

LIMESTONE PV2

Northern Cape Province

Social Impact Assessment

APRIL 2023

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REPORT DETAILS

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SPECIALIST DECLARATION OF INTEREST

I, Molatela Ledwaba, 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.

Molatela Ledwaba

Name

April 2023

Date



Signature

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ACRONYMS

DM	District Municipality
DME	Department of Mineral and Energy
DoE	Department of Energy
DoJ	Department of Justice
DM	District Municipality
EEDSM	Energy efficiency demand-side management
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GNR	Government Notice
IDP	Integrated Development Plan
IFC	International Finance co
IRP	Integrated Resource Plan
km	Kilometre
kV	Kilovolt
LED	Local Economic Development
KLM	Kgatelopele Local Municipality
NEMA	National Environmental Management Act (No. 107 of 1998)
NDP	National Development Plan
PSDF	Provincial Spatial Development Framework
RBS	Revised Balanced Scenarios
REIPPP	Renewable Independent Power Producer Programme
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SP	Significance Points
ZFMDM	ZF Mgcawu District Municipality

1. INTRODUCTION

Savannah Environmental (Pty) Ltd has been appointed by AGV projects (Pty) Ltd as the lead consultants to undertake and manage the Environmental Impact Assessment (EIA) process for the development of the proposed Limestone PV2 Solar Energy facility and associated infrastructure (hereafter referred to as “the Project”) proposed on Portion 4 of Farm 300 Engeland (refer to Figure 1-1). The proposed development is located near Danielskuil in the Northern Cape Province.

Molatela Ledwaba of Savannah Environmental (Pty) Ltd is the independent social consultant responsible for undertaking a Social Impact Assessment (SIA) and compiling the report as part of the EIA process being conducted for the project.

1.1 Study Objective

The purpose of this SIA is to examine all relevant factors in order to provide unbiased assessment of the potential social impact of the proposed construction and operation of the Project. The report presents the potential prospects and constraints identified through the SIA that would potentially arise as a result of the implementation of the project.

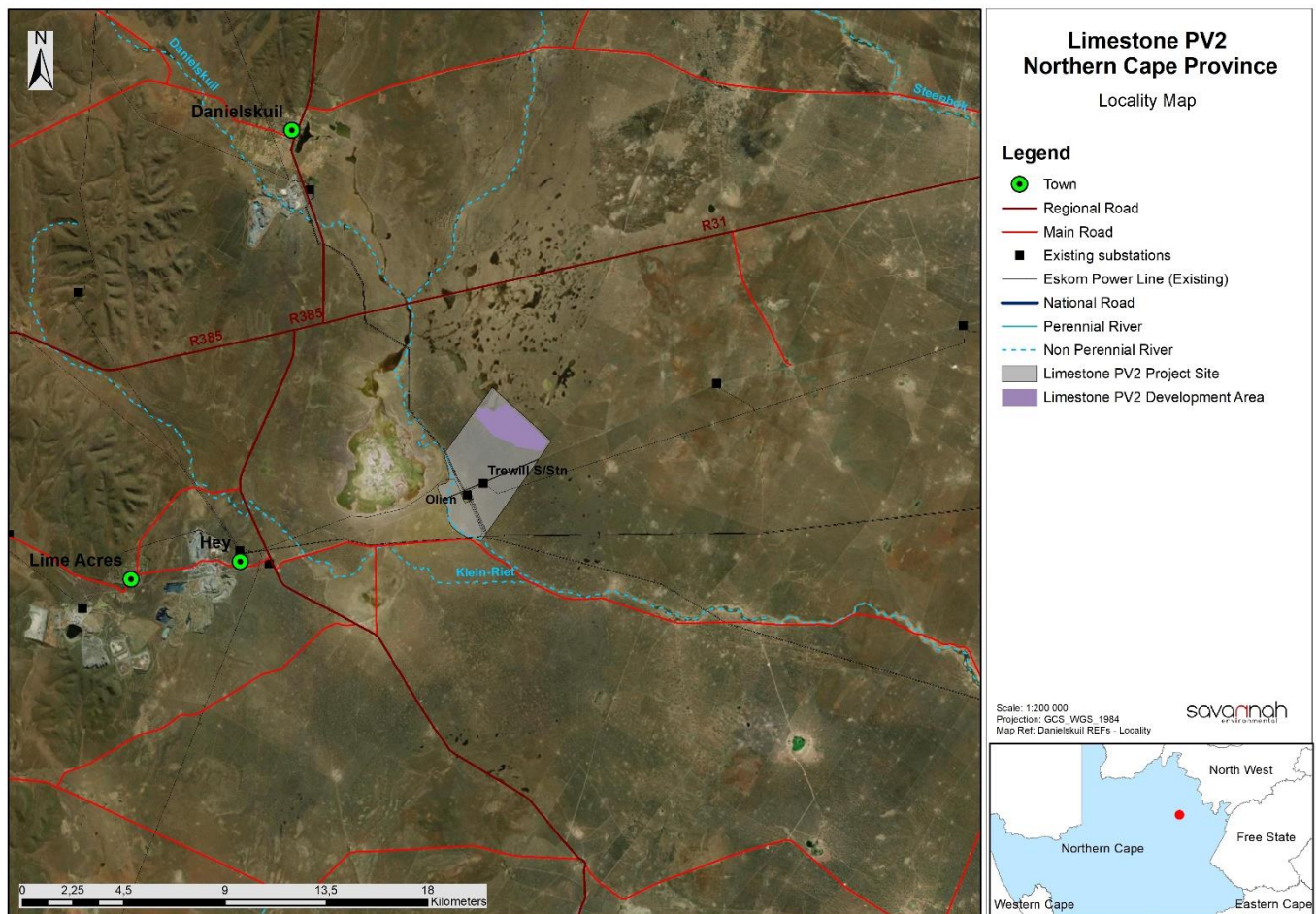


Figure 1-1 Locality map illustrating the location of the Limestone PV2 Solar Energy Facility, Northern Cape Province

1.2 Project Description

The Limestone PV2 facility is located within Portion 4 of Farm Engeland 300. The project will occupy a development area of ~350ha and will have a capacity up to 150MW Maximum Export Capacity. The proposed project will include the following infrastructure:

- » PV modules mounted on either a single axis tracking & fixed structure, dependent on optimisation, technology available and cost.
- » Inverters and transformers.
- » Low voltage cabling between the PV modules to the inverters.
- » Fence around the project development area with security and access control.
- » Camera surveillance.
- » Internet connection.
- » 33kV cabling between the project components and the facility substation.
- » 33/132kV onsite facility substation.
- » Battery Energy Storage System (BESS) with a footprint of 6ha.
- » Site offices and maintenance buildings, including workshop areas for maintenance and storage as well as parking for staff and visitors.
- » Access roads (up to 6m wide) and internal distribution roads (up to 5m wide).
- » Stormwater management infrastructure as required.

A Development area and footprint will be defined in the EIA Phase of the process considering environmental sensitivities and technical constraints.



Figure 1-2 A Typical Photovoltaic Solar Energy Facility

1.3 Details of the Independent Specialist

This SIA Report has been undertaken by Molatela Ledwaba of Savannah Environmental. Tony Barbour has undertaken an external review of this SIA and has provided an external reviewer's letter. This letter is attached as **Appendix C**.

- » **Molatela Ledwaba** – holds a BA Environmental Management and has 13 years of experience. Her key focus is on Socio-Economic Baselines, Social Impact Assessment, public participation, stakeholder engagement, project coordination and production of maps using QGIS and ArcGIS.
- » **Tony Barbour** - is a social specialist who has undertaken in the region of 230 SIA's, including approximately 100 SIA's for a renewable energy projects, including wind and solar energy facilities. All of the SIAs have included as assessment of socio-economic issues. In addition, he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa. Tony has also undertaken a number of SIAs for PV facilities within the Northern Cape Province and is therefore familiar with the local socio-economic conditions.

