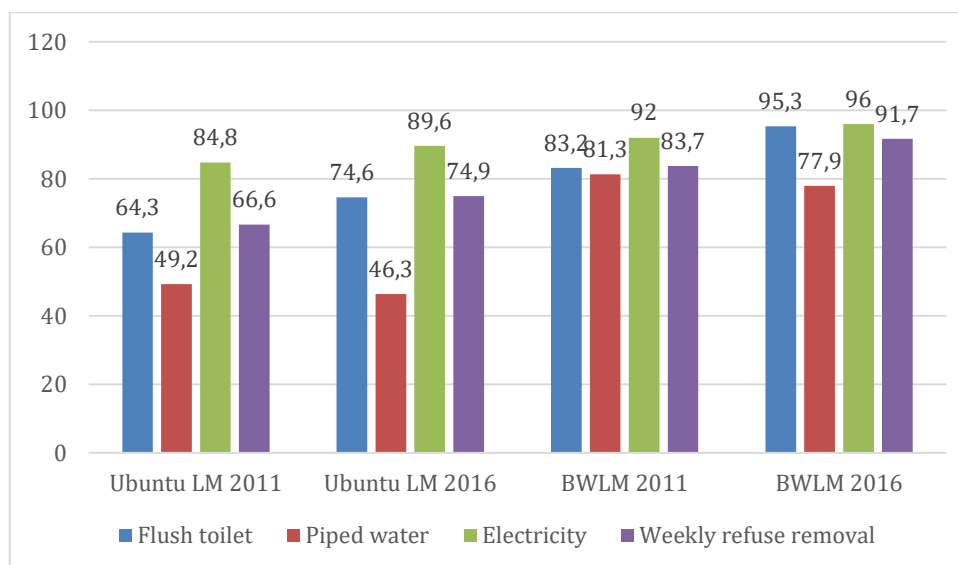


Figure 13. Access to Municipal Services

(Source: StatsSA; Census 2011; CS2016)

In relation with national trends, relative few households live in informal dwellings in either of the two local municipalities. According to the 2016 Community Survey, 99.6% households in BWLM live in formal dwellings, and 92.9% households in the Ubuntu LM.

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 Safety and Security

As indicated in the previous section, the local crime rates are relatively low when compared with other areas in South Africa. However, issues that were identified include the shortage of police staff and vehicles, satellite police stations in townships, invisible policing and a lack in leadership at some stations (Ubuntu LM IDP, 2017-2022).

South African Police Service (SAPS) stations are located in Victoria West, Richmond and Loxton and three stations are located in Beaufort West.

6.5.3 Health Facilities

Health care facilities in the districts are indicated below:

Table 16. Health care facilities

Health care facility	PKSDM	CKDM
Fixed facility clinics	27	8
Mobile clinics	5	10
Hospital (Regional / Local)	8	4
District hospital	1	1
Ambulances	2	Unknown
ART and TB Clinics	Unknown	34
Ambulances	2	16

(Source: PKSDM IDP, 2021-2022; BWLM IDP, 2017-2022; CKDM IDP 2017-2022).

The district hospital, as well as five of the fixed and five of the mobile clinics in CKDM, are located in Beaufort West. 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.

6.5.4 Educational Facilities

The following education facilities occur:

Table 17. 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)

¹¹ Ubuntu LM consultation, 26 July 2022.

6.6 Local Economic Development

In terms of Local Economic Development, the BWLM places strong emphasis on SMME development and have formulated the following strategies to attain their objectives (BWLM IDP, 2017-2022):

- Use municipal and government funded projects as a means to create jobs and reduce poverty.
- Facilitate development and growth of SMMEs.
- Strengthen LED structures.
- Facilitate Education and Skills Development for Cooperatives and SMMEs.
- Provide SMME support and capacity building.
- Manage and enhance the performance of the municipality.

Key programmes in terms of social and economic development that the BWLM is engaging in include:

- Tourism development and promotion;
- SMME support;
- Expanded Public Works Programme (EPWP) and Community Works Programme (CWP) including provision of job opportunities;
- Skills development audit through the Skills Development Unit to identify gaps to ensure provision of training in order to bridge the skills gap.

A number of projects that links with the above programmes are to be included in the LED Strategy.

The BWLM has a Skills Development Unit that is responsible for Skills Development and Training of municipal employees and programmes to the unemployed in the municipal area. Annually the Unit compiles a Skills Development Plan, which is submitted to the Local Government Sector Education and Training Authority (LGSETA) for funding. Those programmes that are approved for funding, such as Short Skills, Learnership and Apprenticeships, are advertised and trainees are selected from the unemployed population.¹²

Relevant to this Project, The Ubuntu LM has formulated the following developmental priorities and strategic objectives which are aligned with National Key Performance Area 2, i.e. Local Economic Development (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

¹² Consultation with BWLM LED Unit: September 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, it 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 municipalities in the study area 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 them 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 socio-economic development (SED) and enterprise development (ED) Projects 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 becomes a residual positive impact post construction.
- There is a need for the establishment of a coordinated SMME training "Village" that services 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 includes 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. SPECIALIST FINDINGS AND ASSESSMENT OF IMPACTS

7.1 Construction Phase

- It is anticipated that construction will take place over a 12 to 18 month period. This phase of the Project holds various positive and negative social and socio-economic impacts for the receiving environment.
- The labour force in the study area has limited skills with low education levels. In addition, the manufacturing sector contributes only marginally to employment. It is therefore anticipated that unskilled labour for construction will be available from the direct project sending area, but that the majority of the semi- and skilled workers will be deployed from the wider provinces or the country.
- The improvement of skills and training requirements amongst the workforce, SMME's and municipal structures have been identified as a great need in the study area.
- Improved communication and transparency between the IPP's and municipal structures are required from the on-set of the Project.
- A number of positive impacts will manifest for the local, regional and national economies as a result of the construction phase.
- Efficient management of the construction process and efficient land use management practices are required to reduce the significance of negative impacts that could occur for landowners and the broader study area.

7.2 Operational phase

- Once operational, Eskom will be the grantee of the Gamma Grid. At this stage it is not anticipated that the grid will be decommissioned and for purposes of this SEIA report's impact assessment, the duration of the Project is thus permanent. The line will be a valuable asset to the national grid and particularly to the Eskom power line network. The grid will require intermittent maintenance and repair work, which will be undertaken by Eskom staff and contractors.
- Positive economic impacts during the operational phase relate to direct (limited) and indirect employment for operations and maintenance of the powerline and impacts that manifest due to procurement of capital goods, general construction and building material and infrastructure elements.
- Negative impacts may also manifest for landowners should their property values devalue and if impacts on sense of place and tourism occur, mainly as a result of visual impacts and poor land use management practices. Mitigation is therefore essential.

8. IMPACT ASSESSMENT

8.1 Construction Phase

8.1.1 Temporary Employment

Approximately 80 to 110 direct temporary jobs are anticipated during construction, of which the majority will be unskilled positions. The breakdown is as follow:

- 5 to 8 higher skilled;
- 5 to 9 semi-skilled; and
- 70 to 94 lower skilled.

Semi- and lower skilled workers are usually required to perform electrical and civil duties (site clearing, excavation and casting of concrete foundations, stormwater reticulation, structural steelwork, buildings, fencing, etc.); whereas higher skilled professionals entail Project Managers, Engineers, Environmental Control Officers and so forth. Information obtained from the client (July 2022) indicated that about 60% of lower skilled positions will be filled by workers from local communities (Ubuntu and BWLM; Western and Northern Cape Provinces).

Labour force data reflected in Section 7.2 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. Databases with available workers and SMME's exists, but the municipalities indicated that, since skills 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.¹³

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.

¹³ Consultation for SEIA: June – September 2022.

Table 18. Construction phase: Temporary employment

Project phase	Construction			
Impact	Temporary Employment			
Description of impact	Direct, indirect and induced employment creation as a result of construction activities and positive spin-off effects on the local, regional and national economies through procurement of goods and services.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Although mitigatability of the impact is "low", emphasis is placed on employment of locals and local supporting industries (SMME's, etc.) from the Project's direct sending area. <ul style="list-style-type: none"> • Maximise local content through the Preferential Procurement Plan and Contractor Services Management Plan (CSMP) for all contractors that are used. • Involve the Ubuntu and BWLM LED Units and the PKSDM and CKDM from the early processes (from financial close already if possible). Determine their existing processes with regards to a labour desk and streamline the employment process between the various stakeholders. • Employ a Community Employer Relations Officer / Community Liaison Officer (CLO). Communication with communities should only take place through this one channel to ensure transparency, limit unrealistic expectations and to avoid conflict. 			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - positive		Medium - positive	
Comment on significance	Temporary increase in employment for the local and national economies (to lesser extent) is definite, with a pre-mitigation "low" intensity and Medium (positive) significance. Post mitigation the intensity of temporary employment could increase to "moderate".			

