

HOTAZEL 2

Northern Cape Province

Social Impact Assessment (SIA) Report

February 2021

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REPORT DETAILS

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Client	:	Hotazel Solar Facility 2 (Pty) Ltd
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SPECIALIST DECLARATION OF INTEREST

I, Lisa Opperman, 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.
- » 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.

Lisa Opperman

Name

February 2021

Date



Signature

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ACRONYMS

AC	Alternating Current
B-BBEE	Broad-Based Black Economic Empowerment
BEE	Black Economic Empowerment
CLO	Community Liaison Officer
CPA	Communal Property Association
CSP	Concentrated Solar Power
DC	Direct Current
DEA	Department of Environmental Affairs (National)
DEFF	Department of Environment, Forestry and Fisheries
DENC	Department of Environment and Nature Conservation (Northern Cape Provincial)
DoE	Department of Energy
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
EA	Environmental Authorisation
EAP	Economically Active Population
ECO	Environmental Control Officer
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EP	Equator Principles
EPC	Engineering, Procurement and Construction
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FGM	Focus Group Meeting
FMP	Fire Management Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GNP	Gross National Product
GNR	Government Notice
GVA	Gross Value Added
HDI	Historically Disadvantaged Individuals
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEP	Integrated Energy Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
IRP	Integrated Resource Plan
km	Kilometre
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality
LRP	Livelihood Restoration Plan
MTS	Main Transmission Substation

MW	Megawatt
NDP	National Development Plan
NEMA	National Environmental Management Act (No. 107 of 1998)
NFA	National Forests Act (No. 84 of 1998)
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
PDP	Provincial Development Plan
PGDS	Provincial Growth and Development Strategy
PICC	Presidential Infrastructure Coordinating Committee
PSDF	Provincial Spatial Development Framework
PV	Photovoltaic
RAP	Resettlement Action Plan
RBS	Revised Balanced Scenario
RE	Renewable Energy
REIPPP	Renewable Energy Independent Power Producer Procurement Programme
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Infrastructure Project
SMME	Small, Medium and Micro Enterprises
UNESCO	United Nations Educational, Scientific and Cultural Organisation

1 INTRODUCTION

Hotazel Solar Facility 2 (Pty) Ltd proposes the development of Hotazel 2 and associated infrastructure, on a site near Hotazel in the Northern Cape Province (refer to Error! Reference source not found.). Hotazel 2 comprises a commercial photovoltaic (PV) solar energy facility and is intended to form part of the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme. The REIPPP programme aims to secure new generation capacity from renewable energy sources, while simultaneously diversifying South Africa's electricity mix, and positively contributing towards socio-economic and environmentally sustainable growth.

Hotazel Solar Facility 2 (Pty) Ltd requires Environmental Authorisation (EA) from the Department of Environment, Forestry and Fisheries (DEFF) subject to the completion of an Environmental Impact Assessment (EIA) process in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), and the 2014 EIA Regulations (GNR 326). Cape EAPrac has been appointed as the independent environmental consultant responsible for managing the EIA process.

This Social Impact Assessment (SIA) Report has been prepared by Lisa Opperman of Savannah Environmental (Pty) Ltd, and is intended to provide social input as part of the Impact Assessment Phase of the project.

1.1 Project Description

Hotazel 2 consists of solar photovoltaic (PV) facility with fixed, single or double axis tracking mounting structures, with a net generation (contracted) capacity of 100 MW_{AC}, as well as associated infrastructure, which will include (also refer to **Table 1.1**):

- » On-site substation / collector switching station.
- » Auxiliary buildings (gate-house and security, control centre, office, warehouse, canteen & visitors centre, staff lockers etc.).
- » Inverter-stations, transformers and internal electrical reticulation (underground cabling);
- » Access and internal road network.
- » Laydown area.
- » Grid connection: There are three options proposed PV facility to connect Hotazel 2 to the Eskom Hotazel Substation:
 - * Option 1: New overhead 132kV power line from the proposed Hotazel 2 on-site substation/ collector switching station to the existing Eskom Hotazel substation. This option is the preferred option from a technical perspective.
 - * Option 2: Via a loop in loop out (LILO) 132kV power line into the Hotazel-Eldoret 132kV line.
 - * Option 3: New overhead 132kV power line from the proposed Hotazel 2 on-site substation/ collector switching station to the authorised Hotazel Solar collector switching station.
- » Rainwater tanks.
- » Perimeter fencing and security infrastructure.

The project will directly affect four properties namely the Remaining Extent (Portion 0) of the farm York A 279, Portion 11 of Farm York A 279, the Remaining Extent of Portion 3 of the Farm York A 279 and the Remaining Extent (Portion 0) of the Farm Hotazel 280 (refer to **Figure 1.1**). The project is located within Ward 4 of the Joe Morolong Local Municipality which falls under the jurisdiction of the John Taolo Gaetsewe District Municipality.

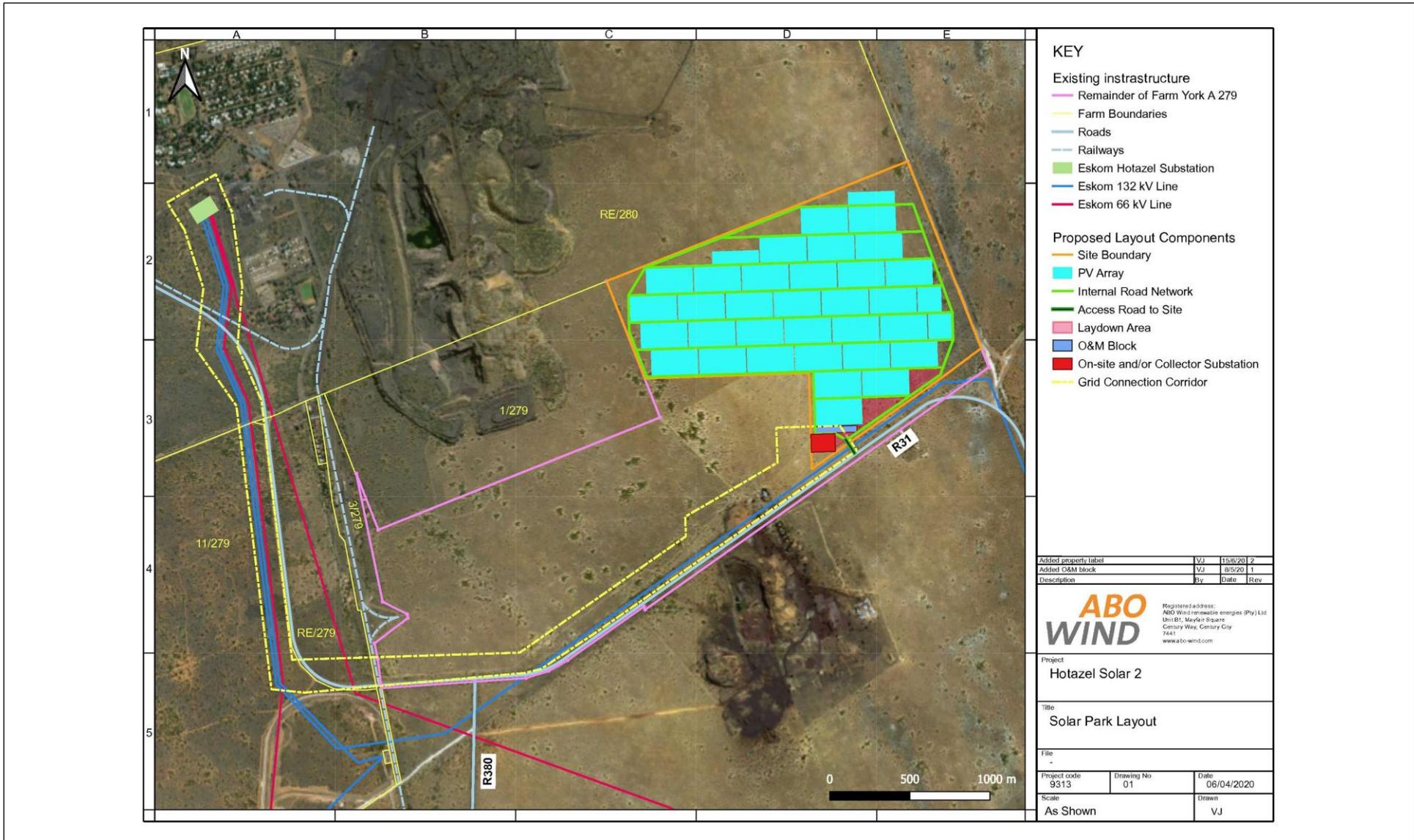


Figure 1.1: Proposed project site for Hotazel 2, Northern Cape Province.

Table 0.1: Overview of Technical Details for the proposed facility

Component	Description / Dimensions
Location of the site	Approximately 3km south-east of Hotazel
PV panel area	210ha with a total project footprint of approximately 230ha
Site access	Access to the site will be at a new access point from the R31
Contracted capacity	100MW
Grid Connection: On-site substation/ collector switching station	The maximum size of the on-site substation/ collector switching substation will be up to 2ha. The on-site substation/collector switching station will collect the power from the solar facility and transform it from a low voltage level (up to 33kV) to 132kV. The collector switching station component would be used if Eskom requires another solar energy facility (i.e. the authorised Hotazel Solar) to connect to the national grid via the same grid connection point.
Grid Connection Options	<p><u>Option 1 (Technically Preferred Option):</u> ±6.7km new overhead 132kV electrical transmission line. To assess the route, the line is buffered by 150 m (i.e. a 300 m corridor) in order to allow for micro-siting during final design. The power line will have a maximum height of 32m and a servitude width of between 31m and 36m. This option is considered to be the preferred option from a technical perspective.</p> <p><u>Option 2:</u> 100m new overhead 132kV electrical transmission line which will connect via a Loop in Loop out connection into the existing Hotazel/Eldoret 132kV line. The power line will have a maximum height of 32m and maximum servitude width of 52m. To assess the route, the line is buffered by 150 m (i.e. a 300 m corridor) in order to allow for micro-siting during final design</p> <p><u>Option 3:</u> ±1km new overhead 132kV power line from the Hotazel 2 on-site substation/ collector switching station to the authorised Hotazel Solar collector switching station. The power line will have a maximum height of 32m and a servitude width of between 31m and 36m. To assess the route, the line is buffered by 150 m (i.e. a 300 m corridor) in order to allow for micro-siting during final design</p>
Proposed technology	PV with fixed, single or double axis tracking technology.
Height of installed panels from ground level	PV structures not more than 4m in height.
Width and length of internal roads	Main access road - width: 8m, length: ± 100m Internal access roads – width: 5m, length: ± 17 km

The proposed project site was identified on the basis of various technical criteria including the solar resource available in the area, the accessibility of the site, accessibility to Eskom's national electricity grid, and local site characteristics and topography.

1.2 Details of the Independent Specialist

This SIA has been undertaken by Lisa Opperman of Savannah Environmental.

Lisa Opperman is an Environmental Consultant at Savannah Environmental. She holds a Bachelor degree with Honours in Environmental Management and has six years of experience in the environmental field. Her

key focus is on environmental and social impact assessments, public participation, environmental management plans and programmes, as well as mapping using ArcGIS for a variety of environmental projects. Lisa has undertaken 10 SIAs to date for various types of development.

1.3 Structure of this SIA Report

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations (GNR 326), as amended. An overview of the contents of this SIA Report, as prescribed by Appendix 6 of the 2014 EIA Regulations (GNR 326), and where the corresponding information can be found within the report is provided in **Table 0.**

Table 0.2: Summary of where the requirements of Appendix 6 of the 2014 NEMA EIA Regulations (GNR 326) are provided within this Specialist Report.

Requirement		Location in Report
(a)	Details of – (i) The specialist who prepared the report. (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae.	Section Error! Reference source not found. R
(b)	A declaration that the specialist is independent in a form as may be specified by the competent authority.	Declaration of Interest
(c)	An indication of the scope of, and the purpose for which, the report was prepared.	Section 0
(cA)	An indication of the quality and age of base data used for the specialist report.	Section 0
(cB)	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section Error! Reference source not found. R
(d)	The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 0
(e)	A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 0
(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 0 Error! Reference source not found. R
(g)	An identification of any areas to be avoided, including buffers.	N/A
(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	N/A
(i)	A description of any assumptions made and any uncertainties or gaps in knowledge.	Section 0
(j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	Section Error! Reference source not found. R
(k)	Any mitigation measures for inclusion in the EMPr.	Appendix A
(l)	Any conditions for inclusion in the environmental authorisation.	Section 0
(m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation.	Appendix A
(n)	A reasoned opinion – (i) Whether the proposed activity, activities or portions thereof should be authorised. (iA) Regarding the acceptability of the proposed activity or activities.	Section 0

Requirement	Location in Report
(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures.	
(o) A description of any consultation process that was undertaken during the course of preparing the specialist report.	Section 0
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	N/A
(q) Any other information requested by the competent authority.	N/A
2. Where a government notice gazetted 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

2 METHODOLOGY AND APPROACH

2.1 Purpose of the Study

The International Principles for Social Impact Assessment define SIA as:

"The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions".

The International Principles for Social Impact Assessment define social impacts as changes to one or more of the following:

- » People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- » Their culture – that is, their shared beliefs, customs, values and language or dialect.
- » Their community – its cohesion, stability, character, services and facilities.
- » Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
- » Their environment – the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- » Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity,
- » Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties.
- » Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

The purpose of this SIA Report is therefore to:

- » Provide baseline information describing the social environment within which the project is proposed, and which may be impacted (both positively and negatively) as a result of the proposed development.
- » Identify, describe and assess possible social risks / fatal flaws and social impacts that may arise as a result of the proposed development (in terms of the detailed design and construction, operation, and decommissioning phases of the project).
- » Recommend ways in which negative impacts can be avoided, minimised, or their significance reduced, and positive impacts maximised or enhanced.

2.2 Approach to the Study

This SIA Report provides a snapshot of the current social setting within which Hotazel 2 is proposed. It provides an overview of the manner and degree to which the current status quo is likely to change or be impacted by the construction, operation and decommissioning of the project, as well as the manner in which the social environment is likely to impact on the development itself.

An overview of the assessment methodology utilised as part of this SIA is provided in **Section 0**.

The SIA process undertaken as part of the EIA Phase comprised the following:

- » Collection and review of existing information, including national, provincial, district, and local plans, policies, programmes, Census data, and available literature from previous studies conducted within the area. Project specific information was obtained from the project proponent.
 - » A previous environmental impact assessment process has been undertaken for the development of a PV facility within the affected properties, which was for the Hotazel Solar project. This previous process included the undertaking of a social impact assessment for the proposed project as well as adequate public participation processes which identified and addressed social concerns and impacts. Based on the similarities between the previous project assessed (in terms of location and infrastructure) and Hotazel 2 being proposed (i.e. solar energy developments) the previous social study and comments and responses reports (compiled through the public participation process) will be utilised to identify and assess the social impacts considered to be associated with the proposed development. These sources of information (which included the undertaking of a site visit and interviews as part of the previous EIA process and Social Impact Assessment) are considered to be sufficient for the collection of data as it provides site-specific information. The details of the previous project, as well as the associated DEA reference number of the Applications for Environmental Authorisation is included below:
 - * Hotazel Solar, Northern Cape – DEA Ref.: 14/12/16/3/3/2/1086
- It must be noted that all social issues raised during the Scoping phase public participation process undertaken for the proposed project have been considered and addressed as part of this SIA report. Any further social comments raised during the EIA phase will be addressed, where relevant, in the final SIA Report to be submitted to DEFF for decision-making.
- » Stakeholder consultation / telephonic interviews were undertaken to identify specific social impacts which need to be assessed and considered for the development¹.
 - » Identification of potential direct, indirect and cumulative impacts likely to be associated with the construction, operation, and decommissioning of the proposed project.
 - » Assessment of identified impacts in terms of their nature, extent, duration, consequence / magnitude, probability, significance, and status.
 - » Where applicable, mitigation measures with which to minimise impacts and enhance benefits associated with the project were identified.
 - » Preparation of an SIA Report and inputs into the Environmental Management Programme (EMPr) to be prepared for the project.

2.2.1 Stakeholder Identification and Analysis

Stakeholders are defined as:

"Any group or organisation which may affect or be affected by the issue under consideration" (UN, 2001: 26).