1.4 Structure of the SIA Report

This SIA report is divided into Six (6) main sections:

- » Section 1: Introduction and Project Description
- » Section 2: Approach to Study and Methodology
- » Section 3: Related Policy and Planning Documents
- » Section 4: Overview of Study area
- » Section 5: Identification of key issues and
- » Section 6: Summary of Key findings

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations, 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 1-1**

Table 1-1: Specialist report requirements

	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 1
(b)	A declaration that the specialist is independent in a form as may be specified by the competent authority.	Specialist Declaration of Interest
(c)	An indication of the scope of, and the purpose for which, the report was prepared.	Section 1
(cA)	An indication of the quality and age of base data used for the specialist report.	Section 4

Requirement	Location in Report
(cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 2
(e) A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 2
(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 alternative.	N/A
(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
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	Section 6
(k) Any mitigation measures for inclusion in the EMPr.	Section 5
(l) A description of any consultation process that was undertaken during the course of preparing the specialist report.	Section
(m) A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	Section 2
(n) 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. APPROACH TO STUDY AND METHODOLOGY

2.1 Approach

The research methodology used for the development of an SIA study is based on the Guidelines for Involving Social Impact Assessment Specialists in the EIA Process, which were prepared in February 2007 for the Western Cape Province of South Africa by the Department of Environmental Affairs and Development Planning. These best practice guidelines for Social Impact Assessment (SIA) development and planning are based on International Standards. These guidelines incorporate the following important SIA process Components:

- » The review of demographic data from the 2011 Census Survey and relevant data as received from the identified municipalities
- » The review of relevant planning and policy framework for the proposed area of intervention.
- » A review of information from similar projects.
- » Identification and description of social impacts, which can be associated with the proposed project.
- » The formulation of key findings and recommendations based on the collected data for the proposed project

Based on the review of relevant documentation, knowledge gained from prior projects and observations made during site visits, potential social concerns related to the proposed project were identified. Table 2-1 lists all the landowners who were interviewed.

2.1.1 Collection of Primary Data

Primary data was collected in the form of interviews from Wednesday, 09 November 2022 to Friday, 11 November 2022 with adjacent and affected landowners as part of the Public Participation and Social Impact Assessment process being conducted for the SIA process. (Table 2-1). The purpose of the consultation was:

- » to generate a good understanding of the project by all stakeholders.
- » to understand the day-to-day activities that a project such as that proposed might impact
- » to obtain an understanding of measures which would be required to enhance local benefits that may accrue from the project
- » to provide stakeholders a chance to voice their opinions, hence participating in the proposed project EIA process.

The views and comments of the landowners have been incorporated into this SIA, to the extent possible and are likely to influence the development of the proposed project and its associated infrastructure.

Table 2-1: A Summary of landowner's meetings conducted as part of the Public Participation process for the Scoping phase.

Date & Time	Stakeholder Group	Summary of Matters Raised
Wednesday, 09 November 2022 at 14h:00	Mrs Kokie C. York (Olienspruit Farm)	<ul style="list-style-type: none"> » In migration into the area will result due to the proposed project. » She indicated that the surrounding areas have bad gravel roads, and that the project will bring in more traffic which will further deteriorate these roads » The project will support her catering and hospitality business due to the influx of construction workers. » She indicated that we must also include the Papkuil Agricultural Association and the Fire Association – Danline FPA in the EIA process. » No objection to the project
Thursday, 10 November 2022 at 08h:00	Mr Arie Fourie (farm 301)	<ul style="list-style-type: none"> » Requested to be included during the entire EIA process. » No matters pertaining to social issues were raised. » No objection to the project.
Thursday, 10 November 2022 at 08h:10	Mr Janneman Jordaan (Farm 300 Ptn 4)	<ul style="list-style-type: none"> » Requested to be included in the whole EIA process. » No matters pertaining to social issues were raised. » No objection to the project.
Thursday, 10 November 2022 at 08h:40	Mr Hendre Engela (Rooipan Farm)	<ul style="list-style-type: none"> » Requested to be included in the whole EIA process. » No matters pertaining to social issues were raised. » No objection to the project.
Thursday, 10 November 2022 at 09h:20	Mr Arno Opperman (farm 299)	<ul style="list-style-type: none"> » Requested to be included in the whole EIA process. » No matters pertaining to social issues were raised. » No objection to the project.
Thursday, 10 November 2022 at 09h:20	Mr Wilfred Goliath (Silver Stream)	<ul style="list-style-type: none"> » Requested to be included in the whole EIA process. » No matters pertaining to social issues were raised. » No objection to the project.

2.1.2 Limitations and Assumption

This section of the report briefly describes the assumptions and limitations for this SIA .

Limitations

The only limitation identified for this SIA study is the use and availability of demographic. Data derived from the 2011 Census was treated with care and have been updated with the 2016 community survey, as well as, documents from ZF Mgcawu District Municipality and Kgatelopele Local municipality, were used to generate most of the information in the baseline profile of the study area. The other limitation in this study was that due to network issues in the project area, some of the landowners could not be reached for face

to face interviews for the purpose of this SIA. This, however, does not affect the outcome of this SIA as the information gathered during virtual meetings and the interview with the adjacent farm owner, Mrs C. York, was adequate and representative for the purpose of this SIA report.

Assumption

The first assumption is that it is strategically important to promote renewable energy sources, like solar energy, to promote sustainable development as supported by the National and Provincial policies discussed in Section 3 of this report. Additionally, a crucial part of the SIA process is determining how well the development fits with key planning and policy documents to detect and evaluate any potential social impacts. The planned development cannot be supported if the findings of this review show that it does not adhere to the relevant policy documents. The proposed study does, however, acknowledge the strategic value of supporting solar energy, as was already mentioned.

2.2 Method of assessing the Impact

The impact assessment was undertaken using a matrix selection process, the most used methodology, for determining the significance of potential environmental impacts/risks. This methodology takes into account two aspects for assessing the potential significance of impacts, namely occurrence and severity, which are further sub-divided into the following categories in (Table 2.3)

Table 2-2: Impact assessment factors

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Scale/extent of impact	Magnitude of impact

Table 2-3: Impact assessment scoring methodology

Value	Description
Magnitude	
10	Very high/ unknown
8	High
6	Moderate
4	Low
2	Minor
Duration	
5	Permanent (impact continues post closure)
4	Long Term (>15 years) (Impact ceases after decommissioning and closure)
3	Medium-term(5-15 years) (Impact ceases after the operational phase)
2	Short -term (2-5 years) (impact ceases after the construction phases)
1	Immediate (0-1 year)
Scale/ Geographic Extent	
5	International
4	National
3	Regional

2	Local
1	Site Only
0	None
Probability	
5	Definite/ Unknown (impact will definitely occur)
4	Highly Probable (most likely, 60% - 90% chance)
3	Medium Probability (40% - 60% chance)
2	Low Probability (5% - 40% chance)
1	Improbable (less than 5% chance)
0	None

Significance Points = (Magnitude + Duration + Scale) x Probability.

Table 2-4: Significance of impacts based on point allocation

Points	Significance	Description
SP>60	High environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30-60	Moderate environmental significance	An impact or benefit which is sufficiently important to require management, and which could have an influence on the decision unless it is mitigated.
SP<30	Low environmental significance	Impacts with little real effect and which will not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/ effects

For the methodology outlined above, the following definitions were used:

- » Magnitude is a measure of the degree of change in a measurement of analysis and is classified as none/negligible, low, moderate or high.
- » Scale/ Geographic extent refers to the area that could be affected by the impact and is classified as site, local, regional, national, or international.
- » Duration refers to the length of the time over which an environmental impact may occur i.e., immediate/ transient, short-term, medium-term, long-term or permanent; and
- » Probability of occurrence is a description of the probability of the impact actually occurring as improbable (< 5% chance) low probability (5% - 40% chance), medium probability (40% - 60% chance), high probable (most likely, 60% - (90% chance) or definite (Impact will definitely occurs)

3. RELATED POLICY AND PLANNING DOCUMENTS

This Section of the report provides an overview of the related policy and planning documents affecting the proposed Limestone PV2 Solar Facility. The overview of these documents includes policy and planning documents on National, Provisional, District and Local level. The following policy and planning documents were reviewed to meet the objectives on this SIA report.

3.1 National Level

- » Constitution of the Republic of South Africa, 1996
- » White Paper on the Energy Policy of the Republic of South Africa (1998)
- » White Paper on Renewable energy of 2003
- » National Development Plan (NDP) 2030
- » National Energy Act (No. 34 of 2008)
- » Integrated Resource Planning for South Africa of 2010-2030

3.2 Provincial Level

- » Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012
- » Northern Cape Provincial Spatial Development Framework (PSDF) 2018

3.3 District Level

- » ZF Mgcawu District Municipality Final Integrated Development Plan - Framework for 2021 – 2022.