8.1.2 Local Procurement

Twenty-five percent (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). Most of the more technical components of the powerline will be sourced from larger industrial areas in other parts of the provinces / country. Whereas it is assumed that general construction material and goods, building material and general infrastructure elements will be sourced locally, wherever possible.

The specific Procurement Policy is usually only formulated closer to the time. The following Capital Expenditure breakdown is at this stage anticipated (2022 Prices):¹⁴

- 10% from Local suppliers within 50km radius;
- 30% from District Municipalities;
- 40% Nationally; and
- 20% from Imports.

¹⁴ Information obtained from client: July 2022.

Table 19. Anticipated capital expenditure in 2022 prices

Gamma Gridline and Substation Exp (2022)	Minimum (ZAR)		Maximum (ZAR)	
Civils	R	460,000,000	R	600,000,000
Towers and electrical equipment	R	690,000,000	R	900,000,000
Total	R	1,150,000,000	R	1,500,000,000
On local suppliers within 50 km	R	115,000,000.0	R	150,000,000.0
District Municipalities	R	345,000,000.0	R	450,000,000.0
Rest of SA	R	460,000,000.0	R	600,000,000.0
Imports	R	230,000,000.0	R	300,000,000.0

Table 20. Construction phase: Local Procurement

Project phase	Construction			
Impact	Local Procurement			
Description of impact	Positive impacts on the local, regional and national economies as a result of procurement of capital goods, general construction and building material and infrastructure elements.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	• Maximise the local content of procurement in consultation with the local authorities.			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - positive		Medium - positive	
Comment on significance	Mitigation will enhance the intensity of the impact from "low" to "moderate" with Medium (positive) overall significance for the local, regional and national economies. Although the specific Procurement Policy has not been formulated yet, 25% of the DMRE scorecard is based on local content.			

8.1.3 Induced Local Economic Impacts

Expenditure during construction results in business opportunities for the local and regional economies, especially with regards to service industries and manufacturing. Suppliers of transport, Personal Protective Equipment, general building equipment, maintenance activities, general consumables, civil works etc. will likely benefit. This will result in the improvement of local income levels with subsequent higher spending benefits to local businesses. Higher skilled workers and possibly some of the semi-skilled workers will be sourced from outside the direct Project sending area and local accommodation facilities will benefit for the duration of construction.

It is also anticipated that a large portion of the wage bill earned by construction workers will be spent within the local and regional municipal areas, with local and regional economic benefits and indirect spin-offs for retail sales, leisure and hospitality, real estate, etc.

Information provided indicates that up to R5,3 million per annum will be paid out in direct salaries and wages in the affected local municipalities; R5,7 million per annum in the Western and Northern Cape Provinces; and up to R5,9 million nationally.¹⁵ In addition to direct incomes, further downstream opportunities, employment and incomes in terms of fuel, construction material, equipment and so forth will be created through indirect and induced effects of the Project. A general increase in livelihoods will manifest for directly and indirectly participating households.

Table 21. Construction phase: Induced local economic impacts

Project phase	Construction			
Impact	Induced local economic impacts			
Description of impact	Expenditure during construction results in the creation of downstream business opportunities, especially with regards to service and manufacturing sectors. Local businesses benefit due to an increase in income levels and higher spending power. Downstream opportunities further result in indirect employment and incomes through indirect and induced effects of the Project. A general increase in livelihoods will manifest for participating households.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Apart from the recommendation to maximise local content of the Project, no mitigation is possible.			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - positive		Medium - positive	
Comment on significance	Direct and induced impacts of Medium (positive) overall significance are likely to manifest locally and nationally over the short-term.			

8.1.4 Training / Skills Development

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, but is encouraged.

¹⁵ Information obtained from client: July 2022.

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. The BWLM emphasised that *“skills transfer / training should be the key to the implementation of any project/s in our area”*.¹⁶

In addition to capacity building of the local labour force, capacity and knowledge constraints within local government also exist. Local government is faced with challenges and responsibilities during the construction and employment processes and do not always have the required skills to fulfil these duties. There is thus a need for developers to involve local government structures more effectively in projects to transfer skills, so that they would become better equipped to assist and participate in future projects.

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.

Table 22. Construction phase: Training / Skills development

Project phase	Construction			
Impact	Training / Skills development			
Description of impact	Training / skills development during the construction phase that will increase the employability of the region's workforce, thereby addressing poverty alleviation over the medium to long term.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	Where feasible, the Developer should: <ul style="list-style-type: none"> • Provide on-the-job training to lower skilled workers. • Make the skill requirements clear to the municipalities in advance and do a skills analysis of the available labour force. • Require larger contractors to work with small SMMEs to train and transfer skills and include this in their respective CSMP. • Capacitate the local relevant local government structures by involving them as early as possible in the Project; remain transparent throughout the processes. 			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	Regional	Impacts felt at a regional / provincial level	Regional	Impacts felt at a regional / provincial level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Likely	The impact may occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - positive		Low - positive	
Comment on significance	Pre-mitigation training/skills development of workers/SMMEs and local government is rated with a Low (positive) significance, as training is at the discretion of each individual contractor. Mitigation has the potential to increase the intensity and likelihood of the impact manifesting, but the overall significance remains Low (positive).			

¹⁶ Mr. L. Lakay: BWLM, LED Manager. September 2022.

8.1.5 Employment Equity

Employment Equity forms part of the scorecard according to which the DMRE will rank projects submitted for bidding.

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, as they respectively represent 81%, 44% and 48% of total job opportunities created by Independent Power Producers (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.

Table 23. Construction phase: Employment equity

Project phase	Construction			
Impact	Employment Equity			
Description of impact	The purpose of Employment Equity is to improve the inclusion of previously disadvantaged individuals in the project processes.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Formulate an Employment Equity Plan prior to construction commencing and include targets for the employment of PDI's, women, Youth and the disabled. 			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - positive		Medium - positive	
Comment on significance	Pre-mitigation the impact on Employment Equity is rated with a Low (positive) significance. Post-mitigation the intensity will increase (from "low" to "medium"), as well as the significance to Medium. The impact is felt at national level, as Black South Africans and PDI's can be drawn from the entire country. Maximisation of locals from the Project direct sending area would however be more advantages.			

8.1.6 Influx of Jobseekers / Temporary Construction Workers

Negative impacts that could manifest for local communities and the 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;
- 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 the construction process could result in impacts for landowners that include:

- Unauthorized access / trespassing resulting in theft, poaching, safety and security issues as well as potential damage to the veld and negative impacts on natural grazing;
- Fire hazards and the possibility of fires spreading and damaging surrounding residences, 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 in and around the study area describe their environment as extremely safe and peaceful with minimal / low levels of crime.¹⁷ This concurs with SAPS crime statistics as reflected in Section 7.4.2. Landowners and community members could thus easily consider this construction project as the catalyst should local crime levels and stock theft increase and affect their quality of life. In addition to on-site security measures prescribed in the EMP, Red Cap has committed to spend R100 000 per annum for the duration of construction to support security initiatives in the region.¹⁸

Role-players 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 study area and surrounds.¹⁹ 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 as Petrusville, Richmond and Hanover, where citizens were already vulnerable due to prevalent unemployment and existing poverty levels, primarily fell victim to this trend.

Even though this Project's labour component is not significant, impacts that relate to an influx of 'outsiders' 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

¹⁷ Information obtained from SEIA Specialist's involvement in additional projects in the study area.

¹⁸ Information obtained from client, July 2022.

¹⁹ Ubuntu LM and PKSDM (26 & 27 July 2022).

in conjunction with the municipal structures and implement relevant security measures for the duration of construction is thus essential.