¹ It must be noted that the SIA was undertaken during the COVID-19 national state of disaster and therefore no on-site meetings with stakeholders were held.

These may be directly or indirectly impacted and may include organisations, institutions, groups of people or individuals, and can be at any level or position in society, from the international to regional, national, or household level (Franke and Guidero, 2012).

Stakeholder analysis involves the identification of affected or impacted people and their key grouping and sub-groupings (IFC, 2007). Identifying stakeholders that are directly and indirectly affected by the project is important to determine who might be impacted by the development and in what way. The key stakeholders in the proposed project have been identified, grouped / sub-grouped and described as per Ilse Aucamp's SIA methodology (Aucamp et al, 2011). There are immediate, direct, and indirect areas of influence to the proposed development. Affected stakeholders comprise sensitive social receptors that may potentially be affected by the proposed development based on their location.

A description of each of the stakeholder groups in relation to Hotazel 2 is discussed below. **Figure 2.1** provides an organogram of the key stakeholders that could potentially be impacted by Hotazel 2.

- » **Farming community:** The farming community can be grouped into three categories, namely farm owners, farm tenants, and farm workers. Farm owners comprise individuals who own the property and, in most cases, make a living off of their properties. Farm tenants are people who rent land and work on the land to earn an income. Farm workers are people who work, and also often reside on the farm with their families, and are seen as a vulnerable community. Impacts that may arise for the farming community include impacts on (and the potential loss of) agricultural land and infrastructure, potential nuisance impacts (as a result of dust and noise specifically during construction), safety and security impacts (as a result of an in-migration of people in search of employment opportunities), impacts on the area's sense of place (as a result of a change in land use), visual impacts (as a result of construction equipment and activities and the presence of the PV facility infrastructure), cultural and social changes (also as a result of an in-migration of people in search of employment opportunities and a change in land use), and additional traffic and road safety impacts (as a result of the movement of construction equipment and personnel). The current land use of the affected property on which the PV facility is proposed is currently utilised for limited cattle grazing.
- » **Farming industry:** The primary agricultural activity in the study area is livestock farming. Impacts that may arise as a result of the project include stock theft and poaching from an increase of people in the area (especially during the construction phase), impacts on current farming practices such as dust impacts which could affect grazing areas (especially during the construction phase), and potential loss of agricultural land as a result of the direct occupation of the land by the proposed facility and its associated infrastructure, which would remove the development footprint from agricultural production. Noise and movement of people may also negatively impact on farming operations.
- » **Mining industry:** The town of Hotazel houses various manganese mines. A number of manganese mining operations occur within close proximity of the project site, including the Wessel Mine, Black Rock Mine, N'chwaning Mine, Kalagadi Manganese Mine and Kudumane Manganese Resources. It is not expected that the development of Hotazel 2 will have a direct impact on the mining industry, however the construction activities associated with the development of the PV facility will place pressure on the traffic network in the area which may impact the use of roads for the travellers including local residents and mining vehicles.
- » **Surrounding towns / affected communities:** The closest town to the project site is Hotazel, located approximately 3km to the north-west. Other towns in proximity of the project site include Kuruman, located approximately 52km to the south-east, and Kathu, located approximately 60km south of the project site. Residents within these towns may be positively and / or negatively impacted by the

proposed development. Employment opportunities will become available as a result of the construction and operation of the proposed development, and it is probable that a portion of the labour force required for the project will be sourced from (and accommodated within) these towns, which will present a positive impact for the local community. In addition, contributions to Social Development of the local communities in terms of the DMRE's requirements under the REIPPP Programme will result in local upliftment and positive impacts.

- » **Service providers:** Major service providers that will be affected by the project include the Joe Morolong LM, John Taolo Gaetsewe DM, and local businesses in the area. The Joe Morolong LM, and to a lesser extent the John Taolo Gaetsewe DM are likely to be impacted by the proposed development. The Joe Morolong LM is a Category B municipality, meaning that it shares municipal executive and legislative authority in its area with the Category C municipality within whose area it falls (i.e. the John Taolo Gaetsewe DM). The Joe Morolong LM will absorb a number of positive and negative social impacts in the form of employment creation, increased local expenditure, and increased revenue etc., as well as potential negative impacts in the form of an in-migration of people and increased pressure being placed on local services. Local businesses within the area could benefit from the proposed project in terms of an increase in demand for goods and services associated with the project.
- » **Stakeholders outside the direct area of influence:** There are a number of stakeholders that reside outside the direct area of influence but who may also be impacted by the project. These include road users that utilise the R380 regional road, and local gravel access roads on a frequent basis as part of their daily or weekly movement patterns. Construction vehicles and trucks will utilise these roads during construction, which will result in increased traffic, which may create traffic disruptions, and which may increase the wear and tear on these roads.

2.2.2 Collection and Review of Existing Information

Existing desktop information which has relevance to the proposed project, project site, and surrounds was collected and reviewed. The following sources of information were examined as part of this process:

- » Project maps and layouts.
- » Google Earth imagery.
- » A description of the project (as provided by the project proponent).
- » Information regarding employment, social upliftment, and local economic development opportunities (as provided by the project applicant).
- » Census data (2011), and the Local Government Handbook (2018).
- » Planning documentation such as Provincial Growth and Development Strategies (PGDSs), LM and DM Integrated Development Plans (IDPs), Spatial Development Frameworks (SDFs), and development goals and objectives.
- » Relevant legislation, guidelines, policies, plans, and frameworks.
- » Available literature pertaining to social issues associated with the development and operation of solar PV power plants and associated infrastructure.
- » Previous studies undertaken within the affected property of the facility, as well as the consideration of the outcomes and comments raised during the public participation process undertaken as part of the previous studies.

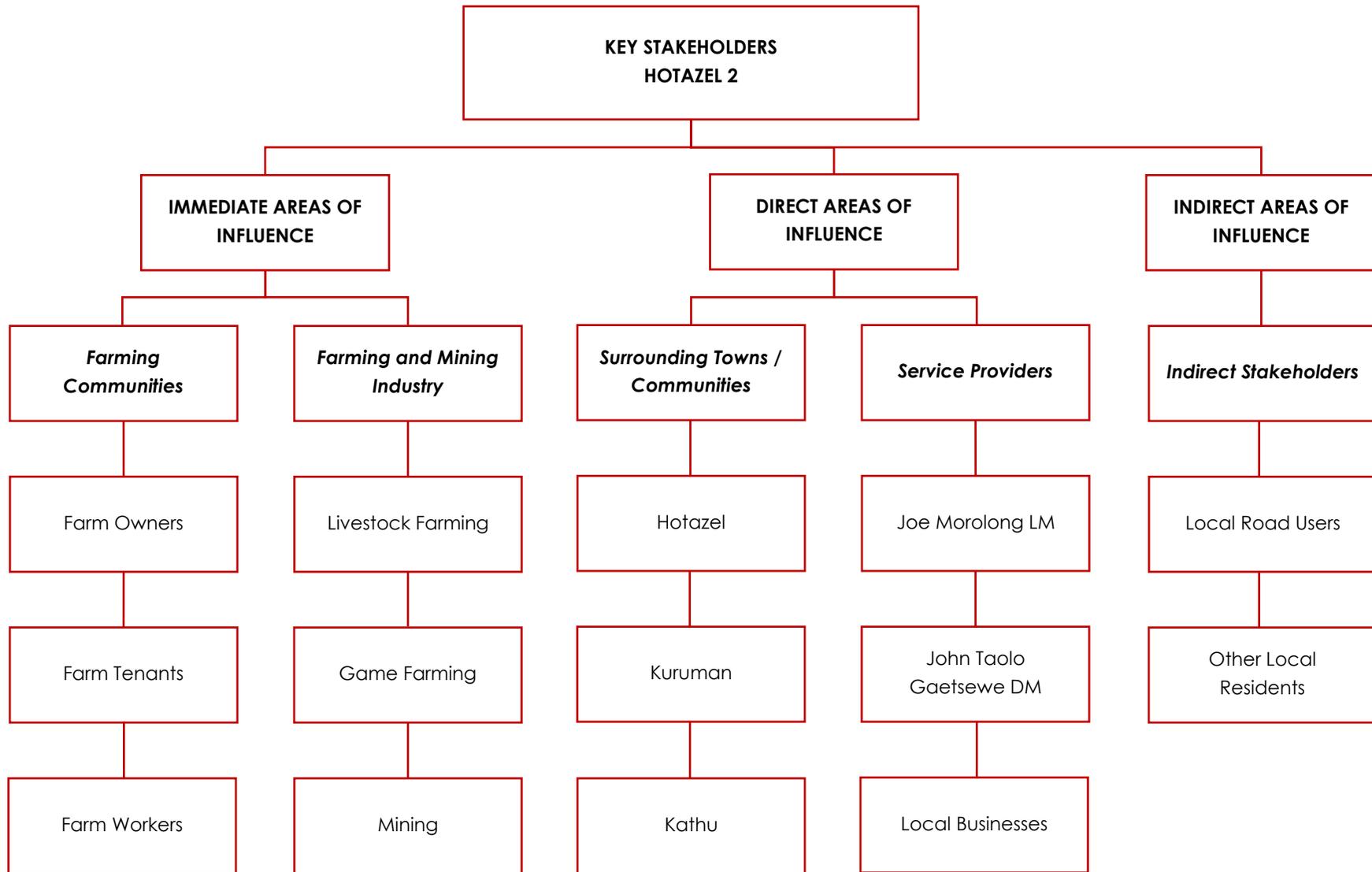


Figure 0.1: Key Stakeholders.

2.2.3 Collection of Primary Data

One-on-one meetings were conducted with affected landowners and key stakeholders identified within the area. Details of individuals interviews are provided in **Table 2.1**.

Table 0.1: Overview of individuals interviewed.

Representative and Interest	Details of Interview	Main Points Raised
Kudumane Manganese Resources Adjacent Landowner Portions 11 of Farm 279	Contact via telephone on 11 February 2021, 12 February 2021 and 15 February 2021 (no answer) Attempted to make contact via email on 15 February 2021 to arrange an interview – no feedback received as yet	Not applicable - stakeholder not available for interview do date
United Manganese Adjacent Landowner Portion 1 of Farm 279 and Farm 280	Contact via telephone on 11 February 2021 and 12 February 2021 (no answer). Attempted to make contact via email on 12 February 2021 to arrange an interview - no feedback received as yet	Not applicable - stakeholder not available for interview do date

During the EIA process of Hotazel Solar Mr Conri Moolman of Kudumane Manganese Resources (Pty) Ltd raised specific concerns as an adjacent landowner which included:

- » A conflict in future land use that will be affected by the project which includes a conservation off-set area,
- » Impact on neighbouring landowners, land users and/or activities or properties as the project will limit/hamper the expansion of the Hotazel town to the south,
- » Safety and security concerns in terms of veld fires due to high voltage power lines and power line servitudes creating a throughfare for unauthorised personnel,
- » Visual impact on the Lodge associated with the conservation area, including possible solar reflection.

It is however understood that these issues were resolved as part of the previous EIA process between the mine and the developer and therefore these issues are not considered further within this report.

Should any comments or concerns be raised from a social perspective regarding the project during the public participation process of the project, these will be included and addressed as part of the final SIA to be submitted to DEFF for decision-making.

2.3 Impact Assessment Evaluation Method

The main objective of this SIA is to determine the social risks and opportunities, and positive and negative impacts which may be associated with the project. The methodology below allows for the evaluation of the overall effect of a proposed activity on the social environment. This includes an assessment of the significant direct, indirect, and cumulative impacts associated with the project. Social impacts were assessed in terms of their perceived extent (scale), duration, magnitude (severity), probability (certainty), and status (negative, neutral or positive).

- » The **nature**, which includes a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 was assigned as appropriate (with 1 being low and 5 being high).
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
 - * The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
 - * Medium-term (5 – 15 years) – assigned a score of 3.
 - * Long term (> 15 years) – assigned a score of 4.
 - * Permanent – assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability** of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above and can be assessed as low, medium or high.
- » The **status**, which will be described as either positive, negative or neutral.
- » The degree to which the impact can be reversed.
- » The degree to which the impact may cause irreplaceable loss of resources.
- » The degree to which the impact can be mitigated.

The **significance** was then calculated by combining the criteria in the following formula:

$$S = (E+D+M) \times P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- » 30 – 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- » > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

2.4 Limitations and Assumptions

The following assumptions and limitations are applicable to this SIA Report:

- » Data derived from the 2011 Census, Northern Cape Provincial Spatial Development Framework (PSDF) 2012, Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review - Executive Summary, John Taolo Gaetsewe District Municipality Integrated Development Plan (IDP) 2019-2020 and the Joe Morolong Local Municipality Integrated Development Plan (IDP) 2017/2018 was used to generate the majority of information provided in the baseline profile of the study area and the surroundings. The possibility exists that some of the data utilised may be out of date, and may not provide an accurate reflection of the current status quo.
- » This SIA Report was prepared based on information which was available to the specialist at the time of preparing the report. The sources consulted are not exhaustive, and the possibility exists that additional information which might strengthen arguments, contradict information in this report, and / or identify additional information might exist. Additional information available from the public participation undertaken during the EIA Phase will be included within the final report, where relevant.
- » Some of the project projections reflected in this SIA Report (i.e. with regards to job creation and local content) are based on information currently available and may be subject to change, and therefore may be higher or lower than those estimated by the project proponent.
- » It is assumed that the motivation for, and planning and feasibility study of the project were undertaken with integrity, and that information provided by the project proponent was accurate and true at the time of preparing this SIA Report.

3 LEGISLATION AND POLICY REVIEW

The legislative and policy context applicable to a project plays an important role in identifying and assessing the potential social impacts associated with the development and also informs the need and desirability of the project within the proposed location. In this regard a key component of the SIA process is to assess a proposed development in terms of its suitability with regards to key planning and policy documents.

The following key legislation and policies were reviewed as part of this legislation and policy review process:

National Policy and Planning Context:

- » Constitution of the Republic of South Africa, 1996
- » National Environmental Management Act (No. 107 of 1998) (NEMA)
- » White Paper on the Energy Policy of the Republic of South Africa (1998)
- » White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)
- » National Energy Act (No. 34 of 2008)
- » Integrated Energy Plan (IEP) (2015)
- » Integrated Resource Plan (IRP) for Electricity (2010-2030) (2011) (and subsequent updates thereto)
- » National Development Plan (NDP) 2030 (2012)
- » Strategic Infrastructure Projects (SIPs)

Provincial Policy and Planning Context:

- » Northern Cape Provincial Spatial Development Framework (PSDF) 2012
- » Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review - Executive Summary

Local Policy and Planning Context:

- » John Taolo Gaetsewe District Municipality Integrated Development Plan (IDP), 2019-2020
- » Joe Morolong Local Municipality Integrated Development Plan (IDP), 2017-2018

3.1 National Policy and Planning Context

Any project which contributes positively towards the objectives mentioned within national policies could be considered strategically important for the country. A review of the national policy environment suggests that the increased utilisation of Renewable Energy (RE) sources is considered integral to reducing South Africa's carbon footprint, diversifying the national economy, and contributing towards social upliftment and economic development. As the project comprises a RE project and would contribute RE supply to national targets set out and supported within these national policies, it is considered that the project fits within the national policy framework.

A brief review of the most relevant national policies is provided below in table format (**Table 3.1**).