3.4 Local Level

- » Kgatelopele Local Municipality Integrated Development Plan Review for 2018 – 2019.
- » Kgatelopele Local Municipality Spatial Development Framework Review Document- Section A for 2019

Table 3-1 Relevant legislation and policies for the proposed Limestone PV2 Solar Energy Facility

Relevant legislation or policy	Relevance to the proposed project
Constitution of the Republic of South Africa, 1996	<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. The undertaking of an EIA process for the proposed project in terms of the requirements of the EIA Regulations, 2014 (as amended) aims to minimise any impacts on the natural and social environment.</p>

Relevant legislation or policy	Relevance to the proposed project
<p>White Paper on the Energy Policy of the Republic of South Africa of 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 renewable energy and encouraging new entries into the generation market.</p> <p>The policy states that the advantages of renewable energy 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 Renewable Energy of 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 renewable energy and aims to create the necessary conditions for the development and commercial implementation of renewable energy technologies.</p> <p>The White Paper on Renewable Energy sets out Government's vision, policy principles, strategic goals, and objectives for promoting and implementing renewable energy 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 renewable energy resources that can be sustainable alternatives to fossil fuels, have so far remained largely untapped.</p> <p>The development of additional renewable energy projects will promote the use of the abundant South African renewable energy resources and contribute to long-term energy security and diversification of the energy mix.</p>
<p>National Development Plan 2030</p>	<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>In formulating its vision for the energy sector, the NDP took the IRP 2010 as its point of departure. Therefore, although electricity generation from coal is still seen as part of the energy mix within the NDP, the plan sets out steps that aim to ensure that, by 2030, South Africa's energy system will look very different to the current situation: coal will contribute proportionately less to primary-energy needs, while gas and renewable energy resources – especially wind, solar, and imported hydroelectricity – will play a much larger role.</p>

Relevant legislation or policy	Relevance to the proposed project
	<p>The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy. The development of Limestone PV2 Solar Energy Facility supports the NDP through the development of energy-generating infrastructure which will not lead to the generation of GHGs and will result in economic development and growth of the area surrounding the development area.</p>
<p>National Energy Act (No.34 of 2008)</p>	<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). The objectives of the Act, are to amongst other things, to:</p> <ul style="list-style-type: none"> » Ensure uninterrupted supply of energy to the Republic. » Promote diversity of supply of energy and its sources. » Facilitate energy access for improvement of the quality of life of the people of the Republic. » Contribute to the sustainable development of South Africa's economy. <p>The National Energy Act therefore recognises the significant role which electricity plays growing the economy while improving citizens' quality of life. 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>
<p>Integrated Resource Planning for Electricity - South Africa of 2010-2030</p>	<p>The Integrated Resource Plan for Electricity for South Africa of 2010-2030 (further referred to as the IRP) is a "living plan" which is expected to be revised and updated continuously as necessary due to changing circumstances. According to the Summary of the plan the current IRP for South Africa, which was originally initiated by the Department of Energy (DoE) in June 2010, led to the Revised Balanced Scenarios (RBS) for the period 2010- 2030.</p> <p>"This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then "balanced" in accordance with qualitative measures such as local job creation." In addition to all existing and committed power plants, the RBS included 11,4 GW of renewables, which relates to the proposed Limestone PV2. In 2010 several changes were made to the IRP model. The main changes in the IRP were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP) and wind option</p> <p>The summary of the IRP further explains that traditional cost-optimal scenarios were developed based on the previously mentioned changes in the IRP. This resulted in the Policy-Adjusted IRP, which stated that:</p> <ul style="list-style-type: none"> » "The installation of renewables (solar PV, CSP and wind) have been brought forward in order to accelerate a local industry; » To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6 GW is included in the IRP; » The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) is maintained; and

Relevant legislation or policy	Relevance to the proposed project
	<ul style="list-style-type: none"> » Energy efficiency demand-side management (EEDSM) measures are maintained at the level of the RBS" (IRP, 2011:6). <p>"The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 GW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources" (IRP, 2011:6).</p> <p>The IRP highlights the commitments before the next IRP. The commitments pertaining to the purpose of the proposed Limestone PV2 in renewable energy is:</p> <ul style="list-style-type: none"> » "Solar PV programme 2012-2015: In order to facilitate the connection of the first solar PV units to the grid in 2012 a firm commitment to this capacity is necessary. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first four years from 2012 to 2015 require firm commitment." » "Solar PV 2016 to 2019: As with wind, grid upgrades might become necessary for the second round of solar PV installations from 2016 to 2019, depending on their location. To trigger the associated tasks in a timely manner, a firm commitment to these capacities is necessary in the next round of the IRP at the latest. By then, the assumed cost decreases for solar PV will be confirmed" (IRP, 2011:17). <p>In conclusion the IRP as envisage in the Policy-Adjusted IRP should pursue solar PV programmes and an accelerated roll-out renewable energy options should be allowed with regards to the benefits of the localization in renewable energy technologies.</p>
<p>Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012</p>	<p>The Northern Cape Provincial Spatial Development Framework (further referred to as the PSDF) of 2012 in compliance with the Northern Cape Planning and Development Act no 7 of 1998 (Chapter IV, Section 14), aims to "ensure that the use and allocation of the province's resources, both renewable and non-renewable, are informed by a set of integrated and coordinated policies, objectives, implementation strategies, programmes and, where appropriate, projects aimed at:</p> <ul style="list-style-type: none"> (i) setting and monitoring, where appropriate, measurable standards with regard to, amongst other, public access to health, safety, amenities, education and economic opportunity; (ii) ensuring that the supply of public infrastructure is directed towards meeting the required standards in a prioritised, coordinated, sustainable and cost-effective way, in terms of capital and maintenance expenditure; (iii) ensuring the protection and sustainable utilisation of land, water and air where these are important for the maintenance of ecologically-sensitive systems or processes, areas of biological diversity, public health or public amenities; (iv) providing an investment and expenditure programme coordinated with budgetary cycles and capable of securing financial and other resources from National Government and any other funding agencies as well as public/private sector partnerships; and (v) informing and guiding the preparation and implementation of district and local municipal 46 infrastructure management plans and land development plans" (PSDF, 2012:4). <p>The PSDF mainly aims to build a prosperous, sustainable growing provincial economy to firstly improve social development and to eradicate poverty. The</p>

Relevant legislation or policy	Relevance to the proposed project
	<p>PSDF adopted the International Union for Conservation of Nature (IUCN) mission as their main goal. This goal states that essential ecological processes are being maintained, that natural resources are being preserved and utilised in a sustainable manner, that the use of the biosphere are managed while also maintaining its potential for future generations.</p> <p>The PSDF of 2012 highlights that renewable energy sources such as solar thermal and wind, comprise 25% of the Northern Cape's energy generation capacity by the year 2020, and should be progressively phased in as appropriate into the province. The PSDF further sets out energy objectives, which include the following:</p> <ul style="list-style-type: none"> » To promote the development of renewable energy supply schemes; - To enhance the efficiency of Eskom's power station at the Vanderkloof power station; » Reinforce additional electricity supply especially renewable energy projects; and » Develop and implement innovative energy technologies to improve access to reliable, sustainable and affordable energy services. Also recognize that the objective should be to obtain sustainable economic growth. » Lastly, the PSDF notes that the Northern Cape need to develop large-scale renewable energy supply schemes in order to address the growing demand in energy and to promote a green economy in the province.
<p>Northern Cape Provincial Spatial Development Framework (PSDF) 2018</p>	<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 the 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 development of Limestone PV2 Solar Energy Facility will contribute to the economic network of the province specifically in terms of the renewable sector, albeit it does not fall within the development triangle.</p>
<p>ZF Mgcawu District Municipality Final Integrated Development Plan - Framework for 2021 – 2022.</p>	<p>The vision for the ZF Mgcawu District Municipality as contained within its IDP 2017 – 2022 (2020 / 2021) is as follows:</p> <p>"Quality support to deliver quality services."</p> <p>The mission of the ZF Mgcawu DM is:</p> <p>"Centre of excellence in providing quality basic services through support to local municipalities."</p> <p>The following strategic objectives and development objectives have been identified for the ZF Mgcawu DM:</p>

Relevant legislation or policy	Relevance to the proposed project	
	Strategic Objective	Development Objective
	(i) To monitor and determine the housing backlogs in the district as well as to eradicate sanitation & infrastructure backlogs	01. Maintain and report on the housing requirements 02. Provide project management support to B-Municipalities
	(ii) To assess and provide targeted support improving institutional capacity <u>and</u> <u>service</u> delivery capabilities of category B-municipalities	03. Assess and report on the institutional capacity of B-municipalities to <u>fulfil</u> their statutory mandates 04. Assess and report on the service delivery capabilities of B-municipalities to <u>fulfil</u> their statutory mandates 05. Provide targeted support to B-municipalities (e.g., including legal support to B-municipalities regarding land use matters)
	(iii) To promote environmental health and safety of communities in the ZF Mgcawu District through the proactive prevention, mitigation, identification and management of environmental health services, fire and disaster risks	06. Providing environmental health services to B-municipalities 07. Implement special programmes (e.g., HIV /Aids)
	(iv) To promote safety of communities in the ZF Mgcawu District through the proactive prevention, mitigation, identification and management of fire and disaster risks	08. Establish disaster management mechanisms and programmes in the ZF Mgcawu District
	(v) To Facilitate the Development of Sustainable regional land use, economic, spatial and environmental planning frameworks that will support and guide the development of a diversified, resilient and sustainable district economy	09. Establish a vehicle to ensure all businesses are co-operating (i.e. District LED Forum) 10. Create investment opportunities in sectoral development (i.e. investment activities; Entrepreneurial business support programme) 11. Enable an environment for business establishment and support initiatives (i.e. Increase the number of businesses; entrepreneurial support)
	(v) To market, develop and co-ordinate tourism in the ZF Mgcawu District	12. Promote the Green Kalahari tourism brand in the ZF Mgcawu district
	(vi) To assess and monitor the status of infrastructure needs and requirements of B Municipalities	13. Establish and provide selected infrastructure needs to targeted B Municipalities
	(vii) To ensure efficient business operations and to fulfils the assurance statutory	14. Enable and improve financial viability and management through well-structured budget processes, financial