Table 24. Construction phase: Influx of jobseekers / temporary construction workers

Project phase	Construction			
Impact	Influx of jobseekers / temporary construction workers			
Description of impact	An outside labour force and/or an influx of jobseekers can result in a number of negative impacts for the local and regional municipalities, especially with regards to social issues that remain after the construction period has ended.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<p><u>Employment / Temporary construction workers:</u></p> <ul style="list-style-type: none"> Clearly identify the beneficiary communities / labour sending area. Give preference to locals that originate from the towns closest to the construction site, and expand the labour sending area progressively. Work through limited communication channels (e.g. Ward Councillors and the Employer Relations Officer / CLO). No recruitment of temporary workers at the access to the construction sites. Contractors to provide a transport and housing plan: (i) no workers are allowed to be housed on site or in informal housing / settlements; (ii) include arrangements that enable workers from outside the area to return home over weekends or at regular intervals. Be vigilant not to raise unrealistic expectations amongst the local communities and workers with regards to employment, skills requirements, local procurement and so forth. 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. <p><u>Security, safety and environmental health:</u></p> <ul style="list-style-type: none"> 24-hour security, where possible demarcate and fence the construction site to prevent trespassing of livestock and people, material stores to be secured, access control and no trespassing of workers outside designated construction areas. Consult with landowners to ensure that the R100 000 per annum committed towards security measures are effectively implemented. If feasible, 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. 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. 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. <p><u>Awareness / community engagement:</u></p> <ul style="list-style-type: none"> 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 the local communities. Make a complaints register / log book available at the entrance to the construction site and act immediately should issues arise. Where required, draw up a land use management plan with individual landowners to protect livestock and farmland, 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	Municipal area	Impacts felt at a municipal level	Municipal area	Impacts felt at a municipal level
Intensity	Moderate	Natural and/or social functions and/or processes are moderately altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - negative		Low - negative	
Comment on significance	Negative impacts associated with the influx of an outside workforce / jobseekers are "likely" to manifest pre-mitigation, with Low (negative) overall significance. Mitigation will reduce the probability of the impact to "probable" and the intensity from "moderate" to "low", and the significance post-mitigation will remain Low (negative). Confidence in the rating is "medium" as the Ubuntu LM indicated that impacts associated with an influx of workers have occurred in the past. The BWLM however did not have experiences with large-scale construction projects where examples of such occurrences could be drawn from.			

8.1.7 Intrusion Impacts

Intrusion impacts during construction refer to temporary nuisance issues experienced with regard to an increase in 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. Visual impacts were rated scientifically by the Visual Specialist for this Project's BA phase (Lawson and Oberholzer, August 2022).

Although short-term in nature, the severity of the impact would increase if sensitive receptors are located in close proximity to the construction areas. There is also the possibility that high levels of dust could impact the health of livestock and even the quality of wool that is produced thereby affecting landowners' income.

Even though intrusion impacts are short-term in duration, these nuisance factors could result in negative community mobilisation towards the Project and would therefore require dedicated mitigation and management of the construction process.

Table 25. Construction phase: Intrusion impacts

Project phase	Construction			
Impact	Intrusion impacts			
Description of impact	Intrusion impacts refer to noise, visual/aesthetic impacts and dust/fume emissions as a result of earthworks, movement of construction vehicles on access roads and general construction activities. The severity of intrusion impacts will increase if sensitive receptors (farmsteads, guest houses, scenic routes, etc.) are located in close proximity to the construction areas. Dust could also impact the livelihood of landowners if the quality of wool is affected.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Comply with the generic EMPr for overhead transmission lines with regards to noise and dust. • Implement all mitigation and management measures of the Visual Specialist to reduce visual impacts during construction. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	impact will last between 1 and 5 years	Short term	impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - negative		Low - negative	
Comment on significance	The probability of the impact occurring could reduce from "definite" to "almost certain", but would depend on the effectiveness of the mitigation implementation and general management of the construction process. The overall significance remains Low (negative).			

8.1.8 Impacts considered and not assessed

For SEIA purposes the following impacts were considered, but not assessed as they are dealt with in detail by the relevant Specialists.

8.1.8.1 Traffic Impacts

Traffic impacts refer to the expected increase in traffic during the construction phase and the short-term disruptions in daily living and movement patterns for surrounding community members, including:

- Damage and deterioration of road infrastructure due to the frequency of heavy vehicles, resulting in accidents and financial implications for road users if vehicles are damaged;
- Road safety issues and accidents at intersections;
- Un-roadworthy construction vehicles and negligent drivers that disobey traffic rules; and
- Nuisance impacts along access roads (dust, etc.); and
- Temporary delays on public roads when the transmission lines are strung across roads. These delays are not anticipated to last long and normal traffic will immediately be able to resume once completed.

No abnormal vehicles will be required to transport components to site, and no road closures for this purpose will thus be required. In general the Traffic Impact Assessment (TIA) (A. Schwarz, September 2022) rated traffic related impacts with a low negative significance, which can be mitigated effectively.

8.1.8.2 Health and Safety Risks for Workers

Inadequate management of the construction process and general construction related activities could result in health and safety risks for workers, manifesting in the following ways:

- Construction related accidents due to structural safety of Project infrastructure, possibly resulting in death;
- 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 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 provisions of the Occupational Health and Safety Act No. 85 of 1993 adequately deals with mitigation and measures to protect the workforce.

8.2 Operational Phase

8.2.1 Impacts on national power supply

The proposed Project will improve the functionality of the Eskom transmission grid by creating a 400 kV ring-line between the Droërivier Substation, Gamma Substation and Nuweveld Collector Substation and create opportunities for other wind farm developments to tie-into the grid. The Project will only be built if at least some of the associated wind farms at its western end are built. As such, its socio-economic value lies in the provision of electricity from these wind farms as the proposed new line will allow Eskom to release further renewable energy potential into the national grid to address the national energy crisis, thereby contributing to development.

The South African economy is in dire need of a larger and more stable electricity supply. The knock-on effects of this will be considerable as the economy will be better able to grow.

Table 26. Operational phase: Impacts on national power supply

Project phase	Operation			
Impact	Impacts on national power supply			
Description of impact	The Grid will allow Eskom to release further renewable energy potential into the national grid to address the national energy crisis, thereby contributing to development.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	None.			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	High - positive		High - positive	
Comment on significance	A High (positive) Impact will occur, even though the intensity is rated as 'low'.			

8.2.2 Impacts on Land Values

Impacts of powerlines on property values are difficult to measure as it is dependent on a variety of factors, such as the receiving environment (location and setting), market conditions and perceptions of affected parties towards the infrastructure. A wide variety of literature is available about the impact of powerlines on residential property prices, but research on farm values are limited. The Forensic Appraisal Group (www.forensic-appraisal.com/power-lines) cautions that the amount of diminished value is dependent on a number of factors such as the size of the line, height of the towers, visibility and so forth. In addition to this the “fear factor” (the belief that the powerlines are not healthy) and visual detraction need to be considered. Their study indicated a definite devaluation effect on residential property values.

Jackson and Pitts (2007) investigated a number of studies and established that, whilst many studies indicate that high voltage transmission lines (HVTL) have no significant impact on residential property values, an increasing number of studies do show a small reduction (between 1 and 10% of property value) primarily due to visual unattractiveness of the lines, potential health risks, disturbing sounds and safety concerns. As distance from the line increases, these impacts diminish and disappear at a distance of 200 feet (approximately 61 meters) from the line. Visual screening (trees, landscaping, topography, etc.) of the HVTL reduces the negative effects considerably. They further determined that land values that diminish are usually temporary and disappear within 4 to 10 years.

A study conducted in China (Chern, 2013) determined that farm land values could reduce significantly for properties closer than 725 meters and would become negligible beyond that distance. In the case of this study, negative impacts on health were the greatest concern for peoples' reactions towards the HVTL.

As far as could be established average farm sizes in and around the study area ranges between 2 000 and 12 000 ha. A search of farms that are for sale in the Victoria West, Beaufort West and surrounding rural areas indicate asking prices between R1 600 and R2 900 per hectare (www.property24.com).

The Agricultural Assessment (J. Lanz, August 2022) done for this Project determined that the impact on agricultural land uses will be low and that current grazing activities would continue once the powerline is operational. Farms are large and the potential loss in land for purposes of the grid as a percentage of the entire farm sizes would be marginal. It is therefore unlikely that devaluation of farmland values would occur as a result of negative impacts on existing agricultural land uses.