Table 3.1: Relevant national legislation and policies for Hotazel 2

Relevant legislation or policy	Relevance to the proposed project
<p>Constitution of the Republic of South Africa, 1996</p>	<p>Section 24 of the Constitution pertains specifically to the environment. It states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p> <p>The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for previously disadvantaged individuals who are most at risk to environmental impacts.</p>
<p>National Environmental Management Act (No. 107 of 1998) (NEMA)</p>	<p>This piece of legislation is South Africa's key piece of environmental legislation, and sets the framework for environmental management in South Africa. NEMA is founded on the principle that everyone has the right to an environment that is not harmful to their health or well-being as contained within the Bill of Rights.</p> <p>The national environmental management principles state that the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.</p> <p>The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA.</p>
<p>White Paper on the Energy Policy of the Republic of South Africa (1998)</p>	<p>The White Paper on Energy Policy places emphasis on the expansion of energy supply options to enhance South Africa's energy security. This can be achieved through increased use of RE and encouraging new entries into the generation market.</p> <p>The policy states that the advantages of RE include, minimal environmental impacts during operation in comparison with traditional supply technologies, generally lower running costs, and high labour intensities. Disadvantages include, higher capital costs in some cases, lower energy densities, and lower levels of availability, depending on specific conditions, especially with sun and wind based systems. Nonetheless, renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future.</p>
<p>White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)</p>	<p>The White Paper on Renewable Energy Policy supplements Government's predominant policy on energy as set out in the White Paper on the Energy Policy of the Republic of South Africa (DME, 1998). The policy recognises the potential of RE, and aims to create the necessary conditions for the development and commercial implementation of RE technologies.</p> <p>The White Paper on RE sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing RE in South Africa. The country relies heavily on coal to meet its energy needs due to its abundant, and fairly accessible and affordable coal resources. However, massive RE resources that can be sustainable alternatives to fossil fuels, have so far remained largely untapped.</p> <p>The White Paper on Renewable Energy of 2003 set a target of 10 000GWh to be generated from RE by 2013 to be produced mainly from biomass, wind, solar and small-scale hydro. The</p>

Relevant legislation or policy	Relevance to the proposed project
	target was subsequently reviewed in 2009 during the RE summit of 2009. The policy supports the investment in RE facilities as they contribute towards ensuring energy security through the diversification of energy supply, reducing GHG emissions and the promotion of RE sources.
National Energy Act (No. 34 of 2008)	<p>The purpose of the National Energy Act (No. 34 of 2008) is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, while taking environmental management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies (REs).</p> <p>The Act provides the legal framework which supports the development of RE facilities for the greater environmental and social good, and provides the backdrop against which South Africa's strategic planning regarding future electricity provision and supply takes place. It also provides the legal framework which supports the development of RE facilities for the greater environmental and social good.</p>
Integrated Energy Plan (IEP), 2015	The Integrated Energy Plan (IEP) (which was developed under the National Energy Act (No. 34 of 2008)), recognises that energy is essential to many human activities, and is critical to the social and economic development of a country. The purpose of the IEP is essentially to ensure the availability of energy resources, and access to energy services in an affordable and sustainable manner, while minimising associated adverse environmental impacts. Energy planning therefore needs to balance the need for continued economic growth with social needs, and the need to protect the natural environment.
Integrated Resource Plan for Electricity (IRP) 2010-2030 (2011)	<p>The Integrated Resource Plan (IRP) for Electricity 2010 – 2030 is a subset of the IEP and constitutes South Africa's National electricity plan. The primary objective of the IRP is to determine the long term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing and cost. The IRP also serves as input to other planning functions, including amongst others, economic development and funding, and environmental and social policy formulation.</p> <p>On 27 August 2018, the then Minister of Energy published a draft IRP which was issued for public comment. The lengthy public participation and consultation process has culminated in the issue of the IRP 2019 which updates the energy forecast from the current period to the year 2030. Since the promulgated IRP 2010, the following capacity developments have taken place:</p> <ul style="list-style-type: none"> » A total of 6 422MW has been procured thus far under the REIPPPP, with 3 876MW being currently operational and made available to the grid. In addition, IPPs have commissioned 1005MW from two (2) Open Cycle Gas Turbines (OCGT) peaking plants; and » Under the Eskom Build Programme, 1 332MW has been procured from the Ingula Pumped Storage Project, 1 588MW and 800MW from the Medupi and Kusile power stations and 100MW from the Sere Wind Farm. <p>Provision has been made for the following new capacity by 2030:</p> <ul style="list-style-type: none"> » 1 500MW of coal; » 2 500MW of hydro; » 6 000MW of solar PV; » 14 400MW of wind; » 1 860MW of nuclear; » 2 088MW of storage;

Relevant legislation or policy	Relevance to the proposed project
	<ul style="list-style-type: none"> » 3 000MW of gas/diesel; and » 4 000MW from other distributed generation, co-generation, biomass and landfill technologies. <p>Based on the 2019 IRP, 1 474MW has been installed for solar PV facilities, whereas, 814MW has already been procured. In addition, 1 000MW has been allocated for solar PV facilities from 2022 to 2030. This will bring the total installed capacity of solar PV facilities by 2030 to 8 288MW</p>
National Development Plan 2030 (2012)	<p>The National Development Plan (NDP) 2030 is a plan prepared by the National Planning Commission in consultation with the South African public which is aimed at eliminating poverty and reducing inequality by 2030.</p> <p>In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes:</p> <ul style="list-style-type: none"> » Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation. » Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households. » Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change. <p>The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy.</p>
Strategic Infrastructure Projects (SIPs)	<p>The Presidential Infrastructure Coordinating Committee (PICC) are integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have 5 core functions, including to unlock opportunity, transform the economic landscape, create new jobs, strengthen the delivery of basic services and support the integration of African economies.</p> <p>SIP 8 of the energy SIPs supports the development of RE projects as follows:</p> <ul style="list-style-type: none"> » Green energy in support of the South African economy: Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP) and supports bio-fuel production facilities. <p>The development of Hotazel 2 is aligned with SIP 8 as it constitutes a green energy initiative which would contribute clean energy in accordance with the IRP 2010 – 2030. It must be noted that the project would only be registered as a SIP should the project proceed to construction.</p>

3.2 Provincial Policies

This section provides a brief review of the most relevant provincial policies. Hotazel 2 is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant provincial policies is provided in table format (**Table 3.2**) below.

Table 3.2: Relevant provincial policies for Hotazel 2

Relevant policy	Relevance to the proposed project
Northern Cape Provincial Spatial Development Framework (PSDF) 2012	<p>The Northern Cape Provincial Spatial Development Framework (PSDF) 2012 states that the overarching goal for the province is to enable sustainability through sustainable development. The province considers social and economic development as imperative in order to address the most significant challenge facing the Northern Cape, which is poverty.</p> <p>The PSDF identifies key sectoral strategies and plans which are considered to be the key components of the PSDF. Sectoral Strategy 19 refers to a provincial renewable energy strategy. Within the PSDF a policy has been included which states that renewable energy sources (including the utilisation of solar energy) are to comprise 25% of the province's energy generation capacity by 2020.</p> <p>The overall energy objective for the province also includes promoting the development of renewable energy supply schemes which are considered to be strategically important for increasing the diversity of domestic energy supply and avoiding energy imports, while also minimising the detrimental environmental impacts. The implementation of sustainable renewable energy is also to be promoted within the province through appropriate financial and fiscal instruments.</p>
Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review - Executive Summary	<p>The review of the Northern Cape PSDF (2018) refers to infrastructure investment and that a balance must be maintained between investments aimed at meeting the social needs of communities and investment aimed at promoting economic development and job creation.</p> <p>The Spatial Development Strategy identified in the PSDF for basic infrastructure includes achieving the provision of green infrastructure which includes renewable energy.</p> <p>As part of the Vision 2040 of the PSDF key opportunities are identified for the Province. The strengthening of the development triangle that is formed by the linking of Kimberley, Vryburg, Upington and De Aar. The development triangle sustains a diverse economy with strong mining, agricultural and renewable energy sectors. It is stated in the PSDF that a sustainable and viable economic network must be driven within the development triangle to improve the return of public investment in the Province.</p> <p>The location of Hotazel 2 falls outside of the development triangle. However the project will still contribute to the economic network of the province, albeit to a limited extent, specifically in terms of the renewable energy sector.</p>

3.3 District and Local Municipalities Policies

The strategic policies at district and local level have similar objectives for the respective areas, namely to accelerate economic growth, create jobs, and uplift communities. Hotazel 2 is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant district and local municipal policies is provided in table format (**Table 3.3**) below.

Table 3.3: Relevant district and local municipal policies for Hotazel 2

Relevant policy	Relevance to the proposed project
John Taolo Gaetsewe District	The IDP make reference to the vision of the municipal Spatial Development Framework (SDF) which forms part of the sector plans integration in the IDP. The vision states that the John Taolo

Relevant policy	Relevance to the proposed project
Municipality Integrated Development Plan (IDP), 2019-2020	Gaetsewe District Municipality will become a district in which all its residents engage in viable and sustainable wealth-generating economic activities and that investment and exploitation of renewable energy sources will result in the district becoming self-reliant in the generation of electricity and provide a sizeable injection into the national electricity grid.
Joe Morolong Local Municipality Integrated Development Plan (IDP), 2017-2018	<p>The IDP identifies the following issues as significant challenges for the Joe Morolong Local Municipality:</p> <ul style="list-style-type: none"> » Huge service delivery and backlog challenges » Maintenance of aging infrastructure » Poverty » Unemployment » Low Economic Growth » Rural development <p>Within Ward 4 of the Joe Morolong Local Municipality, which is also the ward within which the project is located, Key Performance Areas have been identified. These Key Performance Areas include i) basic service delivery which in-turn includes the promotion of a safe and clean environment and ii) local economic development (LED) which in-turn includes the promotion of economic development. The development of a solar energy facility will assist the Local Municipality in reaching the objectives of the Key Performance Areas through the development of an electricity supply facility which will promote a clean environment due to the nature of the development. Local economic development will also take place with the construction and operation of a solar energy facility due to the fact that the development will promote skills development which will enable local residents to grow in terms of skill capacity and providing them with more opportunity for employment in the future.</p>

3.4 Conclusion

The review of relevant legislation, policies and documentation pertaining to the energy sector and planning indicate that renewable or green energy (i.e. energy generated by naturally occurring renewable resources), and therefore the establishment of Hotazel 2, is supported at a national, provincial, and local level, and that the proposed project will contribute positively towards a number of targets and policy aims throughout the various levels. The support on the various levels contributes to the need and desirability of the project from a social perspective. Specifically those relating to social and economic development and upliftment, and an increase in RE and electricity supply which has the potential to further improve individuals' standard of living.

4 SOCIO-ECONOMIC PROFILE

This Chapter provides an overview of the social environment of the Province, District Municipality, and Local Municipality within which Hotazel 2 is proposed for development, and provides the social basis against which potential issues have been identified.

Table 0.1: Spatial Context of the Proposed Project Site.

Component	Description / Dimensions
Project Property Farm Name and Number	<ul style="list-style-type: none"> » Remaining Extent (Portion 0) of the farm York A 279; » Portion 11 of Farm York A 279; » Remaining Extent of Portion 3 of the Farm York A 279; and » Remaining Extent (Portion 0) of the Farm Hotazel 280
Closest Town	Hotazel (approximately 3km north-west)
Municipal Ward	Ward 04
Local Municipality	Joe Morolong Local Municipality
District Municipality	John Taolo Gaetsewe District Municipality
Province	Northern Cape Province
Preferred Access	Access to the site will be at a new access point from the R31

4.1 Northern Cape Province

The Northern Cape Province is located in the north-western extent of South Africa, and comprises South Africa's largest Province, occupying an area approximately 372 889km² in extent, equivalent to nearly one third (30.5%) of the country's total land mass. It is also South Africa's most sparsely populated province with a population of 1 145 861, and a population density of 3.1/km². It is bordered by the Western Cape and Eastern Cape Provinces to the south and south-east, by Free State and North West Provinces to the east, by Botswana and Namibia to the north, and by the Atlantic Ocean to the west. The Northern Cape is the only South African province which borders Namibia, and therefore plays an important role in terms of providing linkages between Namibia and the rest of South Africa. The Orange River is a significant feature, and is also the main source of water in the province. The Orange River also constitutes the international border between the Northern Cape and Namibia.

The Northern Cape offers unique tourism opportunities including wildlife conservation destinations, natural features, historic sites, festivals, cultural sites, star gazing, adventure tourism, agricultural tourism, ecotourism, game farms, and hunting areas, etc. The province is home to the Richtersveld Botanical and Landscape World Heritage Site, which comprises a United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site under the World Heritage Convention. The Northern Cape is also home to 2 Transfrontier National Parks, namely the Kgalagadi Transfrontier Park, and the Richtersveld /Ai-Ais Transfrontier Park, as well as 5 national parks, and 6 provincial reserves.

The Northern Cape also plays a significant role in South Africa's science and technology sector, as it is home to the Square Kilometre Array (SKA), the Southern African Large Telescope (SALT), and the Karoo Array Telescope (MeerKAT).

The Northern Cape makes the smallest contribution to South Africa's economy (having contributed only 2% to South Africa's Gross Domestic Product per region (GDP-R) in 2007). The mining sector is the largest

contributor to the provincial GDP, contributing 26% thereto. The Northern Cape's mining industry is of national and international importance, as it produces approximately 37% of South Africa's diamond output, 44% of its zinc, 70% of its silver, 84% of its iron-ore, 93% of its lead and 99% of its manganese.

In 2007, the agricultural sector contributed 5.8% to the Northern Cape GDP-R which was equivalent to approximately R1.3 billion. The agricultural sector also employs approximately 19.5% of the total formally employed individuals within the province (LED Strategy). The sector is experiencing significant growth in value-added activities, including game-farming, while food production and processing for the local and export market is also growing significantly (PGDS, July 2011). Approximately 96% of the land is used for stock farming, including cattle and sheep or goats, as well as game farming, while approximately 2% of the Province is used for crop farming, mainly under irrigation in the Orange River Valley and Vaalharts Irrigation Scheme (LED Strategy).

Further to the land uses indicated above, the Northern Cape Province currently houses 20 fully operational solar PV facilities scattered throughout the provincial area, with more development concentrated in certain areas.

The Northern Cape comprises five Districts, namely Frances Baard, John Taolo Gaetsewe, Namakwa, Pixley ka Seme, and ZF Mgcawu (refer to **Figure 4.1**).

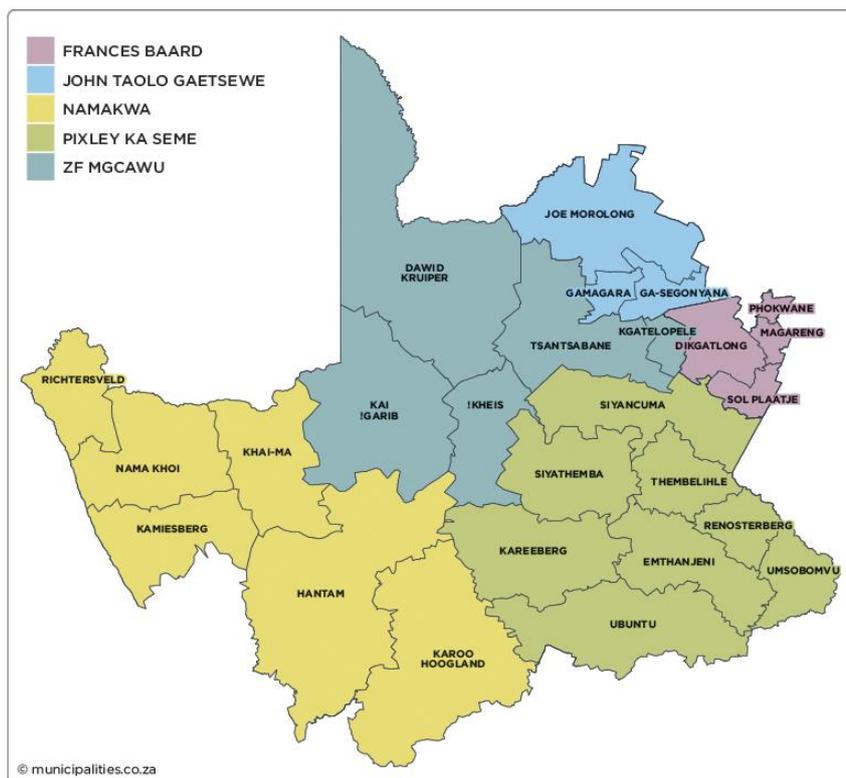


Figure 0.1: Map showing the DMs of the Northern Cape Province (Source: www.municipalities.co.za).

4.2 John Taolo Gaetsewe DM

The John Taolo Gaetsewe DM is bordered by the ZF Mgcawu and Frances Baard DMs to the west and south and the North West Province to the east and north-east and Botswana to the north-west. The John Taolo Gaetsewe DM is the second smallest district in the Northern Cape, occupying only 7% of the Province. The John Taolo Gaetsewe DM comprises only three local municipalities which include the Gamagara Local Municipality, the Ga-Segonyana Local Municipality and the Joe Morolong Local Municipality (refer to **Figure 4.2** Error! Reference source not found.). The Joe Morolong Local Municipality is the largest local municipality in terms of size, with the Ga-Segonyana Local Municipality and Gamagara Local Municipality covering 16% and 10% respectively.