Relevant legislation or policy	Relevance to the proposed project	
	<p>requirements of the ZF Mgqawu District Municipality</p>	<p>systems, and MFMA compliance (i.e. promote good budget and fiscal management; Unqualified audits)</p> <p>15. Enable efficient and effective administrative support and Planning processes (i.e. Maintaining sound labour relations, practices and overall administrative support, IDP planning etc.</p> <p>The implementation of Limestone PV2 Solar Energy Facility would contribute positively towards the strategic objective of supporting and guiding the development of a diversified, resilient and sustainable district economy, and the development objectives of creating investment opportunities in sectoral development (i.e. investment activities; Entrepreneurial business support programme), and enabling an environment for business establishment and support initiatives (i.e. Increase the number of businesses; entrepreneurial support) through its local content and local economic development requirements as prescribed under the REIPPP Programme.</p>
<p>Kgatelopele Local Municipality Integrated Development Plan Review for 2018 – 2019.</p>	<p>The Kgatelopele Local Municipality Integrated Development Plan for 2018 – 2019 (further referred to as the Plan) is a strategic document that outlines the community's development objectives. It also includes a policy framework which guides management in the decision-making process of the financial planning for the municipal area. This Local Municipality according to the Plan is committed to strengthening and extending the public participation in its work.</p> <p>The Plan identifies six performance areas, which have to be aligned to the strategic objectives of the municipal area. The first key performance area identified below, is the area, which relates to the proposed Life SPP. The six (6) key performance areas (KPA) are:</p> <ul style="list-style-type: none"> » KPA 1: Basic Services This KPA refers to the physical infrastructure and energy efficiency to ensure efficient infrastructure and energy supply that will contribute to the improvement of quality of life for all citizens of the Kgatelopele local municipality. » KPA 2: Spatial consideration/ Environment KPA 2 refers to Special planning and land use management and has been proposed as a tool to effect spatial transformation » KPA 3: Economic Growth and development KPA 3 refers to Economic Growth and Development to facilitate sustainable economic empowerments for all communities within the Kgatelopele local municipality and enabling a viable and conducive economic environment through the development of related initiatives including job creation and skills development. » KPA 4: Financial Sustainability This KPA refers to financial sustainability to ensure the financial sustainability of the municipality to adhere to statutory requirements. » KPA 5: Institutional transformation. This KPA refers to institutional transformation to provide an effective and efficient workforce by aligning our institutional arrangements to our overall strategy in order to deliver quality services. » KPA 6: Good Governance and Public Participation KPA 5 refers to governance and stakeholder participation to promote proper governance and public participation. » KPA 6: Spatial Development This KPA gives direction for the municipality in terms of its land use and its potential and direction for growth. 	

4. OVERVIEW OF THE STUDY AREA

4.1 INTRODUCTION

This section of the report provides an overview of the baseline socio-economic conditions in the area that are relevant to the social and economic assessment of the proposed Limestone PV2 Solar Energy Facility. The baseline was obtained through secondary data sources such as Statistics South Africa, 2011 National census, 2016 community census, Integrated Development Plan, Kgatelopele Municipality Data and Specialist studies.

4.2 ADMINISTRATIVE CONTEXT

The project site is located in the Northern Cape Province of South Africa and is situated approximately ~16km south-east of the town of Danielskuil. The Northern Cape Province is divided into Five (5) District municipalities, namely Francis Baard, John Taolo Gaetsewe, Namakwa, Pixley ka Seme and the ZF Mgcawu District Municipality. The Limestone PV2 Solar Energy Facility site is located within the ZF Mgcawu District Municipality and Kgatelopele Local municipality. (Refer to Figure 4-1)

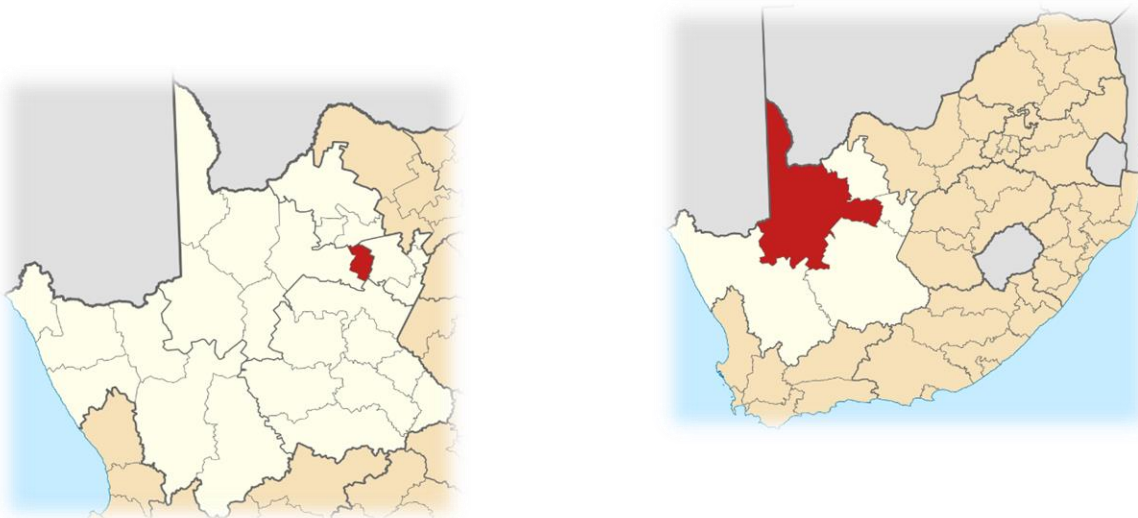


Figure 4-1 Maps indicating the location of the ZF Mgcawu District Municipality and the Kgatelopele Local Municipality (<https://municipalities.co.za/>)

The ZF Mgcawu District Municipality covers an area of approximately 102 524km². The Kgatelopele Local Municipality (KLM) covers a geographical area of 2 478 km². The KLM is the smallest of the five local municipalities that make up the ZF Mgcawu District Municipality. The administrative seat of the KLM is located within the town of Danielskuil.

4.3 DEMOGRAPHIC CONTEXT

In this section the demographic context of the Province, District and Local municipality is discussed. The information was obtained from Final 2019 Kgatelopele Spatial Development Framework - Review Document-Section A.

4.3.1 Northern Cape Province

The Northern Cape Province is located in the North Western corner of South Africa. South Africa has nine (9) provinces of which the Northern Cape is the largest. The province covers approximately 372 889km², which is ~30.5% of the total land surface of the country. Despite being the largest province it has the smallest population. According to census 2011 data, the Northern Cape experienced out migration of 69,527 and in migration of 62,792 people. Most people moved to the provinces of the Western Cape, Gauteng, Limpopo and the Eastern Cape due to employment prospects.

4.3.2 ZF Mgcawu District Municipality

The ZF Mgcawu District Municipality forms the mid-northern region of the province, which borders Botswana. This district has 102,524km² and over 27% of the Northern Cape Province area. With a land size of 102,524km², ZF Mgcawu is the third largest district in South Africa, after Pixley ka Seme and Namakwa, both also in the Northern Cape Province. This district is bordered by four (4) District municipalities, namely John Taolo Gaetsewe, Francis Baard, Pixley ka Seme and Namakwa District Municipality. It also shares borders with the Republic on Namibia and Botswana. The district municipality comprises of five (5) Local Municipalities namely, the Dawid Kruiper, Kai! Garb, Kheis and Kgatelopele Local Municipality.

The ZF Mgcawu District Municipality has a total population of 266 001. The population size of ZF Mgcawu increased by 37 555 between 2008 and 2018. The population growth in the local municipalities varied significantly. The! Kheis Local Municipality had the lowest average annual growth rate of -0.10% relative to the other within the ZF Mgcawu District Municipality.