However, another set of values could also be relevant and influence land prices, such as amenity values and impacts on sense of place. Whereas in the past valuation of farms were primarily based on the production value of the farmland and commercial return, farms are lately often purchased and used for its scenic value, rural landscape and personal enjoyment and not exclusively for agricultural purposes (Obtained in March 2022 from The Valuator Group: www.thevaluator.co.za). A similar occurrence is prominent in the study area where even the large commercial farmers put a very high worth on their surroundings and sense of place.

Even though the majority farms in the study area are used for commercial agriculture and game / hunting purposes, it is thus possible that changes in the landscape character and potential impacts on sense of place would possibly be the trigger for land devaluations, if it occurs. This will however also depend on the visibility of the line from sensitive receptors. The VIA (Lawson and Oberholzer, August 2022) indicated that no residences and/or guest house establishments will be located closer than 1 km from the powerline and visual intrusion will be low.

Devaluation of land prices, should it occur, will in all likelihood be a temporary occurrence that will diminish or disappear over the short to medium-term.

Table 27. Operational phase: Impacts on land values

Project phase	Operation			
Impact	Impacts on land values			
Description of impact	Devaluation of farmland values as a result of impacts on the landscape character of the study area and sense of place.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Avoid the powerline alignment closer than 1 km from any sensitive receptors. In the eastern section of the powerline, place the infrastructure as far as possible within existing Eskom electricity servitudes. Implement the VIA mitigation wherever possible and avoid no-go areas.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Probable	The impact has occurred here or elsewhere and could therefore occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - negative		Low - negative	
Comment on significance	It is expected that, should devaluation of farm land values occur, it will be a temporary occurrence that should diminish over the short to medium-term. The impacts has a Low (negative) overall significance.			

8.2.3 Land Use Impacts

Main land uses in the corridor and 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. Moisture availability is insufficient for crop production, although small patches of cultivation can be found along water courses and in close proximity to some farmsteads (J. Lanz, August 2022). Farms are also used for residential purposes, albeit farmsteads are scattered and dispersed. A few guest farm / accommodation establishments occur on the periphery of the Grid corridor.

The land under the overhead power line route can be returned to the current state within two years of construction. This includes the access track under the power line, because grazing will be so minimally changed by the operational phase track that the grazing can be considered to be the same as pre-construction. Landowners will receive compensation, which can be invested in their farming ventures and improve their livelihoods. The < 9 hectares of the expanded Gamma substation will be excluded as grazing land. The Agricultural Compliance Statement done for this Project confirmed that the agricultural impact of the proposed development is very low and that the proposed powerline development will have negligible agricultural impact (J. Lanz, August 2022).

The route of the powerline will avoid sensitive receptors such as residences and guest houses and a buffer of at least 1 km will be maintained. No impacts on residential land uses are therefore foreseen.

Table 28. Operational phase: Land use impacts

Project phase	Operation			
Impact	Land use impacts			
Description of impact	Existing land uses that occur are agriculture (grazing), limited crop production mainly in close proximity to homesteads, residential and a few guest houses. The Agricultural Compliance Statement confirmed that the proposed Project will have negligible agricultural impact. A buffer of at least 1 km will be maintained between the powerline infrastructure and residences/guest houses.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Avoid the powerline alignment closer than 1 km from any sensitive receptors and if possible even further away for homesteads and guest houses. In the eastern section of the powerline, place the infrastructure as far as possible within existing Eskom servitudes.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Very Low - negative		Very Low - negative	
Comment on significance	The impact on existing land uses are deemed to be negligible.			

8.2.4 Impacts on Tourism

The potential impact on tourism as a result of this Project is likely to be localised and linked with potential visual intrusions, changes in the landscape character and impacts on the sense of place. For this reason the assessment of the impact on tourism was largely based on the findings of the VIA.

There are a few small and limited number tourism / accommodation establishments scattered in the Project vicinity that experience their peak seasons during the winter hunting season and during school holiday periods. The establishments are also popular as overnight facilities for holiday-makers making their way to the coastal regions. Accommodation establishments and their distances to the Gamma Grid corridor are indicated in the table and map below.

Table 29. Holiday accommodation / tourism establishments²⁰

Establishment	Locality / Distance from corridor	Number of guests / rooms	Type / Facility
Booiskraal Farm Stay	On peripher; West of corridor	8 guests	Guest farm, Self-catering

²⁰ Additional accommodation establishments not identified at this stage will be updated once BA public participation has been done.

Desert Dew Guest House	Approximately 3 km north of corridor	29 guests	Guest house, self-catering / restaurant
GaMamadi Guest Farm	Approximately 0.3 km inside south-eastern section of corridor	12 guests	Guest farm with restaurant
Karoo Guest House	Approximately 0.5 km outside south-eastern section of Gamma corridor	Unknown	Guest house
Joalani Guest Farm	Approximately 0.5 km outside south-eastern section of Gamma corridor	18 guests	Guest farm, self-catering
Skietkuil Holiday Farm	Approximately 0.5 km outside eastern section of Gamma corridor. East of the N1 national road.	22 guests	Guest farm, self-catering / restaurant
Travalia Guest Farm	5 km south of Gamma corridor	25 rooms; 1 cottage	Guest farm, self-catering / restaurant
Three Sisters Guest Farm	7 km south of Gamma corridor	9 en-suite rooms	Guest farm, self-catering

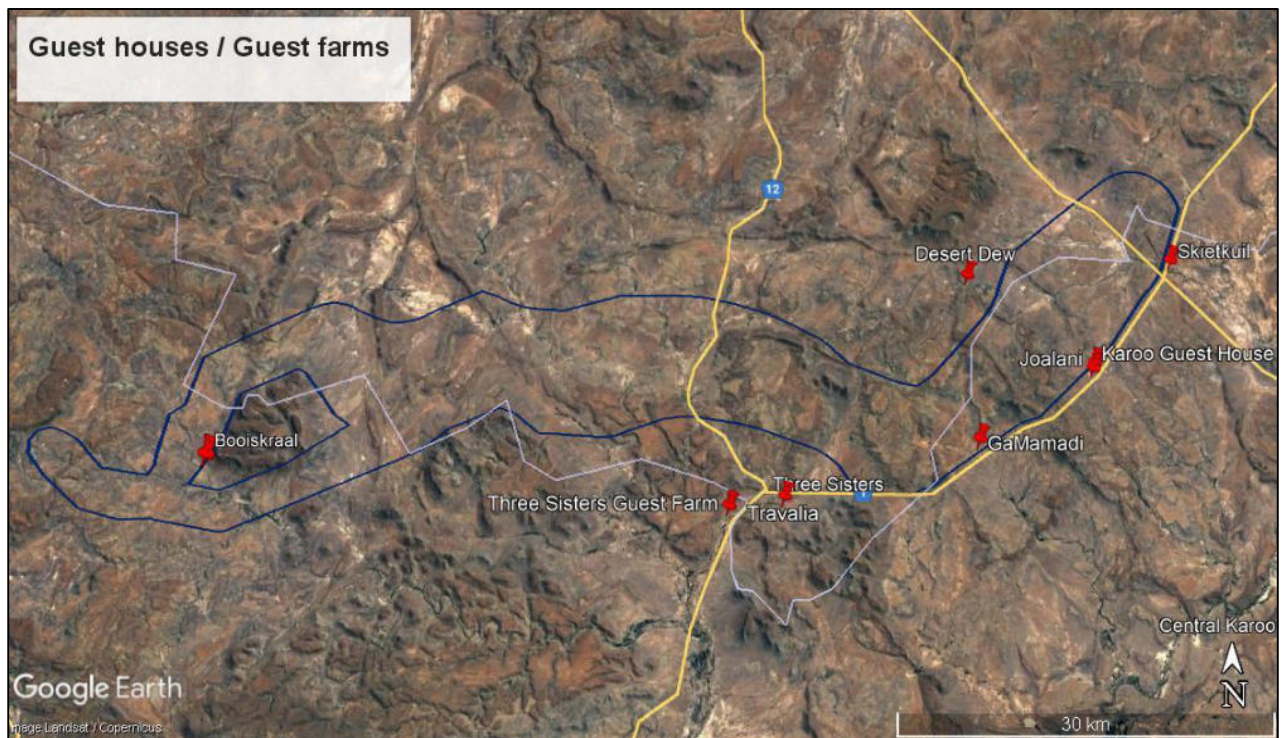


Figure 14. Locality of guest houses / guest farms

The VIA states that (Lawson and Oberholzer, August 2022):

- The distance to the guest farms are at least 1 km from the proposed powerline alignment;
- There are no nature reserves or other formally protected areas within the grid corridor; and
- Scenic routes along the district roads have been identified.