The John Taolo Gaetsewe DM comprises of 186 towns and settlements of which the majority (80%) are villages located in the Joe Morolong Municipality. The population of the DM accounts for 20.3% of the total population in the Northern Cape Province, which is the third largest population size after the Frances Baard and ZF Mgcawu Districts.

The John Taolo Gaetsewe DM is characterised by a mixture of land uses of which agriculture and mining are dominant. Minerals mined include manganese ore, iron ore and tiger's eye. The Sishen iron-ore mine is one of the longest iron-ore carriers in the world. The rural land in the district is used extensively for cattle, sheep, goat and game farming.

The area is also well known for its good commercial hunting in the winter, and holds potential as a tourism destination. The north-eastern region is comprised principally of high-density rural and peri-urban areas while the western and southern areas are sparsely populated and consist mainly of commercial farms and mining activities.

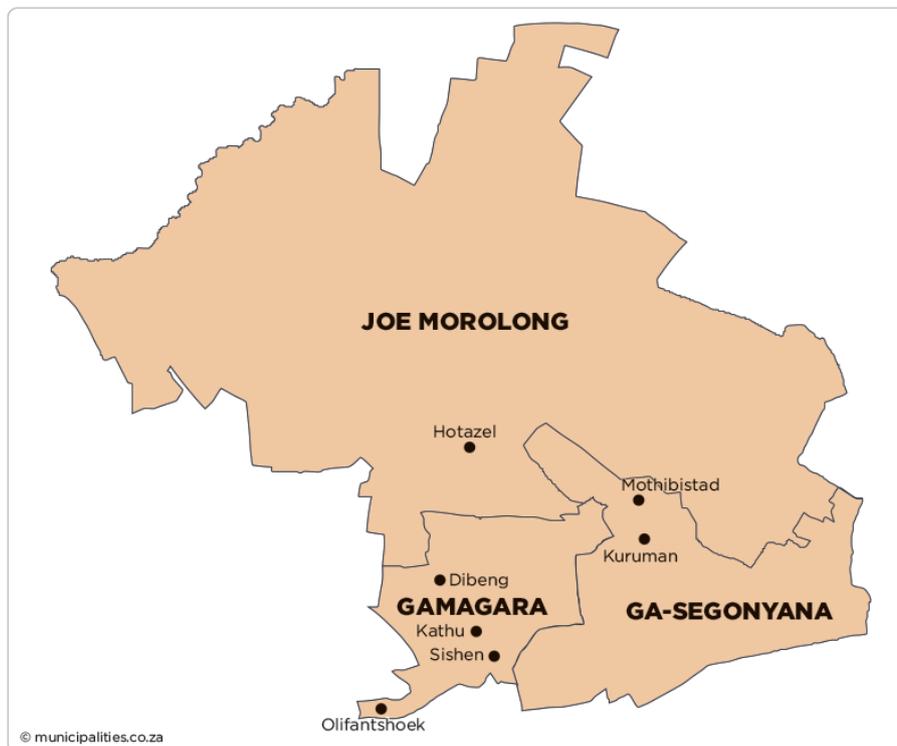


Figure 0.2: Map showing the LMs of the John Taolo Gaetsewe DM (Source: www.municipalities.co.za).

4.3 Joe Morolong LM

The Joe Morolong Local Municipality is the largest municipality in the John Taolo Gaetsewe District in terms of land mass (20 172km², equivalent to 73.94% of the District land mass) and is categorised as a Category B municipality. There has been a major decline of ~25.11% in the population of the LM between 1996 and 2016. This is mainly due to the out-migration of people from the municipality to the Ga-Segonyana and Gamagara Local Municipalities as a result of mining related activities.

The Joe Morolong Local Municipality is bordered by the Gamagara and Ga-Segonyana Local Municipalities to the south; Greater Taung, and Kagisano-Molopo Local Municipalities of North West Province to the south-east, east, and north-east; Botswana to the north, and north-west; and Dawid Kruiper, and Tsantsabane Local Municipalities to the south-west.

The Joe Morolong Local Municipality is predominantly rural in nature, with approximately 60% of the municipality comprising virgin land surface. Although unemployment is high, the municipality has potential for developers, especially those interested in ecotourism and conservation. Predominant towns within the municipality include: Hotazel, Santoy, and Van Zylsrus. The predominant economic sectors within the municipality include agriculture, mining, and community services.

4.4 Project Site

The project site proposed for the development of Hotazel 2 is located within an area consisting of a bush-covered landscape considered to be featureless and flat. The current land use of the project site includes limited cattle grazing. The mining town of Hotazel is the closest town to the project site and houses an open-quarry manganese ore mine and what is considered to be the world's largest sinter plant, producing three million tons of ore per year. It must be noted that the authorised Hotazel Solar project is located adjacent to Hotazel 2 on the same property.

Other towns in proximity of the project site include Kuruman, located approximately 52km south-east, and Kathu located approximately 60km south. Built infrastructure in the form of farm homesteads, workers quarters and storage areas occur in close proximity to the project site, and may be impacted on (i.e. in terms of nuisance and / or visual impacts) as a result of the proposed project.

A number of manganese mining operations occur within close proximity of the project site, including the Wessel Mine, Black Rock Mine, N'chwaning Mine, Kalagadi Manganese Mine and Kudumane Manganese Resources. As a result of the mining activities numerous waste rock dumps associated with these Manganese mines are located within the vicinity of the project site. The presence of these waste rock dumps has influenced the local landscape character and degraded the natural features present. The greater area within which the project is proposed has already been transformed as a result of mining, associated infrastructure, and waste rock dumps.

The vertical and horizontal landscapes are also disturbed within the area due to the presence of linear infrastructure within the surrounding area, including:

» Power lines:

- * Hotazel SAR Traction / Hotazel 1 132kV power line traverses the area west of the project site in a north-to-south direction from the SAR Hotazel 132kV Traction Substation located adjacent to the south-western extent of the project site, coming to an end at the Hotazel 132 / 66 / 11kV Substation located north-west of the project site in Hotazel.
 - * Hotazel / Middelplaats 1 66kV power line traverses the area west of the project site in a north-to-south direction coming to an end at the Hotazel 132 / 66 / 11kV Substation located north-west of the project site in Hotazel.
 - * Hotazel / Riries 1 66kV power line traverses the south-western corner of the project site, and traverses the area west of the project site in a north-to-south direction, coming to an end at the Hotazel 132 / 66 / 11kV Substation located north-west of the project site in Hotazel.
 - * Hotazel / Eldoret 132kV power line located along the southern boundary of the project site. The power line originates from the Eldoret substation, follows the R31 regional road, and runs adjacent to the existing power lines to the Hotazel substation.
- » Regional roads:
- * R31 Regional Road traverses the south-eastern boundary of the project site, and provides primary access to the project site.
 - * R380 Regional Road joins the R31 in the south-western extent of the project site.
- » Railway line:
- * A railway line occurs along the south-western boundary of the project site, and also traverses the area just west of the project site in a north-to-south direction.

There are a number of solar facilities proposed in the broader area, with the Adams Solar PV facility being the closest operational facility (located ~18km south-east of Hotazel).

4.5 Adjacent Properties

The majority of the surrounding area has a low number of farmsteads / buildings that are sparsely populated together with a number of mining operations. The area is located within a livestock farming agricultural region and mining region, and the immediate area is presently used mainly for livestock farming as well as proposed renewable energy facilities.

Portion 11 of the Farm York A No. 279 located west of the project site, and affected by the grid connection, and the Remainder of the Farm Devon No. 277 located adjacent and south of the project site are both owned by Kudumane Manganese Resources (Pty) Ltd, and form part of the Kudumane Manganese Mine.

Kudumane Manganese Resources has established a biodiversity offset area within their approved mining rights area. As part of its biodiversity offset area Kudumane Manganese Resources have established a 780ha game enclosure / game farm area on the eastern extent of Portion 11 of the Farm York A No. 279, which includes a lodge located in the centre of the game farm area. Local women who were previously employed by Kudumane Manganese Resources are given the opportunity to start their own businesses by providing hospitality and catering services at the lodge as part of the company's enterprise development.

It was established by Mr. Conri Moolman as part of the EIA process undertaken for Hotazel 2, the CEO of Kudumane Manganese Resources that the Lodge consists of 7 luxury rooms and is currently used by overseas shareholders when visiting South Africa. However requests to host events have been received which will secure additional revenue and job creation from a social investment side.

4.6 Baseline Description of the Social Environment

Table 4.2 provides an overview of the socio-economic profile of the Joe Morolong Local Municipality within which Hotazel 2 is proposed. In order to provide context against which the Local Municipality's social profile can be compared, the social profiles of the John Taolo Gaetsewe District, Northern Cape Province, and South Africa as a whole have also been provided where applicable. The data presented in this section have been derived from the 2011 Census, the Local Government Handbook South Africa 2018, the Northern Cape Provincial Spatial Development Framework (PSDF), and the John Taolo Gaetsewe DM and Joe Morolong LM IDPs.²

Table 4.2: Baseline description of the social characteristics of the area within which Hotazel 2 is proposed

Location characteristics
<ul style="list-style-type: none"> » The project is proposed within the Northern Cape Province, which is South Africa's largest, but least populated Province. » The project is proposed within the Joe Morolong LM of the John Taolo Gaetsewe DM. » The Joe Morolong LM covers an area of land 20 172km² in extent and comprises 1 semi-urban area, villages, and commercial farms. The LM is largely characterised by rural establishments that are mostly connected through gravel and dirt roads. » There are Tribal authorities with 8 Paramount Chiefs present within the Joe Morolong LM's area of jurisdiction. » The Joe Morolong LM is regarded as the poorest area in the John Taolo Gaetsewe DM.
Population characteristics
<ul style="list-style-type: none"> » The Joe Morolong LM municipal population is 84 201 (2016), and comprises 146 villages, 2 small towns, and surrounding private commercial farms and government owned farms (belonging to the Department of Rural Development and the Department of Public Works). » There has been a major decline of ~25.11% in the population of the LM between 1996 and 2016 mainly due to the out-migration of people from the municipality to the Ga-Segonyana and Gamagara Local Municipalities. This migration is due to mining related activities. » The Joe Morolong LM is female dominated, with females comprising approximately 54.6% of the LM population. » Black Africans comprise the predominant population group within the Joe Morolong LM, John Taolo Gaetsewe DM, and Northern Cape Province. » The Joe Morolong LM, John Taolo Gaetsewe DM, and Northern Cape Provincial population age structures are youth dominated. A considerable proportion of the respective populations therefore comprise individuals of the economically active population between the ages of 15 – 64.
Economic, education and household characteristics
<ul style="list-style-type: none"> » The following mining houses are located within the Joe Morolong LM: UMK, South 32, Assmang Blackrock Mine, Tshipi-e-Ntfe, Kalagadi, Kudumane Mining Resources, Baga Phadima Sand Mining, Sebilo Mine and Aqcuila mine (Sebilo and Aqcuila not yet in operation). » The Joe Morolong LM has a dependency ratio per 100 of 82.4, which is considerably higher than the John Taolo Gaetsewe DM (57.9), and Northern Cape Province (35.8). » Education levels within the Joe Morolong LM are very low with ~15.3% of the population having received matric and only 3.9% having received a higher education. This means that the majority of the population can be

² While information was derived from the Local Government Handbook South Africa 2018, Northern Cape PSDF, and John Taolo Gaetsewe DM and Joe Morolong LM IDPs, this sources largely made use of statistical information derived from the Census 2011. The information presented in this Chapter may therefore be somewhat outdated, but is considered sufficient for the purposes of this assessment (i.e. to provide an overview of the socio-economic characteristics against which impacts can be identified and their significance assessed).

expected to have a relatively low-skill level and would either require employment in low-skill sectors, or skills development opportunities in order to improve the skills level of the area.

- » The unemployment rate of the Joe Morolong LM is 38.7% , with the John Taolo Gaetsewe DM unemployment rate at 30.1%. Joe Morolong LM has the highest unemployment rate in the district.
- » Household income levels are low within the area, with almost two thirds falling within the poverty level. The area can therefore be expected to have a high poverty level with associated social consequences such as not being able to pay for basic needs and services and poor living conditions.
- » The primary economic activities within the Joe Morolong LM comprise mining, and agriculture; while the highest employers comprise Community Services, Agriculture, and Mining, and Quarrying.
- » There are 23919 households in the Joe Morolong LM, of which 80.1% comprise of formal dwellings.

Services

- » The Joe Morolong LM and John Taolo Gaetsewe DM are poorly serviced in terms of public sector health facilities. There are no hospitals within the Joe Morolong LM; and only 3 public sector dentists within the John Taolo Gaetsewe DM, and no public sector optometrists.
- » The Joe Morolong LM has 168 schools, 4 police stations, 24 clinics, and 3 community health centres.
- » Only 5.4% of households have access to a flush toilet connected to sewage within the Joe Morolong LM.
- » Only 4% of households have access to weekly refuse removal within the LM.
- » Only 4.8% of households have access to piped water within the LM.
- » Households that have access to electricity for lighting is 84.2%.

5 KEY CONSIDERATIONS FOR SOLAR PV POWER PLANTS

While no industry sector Environmental, Health and Safety (EHS) Guidelines have been developed for PV solar power, the International Finance Corporation (IFC) has published a Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants (IFC, 2015). Section 8 of the Project Developer's Guide pertains to Permits, Licensing and Environmental Considerations, and states that in order to deliver a project which will be acceptable to international lending institutions, environmental and social assessments should be carried out in accordance with the requirements of the key international standards and principles, namely the Equator Principles and IFC's Performance Standards (IFC PS).

Some of the key environmental considerations for solar PV power plants contained within the Project Developer's Guide are provided below:

5.1 Construction Phase Impacts

Construction activities lead to temporary air emissions (dust and vehicle emissions), noise related to excavation, construction and vehicle transit, solid waste generation and wastewater generation from temporary building sites and worker accommodation. In addition, Occupational Health and Safety (OHS) is an issue that needs to be properly managed during construction in order to minimise the risk of preventable accidents leading to injuries and / or fatalities. Proper OHS risk identification and management measures should be incorporated in every project's management plan and standard Engineering, Procurement and Construction (EPC) contractual clauses.

5.2 Water Usage

Although water use requirements are typically low for solar PV plants, clusters of PV plants may have a high cumulative water use requirement in arid areas where local communities rely upon scarce groundwater resources. In such scenarios, water consumption should be estimated and compared to local water abstraction by communities (if any), to ensure no adverse impacts on local people. Operation and Maintenance (O&M) methods in relation to water availability and use should be carefully reviewed where risks of adverse impacts to community usage are identified.

5.3 Land Matters

As solar power is one of the most land-intensive power generation technologies, land acquisition procedures and in particular the avoidance or proper mitigation of involuntary land acquisition / resettlement are critical to the success of the project. This includes land acquired either temporarily or permanently for the project site itself and any associated infrastructure – i.e. access roads, powerlines, construction camps (if any) and switchyards. If involuntary land acquisition is unavoidable, a Resettlement Action Plan (RAP) (dealing with physical displacement and any associated economic displacement) or Livelihood Restoration Plan (LRP) (dealing with economic displacement only) will be required. This is often a crucial issue with respect to local social license to operate, and needs to be handled with due care and attention by suitably qualified persons.

5.4 Landscape and Visual Impacts

Key impacts can include the visibility of the solar panels within the wider landscape and associated impacts on landscape designations, character types and surrounding communities. Common mitigation measures to reduce impacts can include consideration of layout, size and scale during the design process and landscaping / planting in order to screen the modules from surrounding receptors. Note that it is important that the impact of shading on energy yield is considered for any new planting requirements. Solar panels are designed to absorb, not reflect, irradiation. However, glint and glare should be a consideration in the environmental assessment process to account for potential impacts on landscape / visual and aviation aspects.