Table 4-1 Population figures of the ZF Mgcawu District Municipality

Municipality	2008	2013	2018	Average annual growth
Kai!Garib	64,600	67,400	70,500	0.87%
Dawid Kruiper	97,600	107,000	115,000	1.69%
!Kheis	17,800	17,300	17,600	-0.10%
Tsantsabane	31,600	36,600	40,900	2.61%
Kgatelopele	16,800	19,400	21,600	2.53%
Total	228,446	247,820	266,001	1.53%

Source: IHS Markit Regional eXplorer version 1750

The population of the ZF Mgcawu District Municipality in 2018 was made up of 29.64% Africans (78 800), 8.35% Whites (22 200), 61.06% Coloured (162 000), and 0.96% Asians (2 540). In 2019, 51% of the ZF Mgcawu District Municipality population were males (144 902) and 49% were females (139 473). In contrast, the Northern Cape Province as a whole had 680 568 female residents, or 50.6% of the province's total population of 1.34 million people.

The young working age (25–44 years) age group make up the biggest percentage of the population, accounting for 86 700 people or 32.6% of the total. The age group of infants and children (0–14 years) has the second-highest population with a total share of 25.2%, followed by the age group of teenagers and young adults (15–24 years) with 49 300 persons.

4.3.3 Kgatelopele Local Municipality

The Kgatelopele Local Municipality is situated in the Mgcawu District Municipality of the Northern Cape Province. The main towns include Lime Acres and Danielskuil, which both fall into a medium category for development potential on an individual basis. Danielskuil serves as the major town of significance for the entire Kgatelopele Local Municipality area, the basis for economic activity, social and Institutional services and development opportunities within the municipality, whereas Lime Acres is very prominent as the mining town.

According to the Information Handling Services (IHS) Markit Regional eXplorer version 1750 the population of this Kgatelopele municipality was 21 600 in 2018. Compared to the 2008 the population of the municipal has increased mainly due to natural population growth and other factors. The population growth between 2008 (16 800) and 2018 (21 600) has increased by 2.53%, with male population at 52.5% and female at 47.5%. The 2011 census indicates that the majority of the population is relatively young. According the 2011 Census the majority of the population within the municipality speaks Afrikaans (58%) and Setswana (33%).

4.4 ECONOMIC CONTEXT

In order to determine potential socio-economic implications of the proposed Project, it is crucial to first have a very high-level understanding of the socio-economic context in which the proposed Project is to be developed. This prospective area of influence - also referred as to as either the Provincial, District and Local will be discussed in the next section. The information was obtained from the Northern Cape Provincial, The ZF Mgcawu District Municipality Final Integrated Development Plan _ framework 2021-2022 (IDP) and the Final 2019 Kgatelopele Local Municipality Spatial Development Framework Review Document – Section A (SDF).

4.4.1 Northern Cape Province

The Northern Cape is primarily dependent on two industries, namely mining and agriculture. These two industries employ approximately 57% of all workers in the province. There has been little no change in the overall standard of living of communities in the Northern Cape Province.

4.4.2 ZF Mgcawu District Municipality

The IDP identifies agriculture, agriculture enterprises, livestock farming, irrigation farming, tourism and heritage, and minerals and mining as the key economic activities. The municipal accounts for 30% of the provincial economy in terms of the minerals and mining in the district. Aside from mining, tourism is regarded as the most important sector in the district, and it is the fastest growing industry that contributes to the district economy. The mining and agricultural sectors thus largely dominates the economy of the ZF Mgcawu District Municipality.

4.4.3 Kgatelopele Local Municipality

The Kgatelopele Local Municipality IDP of 2018/2019 indicates that most people within the municipality have at least some secondary educations and have finished secondary school. Some have only completed elementary school, while others have no formal education. This indicates that their prospects of finding a good job or other employment options are reduced because they did not obtain their senior certificate. Due to the high percentage of people who completed secondary school and obtained a higher education, the municipality has large, capacitated workforce to contribute to the economy of the municipality.

Furthermore, the number of economically active people is slightly higher than the number of non-economically active people, resulting in a very high dependency ration of 50.6%. According to Stats 2011, the unemployment rate is 22.3% , with 29.1% of all unemployment people being young adults. There is a need to address the difficulties faced by those who are unemployed, especially young people.

4.5 OVERVIEW OF THE STUDY AREA

Limestone PV2 is located on portion 4 of the farm Engeland 300, which ~1842ha in extent and approximately 16km south-east of the town of Danielskuil and 9 Km east of Lime Acres within the Kgatelopele Local Municipality and the ZF Mgcawu District Municipality. Regionally, the study area is located about 52km south east of Postmasburg, 96 km south of Kuruman and about 65km north west of Delspoorthoop within the Northern Cape Province.

The study area occurs on land that ranges in elevation from approximately 1424m above sea level in the Great Pan and Rooipan in the west to 1454m a.s.l on the site itself and areas to the north and south west. The terrain surrounding the proposed property is generally flat. Two (2) pans, the Great Pan and Rooipan are located to the west of the proposed site, and there are numerous non-perennial pans present in the broader area. The area surrounds the project site is sparsely populated with 7.5 people per km² within the local municipality. In addition to Lime Acres, a number of isolated homesteads occur throughout the study area.

Rail infrastructure is prominent in the area, with the Transnet Cape Corridor Freight railway line running from northeast to south bisects the proposed site. This railway line is along heavy-haul railway line that connects mines between Warrenton in the North-East to Cape Town in the South. It is used primarily to transport commodities such as iron ore, manganese and lime and does not carry passengers. The greater landscape of the study area is characterised by wide-open spaces and very limited development. It should however be noted that there are a few of authorised (and current)/ proposed renewable energy applications within the study area and the greater region, that may change the landscape to some degree in the future. There are no formally protected or conservation areas within the study area. There are no tourist routes or protected areas found close to the project site.

4.5.1 Social receptors

The site is located in a relatively sparsely inhabited rural area. Eskom's Olien Substation and high voltage power lines is a prominent feature when approaching the project site from the south R31 connecting Danielskuil with Kuruman. The visual exposure for the Limestone PV2 Solar energy facility would largely be concentrated on the site itself and extend to the west, south and southeast. The findings from Visual Impact Assessment report state that Limestone PV2 facility may be highly visible within a core area of a 1km radius.

5. IDENTIFICATION AND EVALUATION OF SOCIAL IMPACTS

5.1 INTRODUCTION

This section focuses on the identification of the key social issues associated with the construction, operation and decommissioning of the proposed Limestone PV2 Solar Energy Facility. The identification of these key issues was identified based on the following:

- » The review of project baseline information and other specialist studies.
- » Interviews with interested and affected parties; and
- » Experience with similar projects

5.2 Social Impacts during the Construction Phase

The positive and negative social impacts identified and evaluated for the **construction phase** include:

- » Creation of employment opportunities
- » Potential risks to livestock and farming infrastructure and the presence of workers on site
- » In- migration or potential influx of job seekers
- » Potential impacts of heavy and construction related activities.
- » Increase Traffic

5.2.1 Potential Positive Impact: Creation of local employment and business opportunities, skill development and training

According to the information provided, the construction phase of the proposed Limestone PV2 Solar Energy Facility will extend over a period of 12 months. A total of 6,754 people are expected to be employed during construction phase. This will provide a social benefit to the community. The construction phase will also be beneficial for the local service industry. The possible employment prospects would be related to transportation, security, cleaning, catering, and accommodation needs for the construction workers. The availability of lodging will also help the region's hospitality economy.

Table 5-1 Impact Assessment of creation of local employment and business opportunities, skills development and training

<i>Nature: The creation employment opportunities and skills development</i>		
	Without mitigation	with mitigation
Extent	Local- Regional (3)	Local- Regional (3)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Highly Probable (4)
Significance	Low (27)	Medium (44)
Status (positive or negative)	Positive	Negative
Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impacts be enhanced?	Yes	

Enhancement measures:

To enhance the local employment, skills development and business opportunities associated with the construction phase, it is recommended that the following measures be considered for implementation:

- » Adoption of a local employment policy to maximise the opportunities made available to the local labour force. The AVG Projects (Pty) Ltd should make it a requirement for contractors to implement a 'locals first' policy, especially for semi and low skilled job categories.
- » Enhance employment opportunities for the immediate local area, i.e., Kgatelopele Local Municipality. If this is not possible, then the broader focus areas should be considered for sourcing workers.
- » The recruitment selection process must seek to promote gender equality, consideration must be given to women during the process.
- » It is recommended that realistic local recruitment targets be set for the construction phase.

Residual Risks:

The residual impacts associated with the creation of employment, business opportunities and training during the construction phase is that the workers can improve their skills by gaining more experience, improve quality of life and economic growth for small-scale entrepreneurs.

5.2.2 Potential Negative Impact: The Potential risks to livestock and farming infrastructure and the presence of workers on site

During the construction phase of the Limestone PV2 Solar Energy Facility the presence of construction workers on the project site poses potential risks to the local farmers. These possible risks could include stock theft, loss of livestock as a result of broken fences and open farm gates, damage to farming infrastructure including gates and fences, and so on. An adjacent landowner who was interviewed for this SIA said that having staff on the property is a concern. Her worries are about potential damage to farming infrastructure, theft, security issues, and unauthorized trespassing on sites other than the project site.

Table 5-2 Impact evaluation of potential risk to livestock and farming infrastructure and the presence of construction workers on site

Nature:		
The potential impact posed to farmers and farm workers due to the presence of construction workers on site. These impacts might include safety risks, damage to farming infrastructure and loss of livestock and theft.		
	Without mitigation	with mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Minor (2))
Probability	Medium Probability (3)	Improbable (1)
Significance	Low Negative (24)	Low Negative (6)
Reversibility	Yes, through compensation	Yes, through compensation
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » The movement of construction workers should be limited to the vicinity of the site. Create and implement a local procurement policy that prioritizes "locals first" to prevent people from migrating to the area in search of work. » Transportation for the construction workers need to be arranged by the contractor to ensure that there will be no trespassing of properties by any staff. » Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages 		

<p>or losses. Any form of theft, damaged infrastructure and trespassing will lead to immediate dismissal and the workers would be held liable for the costs thereof.</p> <p>»</p>
<p>Residual Risks: No residual impacts because the potential losses can be compensated for</p>

5.2.3 Potential Negative Impact- In-migration or potential influx of job seekers

In the case of large construction projects, job seekers tend to migrate to the development area in search of work. In some cases, the job seekers' families accompany them. Whether or not the job seekers find work, they and their families may become economically stranded in the surrounding area. The influx of job seekers has no direct social impact, but their presence and behaviours can have an impact on community structures and social networks, competition for housing and jobs, which can lead to xenophobia and crime.

Table 5-3- Impact evaluation of potential in migration or potential of job seekers

Nature: Migration from jobseekers and population changes.		
	Without mitigation	with mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low (4)	Minor (2))
Probability	Medium Probability (3)	Improbable (1)
Significance	Low Negative (24)	Low Negative (6)
Reversibility	No	No
Irreplaceable loss of resources?	Yes	Yes
Can impacts be enhanced?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » In collaboration with the municipality and local community leaders, create and implement a recruitment protocol. Make certain that the procedures for applying for jobs are clearly communicated. » Create and implement a local procurement policy that prioritizes "locals first" to prevent people from migrating to the area in search of work. » Prior to construction, engage with local community representatives to facilitate the adoption of the "locals first" procurement policy. » Provide workers with transportation (from towns such as Danielskuil, Postmasburg, and others) so that they can easily access their place of employment and do not need to relocate closer to the site. » Prevent the recruitment of workers at the site. » Create and implement a grievance procedure. » Appoint a Community Liaison Officer (CLO) to assist with local labour procurement. » Implement a method of communication in which procedures for lodging complaints are laid out so that the local community can express any complaints or grievances about the construction process. » Establish clear access rules and regulations for the proposed site. » Appoint a security company and put in place appropriate security procedures to ensure that employees do not remain on the premises after working hours. » Inform local community organizations and law enforcement forums about construction activities, times, and duration. 		
Residual Risks: Possibility of outside workers remaining in the neighbourhood after construction is completed and subsequent pressures on local infrastructure.		

5.2.4 Potential Negative Impact: Potential impacts of heavy construction vehicles and increase in traffic

The main entrance to the site is on a gravel road entrance. The gravel road also provides access to the farms in the area. The movement of heavy construction vehicles during the construction phase might potentially damage the current farm roads and in the process also increase traffic, create dust and safety impacts in the associated area. The road surface of the gravel road may deteriorate and will have to be maintained. The contractor should thus repair all the damages to the gravel road before the end of construction phase. An adjacent landowner that was interviewed for the purpose of this SIA expressed her concern regarding the possible damage to the existing road.

Table 5-4- Impacts evaluation of potential impacts of heavy vehicles associated with construction activities

Nature: Potential noise, dust, and safety impacts associated with construction-related activity movement and traffic movement to and from the site		
Impact description: The gravel and the R385 will be used more frequently and the slow-moving construction and delivery vehicles may cause the intersection to be more unsafe.		
	Without mitigation	with mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	High Probability (4)	Probable (3)
Significance	Medium (40)	Low (24)
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » During the construction phase, working hours should ideally be limited to daylight hours. Where a change in working hours is required, the relevant authorities must approve it, and surrounding landowners must be notified. » All vehicles must be roadworthy, and drivers must be licensed, follow traffic rules, adhere to speed limits, and be made aware of potential road safety issues. » The EPC contractor should inspect construction vehicles on a regular basis to ensure their roadworthiness. » For the duration of the construction period, it is necessary to establish traffic warning signs and control measures that are adequate and strategically located along the R385 and gravel access roads. At all times, but especially at night, warning signals must be seen. » Ongoing communication with landowners and road users during construction period. » It is necessary to create communication lines between the EPC contractor and the impacted and nearby landowners. A Community Liaison Officer should be recruited to carry out the suggested grievance mechanism. » To allow the local community to voice any issues or grievances over the construction process, a mechanism of contact with clear processes for filing complaints should be created. » Dust suppression measures must be implemented on un-surfaced roads, such as wetting on a regular basis and ensuring that vehicles used to transport building materials are fitted with tarpaulins or covers. » Before construction begins, hold informational seminars to ensure that the nearby communities are fully informed about the project that will be produced in its finished form. This needs to be done via the Community Liaison Officer (CLO). 		
Residual Risks:		
If damage to local roads is not repaired, it will affect other road users and result in higher maintenance costs. The costs will be borne by road users who were not at fault for the damage.		

5.2.5 Potential Negative Impact: Increased risk of potential veld fires

During the construction phase there is an increased risk of veld fires due to the presence of construction related activities as well as the presence of construction workers on site. The risk of veld fires poses further threats to the loss of livestock, crops and farmsteads in the area. This could result in the loss or damage of farm infrastructure and also threaten human lives. All farmers that were interviewed for the purpose of this SIA expressed their concern regarding the risk of veld fires during the construction phase. They have all suggested that the necessary mitigation measures should be taken, the site need to be equipped with the correct firefighting equipment and workers should be trained. They also mentioned that any damages caused due to veld fires borne from the construction phase need to be compensated for by the contractors.

Table 5-5- Assessment of potential impacts related to increased risk of veld fires

Nature: The potential loss of livestock, crops and farmsteads in the area. This also includes the damage and loss of farm infrastructure and the threatening of human lives that are associated with the increased risk of veld fires.		
	Without mitigation	with mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	High (8)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium- Negative(36)	Low- Positive (24)
Reversibility	No	No
Irreplaceable loss of resources?	Yes	Yes
Can impacts be enhanced?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » A firebreak should be implemented before the construction phase. The firebreak should be controlled and constructed around the perimeters of the project site. » Adequate fire-fighting equipment should be provided and readily available on site and all staff should be trained in firefighting and how to use the fire-fighting equipment. » No staff (except security) should be accommodated overnight on site and the contractor should ensure that no open fires are allowed on site. The use of cooking or heating implements should only be used in designated areas. » Contractors need to ensure that any construction related activities that might pose potential fire risks, are done in the designated areas where it is also managed properly. » Precautionary measures need to be taken during high wind conditions or during the winter months when the fields are dry. » The contractor should enter an agreement with the local farmers before the construction phase that any damages or losses during the construction phase related to the risk of fire and that are created by staff during the construction phase, are borne by the contractor. 		
Residual Risks:		
The residual impacts include the impact on livelihoods and the income generated by the farming activities. The reduced carrying capacity due the loss of grazing fields. In the case thereof compensation need to be paid in the case of any damages and losses.		

5.2.6 Potential Negative Impact: Potential impacts associated with the presence of construction workers on the local communities.

The potential impacts associated with the presence of the construction workers on the local economies include the posed risks associated with family structures and social networks. The manner in which construction workers conduct themselves might have an impact on the local communities. A review of previous solar PV stated that the potential impact is linked to risky behaviour like, the increase in alcohol and drug use, crime levels increasing, increased unwanted pregnancies and prostitution, and an increase in sexually transmitted diseases.

Table 5-6- Assessment of potential impacts related to the presence of construction workers on local communities

Nature: The potential impact posed to farmers and farm workers due to the presence of construction workers on local communities. These impacts include the risks posed to family structures and social networks of the local community.		
	Without mitigation	with mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Low(4)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Low- Negative(24)	Low- Positive (24)
Reversibility	No	No
Irreplaceable loss of resources?	Yes	Yes
Can impacts be enhanced?	Yes	
Mitigation: The following mitigation measures can be implemented to effectively mitigate the potential impacts identified above, related to the presence of construction workers on the local community:		
<ul style="list-style-type: none"> » The proposed site of the Limestone PV2 should be fenced off and the movement of construction workers should be limited to the vicinity of the site. » Transportation for the construction workers need to be arranged by the contractor to ensure that there will be no trespassing of properties by any staff. Necessary arrangements to enable workers to return to their hometowns over weekends should also be arranged in order to reduce the risks posed to local family structures and social networks. » No staff should be accommodated over night on site, except for security staff. » Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages or losses. This code of conduct should also outline the acceptable behaviour and activities of construction workers. » Awareness programmes for HIV/AIDS should be implemented for the construction workers. 		
Residual Risks: No residual impacts		

5.3 Social Impacts during the Operation Phase

The positive and negative social impacts identified and evaluated for the **operational phase** include:

- » Creation of local employment and business opportunities, skills development, and training
- » The development of infrastructure for the generation of renewable energy
- » Visual impacts and associated impacts on the sense of place

5.3.1 Potential Positive Impact: Creation of local employment and business opportunities, skill development and training.

Low educational levels in the Kgatelopele Municipality make it beneficial for the community in the long run to execute a capacity building and skills development training program. As people receive training, their

income will rise, and their material and economic well-being will advance. The majority of individuals in the area work in mining, agriculture, and then community services. Since the energy industry is new to the area, the available talent pool is small. Members of the community will be able to work at other similar projects in the region with the help of their acquired skills.

Table 5-7- Impacts evaluation of potential impacts of Creation of local employment and business opportunities, skill development and training.

Nature: The creation of employment opportunities and skills development opportunities during the operation phase for the country and local economy.		
	Without mitigation	with mitigation
Extent	Local -Regional (3)	Local - Regional (3)
Duration	Long term (4)	Long-term (4)
Magnitude	Low (4)	Low (4)
Probability	Medium Probable (3)	High Probable (4)
Significance	Medium Positive (33)	Medium Positive (44)
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Enhancement measures:		
<ul style="list-style-type: none"> » It is recommended that a local employment policy is adopted by the Project Developer to maximise the project opportunities made available to the local community. Enhancement of employment opportunities for the immediate local area, KLM, if this is not possible, then the broader focus areas should be considered for sourcing employees. » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. » Wherever practicable, vocational training programs ought to be implemented to support employee skill development. » Proof of skills development must be provided to the upskilled and individual. 		
Residual Risks: Improved pool of skills and experience in the local area		

5.3.2 Potential Positive Impact: The development of infrastructure for the generation of renewable energy

Most South Africa's energy requirements are now satisfied by coal, according to an analysis of prior projects. Although the projected Limestone PV2 will only make a relatively small contribution to South Africa's overall electricity grid, it will help offset the country's overall carbon emissions from the energy generation sector. The projected Limestone PV2 will benefit the energy sector in this regard as an Independent Power Provider (IPP) for renewable energy.

Table 5-8- Impacts assessment of potential impacts of development of infrastructure for the generation of renewable energy

Nature: Development of clean, renewable energy infrastructure.		
	Without mitigation	with mitigation
Extent	Local – Regional -National (4)	N/A
Duration	Long term (4)	N/A
Magnitude	Minor (2)	N/A
Probability	Highly Probable (4)	N/A

Significance	Medium Positive (40)	N/A
Reversibility	Yes	N/A
Irreplaceable loss of resources?	Yes, impact of climate change on the ecosystem	N/A
Can impacts be enhanced?	Yes	
Enhancement measures: None anticipated		
Residual Risks: Reduce carbon emissions through the use of renewable energy and contributing to efforts to reduce global warming		

5.3.3 Potential Negative Impact: Visual impact and impact on sense of place.

The potential social impact associated with the establishment of Limestone PV2 will have a visual impact on the environment and its surroundings. In effect this will also impact the sense of place of the surrounding areas of the proposed Limestone PV2. The proposed Limestone PV2 might slightly be visible from a 1km radius, but the impact hereof on the sense of place is likely to be low.

Table 5-9- Impact Assessment of potential visual impact and impact on sense of place

Nature: Visual impacts and impacts on sense of place		
	Prior to Mitigation	Post Mitigation
Extent	Local (2)	N.A. – Mitigation not possible.
Duration	Long term (4)	N.A. – Mitigation not possible.
Magnitude	Low (4)	N.A. – Mitigation not possible.
Probability	Highly probable (4)	N.A. – Mitigation not possible.
Significance	Moderate Negative (40)	N.A. – Mitigation not possible
Reversibility	Yes, Solar facility can be removed	
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation: To successfully reduce the visual impact and the influence on sense of place during the operating phase of the planned project, it is advised that the recommendations provided in the Visual Impact Assessment (Specialist study) be followed in this regard.		
Residual Risks: The Limestone PV2 Solar Energy Facility infrastructure will be visible until it is completely decommissioned and removed. Following that, the impact will be removed.		

5.3.4 Potential Negative Impact: Impact on Tourism

In the Northern Cape province tourism is regarded as an important sector contributing to the provinces' economic sector. The main tourism in this area is linked to the mining sector. The impact however of the proposed Limestone PV2 on the tourism sector is likely to be low, but in some cases the Limestone PV2 may attract tourists to the proposed area and its surroundings.

Table 5-10- Assessment of potential impacts related to the impact on tourism.

Nature: Visual impacts and impacts on sense of place		
	Prior to Mitigation	Post Mitigation
Extent	Local (2)	Local (2)

Duration	Long term (4)	Long term (4)
Magnitude	Low (2)	Low (2)
Probability	Probable (3)	Probable (3)
Significance	Low (32)	Low (32)
Reversibility	Yes	
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation: To effectively mitigate the impact on tourism during the operational phase of the proposed Limestone PV2, it is suggested that the recommendations made in the Visual Impact Assessment (specialist study) should be followed in this regard.		
Residual Risks: No residual impact		

5.4 Social Impacts during the Decommissioning Phase

The key potential negative impact which is associated with the decommissioning phase of the proposed Limestone PV2 Solar Energy Facility relates to the loss of employment and income for those people employed at the facility.

5.4.1 Potential Negative Impact: Loss of local employment and income

The most likely negative impact of the decommissioning phase is the loss of employment and income, which has a direct impact on the employees' households and the communities in which they live. The identified impacts associated with the decommissioning phase can be managed through the implementation of downscaling programs and retrenchment packages.

Table 5-11-Impact assessment of Loss of income and employment

Nature: Loss of income and employment		
	Without to Mitigation	With Mitigation
Duration	Medium term (4)	Short (1)
Extent	Local (2)	Local (2)
Magnitude	High (8)	Moderate (6)
Probability	Medium Probable (2)	Medium Probable (2)
Significance	Medium Negative (36)	Low Negative (18)
Reversibility	No	Yes
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	No	
Mitigation: <ul style="list-style-type: none"> » During the decommissioning phase, retrenchment packages should be made available to all staff being retrenched. » Limestone PV2 Solar Energy Facility should be dismantled and removed from the site. Funds should also be set aside for rehabilitation and the closure of Limestone PV2 Solar Energy Facility. 		
Residual Risks: No residual impacts		

5.5 Cumulative Impacts

There are a number of proposed and authorised projects in the broader area, which result in the potential for cumulative impacts on the social environment. 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 of jobseekers and change in the areas sense of place.

5.5.1 Cumulative Impact on local economy employment opportunities, business opportunities and skills development

The development of renewable energy facilities and associated infrastructure, such as the proposed solar energy facility, will also create a number of socioeconomic opportunities for the Kgatelopele Local municipality. Positive cumulative opportunities include job creation, skill development and training, and downstream business opportunities. The potential cumulative benefits for the local and regional economies are thus associated with both the construction and operational phases of renewable energy projects and associated infrastructure and span a 20-25-year period. However, steps must be taken to increase employment opportunities for members of the surrounding communities and to support skill development and training programs.

Table 5-12- Cumulative Impact of employment opportunities, business opportunities and skills development

Nature: An increase in employment opportunities, skills development and business opportunities with the establishment of more than one solar power facility.		
	Overall impact/benefit of the proposed project considered in isolation	Cumulative impact/benefit of the project and other projects in the area
Duration	Short term (2)	Long term (4)
Extent	Local-Regional (3)	Local-Regional (3)
Magnitude	Moderate (6)	Moderate (6)
Probability	Highly Probable (4)	Definite (5)
Significance	Medium (44)	High (65)
Reversibility	N/A	N/A
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation: <ul style="list-style-type: none"> » The establishment of a number of solar power projects in the area has the potential to have a positive cumulative impact on the area in the form of job opportunities, skill development, business opportunities, and SED, where these opportunities are localized. The positive effects will be amplified if local employment policies are implemented, and local service providers are tapped by developers to maximize project opportunities for the local community. 		
Residual Risks: <ul style="list-style-type: none"> » Improved pool of skills and experience in the local area. » Improved standard of living through the creation of employment opportunities. » Economic growth for small-scale entrepreneurs 		

5.5.2 Potential Negative Impact: Cumulative Impact on Sense of Place

The potential cumulative impacts on the area's sense of place will be largely linked to potential visual impacts. The proposed Solar Energy Facility and associated infrastructure is unlikely to have a significant impact on the area's sense of place. The cumulative effects are also likely to be minimal.

Table 5-13- Cumulative impacts on sense of place and the landscape

Nature: Visual impact and impact on the sense of place and landscape character.		
	Overall impact/benefit of the proposed project considered in isolation	Cumulative impact/benefit of the project and other projects in the area
Extent	Local (2)	Local-Regional (3)
Duration	Short term (2)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Low (24)	Medium (39)
Reversibility	Solar facility can be removed.	
Irreplaceable loss of resources?	No	No
Can impacts be enhanced?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » To prevent deterioration of the area and its sites and an impact on the visual quality and sense of place of the region, maintain and manage the facilities to be in excellent and orderly state. » Apply the appropriate mitigation strategies as advised by the Visual Impact Assessment. 		
Residual Risks:		
<ul style="list-style-type: none"> » The visual impact will remain until the infrastructure is completely decommissioned and removed. Thereafter the impact will be removed. 		

5.5.3 Cumulative Impact with large scale in-migration of people

While the development of a single solar power project may not result in a large influx of people, the development of several projects at the same time may have a cumulative effect on in-migration and movement of people. Additional pressure on municipal services and housing is another potential impact of in-migration to the area; however, this impact will need to be addressed in the municipal IDP process and considerations. Controlling an influx of people into a region is extremely difficult, especially in a country with high unemployment rates. To reduce the possibility of such an impact occurring, it is critical that project proponents implement and strictly adhere to a local employment policy.

Table 5-14- Cumulative impact with large scale in-migration of people

Nature: Large scale in migration		
	Overall impact/benefit of the proposed project considered in isolation	Cumulative impact/benefit of the project and other projects in the area
Duration	Short term (2)	Long term (4)
Extent	Local (2)	Local-Regional (3)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Low (24)	Medium (39)
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No

Can impacts be enhanced?	Yes
Mitigation:	
<ul style="list-style-type: none"> » Create a recruitment policy / process (to be implemented by contractors) for sourcing labour locally. » Collaborate with government agencies to ensure that service delivery is in line with local development needs. » Create and implement a recruitment protocol in collaboration with the municipality and local community leaders. » Ensure that the procedures for applying for jobs are clearly communicated. 	
Residual Risks:	
<ul style="list-style-type: none"> » Possibility of outside workers remaining in the area after construction is completed, putting additional strain on local infrastructure, services, and poverty issues 	

5.7 “No Development” Alternative

The option of no-development poses a lost opportunity for South Africa to provide its consumers with renewable energy. This has a negative social cost for the nation. At a local level, this alternative would result in a lost opportunity in terms of job creation and socio-economic upliftment. However, it should be emphasized that the development of the suggested Limestone Solar PV2 Solar Energy Facility is not a unique development. A significant number of renewable energy facilities are proposed in the Northern Cape Province and already established renewable energy facilities are already operational in certain parts of South Africa. Therefore, adopting the no development alternative would not comprise the renewable energy development across the Northern Cape Province and South Africa, but the socio-economic benefits to the Kgatelopele Local Municipality and the communities will be lost. From a social perspective the implementation of the no project alternative is not preferable as it would compromise the opportunity to supplement the national grid with the renewable energy.

Table 5-15- “No Go” Alternative

Nature: Implementation of the no project alternative	
	Without mitigation
Duration	Long term (4)
Extent	Regional (5)
Magnitude	Moderate (6)
Probability	Definite (5)
Significance	High (75)
Reversibility: Yes	
Irreplaceable loss of resources Yes	
Can impacts be optimised. No	

6. KEY FINDINGS AND RECOMMENDATIONS

6.1 Introduction

This section presents the final key findings and recommendations of the SIA. The key findings and recommendations are based on the review of the basic information identified during the scoping process of the EIA as well as a review of the policy and planning documents which relates to this proposed Limestone PV2 solar energy facility. A review of selected specialist studies, and similar projects and literature were conducted, interviews and meetings were held with interested and affected parties (IAPs). This section was compiled based on the results of the tasks that were completed during this study.

6.2 Key Findings

The main findings of the review of policy documents at all levels of government indicated that renewable energy, specifically solar energy, received strong support. The Republic of South Africa's White Paper on Energy Policy of 1998 stated that because renewable energy resources operate from an infinite resource base, such as the sun, renewable energy can increasingly contribute to long-term sustainable energy for future generations. This policy also emphasizes that, due to South Africa's unlimited renewable energy resource base, renewable energy applications such as solar and wind energy are more sustainable in terms of social and environmental costs.

Renewable energy applications are supported by policy documents at the provincial, district, and local levels. The use of renewable energies is not explicitly addressed in policy documents at the provincial, district, and local levels; however, the transition to low-carbon economies and the reduction of municipal areas' carbon footprint, as well as their support for alternative energies as an LED program, are mentioned. More employment opportunities are being created to reduce community vulnerabilities in order to ensure more resilient communities and a more sustainable economy.

According to a review of relevant policies and documents related to the energy sector, renewables such as solar energy and the establishment of these facilities are supported at all levels of government. The author of this SIA report believes that the establishment of the Limestone PV2 solar Energy Facility is supported by the policies and planning documents reviewed in this section at all levels of government.

The identified impacts during each phase of the proposed project with their significance ratings and positive or negative status, without and with mitigation are summarised in Table 6.1 and 6.2. below. For more information regarding the farmers' comments, obtained during interviews for the purpose of this SIA, on certain social impacts in the different phases of the proposed Limestone PV2, see Section 2 in this SIA.

Table 6-1- Summary of significance ratings of potential positive and negative impacts identified during the construction phase of the proposed Limestone PV2

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: The creation of local employment and business opportunities, skills development and training.	Low+	Medium
Potential Negative Impact: The Potential risks to livestock and farming infrastructure and the presence of workers on site	Low-	Low-

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Negative Impact- In-migration or potential influx of job seekers.	Low-	Low-
Potential Negative Impact: Potential impacts of heavy construction vehicles and increase in traffic.	Medium +	Low +
Potential Negative Impact: Increased risk of potential veld fires.	Medium -	Low+
Potential Negative Impact: The presence of construction workers on the local communities.	Low -	Low-

Table 6-2- Summary of significance ratings of potential positive and negative impacts identified during the operational phase of the proposed Limestone PV2

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: Creation of local employment and business opportunities, skill development and training.	Medium +	Medium +
Potential Positive Impact: The development of infrastructure for the generation of renewable energy	Medium +	N/A
Potential Negative Impact: Visual impact and impact on sense of place.	Medium -	N/A
Potential Negative Impact: The impact on tourism	Low -	Low-

6.3 Recommendations

The Social Impact Assessment conducted as part of the EIA process led to the following recommendations. To minimize the negative effects and maximize the beneficial effects, the suggested mitigation actions should be put into practice. The recommendations below are provided in light of the social assessment:

- » During the construction and the operational phase of the proposed project, various employment opportunities, with different levels of skills will be created. In addition, this will also create local business opportunities benefitting the socio-economic development of the local community. The establishment of the proposed Limestone PV2 is supported by the findings of this report and therefore, also creating a positive social benefit for society.
- » To maximize the beneficial effects of job development in the area, local labour should be used. Wherever possible, local business should be involved in the construction process. To make sure that the local communities' benefit, it is essential to use local workers as far as possible. Thus, it is preferable to engage local labour whenever possible during the project's construction and operation phases.
- » The enhancement and mitigation measures outlined in the SIA and other key specialist reports should be implemented.
- » The environmental authorities should take into account the potential visual consequences of the project, which were covered in the Visual Impact Assessment (VIA).

6.4 Conclusion

In assessing the social impact of the proposed project, it was found that in respect of the energy needs of the country and South Africa's needs to reduce its carbon emissions that the project is aligned with national, provincial and municipal policy. With regard to the impacts associated with the project it was established

that most apply over the short term to the construction phase of the project. Of these impacts, all can be mitigated to within tolerable ranges and there are no fatal flaws associated with the construction of the project.

The proposed project and associated infrastructure will create a number of potential socio-economic opportunities and benefits and are unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the project is acceptable subject to the implementation of the recommended mitigation and enhancement measures and management actions identified for the project. Considering the findings of the report and potential for mitigation it is the reasoned opinion of the specialist that the project can be authorised from a social perspective.

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