The identified tourism establishment are mostly located on the periphery or on the outside of the Gamma Grid corridor, which is on average approximately 10 km in width and slighter - approximately 4 km in width - in the western section. If it is assumed that the powerline alignment will be located in the centre of the corridor (best

case scenario), then the nearest tourism facilities will be between 5 km and 2 km from the powerline. Worst case scenario, the buffer between the powerline and any guest house facility would be 1 km, with marginal or low visibility. The VIA assessed the overall negative significance of visual impacts on existing guest farms as medium, which can only be mitigated to a certain extent. Wherever possible, the maximum distance / buffer between the guest house and powerline is therefore recommended.

Table 30. Operational phase: Impacts on tourism

Project phase	Operation			
Impact	Tourism Impacts			
Description of impact	Potential negative impacts on the existing tourism landscape as a result of visual impacts and/or impacts on the sense of place, including impacts on guest houses and guest farms.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Avoid sensitive areas. Erect the powerline where visual intrusion for sensitive receptors are the least. Visual screening where possible. Implement a buffer of at least 1 km or more between the powerline and accommodation establishments.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Low - negative		Low - negative	
Comment on significance	There are a limited number of guest houses / guest farms in the Project vicinity. However for this assessment the intensity of the impact is rated as "moderate" resulting in Low (negative) overall significance. Mitigation will reduce the likelihood of the impact manifesting, but the significance remains Low (negative).			

8.2.5 Impacts on Sense of Place

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.

The powerline is located along an area characterised by plains and open valleys and rougher terrain with koppies, rocky ridges and outcrops. Isolated and scattered farmsteads occur where trees provide shelter and thicker vegetation creates refuge against the arid environment. Crime levels are low and the VIA describes the overall feeling as one of stillness and remoteness (Lawson and Oberholzer, August 2022). The eastern section of the corridor has however been infiltrated by infrastructure such as the Nobelsfontein wind turbines, Eskom powerlines, main arterial roads (N12, R63), a railway line and Eskom substations.

The social impact associated with the long-term impact on the sense of place for this Project mainly relates to the change in the landscape character and visual impacts of the proposed powerline infrastructure. Impacts on sense of place due to changes in the landscape character and visual impacts are thus possible for road users and other sensitive receptors in close proximity to the powerline. Lawson and Oberholzer (August 2022) however indicate that guest farms and farmsteads are generally located more than 1 km from the preliminary

proposed powerline alignment with marginal to low visibility. However, the visual impact intensity on landscape / scenic sensitivity and landscape integrity (rural farming character) is medium to high.

It is likely that the intensity of the impact on sense of place in the eastern section of the corridor will be slightly lower than the western section, since there are fewer sensitive receptors with existing infrastructure features that has in all likelihood already impacted on sense of place.

Table 31. Operation phase: Impacts on sense of place

Project phase	Operation			
Impact	Impacts on sense of place			
Description of impact	The social impact associated with the long-term impact on sense of place (landowners' / community's perception of their living environment and how they make meaning of their experiences in that environment) for this Project mainly relate to changes in the landscape character and visual impacts of the powerline infrastructure.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Implement all mitigation measures as proposed by the VIA Specialist to limit visual intrusion to the maximum. Maintain the servitude / access track for the duration of the Project.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Low	Judgement is based on intuition	Low	Judgement is based on intuition
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Low - negative		Low - negative	
Comment on significance	Impacts on sense of place is rated with a Low (negative) significance. Confidence is "low" as sense of place is a personal experience and cannot be rated accurately in a scientific manner.			

8.2.6 Impacts considered and not assessed

8.2.6.1 Employment and Induced Economic Impacts

For ongoing maintenance of the powerline and servitude limited employment (if any) will manifest, as Eskom will most likely make use of their existing maintenance teams. Opportunities for downstream supporting industries and local procurement are possible during these maintenance procedures. Impacts on employment, local procurement and induced economic impacts during the operational phase are however deemed to be insignificant.

8.3 Decommissioning Phase

The Gamma Grid will become part of the national grid and it is unlikely that it will be decommissioned. Should it be decommissioned, the affected land will be rehabilitated to its pre-project state. In the unlikely event that decommissioning occurs, the impacts are expected to be similar to those that took place during the construction phase and can generally be mitigated effectively. Impacts include:

- Influx of workers;
- Traffic and intrusion impacts and general impacts on the sense of place;
- Potential security issues;

- Impacts on road infrastructure; and
- Health and Safety impacts for workers and community members.

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

As decommissioning is unlikely and the timing with regards to the replacement of infrastructure, if it occurs, cannot be determined at this stage, it is recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impacts on the changing social environment at that stage. No rating will thus be provided for impacts associated with decommissioning.

8.4 Alternatives

Due to the comprehensive iterative design process that has been undertaken to inform the location of the refined grid connection corridor, no site or layout alternatives will be assessed. In addition, design and pylon structure alternatives will not impact the SEIA rating and are therefore also not assessed.

However, the development of a powerline within the refined corridor (outside of No-Go areas) is assessed against the '**No-Go**' alternative. The 'No-Go' alternative is the option of not constructing the Project where the status quo would prevail.

The No-Go alternative assumes that the Project is not developed, and the activity does not go ahead. In this case the benefits of the Project, which are indirectly linked to renewable energy generation in the region, would be foregone and the opportunity to provide renewable energy contributing to national targets would not be achieved. The status quo in the area would therefore remain.

Recipients of the negative impacts associated with the Project (such as sense of place, traffic, potential devaluation of farmland, 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.

8.5 Cumulative Impacts

Operational and approved wind farms in the 30 km radius from the Project and High Voltage lines in the Project area are discussed in Section 5.3 of this report. Positive and negative cumulative impacts associated with the social and socio-economic environment are assessed below.

8.5.1 *Employment, Economic Contribution and Induced Impacts*

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

- Permanent, temporary and indirect employment creation, thereby increasing skill levels and the general employability of the economic active population;
- Creation of new business opportunities locally and nationally, as well as further downstream opportunities through indirect and induced cumulative 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.

Table 32. Cumulative impacts: Employment, economic contribution and induced impacts

Impact	Employment, economic contribution and induced impacts			
Description of impact	As a result of construction, maintenance and repairs the construction and operational phases of the various RE and powerline projects will result in positive cumulative impacts nationally and locally in terms of employment (permanent, temporary, indirect), new business opportunities, improvement of incomes and spin-offs for benefitting businesses. This results in increasing skill levels and improvement of livelihoods.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	No mitigation is required.			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	National	Impacts felt at a national level	National	Impacts felt at a national level
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	High - positive		High - positive	
Comment on significance	National and local economic benefits are definite to manifest due to the cumulative effect of the projects, with a High positive significance.			

8.5.2 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 and thus a general increase in employability levels; and
- Capacity building of municipal staff when they are exposed and involved in the employment, permitting, communication/liaison/negotiations, training, support programmes and monitoring processes of the various projects.

Table 33. Cumulative impacts: Impacts for the local and district municipalities

Impact	Impacts for the local and district municipalities			
Description of impact	Positive cumulative impacts for the municipalities with regards to: (i) a better skilled population resulting in higher employability levels; and (ii) capacity building of municipal staff when they are involved in the various process (e.g. employment, permitting, communication and liaison, support programmes, monitoring, SMME training and so forth).			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Involve the Municipal structures from the onset of the projects. Hold preliminary discussions and draw up a MoU so that roles and responsibilities are clear.			
Assessment	Without mitigation		With mitigation	
Nature	Positive		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Regional	Impacts felt at a regional / provincial level	Regional	Impacts felt at a regional / provincial level
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - positive		Medium - positive	
Comment on significance	On-going and permanent projects will have a positive Medium significance for capacity building in the affected municipal structures as well as skills development for the population during the construction and lifespan of the projects.			