5.5 Ecology and Natural Resources

Potential impacts on ecology can include habitat loss / fragmentation, impacts on designated areas and disturbance or displacement of protected or vulnerable species. Receptors of key consideration are likely to include nationally and internationally important sites for wildlife and protected species such as bats, breeding birds and reptiles. Ecological baseline surveys should be carried out where potentially sensitive habitat, including undisturbed natural habitat, is to be impacted, to determine key receptors of relevance to each site. Mitigation measures can include careful site layout and design to avoid areas of high ecological value or translocation of valued ecological receptors. Habitat enhancement measures could be considered where appropriate to offset adverse impacts on sensitive habitat at a site, though avoidance of such habitats is a far more preferable option.

5.6 Cultural Heritage

Potential impacts on cultural heritage can include impacts on the setting of designated sites or direct impacts on below-ground archaeological deposits as a result of ground disturbance during construction. Where indicated as a potential issue by the initial environmental review / scoping study, field surveys should be carried out prior to construction to determine key heritage and archaeological features at, or in proximity to, the site. Mitigation measures can include careful site layout and design to avoid areas of cultural heritage or archaeological value and implementation of a 'chance find' procedure that addresses and protects cultural heritage finds made during a project's construction and/or operation phases.

5.7 Transport and Access

The impacts of transportation of materials and personnel should be assessed in order to identify the most appropriate transport route to the site while minimising the impacts on project-affected communities. The requirement for any oversized vehicles / abnormal loads should be considered to ensure access is appropriate. On-site access tracks should be permeable and developed to minimise disturbance to agricultural land. Where project construction traffic has to traverse local communities, traffic management plans should be incorporated into the environmental and social management plan and EPC requirements for the project.

5.8 Drainage / Flooding

A review of flood risk should be undertaken to determine if there are any areas of high flood risk associated with the site. Existing and new drainage should also be considered to ensure run-off is controlled to minimise erosion.

5.9 Consultation and Disclosure

It is recommended that early stage consultation is sought with key authorities, statutory bodies, affected communities and other relevant stakeholders. This is valuable in the assessment of project viability, and may guide and increase the efficiency of the development process. Early consultation can also inform the design process to minimise potential environmental impacts and maintain overall sustainability of the project. The authorities, statutory bodies and stakeholders that should be consulted vary from country to country but usually include the following organisation types:

- » Local and / or regional consenting authority.
- » Government energy department / ministry.
- » Environmental agencies / departments.
- » Archaeological agencies / departments.
- » Civil aviation authorities / Ministry of Defence (if located near an airport).
- » Roads authority.
- » Health and safety agencies / departments.
- » Electricity utilities.
- » Military authorities.

Community engagement is an important part of project development and should be an on-going process involving the disclosure of information to project-affected communities. The purpose of community engagement is to build and maintain over time a constructive relationship with communities located in close proximity to the project and to identify and mitigate the key impacts on project-affected communities. The nature and frequency of community engagement should reflect the project's risks to, and adverse impacts on, the affected communities.

5.10 Environmental and Social Management Plan (ESMP)

Whether or not an Environmental and Social Impact Assessment (ESIA) or equivalent has been completed for the site, an ESMP should be compiled to ensure that mitigation measures for relevant impacts of the type identified above (and any others) are identified and incorporated into project construction procedures and contracts. Mitigation measures may include, for example, dust suppression during construction, safety induction, training and monitoring programs for workers, traffic management measures where routes traverse local communities, implementation of proper waste management procedures, introduction of periodic community engagement activities, implementation of chance find procedures for cultural heritage, erosion control measures, fencing off of any vulnerable or threatened flora species, and so forth. The ESMP should indicate which party will be responsible for (a) funding, and (b) implementing each action, and how this will be monitored and reported on at the project level. The plan should be commensurate to the nature and type of impacts identified.

6 SOCIAL IMPACT ASSESSMENT

This section provides a detailed description and assessment of the potential social impacts that were identified for the detailed design and construction, operation, and decommissioning phases of Hotazel 2.

A facility layout has been provided by the applicant for consideration as part of the EIA process and is considered within the SIA. The layout provides an indication of the facility infrastructure proposed within the development footprint (**Figure 1.1**).

Social impacts are expected to occur during both the construction and operation phase of Hotazel 2. The status of the impacts will be either positive or negative and either mitigation or enhancement measures are recommended for the management of the impacts depending on the status of the impacts.

As part of this Social Impact Assessment, the comments and responses reports and Social Impact Assessment of the Hotazel Solar project (DEA Ref.: 14/12/16/3/3/2/1086) located on the same affected property and includes the development of the same proposed technology (i.e. solar PV) were consulted to obtain a better understanding of the potential social impacts expected with the development of the proposed project:

Refer to Section 2.2 on the approach followed in terms of identification of social impacts and the use of existing information previously collected in the area for this SIA report.

The following main issues were raised in the comments and responses reports and Social Impact Assessment Report of Hotazel Solar and have been considered as part of the social impact assessment Hotazel 2:

- » Safety and security concerns, including unauthorized access to the area.
- » Visual and sense of place impacts.
- » Creation of direct and indirect employment and skills development opportunities.
- » Economic multiplier effects.
- » In-migration of people (non-local workforce and jobseekers).
- » Impacts on daily living and movement patterns.
- » Nuisance impacts (including noise and dust).
- » Development of non-polluting, renewable energy infrastructure.
- » Contribution to Local Economic Development and Social Upliftment.
- » Impacts associated with the loss of agricultural land.

The impacts identified above as part of the previous Environmental Impact Assessment process for Hotazel Solar and the Scoping Phase of the Hotazel 2 project have been considered as part of the social construction and operation phase impacts for the development of Hotazel 2.

6.1 Detailed Design and Construction Phase

The detailed design and construction phase is expected to take approximately 12 to 18 months to complete. It is anticipated that the following activities would be included and would form part of the detailed design and construction phase:

- » **Pre-planning:** Several post-authorisation factors are expected to influence the final design of the facility and could result in small-scale modifications of the positioning of the PV array and / or associated infrastructure. The construction process is dynamic and unforeseen changes to the project specifications may occur. The final facility design is required to be approved by DEFF prior to any construction activities commencing on-site.
- » **Conduct surveys:** Prior to initiating construction, a number of surveys will be required. These include, but are not limited to confirmation of the micro-siting footprint (i.e. confirming the precise location of the PV panels, substation, power line pylons, and the plant's associated infrastructure), and a geotechnical survey, as well as any other surveys that may be required.
- » **Procurement and employment:** At the peak of construction the project is likely to create a maximum of 300 to 400 employment opportunities. These employment opportunities will be temporary, and will last for a period of approximately 12 to 18 months (i.e. the length of construction). Employment opportunities generated during the construction phase will include low skilled, semi-skilled, and skilled opportunities. Solar PV projects make use of large numbers of unskilled and semi-skilled labour so there will be good opportunity to use local labour. The injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area. The majority of the labour force is expected to be sourced from the surrounding towns. No labourers will be accommodated on-site during the construction period.
- » **Establishment of an access road to the site:** Access to the project site will be established for the construction of the facility. Access to the project site is possible through the use of existing unsurfaced farm roads, which can be accessed from the R31 regional road. The most appropriate access route will be utilised. Within the facility development footprint itself, access will be required from new / existing roads for construction purposes (and limited access for maintenance during operation). The final layout will be determined following the identification of site related sensitivities.
- » **Undertake site preparation:** Site preparation activities will include clearance of vegetation. These activities will require the stripping of topsoil for buildings, roads, inverter stations and selected areas where site levelling is needed, which will need to be stockpiled, backfilled and / or spread on site.
- » **Transport of components and equipment to site:** The national, regional, secondary and proposed internal access roads will be used to transport all components and equipment required during the construction phase of the solar facility. Some of the components (i.e. substation transformer) may be defined as abnormal loads in terms of the National Road Traffic Act (No. 93 of 1996) (NRTO) by virtue of the dimensional limitations. Typical civil engineering construction equipment will need to be brought to the site (e.g. excavators, trucks, graders, compaction equipment, cement trucks, etc.) as well as components required for the mounting of the PV support structures, construction of the substation and site preparation.
- » **Establishment of laydown areas on site:** Laydown and storage areas will be required for typical construction equipment. Once the required equipment has been transported to site, a dedicated equipment construction camp and laydown area will need to be established adjacent to the workshop area. The equipment construction camp serves to confine activities and storage of equipment to one designated area to limit potential impacts associated with this phase of development. The laydown area will be used for the assembly of the PV panels and the general placement / storage of construction equipment.
- » **Erect PV arrays and construct substation and invertors:** The construction phase involves installation of the PV solar panels and structural and electrical infrastructure required for the operation of the facility. In addition, preparation of the soil and improvement of the access roads is likely to continue for most of the construction phase. For array installations, vertical support posts are driven into the ground. The posts will hold the support structures (tables) on which the PV modules would be mounted. Trenches are

dug for the underground AC and DC cabling and the foundations of the inverter enclosures and transformers are prepared if necessary.

- » **Establishment of ancillary infrastructure:** Ancillary infrastructure will include workshop, storage and laydown areas, gatehouse and security complex, as well as a temporary contractor's equipment camp. The establishment of the ancillary infrastructure and support buildings will require the clearing of vegetation and levelling of the development site, and the excavation of foundations prior to construction. Laydown areas for building materials and equipment associated with these buildings will also be required.
- » **Construction of the power line:** A power line is constructed by surveying the power line route, constructing foundations for the towers, installing the towers, stringing the conductors, and finally rehabilitating disturbed areas and protecting erosion sensitive areas.
- » **Undertake site rehabilitation:** Once construction is completed and all construction equipment has been removed, the site will be rehabilitated where practical and reasonable. In addition, on full commissioning of the solar facility, any access points which are not required during operation must be closed and rehabilitated accordingly.

The majority of social impacts associated with the project are anticipated to occur during the construction phase of development, and are typical of the type of social impacts generally associated with construction activities. Impacts associated with the detailed design and construction phase of a project are usually of a short duration and temporary in nature, but could have long-term effects on the surrounding social environment if not planned or managed appropriately. It is therefore necessary that the detailed design phase be conducted in such a manner so as not to result in permanent impacts associated with the ill-placement of project components or associated infrastructure.

6.1.1 Construction Phase Impacts Associated with Hotazel 2

i. Direct and indirect employment opportunities and skills development

It is anticipated that at its peak the construction of the proposed project will result in the creation of approximately 300 to 400 employment opportunities. Of those employment opportunities likely to be generated, the majority will accrue to low skilled workers, followed by semi-skilled workers, and lastly by skilled workers. Employment opportunities generated as a result of the project will be temporary in nature, and will last for the duration of the construction period (i.e. approximately 12 to 18 months), while the skills developed through experience in the construction of the project will be retained by the community members involved. The project proponent anticipates that the majority of the general labour force will as far as possible be sourced from the local labour pool. Where relevant skills are unavailable from the local labour pool, these would need to be sought elsewhere. Solar PV projects make use of large numbers of unskilled and semi-skilled labour so there will be good opportunity to use local labour. The injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area.

In addition to direct employment opportunities associated with the construction of the project, a number of indirect employment opportunities will also be created. Indirect employment opportunities will predominantly be created in the service industry, through the opportunity for the provision of secondary services to the construction team. Services may include for example accommodation, catering, and laundry services. Indirect employment opportunities created as a result of the construction of the project would also be temporary in nature and would last for the duration of the construction period (i.e. approximately 12 to 18 months).

While difficult to quantify, indirect employment opportunities are significant in that they provide greater opportunity for women to be included and benefitted, albeit it indirectly. Other indirect employment opportunities that will be created during construction relate to increased demand for transportation, equipment rental, sanitation and waste removal etc. which may benefit local service providers.

The creation of employment opportunities is considered to be of moderate magnitude given the levels of unemployment within the area, the low average income, and the fact that the majority of employment within the surrounding area is of a seasonal nature as it is associated with the agricultural sector.

Table 0.1: Impact assessment on direct and indirect employment opportunities

Nature: The creation of direct and indirect employment opportunities during the construction phase of the project.		
	Without enhancement	With enhancement
Extent	Local-Regional (3)	Local-Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Minor (2)	Moderate (6)
Probability	Highly probable(4)	Definite (5)
Significance	Low (28)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Enhancement:		
<ul style="list-style-type: none"> » A local employment policy should be adopted to maximise opportunities made available to the local labour force. » Labour should be sourced from the local labour pool, and only if the necessary skills are unavailable should labour be sourced from (in order of preference) the greater Joe Morolong LM, John Taolo Gaetsewe DM, Northern Cape Province, South Africa, or elsewhere. » Where feasible, training and skills development programmes should be initiated prior to the commencement of the construction phase. Proof of upskilling and experience must be provided to the individuals for future projects coming into the area. » Suppliers should also be sourced locally as far as possible. » Use local contractors that are compliant with Broad-Based Black Economic Empowerment (B-BBEE) criteria as far as possible. » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. 		
Residual impacts:		
<ul style="list-style-type: none"> » Improved pool of skills and experience in the local area. » Economic growth for small-scale entrepreneurs. » Temporary employment during the construction phase will result in job losses and struggles for construction workers to find new employment opportunities following the completion of construction. 		

ii. Economic multiplier effects

There are likely to be opportunities for local businesses and service providers to provide services and materials for the construction phase of the proposed project. The economic multiplier effects from the use of local goods and services will include, but is not limited to, the provision of construction materials and equipment, and workforce essentials such as catering services, trade clothing, safety equipment, ablution, accommodation, transportation and other goods. In addition, off-site accommodation may be required in nearby towns such as Hotazel for contract workers and certain employees. The increase in demand for goods and services may stimulate local business and local economic development (however locally sourced materials and services may be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses.

In terms of business opportunities for local companies, expenditure during the construction phase will create business opportunities for the regional and local economy. The increase in demand for new materials and services in the nearby area may stimulate local business and local economic development. There is likely to be a direct increase in industry and indirect increase in secondary businesses. The project proponent should source services needed from the local area as much as possible. Potential opportunities for local economies, a decrease in current level of unemployment, and an increase in income will in turn stimulate further expenditure and sales within the local economies.

The injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area. Through the stimulation of employment and income, new demand may be created within local and regional economies. With increased income comes additional income for expenditure on goods and services supplied. Indirect impacts would occur as a result of the new economic development, and would include new jobs at businesses that may support the construction workforce or provide project materials, and associated income. The intention should therefore be to maximise local labour employment opportunities, which is likely to have a positive impact on local communities and downstream benefits with regards to household income, education and other social aspects. Such benefits may however be limited given the short construction period (i.e. approximately 12 to 18 months).

Table 0.2: Economic multiplier effects impact assessment

Nature: Significance of the impact from the economic multiplier effects from the use of local goods and services.		
	Without enhancement	With enhancement
Extent	Local-Regional (3)	Local-Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Low (4)	Moderate (6)
Probability	Highly probable (4)	Definite (5)
Significance	Medium (36)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Enhancement:		
» It is recommended that a local procurement policy is adopted to maximise the benefit to the local economy.		

- » A database of local companies, specifically Historically Disadvantaged Individuals (HDIs) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) should be created and companies listed thereon should be invited to bid for project-related work where applicable.
- » Local procurement is encouraged along with engagement with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible.

Residual impacts:

- » Improved local service sector which will result in a growth in local business.

iii. Influx of jobseekers and change in population

Construction projects have the potential to attract jobseekers which may move into an area in search of employment opportunities. An influx of people looking for employment or other economic opportunities could result in increased pressure being placed on economic and social infrastructure, and a change in the local population. Population change refers to the size, structure, density as well as demographic profile of the local community.

An influx of jobseekers into an area, could lead to a temporary increase in the level of crime, cause social disruption and put pressure on basic services. This includes municipal services such as sanitation, electricity, water, waste management, health facilities, transportation and the availability of housing. It could also potentially create conflict between locals and outsiders due to potential differences in racial, cultural and ethnic composition. A further negative impact that could result due to an influx of jobseekers into an area is an increase in unemployment levels due to an oversupply of available workforce, particularly with respect to semi and unskilled workers.

Given the relatively small labour force required for the project (i.e. approximately 300 to 400 opportunities at the peak of construction), the short duration of the construction period (i.e. approximately 12 to 18 months), and the close proximity of the site to the town of Hotazel (from which the majority of labour is likely to be sourced), the construction of the project is not anticipated to result in changes to the population within the site or its surrounds. In addition, due to the fact that no man camps will be established on site, the potential for an influx of people into the area or change in population demographics is anticipated to be minimal. The labour force is therefore also not anticipated to place significant pressure on local resources and social networks, or existing services and infrastructure, as they would already be accessing services at their places of residence within the surrounding areas of the project.