8.5.3 Impacts on Land Values

Challenges with regards to the assessment of land values as a result of powerline infrastructure have been discussed in Section 9.2.2. Future trends are not easily determined as it depends on a variety of factors (the receiving environment, market conditions, perceptions of affected parties towards the infrastructure, etc.) and in addition, research with regards to impacts on farmland values are limited. Devaluation of farmland as a direct result of the Gamma Grid was rated as low (negative).

The SEIA done for the Nuweveld Wind Farms (Zutari (Pty) Ltd, April 2021) considered various literature studies as well as the EIA Specialist findings and assessed the impact of the individual Nuweveld Wind Farms on property values to be minor negative. They state that, depending on buyers' perceptions to the developments, a moderate level of negative impact is however possible for individual properties. Cumulative impacts associated with all three Nuweveld Wind Farms and the grid infrastructure are expected to be moderate negative (Zutari (Pty) Ltd, April 2021). However, Zutari also recognises that development at this scale (Nuweveld Wind Farm Cluster) will provide a significant boost to the local economy with the potential to improve property values.

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.²¹

²¹ SEIA Specialist's informal discussions with landowners in and around the study area.

Table 34. Cumulative impacts: Impacts on land values

Impact	Impact on land values			
Description of impact	Possible devaluation of farmland due to visual impacts of infrastructure, changes in the landscape character and/or sense of place due to various developments. However, the cumulative impact of developments of this scale would boost the local economy, thereby also improving property values. In addition the increase in demand for land in the study area for renewable energy purposes could increase the asking price of specific farm portions over the short to medium term.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Avoid placing infrastructure at sensitive localities. Implement all the mitigation measures as proposed by the VIA Specialist. Continuous Environmental Monitoring, communication and transparency between Developers and Landowners.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Low	Judgement is based on intuition	Low	Judgement is based on intuition
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - negative		Low - negative	
Comment on significance	Pre- and post-mitigation the cumulative impact on land values are rated with a Low (negative) significance. Confidence in the rating is "low" as results of research regarding this topic is inconsistent and no real consensus exists. Asking price of properties might even increase due to local economic injections.			

8.5.4 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)²² and was also confirmed by the Ubuntu LM and PKSDM as a potential major issues.

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 services and housing provision.

²² SEIA Specialist’s experience at previously executed RE projects.

Table 35. Cumulative impacts: Influx of jobseekers / temporary construction workers

Impact	Influx of jobseekers / Temporary construction workers			
Description of impact	Cumulative impacts associated with an influx of 'outsiders' due to the various projects in the study area.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	Employment of locals from the study area as far as possible. Hold contractors accountable through their CSMP's to employ a local labour force through the labour desk, provide a transport and housing plan, etc.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	On-going	Impact will last between 15 and 20 years	On-going	Impact will last between 15 and 20 years
Extent	Municipal area	Impacts felt at a municipal level	Municipal area	Impacts felt at a municipal level
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Low - negative		Low - negative	
Comment on significance	Pre- and post mitigation cumulative impacts of Low (negative) significance could manifest for the local and district municipalities. However, mitigation is essential as it will reduce the intensity of the impact (from "moderate" to "low") and the likelihood (from "likely" to "probable").			

8.5.5 Intrusion Impacts

Cumulative intrusion impacts refer to the combined impact of noise, air/dust pollution, visual impacts and the impact of shadow flicker on sensitive receptors caused by the various developments. Since noise, air/dust pollution and shadow flicker are usually mitigated satisfactorily for wind farm projects and are usually negligible for powerline developments, the assumption is drawn that mitigation will also be done sufficiently for the various projects in the study area.

Even though the entire proposed grid corridor falls within the Central Strategic Transmission Corridor specifically intended for the placement of HVTL infrastructure, the VIA done for the Gamma Grid assessed the cumulative visual impact as moderate negative.

Table 36. Cumulative impacts: Intrusion impacts

Impact	Intrusion impacts			
Description of impact	Cumulative intrusion impacts as a result of combined impacts of noise, air/dust pollution, visual impacts and impacts of shadow flicker.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Place grid infrastructure parallel with existing Eskom powerlines. Avoid placement of infrastructure at sensitive localities and in close proximity to sensitive receptors.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Certain / definite	There are sound scientific reasons to expect that the impact will definitely occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - negative		Medium - negative	
Comment on significance	A cumulative intrusion impact of Medium (negative) significance is expected, due to visual impacts that would manifest. Dust/air, noise and so forth can usually be mitigated.			

8.5.6 Impacts on Tourism

Due to the limited number of tourism attractions and guest houses in the Gamma Grid corridor vicinity, as well as the preliminary estimated distances from the Grid, the overall significance on tourism was rated as low negative. Zutari (Pty) Ltd (April 2021) rated the cumulative impact of the three Nuweveld Wind Farms and the gridline that would stretch to the Droërivier Substation near Beaufort West as moderate negative.

The cumulative impact on tourism as a result of the various existing and future RE and powerline projects could possibly increase tourism risks further. It is however also important to note that very limited local data on the topic exists. Although international research exists, the findings and results have to be used with caution since the receiving environment (communities, tourist activities, landscape), location, technologies, size of the wind farm developments and so forth differ between the various sources. To add to the contention of the topic, results of studies often contradict each other and there is no clear consensus whether wind farm developments impact tourist perceptions and tourist numbers negatively over the long term.

Local economic boosts to the region as a result of these developments may actually also be a catalyst for added tourism development and opportunities.

Although confidence in the rating is low, the cumulative impact on tourism has been rated with a medium negative overall significance for purposes of this SEIA. Mitigation could possibly reduce the impact to low negative.

Table 37. Cumulative impact: Impacts on tourism

Impact	Impacts on tourism			
Description of impact	Cumulative impact as a result of the various existing and future wind and powerline projects that could possibly increase tourism risks. No clear data (and especially local data) exists to back this statement, as studies are inconclusive and would depend on variables, such as the receiving environment, location, technologies, size of the wind farms, etc. Also, local economic boosts due to these developments may be a catalyst for added tourism development and opportunities.			
Mitigatability	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	Implement all measures proposed in the VIA to minimise impacts on visual intrusion for sensitive receptors. Ensure effective land use management at the sites and their surrounds.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Moderate	Natural and/ or social functions and/ or processes are moderately altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	Low	Judgement is based on intuition	Low	Judgement is based on intuition
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	Medium - negative		Low - negative	
Comment on significance	Mitigation will reduce the likelihood of the impact manifesting, which could reduce the significance from Medium to Low (negative). Confidence in the rating is "low" as no conclusive evidence exists to back the assessment of negative tourism risks.			

8.5.7 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 and powerlines, as well as negative intrusion impacts that changes the community's perception of their living environment. Landowners could easily attribute a potential increase in stock theft and crime levels to these collective developments due to increasing traffic 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 with impacts on sense of place.

Table 38. Cumulative impacts: Impacts on sense of place

Impact	Impacts on sense of place			
Description of impact	Collective impacts of the various wind farm and powerline developments that cause changes to the landscape character, negative intrusion impacts, increase in stock theft and crime, increase in traffic and poor land use management practices that alter the landowners' perception of their living environment.			
Mitigatability	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	Implement mitigation and management measures as proposed by the VIA and HIA Specialists.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	High	Natural and/ or social functions and/ or processes are notably altered	Moderate	Natural and/ or social functions and/ or processes are moderately altered
Probability	Likely	The impact may occur	Probable	The impact has occurred here or elsewhere and could therefore occur
Confidence	Low	Judgement is based on intuition	Low	Judgement is based on intuition
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Medium - negative		Low - negative	
Comment on significance	Cumulative impacts on sense of place is rated with a Medium (negative) significance that can be mitigated to Low (negative).			

9. MITIGATION AND EMPR REQUIREMENTS

9.1 Summary of mitigation measures

The following is a summary of the mitigation measures that were proposed in the impact tables contained in Section 8.

Table 39. Summary of mitigation measures

Phase	Impact variable	Social Mitigation
Construction	Employment and Procurement	<ul style="list-style-type: none"> - Formulate an Employment Equity Plan and Preferential Procurement Strategy in collaboration with the Municipal LED Units, prior to construction commencing. - Clearly identify the Project's beneficiary communities / direct sending area. Give preference to locals that originate from the towns closest to the construction site. - Maximise local content / employment of locals (source labour through labour desk / job registration database only; no recruitment at the entrance to construction site, etc.) and local procurement in collaboration with local municipal structures. - Contractors to provide a transport and housing plan (i) no workers are allowed to be housed on site or in informal housing/settlements; (ii) include arrangements that enable workers from outside the area to return home at regular intervals. - Require larger contractors to work with small SMME's; Provide on-the-job training to lower skilled workers. - Involve the Ubuntu and BWLM LED Units and the PKSDM and CKDM from the early processes (from financial close already if possible). Determine their existing processes with regards to a labour desk and streamline the employment process between the various stakeholders.