Table 0.3: Assessment of impacts from an influx of jobseekers and change in population in the study area

Nature: In-migration of labourers in search of employment opportunities, and a resultant change in population, and increase in pressure on local resources and social networks, or existing services and infrastructure.

	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Improbable (2)	Improbable (2)
Significance	Low (18)	Low (14)
Status (positive or negative)	Negative	Negative

Reversibility	Yes
Irreplaceable loss of resources?	No
Can impacts be mitigated?	Yes
Mitigation:	
<ul style="list-style-type: none"> » Develop and implement a local procurement policy which prioritises "locals first" to prevent the movement of people into the area in search of work. » Set up labour desk in a secure and suitable area to discourage the gathering of people at the construction site seeking employment. » Prevent the recruitment of workers at the project site. » Engage with local community representatives prior to construction to facilitate the adoption of the locals first procurement policy. » Provide transportation for workers (from Hotazel and surrounds) to ensure workers can easily access their place of employment and do not need to move closer to the project site. » Working hours should be kept between daylight hours during the construction phase, and / or as any deviation that is approved by the relevant authorities. » Compile and implement a grievance mechanism. » Appoint a Community Liaison Officer (CLO) to assist with the procurement of local labour. » Implement a method of communication whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. » Establish clear rules and regulations for access to the proposed site. » Appoint a security company and implement appropriate security procedures to ensure that workers do not remain onsite after working hours. » Inform local community organisations and policing forums of construction times and the duration of the construction phase. » Establish procedures for the control and removal of loiterers from the construction site. 	
Residual impacts:	
<ul style="list-style-type: none"> » Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure, resources and services. 	

iv. Safety and security impacts

The commencement of construction activities can be associated with an increase in crime within an area. The perceived loss of security during the construction phase of a project due to an influx of workers and / or outsiders to the area (as in-migration of newcomers, construction workers or jobseekers are usually associated with an increase in crime), may have indirect effects such as increased safety and security concerns for neighbouring properties, damage to property, increased risk of veld fire, stock theft, poaching, crime and so forth. Landowners have raised concerns regarding security associated with the development, specifically regarding the construction of the power line and the potential for the power line and its servitude to create a thoroughfare which could possibly be accessed by unauthorised personnel.

Given the fact that a man camp will not be established onsite, and the labour force will therefore not permanently reside within the area, or have any reason to be onsite after hours, it is anticipated that the probability and significance of such safety and security impacts occurring will be reduced.

The project proponent should strive to develop and maintain good relationships and ongoing and open communication with neighbouring landowners. Suitable grievance control mechanisms must be developed and implemented, and the local community informed of the grievance mechanism to be followed. In

addition, a security company must be appointed and appropriate security measures implemented prior to the commencement of construction activities onsite

Table 0.4: Assessment of safety and security impacts

Nature: Temporary increase in safety and security concerns associated with the influx of people during the construction phase.		
	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	High (8)	Moderate (6)
Probability	Probable (3)	Improbable (2)
Significance	Medium (36)	Low (20)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Working hours should be kept within daylight hours during the construction phase, and / or as any deviation that is approved by the relevant authorities. » Provide transportation for workers to prevent loitering within or near the project site outside of working hours. » The perimeter of the construction site should be appropriately secured to prevent any unauthorised access to the site. The fencing of the site should be maintained throughout the construction period. » The appointed EPC Contractor must appoint a security company to ensure appropriate security procedures and measures are implemented. » Access in and out of the construction site should be strictly controlled by a security company appointed to the project. » A CLO should be appointed as a grievance mechanism. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. » The EPC Contractor should implement a stakeholder management plan to address neighbouring landowner concerns regarding safety and security. » The project proponent must prepare and implement a Fire Management Plan (FMP), this must be done in conjunction with surrounding landowners. » The EPC Contractor must prepare a Method Statement which deals with fire prevention and management. 		
Residual impacts:		
<ul style="list-style-type: none"> » None anticipated. 		

v. Impacts on daily living and movement patterns

Project components and equipment will be transported to site using road transport. The R380 regional road provides the primary access to the area, while the project site itself is accessed through the use of existing unsurfaced farm roads, which can be accessed from the R380 regional road. The R380 regional road connects the town of Hotazel with the Mccarthysrus Border Post between South African and Botswana in the north, and with the town of Kathu in the south. Traffic utilising the road is mainly mining related, but could also include tourist traffic. Local farmers and residents utilise gravel access roads to access their farms.

Increased traffic due to construction vehicles could cause disruptions to road users, the local community and increase safety hazards, especially on the main road that will be utilised (i.e. the R380 regional road and the supporting road network). The use of local roads and transport systems may cause road deterioration and congestion. An increase in traffic from the rise in construction vehicles is a safety concern for other road users and local communities in the area. Impacts will be magnified since farm roads are not designed to carry heavy traffic and are prone to erosion. Noise, vibrations, dust and visual pollution from heavy vehicle traffic during the construction phase could also negatively impact local residents and road users.

The upgrading of access roads may damage the fences along the access road. Infrastructure such as roads and fencing should be maintained in the present condition and repaired immediately if damaged as a result of construction activities. The contractor should be responsible for managing this impact.

In terms of regional roads involved, the expectation is that the proponent should consult with the relevant roads authority for the required abnormal permits and to ensure that they do not contribute to the deterioration of roads without taking some responsibility for repairing the impact that the construction vehicles may have on the road during construction phase.

Table 0.5: Assessment of impacts on daily living and movement patterns.

Nature: Temporary increase in traffic disruptions and movement patterns during the construction phase.		
	Without mitigation	With mitigation
Extent	Local-Regional (3)	Local-Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	High (8)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Medium (39)	Medium (33)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » All vehicles must be road worthy and drivers must be qualified, obey traffic rules, follow speed limits and be made aware of the potential road safety issues. » Heavy vehicles should be inspected regularly to ensure their road worthiness. » Provision of adequate and strategically placed traffic warning signs and control measures along the R380 and gravel farm access roads to warn road users of the construction activities taking place for the duration of the construction phase. Warning signs must be visible at all times, especially at night, and must be maintained throughout construction. » Implement penalties for reckless driving as a way to enforce compliance to traffic rules. » Avoid heavy vehicle activity during "peak" hours (when children are taken to school, or people are driving to work). » The developer and EPC Contractor must ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed due to construction activities. » The developer and EPC Contractor must ensure that the roads utilised for construction activities are either maintained in the present condition or upgraded if disturbed due to construction activities. » The EPC Contractor must ensure that damage / wear and tear caused by construction related traffic to the access roads is repaired before the completion of the construction phase. » A method of communication must be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. 		

Residual impacts:

- » None anticipated.

vi. Nuisance impacts (noise & dust)

Impacts associated with construction related activities include noise, dust, and possible disruption to adjacent properties. Site clearing activities increase the risk of dust and noise being generated, which can in turn negatively impact on adjacent properties. The movement of heavy construction vehicles and construction activities and equipment also have the potential to create noise at the project site, as well as along the R380, and other local access roads. The primary sources of noise during construction would be from construction equipment, vehicle / truck traffic, and ground vibration. Noise levels can be audible over a large distance however are generally short in duration. Dust would be generated from construction activities as well as trucks / vehicles driving on gravel access roads. This impact will negatively impact sensitive receptors, and could also potentially negatively impact surrounding land users. The impact of noise and dust on surrounding land users and local farmsteads can be reduced through the application of appropriate mitigation measures. However given the projects location within a mining area it is not anticipated that noise and dust generated as a result of the construction of Hotazel 2 would have a significant impact on surrounding landowners.

Table 0.6: Assessment of nuisance impacts (noise and dust)

Nature: Nuisance impacts in terms of temporary increase in noise and dust, and wear and tear on access roads to the site.

	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	High (8)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	Medium (44)	Low (27)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	

Mitigation:

- » The movement of heavy vehicles associated with the construction phase should be timed to avoid weekends, public holidays and holiday periods where feasible.
- » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.
- » Ensure all vehicles are road worthy, drivers are qualified and are made aware of the potential noise and dust issues.
- » A CLO should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.

Residual impacts:

- » Only damage to roads that is not fixed could affect road users.

vii. Visual, sense of place and general landscape impacts

Intrusion impacts such as aesthetic pollution (i.e. building materials, construction vehicles, etc.), noise and light pollution, and impacts on the rural nature of the site will impact the "sense of place" for the local community. Construction related activities have the potential to negatively impact a local area's "sense of place". The alteration of the sense of place in view of the local residents and road users will start during the construction phase and remain for the project's operational lifetime.

The area surrounding the project site is characterised by an existing industrial landscape which is characterised by existing mining activities, railway lines, and electricity infrastructure such as power lines. Given the nature of the surrounding area within which the project is proposed, and the number of PV projects already authorised in the area (further considered under section 6.3), it can be anticipated that the visual and sense of place impacts associated with the construction of the facility will be of low significance.

Table 0.7: Assessment of impacts on the sense of place

Nature: Intrusion impacts from construction activities will have an impact on the area's "sense of place".		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Low (28)	Low (21)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Implement mitigation measures identified in the Visual Impact Assessment (VIA) prepared for the project. » Limit noise generating activities to normal daylight working hours and avoid weekends and public holidays. » The movement of heavy vehicles associated with the construction phase should be timed to avoid weekends, public holidays and holiday periods where feasible. » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. » All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. » Communication, complaints and grievance channels must be implemented and contact details of the CLO must be provided to the local community in the study area. 		
Residual impacts:		
<ul style="list-style-type: none"> » None anticipated. 		

6.2 Operation Phase

Hotazel 2 is anticipated to operate for a minimum of 20 years. The facility will operate continuously, 7 days a week, during daylight hours. While the solar facility will be largely self-sufficient, monitoring and periodic maintenance activities will be required. Key elements of the O&M plan include monitoring and reporting the performance of the solar facility, conducting preventative and corrective maintenance, receiving visitors, and maintaining security.

The potential positive and negative social impacts which could arise as a result of the operation of the proposed project include the following:

6.2.1 Operation Phase Impacts Associated with Hotazel 2

i. Direct and indirect employment opportunities and skills development

It is anticipated that the operation of the project is likely to create a maximum of approximately 60 employment opportunities, comprising approximately 42 low-skilled, approximately 15 semi-skilled, and approximately 3 skilled opportunities. Employment opportunities include safety and security staff, operation and monitoring, and maintenance crew. Maintenance activities will be carried out throughout the lifespan of the project, and will include washing of solar panels, vegetation control, and general maintenance around the solar energy facility. The employment opportunities generated as a result of the project will be long term and will last for the duration of operation (i.e. approximately 20 years). None of the employment opportunities will be permanently stationed onsite. In addition to the direct employment opportunities it is anticipated that additional indirect employment opportunities will be generated during the operation of the project.

Table 0.8: Employment opportunities and skills development

Nature: The creation of employment opportunities and skills development opportunities during the operation phase for the country and local economy.

	Without enhancement	With enhancement
Extent	Local-Regional (3)	Local-Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)
Probability	Highly probable(4)	Definite (5)
Significance	Medium (44)	Medium (55)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	

Enhancement:

- » It is recommended that local employment policy is adopted to maximise the opportunities made available to the local community.
- » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.
- » Vocational training programs should be established to promote the development of skills.
- » Proof of skills development and experience must be provided to the upskilled individuals.

Residual impacts:

- » Improved pool of skills and experience in the local area.

ii. Development of non-polluting, renewable energy infrastructure

South Africa currently relies predominantly on coal-generated electricity to meet its energy needs. As a result, the country's carbon emissions are considerably higher than those of most developed countries partly because of the energy-intensive sectors which rely heavily on low quality coal, which is the main contributor to GHG emissions. The use of solar technology for power generation is considered a non-consumptive use of a natural resource which produces zero GHG emissions during its operation. The generation of RE utilising solar power will contribute positively to South Africa's electricity market. Given South Africa's reliance on Eskom as a power utility, the benefits associated with a REIPPP Programme are regarded as an important contribution, and the advancement of RE has been identified as a priority for South Africa.

Increasing the contribution of the RE sector to the local economy would contribute to the diversification of the local economy and provide greater economic stability. The growth in the RE sector as a whole could introduce new skills and development into the area. This is especially true with regards to solar power specifically considering the number of other solar power projects proposed within the broader area.

The development of RE projects have the potential to contribute to the stability of the economy, and could contribute to the local economy through employment generation (direct, indirect, and local service providers) and revenue generation for the LM. While the overall contribution of the project to South Africa's total energy requirements is small, the facility will also contribute towards offsetting the total carbon emissions associated with energy generation in South Africa. It should however be noted that such a benefit is associated with all RE projects and not only solar power projects in particular.

Table 0.9: Assessment of the development of non-polluting, renewable energy infrastructure

Nature: Development of non-polluting, renewable energy infrastructure.		
	Without enhancement	With enhancement
Extent	Local-Regional-National (4)	Local-Regional-National (4)
Duration	Long term (4)	Long term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Definite (5)	Definite (5)
Significance	Medium (50)	Medium (50)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	Yes (impact of climate change)	
Can impacts be mitigated?	No	
Enhancement:		
» None identified.		
Residual impacts:		
» Reduce carbon emissions through the use of renewable energy and contribute to reducing global warming.		

iii. Contribution to Local Economic Development (LED) and social upliftment

Projects which form part of the DMRE's REIPPP Programme are required as part of their bidding requirements, to contribute towards LED and social upliftment initiatives within the area in which they are proposed. In addition, they are required to spend a percentage of their revenue on socio-economic and enterprise development, as well as allocate ownership shares to local communities that benefit previously disadvantaged communities around the project. A portion of the dividends generated by each development also need to be invested into LED projects and programmes. The proposed development therefore has the potential to contribute positively towards socio-economic development and improvements within the local area.

Socio-economic spin-offs from the proposed development could therefore contribute towards better infrastructure provision, and the investment in education and skills development. An in-depth Community Needs Assessment (CNA) is required to ensure that the beneficiary community's needs are understood and sufficiently addressed by the proposed development programmes in order to contribute meaningfully towards local economic growth and development. It should be noted however that such a benefit would be associated with all RE projects and not just solar power projects in particular.

Table 0.10: Assessment of the contribution to LED and social upliftment

Nature: Contribution to LED and social upliftment during the operation of the project.		
	Without enhancement	With enhancement
Extent	Local-Regional-National (4)	Local-Regional-National (4)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	High (8)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium (56)	High (64)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Enhancement:		
» A CNA must be conducted to ensure that the LED and social upliftment programmes proposed by the project are meaningful.		
» Ongoing communication and reporting is required to ensure that maximum benefit is obtained from the programmes identified, and to prevent the possibility for such programmes to be misused.		
» The programmes should be reviewed on an ongoing basis to ensure that they are best suited to the needs of the community at the time (bearing in mind that these are likely to change over time).		
Residual impacts:		
» Social upliftment of the local communities through the development and operation of the project.		

iv. Visual and sense of place impacts

An area's sense of place is created through the interaction of various characteristics of the environment, including atmosphere, visual resources, aesthetics, climate, lifestyle, culture, and heritage. An area's sense of place is however subjective and largely dependent on the demographics of the population residing within the area and their perceptions regarding trade-offs. For example, while some individuals may prefer not to see any form of infrastructure development, others may have an interest in large-scale infrastructure, or engineering projects, and the operation of such facilities, and consider the impact to be less significant. Such a scenario may especially be true given that the project comprises a RE project, and could therefore be seen as benefitting the local environment, when compared to non-renewable energy generation projects.

An impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light. The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of Hotazel 2.

Given the number of RE projects and powerlines proposed within the broader area, the visual impact and the impact on the sense of place can be expected to have a cumulative impact (see section 6.3). However given the fact that the area surrounding the project site is characterised by existing mining activities, railway lines, and electricity infrastructure such as power lines, the significance of Hotazel 2's contribution is not expected to be of high significance, given that the project would not be impacting on a pristine viewshed. It is therefore recommended that the recommendations from the Visual Impact Assessment (VIA) be incorporated into the project design.

Table 0.11: Assessment of the visual impact and impacts on sense of place

Nature: Visual impacts and sense of place impacts associated with the operation phase of Hotazel 2.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Minor (2)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (36)	Low (21)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
» Implement mitigation measures identified in the VIA report prepared for the project.		
Residual impacts:		
» The visual impact of Hotazel 2 will remain if the facility is not decommissioned and dismantled after the end of its operational life.		

v. Impacts associated with the loss of agricultural land

The development of the proposed project on an agricultural property would result in the area of land required to support the development footprint being removed from potential agricultural production. This could have negative implications in terms of food production and security, and could also threaten jobs of workers employed in the agricultural activities.

Table 0.12: Assessment on the loss of agricultural land and overall productivity

Nature: Loss of agricultural land and overall productivity as a result of the operation of the proposed project on an agricultural property.		
	Without mitigation	With mitigation
Extent	Site (1)	Site (1)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Definite(5)	Probable(3)
Significance	Medium (55)	Low (27)
Status (positive or negative)	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
» The mitigation measures provided in the Soil, Land Use and Land Capability Assessment Report must be implemented.		
» Keep the project footprint as small as possible.		
» Avoid areas with wetland land capability.		
Residual impacts:		
» Economically unviable portions of agricultural land which may reduce overall productivity.		

vi. Damage to property as a result of maintenance activities and unauthorised access

Maintenance activities will be required to be carried out as necessary throughout the operation of the project. Maintenance workers have the potential to negatively impact and cause damage to properties by not adhering to or respecting landowner's instructions. Examples of such damage can include damage to land as a result of vehicles driving across open areas of land as opposed to making use of farm tracks, damage to gates and / or fences when trying to obtain access to the servitude, and threats to game or livestock by not keeping gates closed, or as a result of leaving open holes unattended. This can result in tensions building between the respective landowners and project proponent.

An access protocol should therefore be developed which prescribes the manner in which maintenance activities are to be carried out on privately owned land. In addition, ongoing and open communication must ensure that landowners are notified and kept informed of all maintenance activities occurring within their properties.

Table 0.13: Damage to property as a result of maintenance activities and unauthorised access

Nature: Maintenance activities required during the operation of the project has the potential to result in damage to property and unauthorised access.		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Improbable (2)
Significance	Medium (33)	Low (22)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Prepare and implement an access protocol. » Keep landowners informed of all maintenance activities to take place on their properties. » Implement a method of communication whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances. 		
Residual impacts:		
<ul style="list-style-type: none"> » None anticipated. 		

6.3 Cumulative Impacts

The 2014 EIA Regulations (GNR 326) define a cumulative impact as follows:

“Cumulative impact in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.”

Hotazel 2 is proposed within proximity to a number of other solar energy facilities (refer to **Table 0.6** and **Figure 0.1** for an overview of solar PV facilities within a 30km radius of the project site).

Table 0.16: Other solar energy projects / developments approved within proximity of Hotazel 2

Project Name	Location	Approximate distance from Hotazel 2	Project Status
Adams PV Solar Energy Facility	Remainder of the Farm Adams No. 328	15km south	Constructed
Mount Ropers Solar Plant	Farm Mt. Roper No. 321	22km south-east	Approved
Solar Energy Facility on the Farm Rhodes	Remainder of the Farm Rhodes No. 269	7km north	Approved
Rhodes 2 Solar Park Project	Remainder of the Farm Rhodes No. 269	7km north	Approved
Solar Energy Facility on the Farm East 270	Portion 02 and Remainder of the Farm East No. 270	4.5km north	In process

Project Name	Location	Approximate distance from Hotazel 2	Project Status
East 2 and East 3 Solar Parks	Portion 02 and Remainder of the Farm East No. 270	4.5km north	Approved
Solar Energy Facility on Farm Shirley No. 367	Portion 01 of the Farm Shirley No. 367	19km south	Approved
Perth-Kuruman Solar Farm	Remainder of the Farm Perth No. 276	2.6km south	Approved
Perth-Hotazel Solar Farm	Remainder of the Farm Perth No. 276	2.6km south	Approved
Kagiso Solar Power Plant	Remainder of the Farm Perth No. 276	2.6km south	Approved
Tshepo Solar Power Plant	Remainder of the Farm No. 275	2.6km south-east	Approved
Hotazel Solar Park	Remainder of the Farm Annex Langdon No. 278	Immediately south	Approved
Hotazel Solar	Remaining Extent (Portion 0) of the farm York A 279;	Immediately to the east, within the same affected property	Approved

The potential for cumulative impacts to occur as a result of the projects is therefore likely. Potential cumulative impacts identified for the project include positive impacts on the economy, business development, and employment, as well as negative impacts such as an influx jobseekers and change in the area's sense of place.

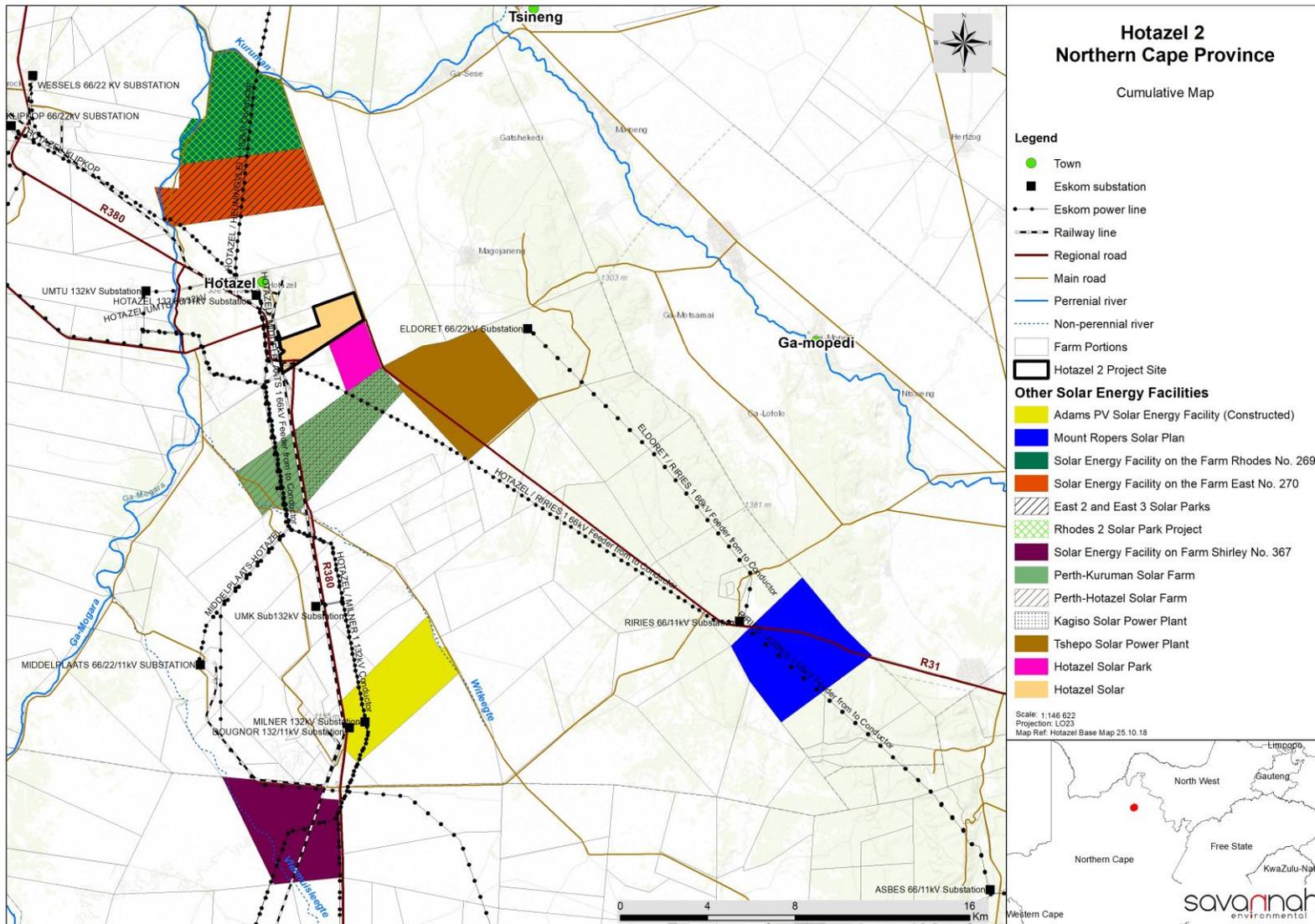


Figure 0.1: Cumulative map showing the location of other solar energy facilities within 30km of the project site.

6.3.1 Cumulative Impacts associated with Hotazel 2

i. Cumulative impact from employment, skills and business opportunities

Hotazel 2 and the establishment of other solar power projects within the area has the potential to result in significant positive cumulative impacts, specifically with regards to the creation of a number of socio-economic opportunities for the region, which in turn, can result in positive social benefits. The positive cumulative impacts include creation of employment, skills development and training opportunities, and downstream business opportunities. The cumulative benefits to the local, regional, and national economy through employment and procurement of services are more considerable than that of Hotazel 2 alone.

Table 0.17: Cumulative impacts of employment opportunities, business opportunities and skills development

	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local-Regional (3)	Local-Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Highly probable(4)	Highly Probable (4)
Significance	Medium (44)	Medium (52)
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	N/A	
Can impacts be mitigated?	Yes	
Confidence in findings	High	
Enhancement:		
The establishment of a number of solar power projects under the REIPPP Programme in the area has the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted and local services providers are utilised by the developers to maximise the project opportunities available to the local community.		
Residual impacts:		
» Improved pool of skills and experience in the local area.		
» Economic growth for small-scale entrepreneurs.		

ii. Cumulative impact with large scale in-migration of people

While the development of a single solar power project may not result in a major influx of people into an area, the development of several projects may have a cumulative impact on the in-migration and movement of people. In addition, the fact that the project is proposed within an area characterised by good levels of solar irradiation suitable for the development of commercial solar energy facilities implies that the surrounding area is likely to be subject to considerable future applications for PV energy facilities. Levels of unemployment, and the low level of earning potential may attract individuals to the area in search of better

employment opportunities and higher standards of living. It is very difficult to control an influx of people into an area, especially in a country where unemployment rates are high. It is therefore important that the project proponent implement and maintain strict adherence with a local employment policy in order to reduce the potential of such an impact occurring.

Table 0.18: Cumulative impact with large-scale in-migration of people

Nature: Negative impacts and change to the local economy with an in-migration of labourers, businesses and jobseekers to the area.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local-Regional (3)
Duration	Short-term (2)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Very Improbable (1)	Probable (3)
Significance	Low (7)	Medium (39)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Confidence in findings	High	
Mitigation:		
<ul style="list-style-type: none"> » Develop a recruitment policy / process (to be implemented by contractors), which will source labour locally. » Work together with government agencies to ensure service provision is in line with the development needs of the local area. » Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services. 		
Residual impacts		
<ul style="list-style-type: none"> » Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure, services and poverty problems. 		

iii. Cumulative impact on the sense of place and landscape character

The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of Hotazel 2. Given the location of the project on a private property, within an area characterised as a mining area, the visual impact and impact on the area's sense of place associated with the project is anticipated to be of a low significance. The alteration of the sense of place in view of the local residents (specifically adjacent landowners) and road users will start during the construction phase and remain for the project's operational lifetime. The area has been exposed to large scale industrial development.

The development of various PV facilities within the area will increase the extent of industrial infrastructure and result in a low significance from a social perspective.

Table 0.19: Cumulative impact on the sense of place and landscape character

Nature: Visual impact and impact on the sense of place and landscape character		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local (2)
Duration	Long-term (4)	Long term (4)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Medium (30)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	No, only best practice measures can be implemented	
Confidence in findings	High	
Mitigation:		
» Maintain and manage the facilities to be in a good and neat condition to ensure that no degradation of the area and sites takes place and impacts the visual quality of the area.		
» Implement the relevant mitigation measures as recommended in the Visual Impact Assessment.		
Residual impacts		
» The visual impact will remain until the infrastructure is completely decommissioned and removed. Thereafter the impact will be removed.		

6.4 Decommissioning Phase

Typically, major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income and will be similar to the impacts during the construction phase. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. However, in the case of Hotazel 2 it is anticipated that the proposed facility will be refurbished and upgraded to prolong its life.

6.5 Assessment of Alternatives

There are three options proposed to connect Hotazel 2 to the Eskom Hotazel Substation:

- » Option 1: New overhead 132kV power line from the proposed Hotazel 2 on-site substation/ collector switching station to the existing Eskom Hotazel substation. This option is the preferred option from a technical perspective.
- » Option 2: Via a loop in loop out (LILLO) 132kV power line into the Hotazel-Eldoret 132kV line.
- » Option 3: New overhead 132kV power line from the proposed Hotazel 2 on-site substation/ collector switching station to the authorised Hotazel Solar collector switching station.

No specific concerns have been raised or identified for any of the three options, and therefore all three options are considered to be acceptable from a social perspective. Therefore, the preferred alternative from a technical perspective is considered to be preferred from a social perspective. This is option 1.

6.6 Assessment of Impacts for the No-Go Option

The “no-go” alternative is the option of not constructing Hotazel 2. The implementation of Hotazel 2 is expected to result in a number of positive and negative social impacts. The majority of negative impacts identified for the project are associated with the construction phase of the project, while the positive impacts are associated with both the construction and operation phase of the project.

Potential negative social impacts associated with the construction and operation of the project include the following:

- » Potential influx of job seekers and an associated change in population and increase in pressure on basic services.
- » Potential safety and security impacts.
- » Potential impacts on daily living and movement patterns.
- » Potential nuisance impacts (noise and dust).
- » Potential visual and sense of place impacts.

Potential positive social impacts associated with the construction and operation of the project include the following:

- » Potential direct and indirect employment opportunities.
- » Potential economic multiplier effect.
- » Development of non-polluting, renewable energy infrastructure.

The impacts of pursuing the “no-go” alternative can therefore be summarised as follows:

- » The benefits would be that there is no disruption from nuisance impacts (noise and dust during construction), visual impacts and safety and security impacts. The impact is therefore neutral.
- » There would also be an opportunity loss in terms of job creation, skills development, and associated economic business opportunities for the local economy.

The option of not developing Hotazel 2 would not compromise the development of RE facilities in South Africa. However the socio-economic benefits for local communities associated with this specific project would be forfeited.

7 CONCLUSION AND RECOMMENDATIONS

This SIA focused on the collection of data to identify and assess social issues and potential social impacts associated with the development of Hotazel 2. The environmental assessment framework for assessment of impacts and the relevant criteria were applied to evaluate the significance of the potential impacts. A summary of the potential positive and negative impacts identified for the detailed design and construction, and operation phase are presented in Error! Reference source not found. and Error! Reference source not found.. A summary of the potential positive and negative cumulative social impacts identified for the project is provided in Error! Reference source not found..

Table 0.1: Summary of potential social impacts identified for the detailed design and construction phase.

Impact	Significance Without Enhancement	Significance With Enhancement
Positive Impacts		
Creation of direct and indirect employment and skills development opportunities.	Low (28)	Medium (55)
Economic multiplier effects	Medium (36)	Medium (55)
Impact	Significance Without Mitigation	Significance With Mitigation
Negative Impacts		
In-migration of people (non-local workforce and jobseekers).	Low (18)	Low (14)
Safety and security impacts	Medium (36)	Low (20)
Impacts on daily living and movement patterns	Medium (39)	Medium (33)
Nuisance impact (noise and dust)	Medium (44)	Low (27)
Visual, sense of place and general landscape impacts	Low (28)	Low (21)

Table 0.2: Summary of potential social impacts identified for the operation phase.

Impact	Significance Without Enhancement	Significance With Enhancement
Positive Impacts		
Direct and indirect employment and skills development opportunities	Medium (44)	Medium (55)
Development of non-polluting, renewable energy infrastructure	Medium (50)	Medium (50)
Contribution to LED and social upliftment	Medium (56)	High (64)
Impact	Significance Without Mitigation	Significance With Mitigation
Negative Impacts		
Visual and sense of place impacts	Medium (36)	Low (21)
Impacts associated with the loss of agricultural land.	Medium (55)	Low (27)
Damage to property as a result of maintenance activities and unauthorised access	Medium (33)	Low (22)

Table 0.3: Summary of potential cumulative social impacts identified for the project.