		<ul style="list-style-type: none"> - Employ a Community Employer Relations Officer / CLO. Communicate with communities through this one channel to ensure transparency, limit unrealistic expectations and avoid conflict. - Involve the relevant LED Units in training and skills development programmes for SMME development and certification, if training is done.
	<p>Social responsibility</p>	<ul style="list-style-type: none"> - Compile and implement a social awareness programme for the duration of construction that focuses on sexual health, unwanted pregnancies and related social issues. - 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. - Inform the EMC / Forum of the Procurement strategy and Employment Equity Plan to be implemented and obtain their inputs where required and feasible.

	<p>Impacts experienced by private land owners / communities / guest houses</p>	<ul style="list-style-type: none"> - Start negotiations with landowners well in advance and keep open communication channels. Address potential issues as a matter of priority. - Discuss construction timelines with landowners so that grazing of livestock can take place away from construction areas. - 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. - Implement the generic EMPr for overhead transmission lines. - Implement all mitigation and management measures of the Visual Specialist to reduce visual impacts during construction. - No workers to remain on site after shifts. - 24-hour security, demarcate and fence construction sites (where 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. - Make contact details of the main contractor and procedures to lodge complaints available to the local communities through the ward Councillors and EMC / Forum. - Make a complaints register / log book available at the entrance to the construction site/s and act immediately should issues arise. - Circulate summaries of monitoring results (dust, etc.) to the local communities / landowners when necessary. - Keep the local SAPS, other emergency services, ward Councillors, landowners and other relevant stakeholders informed about the construction progress and time-lines. - 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. - A Fire/Emergency Management Plan and associated communication channels should be developed and implemented (in conjunction with affected and neighbouring landowners). - 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.
<p>Operational phase</p>	<p>Impacts experienced by private land owners / communities / guest houses</p>	<ul style="list-style-type: none"> - Implement the mitigation and management measures as proposed in the VIA and HIA. - Keep the servitude maintained and clear of obstacles that can obstruct access.

10. CONCLUSION AND SUMMARY

10.1 Summary of Findings

Red Cap (Pty) Ltd is proposing to construct a 400 kV transmission line between the approved Nuweveld Collector Substation north of Beaufort West to the existing Gamma Substation ~90 km to the east (the Project). The project is intended to expand the capacity and improve the functionality of the Eskom grid by creating a 400 kV ring-line between the Droërivier Substation in the south, Gamma Substation and the Nuweveld Collector Substation, and in so doing create opportunities for other wind farm developments (such as the proposed Red Cap Hoogland projects) to tie-into the grid. As such, the proposed new Gamma Grid powerline will allow Eskom to release further renewable energy potential in an area that is becoming a renewable energy development node in South Africa, thereby helping to alleviate South Africa's power crisis.

A corridor for the proposed Gamma 400 kV powerline of approximately 110 km in length and varying widths that range between 4 and 10 km has been identified for assessment. Although the gridline starts and ends in the Western Cape (Central Karoo District and Beaufort West Local Municipalities), large portions of the line traverses land in the Northern Cape (Pixley ka Seme District and Ubuntu Local Municipalities).

INDEX *Social Consulting Services* was appointed to undertake the Socio-economic Impact Assessment (SEIA) for this Project. The purpose of this SEIA is to identify and assess potential social and socio-economic impacts that could manifest as a result of the Project. The aim is for the developer to optimise the benefits of the Project and implement mitigation that would minimise the possible negative impacts before they manifest. Sensitive receptors and areas that should be avoided are also identified to aid the identification of the most suitable route within the corridor.

Typical small, sparsely populated Karoo towns are scattered throughout region, 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 18 – 24 month construction period, various positive and negative social and socio-economic impacts have been identified, as summarised below:

Impact – Construction phase	Without mitigation		With mitigation
Temporary employment	Medium - positive		Medium - positive
Local Procurement	Medium - positive		Medium - positive
Induced local economic impacts	Medium - positive		Medium - positive
Training / Skills development	Low - positive		Low - positive
Employment Equity	Low - positive		Medium - positive
Influx of jobseekers / temporary construction workers	Low - negative		Low - negative
Intrusion impacts	Low - negative		Low - negative

Construction phase positive impacts mainly relate to economic impacts for the local and national economies through direct employment, procurement of capital goods, general construction and building material and infrastructure elements. In addition, downstream opportunities will further result in indirect employment and incomes through induced effects of the Project. A general increase in incomes and livelihoods will manifest for participating households. The agricultural assessment (J. Lanz, August 2022) identified no negative impacts on agricultural production.

Training and skills development will indirectly address poverty alleviation over the medium to long-term, as the workers and other people involved in the Project will acquire skills. Emphasis has been placed on measures to include municipal structures in the processes to enhance participation and transparency.

Negative impacts during construction are typical to those that manifest during large construction projects, are short-term of nature and can generally be mitigated effectively, such as the potential of an influx of jobseekers, intrusion impacts for landowners and potential security risks. Should the construction process not be managed adequately and these impacts occur, negative community mobilisation could manifest.

Operational phase impacts and their significance are reflected in the following table:

Impact - Operational phase	Without mitigation		With mitigation
National power supply	High - positive		High - positive
Impacts on land values	Low - negative		Low - negative
Land use impacts	Very Low - negative		Very Low - negative
Tourism Impacts	Low - negative		Low - negative
Impacts on sense of place	Low - negative		Low - negative

Although devaluation of farmland values are possible, impacts of powerlines on property values are difficult to measure as it is dependent on a variety of factors, such as the receiving environment (location and setting), market conditions and perceptions of affected parties towards the infrastructure. Should it occur, it is likely to be a temporary occurrence that will diminish or disappear over the short to medium-term and can be off-set by compensation. For this Project's operational phase, impacts on tourism and sense of place is largely linked with visual impacts and rated with a low negative significance. Land use impacts will be negligible, as agricultural land uses will continue once the land has been rehabilitated.

As decommissioning is unlikely and the timing with regards to the replacement of infrastructure, if it occurs, cannot be determined at this stage, no rating for decommission phase impacts are done. It is therefore recommended that a detailed SEIA be undertaken at the time of decommissioning to determine the actual impacts on the changing social environment at that stage.

10.2 Conclusion and Impact Statement

From a social and socio-economic perspective negative impacts that could manifest for this Project are either of low significance or can be mitigated to acceptable levels. No issues of high negative 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 Gamma Gridline and associated infrastructure 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.

11. REFERENCES

11.1 Documents

- Athol Schwarz. September 2022. Traffic Impact Assessment: Gamma Grid Connection.
- Beaufort West Local Municipality: Final Integrated Development Plan. 2017-2022.
- Central Karoo District Municipality: Integrated Development Plan. 2022-2027.
- Department of Mineral Resources and Energy. 31 December 2021. Independent Power Producers Procurement Programme, an Overview.
- Johann Lanz. 24 August 2022. Site Sensitivity Verification and Agricultural Compliance Statement for the proposed Gamma 400kV Gridline Project in the Northern and Western Cape Provinces.
- Quinton Lawson and Bernard Oberholzer. August 2022. Draft Visual Impact Report: Proposed Gamma Gridline Corridor, Western and Northern Cape Provinces.
- Northern Cape Provincial Government/ Northern Cape socio-economic review and outlook 2021.
- Pixley ka Seme District: Final Integrated Development Plan 2022 - 2027.
- Ubuntu Local Municipality. Local Economic Development Plan 2011.
- Ubuntu Local Municipality. Integrated Development Plan 2017- 2022.
- Zutari (Pty) Ltd. April 2021. Socio-economic impact assessment report for the Nuweveld North Wind Farm near Beaufort West, Western Cape Province.

11.2 Websites

- www.forensic-appraisal.com/power-lines
- municipalities.co.za
- victoriawest.co.za
- www.property24.com
- www.statssa.gov.za
- www.thevaluator.co.za
- wazimap.co.za

11.3 Articles

- Wen. S Chern. June 2013. Analyzing the impacts of power transmission lines on farm land value. Obtained from www.researchgate.com
- Forensic Appraisal Group, Ltd. Power Line Valuation Issues. Obtained August 2022 from www.forensic-appraisal.com/power-lines
- Thomas O. Jackson and Fennifer M. Pitts. January 2007. Power lines and Property Values revisited: The Appraisal Journal 75(4).
- Orgone Energy. July 2021. What is a safe distance to live from Power Lines? Obtained from www.orgoneenergy.org/blogs/news/what-is-a-safe-distance-to-live-from-power-lines
- EMF and Power Lines: What is a Safe Distance? Obtained August 2022 from emfgrid.com

11.4 Consultation

- Mr. Lewellyn Lakay: Manager: LED Unit: Beaufort West Local Municipality
- Ms. N Mkontwana: Acting Municipal Manager: Ubuntu Local Municipality
- Clr. Soutie Weldon Kock: Ward 3 Councillor: Ubuntu Local Municipality
- Mr. Siphon Nkile: IDP / Compliance Officer: Ubuntu Local Municipality
- Mr. H Greeff: Snr. Manager: Infrastructure, Planning, Development & Housing: Pixley ka Seme District Municipality
- Mr. A Sibeko: LED Manager: Pixley ka Seme District Municipality

12. APPENDICES

APPENDIX A: Assessment Criteria

The impacts of the proposed development (during the Construction, Operation and Decommissioning phases) are to be assessed and rated according to the methodology described below.

Specialists will be required to make use of the impact rating matrix provided (in Excel format) for this purpose.

The assessment of the significance of impacts for a proposed development is by its nature, a matter of judgement. To deal with the uncertainty associated with judgement and ensure repeatable results, impacts must be rated using a standardised methodology.

This section outlines the method for assessing the significance of the potential environmental and social impacts of the project. For each predicted impact, criteria are ascribed, and these include the nature (positive or negative), the intensity; the duration; and the extent, as well as the probability (likelihood). The methodology is quantitative, whereby professional judgement is used to identify a rating for each criterion based on a seven-point scale (refer to Table); and the significance is auto-generated using a spreadsheet through application of the calculations (included in the shared DropBox folder as Gamma Grid_BA_Impact Assessment.xls).

The assessment methodology is to be adopted by all specialists working on the project to ensure a standardised method of assessment across all disciplines. Where specialists require finer scale ratings or disagree with the auto-calculated impact significance rating, they have the opportunity to comment in the impact assessment table.

Note that “impacts” of project effects that are beneath the levels of perception and / or are inconsequential (i.e. have an intensity of zero), must be classified as “insignificant” and not formally rated using the assessment methodology described below.

Calculations

For each predicted impact, certain criteria are applied to establish the likely **significance** of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the **intensity** (size or degree scale), which also includes the **nature** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale). These numerical ratings are used in an equation whereby the **consequence** of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (intensity + duration + extent)

To calculate the significance of an impact, the probability (or likelihood) of that impact occurring is applied to the consequence.

Significance = consequence x probability.

Table 1-1: Assessment criteria for the evaluation of impacts

Criteria	Numeric Rating	Category	Description
Duration	1	Immediate	Impact will self-remedy immediately
	2	Brief	Impact will not last longer than 1 year

Criteria	Numeric Rating	Category	Description
	3	Short term	Impact will last between 1 and 5 years
	4	Medium term	Impact will last between 5 and 10 years
	5	Long term	Impact will last between 10 and 15 years
	6	On-going	Impact will last between 15 and 20 years
	7	Permanent	Impact may be permanent, or in excess of 20 years
Extent	1	Very limited	Limited to specific isolated parts of the site
	2	Limited	Limited to the site and its immediate surroundings
	3	Local	Extending across the site and to nearby settlements
	4	Municipal area	Impacts felt at a municipal level
	5	Regional	Impacts felt at a regional level
	6	National	Impacts felt at a national level
	7	International	Impacts felt at an international level
Intensity	1	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
	2	Very low	Natural and/ or social functions and/ or processes are slightly altered
	3	Low	Natural and/ or social functions and/ or processes are somewhat altered
	4	Moderate	Natural and/ or social functions and/ or processes are moderately altered
	5	High	Natural and/ or social functions and/ or processes are notably altered
	6	Very high	Natural and/ or social functions and/ or processes are majorly altered
	7	Extremely high	Natural and/ or social functions and/ or processes are severely altered
Probability	1	Highly unlikely / None	Expected never to happen
	2	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
	3	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
	4	Probable	Has occurred here or elsewhere and could therefore occur
	5	Likely	The impact may occur
	6	Almost certain / Highly probable	It is most likely that the impact will occur

Criteria	Numeric Rating	Category	Description
	7	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur

Based on the consequence and probability of the impact occurring, the impact would fall into a significance category of very low (1 – 35), low (36 – 72), medium (73 – 108) or high (109 – 147) as described in Table .

Table 1-2: Interpretation of significance

Interpretation of Significance		
High -	High +	These beneficial or adverse effects are considered to be very important considerations and are likely to be material for the decision-making process. In the case of negative impacts, substantial mitigation will be required.
Medium -	Medium +	These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such issues may become a decision-making issue if leading to an increase in the overall adverse effect on a particular resource or receptor. In the case of negative impacts, mitigation will be required.
Low -	Low +	These beneficial or adverse effects may be experienced on the receiving environment, but natural or socio-economic processes are likely to continue. They are unlikely to be critical in the decision-making process but could be important in the subsequent design of the project. In the case of negative impacts, some mitigation is likely to be required.
Very Low -	Very Low +	These beneficial or adverse effects will not have an influence on the decision, neither will they need to be taken into account in the design of the project. In the case of negative impacts, mitigation may not necessarily be required.
Insignificant		Any effects are beneath the levels of perception and inconsequential, therefore not requiring any consideration.

When assessing impacts, broader considerations must also be considered, including the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in Table , Table and Table , respectively.

Table 1-3: Definition of confidence ratings.

Category	Description
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 1-4: Definition of reversibility ratings.

Category	Description
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention

High	The affected environmental will be able to recover from the impact
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Table 1-5: Definition of irreplaceability ratings.

Category	Description
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere
High	The resource is irreparably damaged and is not represented elsewhere

APPENDIX B: 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-Perit 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 Noupoort, 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.

APPENDIX C: DEA DECLARATION



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

PROPOSED GAMMA GRIDLINE

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

SPECIALIST INFORMATION

Specialist Name:	Company	INDEX Social Consulting Services		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	3	Percentage Procurement recognition	
Specialist name:	Marchelle Terblanche			
Specialist Qualifications:	BA Development Sciences			
Professional affiliation/registration:				
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Postal code:	0081	Cell:	082 804 2945	
Telephone:	082 804 2945	Fax:		
E-mail:	marchelle@indexsa.net			

APPENDIX D: DECLARATION BY THE SPECIALIST

I, Marchelle Terblanche, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist:



Name of Company: INDEX Social Consulting Services

Date: 2022/10/19



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Socio-economic Impact Assessment for the Proposed Gamma 400 kV Gridline Project.

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za


1. SPECIALIST INFORMATION

Specialist Company Name:	INDEX Social Consulting Services		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	3	Percentage Procurement recognition
Specialist name:	Marchelle Terblanche		
Specialist Qualifications:	BA Development Sciences		
Professional affiliation/registration:			
Physical address:	850 Speek Street, Wapadrand Security Village		
Postal address:	Same		
Postal code:	0081	Cell:	082 804 2945
Telephone:	082 804 2945	Fax:	
E-mail:	marchelle@indexsa.net		

2. DECLARATION BY THE SPECIALIST

I, Marchelle Terblanche, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

INDEX Social Consulting Services

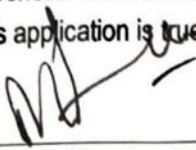
Name of Company:

2022 / 11 / 16

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Marchelle Terblanche, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

INDEX Social Consulting Services

Name of Company

2022/11/22

Date



COMMISSIONER OF OATHS (RSA)
De Wet Cronje BAP (SA)
Ex Officio - Business Accountant in Practice
Member No.: SAJBA10558
The Willows Office Park Unit E4,
C/O Farm & Simon Vermooten Road, Pretoria, 0061

Signature of the Commissioner of Oaths

22 November 2022

Date