Cumulative Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Positive Cumulative Impacts		
Cumulative impact from employment, skills and business opportunities and skills development	Medium (44)	Medium (52)
Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Negative Cumulative Impacts		
Cumulative impact with large-scale in-migration of people	Low (7)	Medium (39)
Cumulative impact on the sense of place and landscape change	Low (27)	Low (30)

7.1 Key findings

There are some vulnerable communities within the project area that may be affected by the development of Hotazel 2 and its associated infrastructure. Traditionally, the construction phase of a PV solar development is associated with the majority of social impacts. Many of the social impacts are unavoidable and will take place to some extent, but can be managed through the careful planning and implementation of appropriate mitigation measures. A number of potential positive and negative social impacts have been identified for the project, however an assessment of the potential social impacts indicated that there are no perceived negative impacts that are sufficiently significant to allow them to be classified as "fatal flaws".

Based on the social impact assessment, the following general conclusions and findings can be made:

- » The potential negative social impacts associated with the construction phase are typical of construction related projects and not just focussed on the construction of solar PV projects (these relate to an influx of non-local workforce and jobseekers, intrusion and disturbance impacts (i.e. noise and dust, wear and tear on roads) and safety and security risks), and could be reduced with the implementation of the mitigation measures proposed. The significance of such impacts on the local communities can therefore be mitigated.
- » The development will introduce employment opportunities during the construction phase (temporary employment) and a limited number of permanent employment opportunities during operation phase.
- » The proposed project could assist the local economy in creating entrepreneurial growth and opportunities, especially if local business is involved in the provision of general material, goods and services during the construction and operational phases. This positive impact is likely to be compounded by the cumulative impact associated with the development of several other solar facilities within the surrounding area, and as a result of the project's location within an area which is characterised by high levels of solar irradiation and which is therefore well suited to the development of commercial solar energy facilities.
- » The proposed development also represents an investment in infrastructure for the generation of non-polluting, RE, which, when compared to energy generated as a result of burning polluting fossil fuels, represents a positive social benefit for society as a whole.

- » When considering Hotazel 2 it is also important to consider the cumulative social impacts that may arise with other proposed solar PV projects in the area.
- » It should be noted that the perceived benefits associated with the project, which include RE generation and local economic and social development, outweigh the perceived impacts associated with the project.

7.2 Recommendations

The following recommendations are made on the basis of the SIA. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts associated with the project. Based on the social assessment, the following recommendations are made:

- » The appointment of a CLO to assist with the management of social impacts and to deal with community issues, if feasible.
- » It is imperative that local labour be sourced, wherever possible, to ensure that benefits accrue to the local communities. Efforts should be made to involve local businesses during the construction activities where possible. Local procurement of labour and services / products would greatly benefit the community during the construction and operation phases of the project.
- » Local procurement of services and equipment is required where possible in order to enhance the multiplier effect.
- » Involve the community in the process as far as possible (encourage co-operative decision making and partnerships with local entrepreneurs).
- » Employ mitigation measures to minimise the dust and noise pollution and damage to existing roads.
- » Safety and security risks should be taken into account during the planning / construction phase of the proposed project. Access control, security and management should be implemented to limit the risk of crime increasing in the area.

7.3 Overall Conclusion

The proposed project and associated infrastructure is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the project could be developed subject to the implementation of recommended mitigation measures and management actions identified for the project.

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**APPENDIX A:
SOCIAL INPUT INTO THE ENVIRONMENTAL MANAGEMENT
PROGRAMME (EMPr)**

1. Construction Phase

OBJECTIVE 1: Maximise local employment and skills opportunities associated with the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Opportunities and benefits associated with the creation of local employment and skills development to be maximised.
Activity/risk source	<ul style="list-style-type: none"> » Construction procurement practice employed by the EPC Contractor » Developers investment plan
Mitigation: Target/Objective	The developer should aim to fill as many of the low-skilled and semi-skilled positions from the local area as possible. This should also be made a requirement for all contractors.

Mitigation: Action/control	Responsibility	Timeframe
Employ local contractors that are compliant with Broad Based Black Economic Empowerment (B-BBEE) criteria	The Proponent & EPC Contractor	Pre-construction & construction phase
Adopt a local employment policy to maximise the opportunities made available to the local labour force	The Proponent & EPC Contractor	Pre-construction & construction phase
In the recruitment selection process, a minimum percentage of women must be employed	EPC Contractor	Pre-construction & construction phase
Set realistic local recruitment targets for the construction phase.	The Proponent & EPC Contractor	Pre-construction & construction phase
Training and skills development programmes to be initiated prior to the commencement of the construction phase	The Proponent	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Employment and business policy document that sets out local employment and targets completed before the construction phase commences. » Employ as many local semi and unskilled labour as possible given the number of positions available. » Training and skills development programme undertaken prior to the commencement of construction phase.
Monitoring	<ul style="list-style-type: none"> » The developer and EPC Contractor must keep a record of local recruitments and information on local labour to be shared with the Environmental Control Officer (ECO) for reporting purposes.

OBJECTIVE 2: Maximise the local economic multiplier effect during construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Potential local economic benefits
Activity/risk source	Developers procurement plan

Mitigation: Target/Objective	Increase the procurement of goods and services especially within the local economy
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Mitigation: Action/control	Responsibility	Timeframe
A local procurement policy to be adopted to maximise the benefit to the local economy	The Proponent & EPC Contractor	Pre-construction & construction phase
Develop a database of local companies, specifically Historically Disadvantaged (HD) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable	The Proponent & EPC Contractor	Pre-construction & construction phase
Source as much goods and services as possible from the local area. Engage with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible	The Proponent	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Local procurement policy is adopted » Local goods and services are purchased from local suppliers where feasible
Monitoring	» The developer must monitor indicators listed above to ensure that they have been met for the construction phase

OBJECTIVE 3: Reduce the pressure on resources, service delivery, infrastructure and social dynamics from a population change as a result of an increase of construction workers during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Population changes resulting in additional pressure on resources, service delivery, infrastructure maintenance and social dynamics during the construction phase as a result of an influx of construction workers into the study area
Activity/risk source	Influx of construction workers
Mitigation: Target/Objective	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods

Mitigation: Action/control	Responsibility	Timeframe
Implement a grievance and communication system for community issues and appoint a Community Liaison Officer (CLO)	The Proponent & EPC Contractor	Pre-construction & construction phase

Performance Indicator	» CLO is appointed
Monitoring	» The developer and EPC Contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

OBJECTIVE 4: Reduce the pressure on economic and social infrastructure and social conflicts from an influx of jobseekers during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Decline in local economic and social infrastructure and services as well as a rise in social conflicts from an influx of jobseekers
Activity/risk source	Influx of jobseekers
Mitigation: Target/Objective	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods

Mitigation: Action/control	Responsibility	Timeframe
A 'locals first' policy should be utilised for employment opportunities, especially for semi and low-skilled job categories.	The Proponent & EPC Contractor	Pre-construction & construction phase
Where applicable, any tender documentation which may be prepared for the project is to stipulate the use of local labour as far as possible.	EPC Contractor	Pre-construction & construction phase
Inform local community members of the construction schedule and exact size of workforce (e.g. Ward Councillor, surrounding landowners)	The Proponent & EPC Contractor	Pre-construction & construction phase
Recruitment of temporary workers onsite is not to be permitted. A recruitment office with a CLO should be established to deal with jobseekers.	EPC Contractor	Pre-construction & construction phase
Set up labour desk in a secure and suitable area to discourage the gathering of people at the construction site.	EPC Contractor	Pre-construction & construction phase
Have clear rules and regulations for access to the proposed site.	EPC Contractor	Pre-construction & construction phase
Local community organisations and policing forums must be informed of construction times and the duration of the construction phase. Also procedures for the control and removal of loiters at the construction site should be established.	The Proponent & EPC Contractor	Pre-construction phase & Construction phase
Security Company to be appointed and appropriate security procedures to be implemented.	The Proponent & EPC Contractor	Pre-construction phase & Construction phase

Performance Indicator	<ul style="list-style-type: none"> » Ensure 'locals first' policy is adopted » Ensure no recruitment takes place onsite » Control/removal of loiters
Monitoring	<ul style="list-style-type: none"> » The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes

OBJECTIVE 5: To avoid or reduce traffic disruptions and movement patterns of local community during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Increase in traffic disruptions, safety hazards, and impacts on movement patterns of local community as well as impact on private property due to the upgrade of the existing road and heavy vehicle traffic in the local area
Activity/risk source	Construction activities affecting daily living and movement patterns
Mitigation: Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods

Mitigation: Action/control	Responsibility	Timeframe
Working hours must be kept during daylight hours as far as possible during the construction phase, and / or as any deviation that is approved by the relevant authorities.	EPC Contractor	Construction phase
All vehicles must be road worthy and drivers must be qualified, obey traffic rules, follow speed limits and be made aware of potential road safety issues.	EPC Contractor	Pre-construction phase & Construction phase
Heavy vehicles should be inspected regularly to ensure their road safety worthiness. Records pertaining to this must be maintained and made available for inspection as necessary.	EPC Contractor	Construction phase
Provision of adequate and strategically placed traffic warning signs and control measures along access roads to warn road users of the construction activities taking place for the duration of the construction phase. Ensure that all signage is visible at all times (especially at night), and maintained throughout the construction phase.	EPC Contractor	Construction phase
Implement penalties for drivers of heavy vehicles for reckless driving or speeding as a way to enforce compliance to traffic rules.	EPC Contractor	Construction phase
Infrastructure such as fencing and gates along access routes must be maintained in the present condition or repaired if disturbed due to construction activities.	The Proponent & EPC Contractor	Construction phase
Ensure roads utilised are either maintained in the present condition or restored if disturbed from construction activities.	The Proponent & EPC Contractor	Construction phase
Provide adequate signage along access roads to warn motorists of the construction activities taking place and display road safety messages and speed limits.	EPC Contractor	Pre-construction phase & Construction phase
Appoint a CLO who will be responsible for implementing the grievance mechanism. A method of communication should be implemented whereby	EPC Contractor	Pre-construction phase & Construction phase

Mitigation: Action/control	Responsibility	Timeframe
procedures to lodge complaints are set out in order for the local community and landowners to express any complaints or grievances with the construction process.		

Performance Indicator	<ul style="list-style-type: none"> » Vehicles are roadworthy, inspected regularly and speed limits are adhered to. » Ensure that there are traffic warning signs along access roads, and ensure that these are well illuminated (especially at night) » Roads and electric fencing are maintained or improved upon if disturbed from project activities. » A CLO is appointed for the project. 	
Monitoring	<ul style="list-style-type: none"> » The developer and EPC Contractor must monitor the indicators listed above to ensure that they have been met for the construction phase 	

OBJECTIVE 6: To avoid or minimise the potential intrusion impacts such as aesthetic pollution, and noise and light pollution during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Intrusion impacts could impact the areas "sense of place"
Activity/risk source	Construction activities
Mitigation: Target/Objective	To avoid or minimise the potential intrusion impacts such as aesthetic pollution, noise, dust and light pollution during the construction phase

Mitigation: Action/control	Responsibility	Timeframe
Limit noise generating activities to normal daylight working hours and avoid undertaking construction activities on weekends and public holidays.	EPC Contractor	Construction phase
The movement of heavy vehicles associated with the construction phase should be timed to avoid weekends, public holidays and holiday periods where feasible.	EPC Contractor	Construction phase
Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport building materials are fitted with tarpaulins or covers.	EPC Contractor	Construction phase
All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.	EPC Contractor	Construction phase
Ensure all vehicles are road worthy, drivers are qualified and are made aware of the potential noise and dust issues	EPC Contractor	Construction phase
Communication, complaints and grievance channels must be implemented and contact details	EPC Contractor	Construction phase

Mitigation: Action/control	Responsibility	Timeframe
of the CLO are to be provided to the local community.		

Performance Indicator	<ul style="list-style-type: none"> » Limit noise generating activities » Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase » Enforcement of strict speeding limits » CLO available for community grievances and communication channel
Monitoring	<ul style="list-style-type: none"> » The EPC Contractor must monitor the indicators to ensure that they have been met for the construction phase

OBJECTIVE 7: To avoid or minimise the potential impacts of noise and dust from construction activities during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Heavy vehicles and construction activities can generate noise and dust impacts.
Activity/risk source	Construction activities
Mitigation: Target/Objective	To avoid and or minimise the potential noise and dust impacts associated with construction activities

Mitigation: Action/control	Responsibility	Timeframe
The movement of heavy vehicles associated with the construction phase must be timed to avoid weekends and holiday periods, where feasible	EPC Contractor	Construction phase
Ensure that damage caused by construction related traffic/ project activities to the existing roads is repaired before the completion of the construction phase.	EPC Contractor	Construction phase
Implement dust suppression measures for heavy vehicles such as wetting the roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers	EPC Contractor	Construction phase
Ensure all vehicles are road worthy, drivers are qualified and are made aware of the potential noise and dust issues	EPC Contractor	Construction phase
Ensure that drivers adhere to speed limits	EPC Contractor	Construction phase
Implement a grievance and communication system for community issues and appoint a CLO.	The Proponent & EPC Contractor	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase » Enforcement of strict speeding limits » Road worthy certificates in place for all vehicles
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	» CLO available for community grievances and communication channel
Monitoring	» The EPC Contractor must monitor the indicators to ensure that they have been met for the construction phase

OBJECTIVE 8: To avoid or reduce the possibility of the increase in crime and safety and security issues during the construction phase

Project component/s	Construction of the proposed project and associated infrastructure
Potential Impact	Increase in crime due to influx of non-local workforce and job seekers into the area
Activity/risk source	Safety and security risks associated with construction activities
Mitigation: Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods

Mitigation: Action/control	Responsibility	Timeframe
Working hours to be kept between daylight hours as far as possible during the construction phase, and / or as any deviation that is approved by the relevant authorities.	EPC Contractor	Construction phase
The perimeter of the construction site is to be appropriately secured to prevent any unauthorised access to the site. The fencing of the site is to be maintained throughout the construction period.	The Proponent & EPC Contractor	Pre-construction phase & Construction phase
Local community organisations and policing forums must be informed of construction times and the duration of the construction phase.	The Proponent & EPC Contractor	Pre-construction phase & Construction phase
Access in and out of the construction camp should be strictly controlled by a security company	EPC Contractor	Construction Phase
A security company is to be appointed and appropriate security procedures are to be implemented	EPC Contractor	Construction Phase
No unauthorised entry to the site is to be allowed. Access control is to be implemented.	EPC Contractor	Construction Phase
Open fires on the site for heating, smoking or cooking are not allowed, except in designated areas.	EPC Contractor	Construction phase
Contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.	EPC Contractor	Pre-construction phase & Construction phase
A comprehensive employee induction programme to be developed and utilised to cover land access protocols, fire management and road safety	EPC Contractor	Pre-construction phase & Construction phase
Have a personnel trained in first aid on site to deal with smaller incidents that require medical attention	EPC Contractor	Pre-construction phase & construction phase

Performance Indicator	» Employee induction programme, covering land access protocols, fire management and road safety
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	<ul style="list-style-type: none"> » The construction site is appropriately secured with a controlled access system » Ensure a security company is appointed and appropriate security procedures and measures are implemented
Monitoring	<ul style="list-style-type: none"> » The developer and EPC Contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

2. Operation Phase

OBJECTIVE 1: Maximise local employment and skills opportunities associated with the operation phase of the project

Project component/s	Operation and maintenance of the proposed project and associated infrastructure
Potential Impact	Loss of opportunities to stimulate production and employment of the local economy
Activity/risk source	Labour practices employed during operations
Mitigation: Target/Objective	Maximise local community employment benefits in the local economy

Mitigation: Action/control	Responsibility	Timeframe
Adopt a local employment policy to maximise the opportunities made available to the local labour force.	The Proponent & Operation and Maintenance (O&M) Contractor	Operation phase
Establish vocational training programs for the local labour force to promote the development of skills	The Proponent	Operation phase

Performance Indicator	<ul style="list-style-type: none"> » Percentage of workers that were employed from local communities » Number of people attending vocational training on an annual basis
Monitoring	<ul style="list-style-type: none"> » The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes