SOCIAL IMPACT ASSESSMENT
EIA REPORT

PROPOSED LETHABO PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITY, NEAR SASOLBURG

FREE STATE PROVINCE

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Executive Summary

Savannah Environmental (Pty) Ltd has been appointed by Eskom Holdings (SOC) Limited, to undertake an Environmental Impact Assessment (EIA) for the establishment of the proposed Lethabo Photovoltaic (PV) Solar Energy Facility and associated infrastructure. The proposed Lethabo Solar Energy Facility is situated approximately ~15km north east of Sasolburg within the Lethabo Power Station boundary, on Farm 1814. Two potential locations for the proposed Lethabo Solar Energy Facility have been proposed on different locations within Farm 1814. The alternative site 1 will cover an area of approximately ~130ha and will have a generating capacity of 75MW. The alternative site 2 will cover an area of ~52ha and will have a generating capacity of up to 35MW. Grid connection will be to either a substation or power line on site. The site falls within the Metsimaholo Local Municipality (MLM), which is located within the jurisdiction of the Fezile Dabi District Municipality (FDDM) in the Free State Province.

The social impact assessment was undertaken by Candice Hunter of Savannah Environmental (with an independent external review by Dr Neville Bews) as a part of an EIA process. The purpose of the report is to assess the potential social impacts associated with the proposed development and to recommend ways to reduce/avoid the negative social impacts and enhance the positive social impacts associated with the proposed development. This report contains the findings of the social impact assessment for the EIA process for the proposed project.

Legislation and Guidelines

The review of the relevant planning and policy documents was undertaken as a part of the SIA process. The key documents reviewed included:

National Policies:

- The Constitution Act 108 of 1996
- National Environmental Management Act 107 of 1998 (NEMA)
- National Energy Act (2008)
- National Development Plan 2030
- National Climate Change Response Green Paper (DEA, 2010)
- White Paper on Energy Policy of the Republic of South Africa (1998)
- White Paper on Renewable Energy of the Republic of South Africa (2003)
- National Integrated Resource Plan South Africa (2010-2030)
- Strategic Infrastructure Projects (SIPs)

Provincial Policies:

- Free State Provincial Growth and Development Strategy (FSPGDS) (2030)
- Free State Provincial Spatial Development Framework (FSPSDF) (2012)

District and Local Policies:

- Fezile Dabi District Growth and Development Strategy (2004-2014)
- Fezile Dabi District Municipality Integrated Development Plan (2012-2017)

- » Metsimaholo Local Municipality Integrated Development Plan (IDP) (2012/13-2016/17)
- » Metsimaholo Local Municipality Local Economic Development (LED) (2012)
- » Metsimaholo Spatial Development Framework (SDF) (2012)

Solar Energy Policies:

- » Solar Energy Technology Roadmap (2013)

Baseline Description of the Social Environment

The socio-economic profile provided an overview of the study area. The following is a summary of the key baseline findings as a result of the study conducted on the Fezile Dabi District Municipality (FDDM) and the Metsimaholo Local Municipality (MLM), in the Free State province. In summary, the area was found to have the following general characteristics:

- » The population of the FDDM in 2011 was approximately 488 036 people, of which 149 108 people reside in the MLM. The average annual population growth rate in the study area experienced an average growth rate of 0.6% in the FDDM and a growth rate of 2.5% within the MLM from 2011 to 2011.
- » The majority of the local population belong to the Black African group and the most spoken language is Sotho.
- » 69.4% of the MLM population comprise the Economically Active Population (EAP); this implies that there is a larger human resource base for development projects to involve the local population. The dependency ratio is high at 30.6% of the MLM population (that is almost a third of the local population) which puts pressure the EAP and local municipalities.
- » The male population is slightly more prominent in the MLM; linked to the industrial character of the area.
- » The skills profile of the area indicates that the availability of local labour for the proposed project is largely limited to low-skilled construction workers and a small number of skilled workers.
- » There is high unemployment rate in the MLM (32%) with a large economically active population seeking employment opportunities. Local workers should be utilised as much as possible for the proposed development in order to alleviate local unemployment.
- » The continuous increase in the number of formal households in the local area will have an upward impact on electricity demand thus requiring greater electrical capacity.
- » Higher unemployment and lower income levels in the study area demonstrate the need for job creation.
- » The high demand for employment can be addressed (although marginally) through direct job creation during the construction and operation phase of the proposed development

- » Access to basic services is generally greater in the MLM than at a provincial level demonstrating that service delivery is generally more accessible.
- » The shift of the economy from a primary to a tertiary economy is resulting in a large number of jobs losses and the mining sector is identified as suffering the largest loses. Metsimaholo has been earmarked as a development nodal point for the coming 20 years which is line with the proposed development.

The proposed development supports social and economic development through enabling skills development and training in order to empower individuals and promote employment creation within the local area. The development would mainly focus on economic benefits to the area and introduce a new industry into the local economy. Negative dimensions of impacts such as influx of jobseekers and pressure on the provision of basic services will be weighed in the social impact assessment during the EIA phase.

Social Impact Assessment

The environmental assessment framework for the assessment of impacts and the relevant criteria was applied to evaluate the significance of the potential social impacts. A summary of the potential positive and negative social impacts identified in the SIA for the construction and operation phase for the proposed development are presented in table 1 and table 2 below.

Table 1: Summary of social impacts during construction phase

CONSTRUCTION PHASE				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
Impact	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**
Positive Impacts				
Direct employment and skills development	Low	Medium	Low	Low
Economic multiplier effects	Low	Medium	Low	low
Negative Impacts				
Safety and security risks	Low	Low	Low	Low

Impacts on daily living and movement patterns	Medium	Low	Low	Low
Pressure on economic and social infrastructure impacts from an in migration of people	Medium	Low	Low	Low
Nuisance impacts (noise & dust)	Low	Low	Low	Low

Table 2: Summary of social impacts during operation phase

OPERATION PHASE				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
Impact	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**
Positive Impacts				
Direct employment and skills development	Low	Medium	Low	Medium
Development of clean, renewable energy infrastructure	Medium	Medium	Medium	Medium
Negative Impacts				
Visual and sense of place impacts	Low	Low	Low	Low

Recommendations

The following recommendations are made on the basis of the Social Impact Assessment and a thorough review of the concerns and suggestions raised by stakeholders and interested and affected parties during the stakeholder engagement process. The proposed mitigation measures should be implemented to limit the negative impacts and

enhance the positive impacts. Based on the social assessment, the following recommendations are made:

» In terms of employment related impacts, it is important to consider that job opportunities for the unskilled and semi-skilled are scarce commodities in the study area and could create competition among the local unemployed. Introducing an outside workforce will therefore most likely worsen local endeavours to obtain jobs and provoke discontent as well as put pressure on the local services available. Local labour should be utilised to enhance the positive impact of employment creation in the area. Local businesses should be involved with the construction activities where possible. It is imperative that local labour be sourced to ensure that benefits accrue to the local communities. Preference should thus be given to the use of local labour during the construction and operational phases of the project as far as possible.
» Locals should also be allowed an opportunity to be included in a list of possible local suppliers and service providers, enhancing the multiplier effect. This aspect would serve to mitigate other subsequent negative impacts such as those associated with the inflow of outsiders to the area, the increased pressure on the infrastructure and services in the area, as well as the safety and security concerns.
» Impacts associated with the construction period should be carefully mitigated to minimise any possible dust and noise pollution.
» Safety and security concerns should be taken into account during the planning and construction phases of the proposed project.

Overall Conclusion

The proposed Lethabo Solar Energy Facility and associated infrastructure is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the proposed Lethabo Solar Energy Facility alternative site 1 or alternative site 2 could be developed subject to the implementation of the recommended mitigation measures and management actions contained in the report. The proposed development represents greater positive social potential than negative implications due to the development being located in an industrial area. From the analysis of alternatives it can be concluded that the alternative site 1 is the socially preferred alternative as this development would bring more positive socio-economic benefits to the local area for a longer period of time; in terms of job creation, capital expenditure, wage bill expenditure and a higher amount of MWs of renewable energy. Therefore the alternative site 1 is the socially preferred option based on the greater socio-economic benefits the development will provide to the local area with minimal negative social impacts due to the site being located in an industrial area.

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List of Abbreviations

CNA	Community Needs Assessment
CSP	Concentrated Solar Power
DEA	Department of Environmental Affairs
DGDS	District Growth and Development Strategy
DM	District Municipality
EAP	Economically Active Population
EIA	Environmental Impact Assessment
EMF	Environmental management Framework
EMPr	Environmental Management Programme
EMZ	Environmental Management Zone
FS	Free State
FSPGDS	Free State Provincial Growth and Development Strategy
FSPSDF	Free State Provincial Spatial Development Framework
FDDM	Fezile Dabi District Municipality
GDP	Gross Domestic Product
HA	Hectares
HD	Historically Disadvantaged
HDSA	Historically Disadvantaged South Africans
IDP	Integrated Development Plan
IPP	Independent Power Producer
KPA	Key Performance Area
kV	Kilovolts
LED	Local Economic Development
LM	Local Municipality
MW	Megawatt
MLM	Metsimaholo Local Municipality
NEMA	National Environmental Management Act
NSSD	National Strategy for Sustainable Development
PV	Photovoltaic
PSDF	Provincial Spatial Development Framework
PGDS	Provincial Growth and Development Strategy
SEF	Solar Energy Facility
SEMP	Strategic Environmental Management Plan
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIPs	Strategic Infrastructure Projects
VIA	Visual Impact Assessment

1. Introduction

Savannah Environmental (Pty) Ltd has been appointed by Eskom Holdings (SOC) Limited, to undertake an Environmental Impact Assessment (EIA) for the establishment of the proposed Lethabo Photovoltaic (PV) Solar Energy Facility and associated infrastructure. The social impact assessment was undertaken by Candice Hunter of Savannah Environmental (with an independent external review by Dr Neville Bews) as a part of an EIA process. The proposed photovoltaic (PV) Solar Energy Facility and associated infrastructure is situated approximately ~15km north east of Sasolburg within the Lethabo Power Station boundary, on Farm 1814. Two potential locations for the proposed Lethabo Solar Energy Facility have been proposed on different locations within Farm 1814. The alternative site 1 will cover an area of approximately ~130ha and will have a generating capacity of 75MW. The alternative site 2 will cover an area of ~52ha and will have a generating capacity of up to 35MW. Grid connection will be to either a substation or power line on site. The site falls within the Metsimaholo Local Municipality (MLM), which is located within the jurisdiction of the Fezile Dabi District Municipality (FDDM) in the Free State Province. This report contains the findings of the social assessment for the EIA process.

1.1. Social Impact Assessment (SIA)

Social Impact Assessment (SIA) is described as "the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project developments, particularly in the context of appropriate national, state, or provincial environmental policy legislation" (Becker et al, 2003). By social impacts meaning the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society (National Maritime Fisheries Service, 1994).

SIA is a methodology or instrument used by social assessment practitioners to determine the social impacts from a project and to provide ways to mitigate and monitor potential impacts (Vanclay, 2003). The SIA is divided into a number of phases however the public consultation is a crucial step in the preparation of an SIA. SIA is concerned with the human dimensions of the environment, this meaning that;

> *"SIA is the process of analysing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programs, plans,*

projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment (Vanclay, 2003: 2)."

The National Environmental Management Act (NEMA) (Act 107 of 1998) sets out a number of principles which underpin environmental management in South Africa. A number of these principles relate to the social dimension of sustainable development and public process requirements such as transparency, accountability, democracy and environmental justice. The following principle outlines the basis for a Social Impact Assessment:

Environmental management must place people and their needs at the; forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.

More specifically, the social, economic and environmental impacts of activities must be considered and assessed. SIA is a useful planning tool that can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It also allows the community to anticipate, plan for, and deal with the social changes once they come to effect. In this sense then the SIA is an indispensable part of the EIA, the Environmental Management Programme (EMPr) and any participative activity (E.g. community involvement in mitigation and monitoring during planning and implementation). The purpose of an SIA report is to provide baseline information regarding the social environment and to identify possible social impacts that may come about as a result of a project. The report highlights the most likely associated social impacts to occur from the proposed project and provides methods to aim towards emphasizing positive impacts and avoiding, reducing or mitigating negative identified impacts.

1.2. Terms of Reference

The main aim of the SIA report is to assess the potential social impacts that may arise from the proposed development and to recommend the most suitable mitigation/enhancements measures from a social perspective. The purpose of the study:

» To provide baseline information describing the social environment affected by the proposed development
» To identify, describe and assess possible social risks/ fatal flaws and social impacts that may come about as a result of the proposed development (in terms of the construction, operational and decommissioning phases of the project);and

» To suggest ways in which these impacts can be mitigated or enhanced, aiming at maximising opportunities and avoiding and or reducing negative social impacts, including cumulative impacts.

1.3. Specialist Details

The SIA report was prepared by Candice Hunter of Savannah Environmental, a SIA specialist with a Master's degree in Environmental Management and an advanced certificate in Social Impact Assessment (SIA) from the University of Johannesburg. The SIA report has been reviewed by Dr Neville Bews, an independent external SIA specialist who has consulted in the SIA field for over 10 years and has a Ph.D in Sociology (see Appendix E: Reviewers report, declaration of independence and CV).

1.4. Declaration of Independence

A signed declaration of independence for Candice Hunter of Savannah Environmental is attached in Appendix D. Also see the signed declaration of independence of the external reviewer in Appendix E.

1.5. Project Overview

Project background and description:

Eskom has successfully installed PV systems at offices and parking lots within Eskom-owned property to promote renewable energy awareness and to diversify their own energy mix. Eskom aims to further reduce their self-consumption at their various owned or utilised sites by introducing Eskom's Ilanga PV Project Portfolio which aims to install 150 MW at their various power stations, offices and substations, which includes the proposed Lethabo Photovoltaic Solar Energy Facility. The solar PV facilities will promote the reduction of Eskom's carbon footprint and support the demand side management energy efficiency programme.

Eskom Holdings (SOC) Limited is proposing the establishment of a solar electricity generating facility and associated infrastructure. Infrastructure associated with the PV facility includes:

» Arrays of photovoltaic panels
» Mounting structures to support the PV panels
» Cabling between the project components
» Inverters/transformers enclosures
» An on-site substation or switching station

» A power line to facilitate the connection of the solar energy facility to the existing substation/ power line at the power station
» Internal access roads
» Buildings (which could include workshop area for maintenance and storage, and an on-site office).

The proposed Lethabo Solar Energy Facility and associated infrastructure is planned to include several arrays of photovoltaic (PV) solar panels. The exact number and placement of photovoltaic cells and arrays will be finalised based on the outcome of the EIA.

Alternatives being assessed:

Two potential locations for the proposed Lethabo Solar Energy Facility have been proposed on different locations within Farm 1814. The alternative site 1 is located on the south west hand side of the Lethabo Power Station, covering an area of approximately ~130ha that will have a generating capacity of 75MW. The alternative site 2 is located south of the Lethabo Power Station covering an area of ~52ha (the alternative site 2 will have a generating capacity of up to 35MW); refer to figure 1, the locality map for the location of the alternative sites.

Locality and size:

The Lethabo PV facility and associated infrastructure is proposed to be developed on Portion 0 of Farm 1814, located approximately 15km north east of Sasolburg in the Free State Province. The alternative site 1 will have a generating capacity of 75MW and will cover an area of approximately ~130ha in extent. The alternative site 2 will have a generating capacity of 35MW and will cover an area of ~52ha in extent.

Construction phase:

» *Duration:* It is estimated that the construction of the proposed Solar Energy Facility and associated infrastructure on the alternative site 1 with the 75MW component is expected to extend over a period of 18-24 months. The construction period for the alternative site 2 for the 35MW solar energy facility will be approximately 8-12months in extent.
» *Capital expenditure:* The total construction capital expenditure associated with the establishment of the 75MW Solar Energy Facility (alternative site 1) is estimated to be in the region of R1.8 billion. The alternative site 2 is estimated to cost approximately R1 billion for the 35MW solar energy facility. In terms of business opportunities for local companies, expenditure during the construction phase will create business opportunities for the regional and local economy.

» *Employment opportunities and wages:* The 75MW solar energy facility on the alternative site 1 is likely to create approximately 250-300 employment opportunities, depending on the final design. The alternative site 2 with a generating capacity of 35MW solar energy facility will generate approximately 150-200 employment opportunities. Of this approximately 45% of the opportunities will be available to low-skilled workers (construction labourers, security staff etc.), 22% will be available to semi-skilled workers (drivers, equipment operators etc.), and 33% will be available to skilled personnel (engineers, land surveyors, project managers etc.). The total wage bill for the construction for the 75MW facility on the alternative site 1 is estimated to be in the region of R13 million. The wage bill for the alternative site 2 will be less, in the region of R7 million for the 35MW facility. The injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area.
» *Skills development and training:* Eskom has indicated that there will be opportunities for on-site skills development and training for the construction phase.
» *Labour accommodation:* According to information provided by Eskom, no on-site accommodation labour camp is envisaged. Given the relative proximity of the site to Sasolburg, the construction crew will be housed off-site in the local area and will be transported to the site by bus. Overnight site worker presence will be limited to security staff.
» *Access Road:* The access road to the proposed site will be via the existing access road off the R716 that is currently used to access the Lethabo Power Station and Anglo Vaal Colliery. The R716 is a tarred road and the secondary road off the R716 is tarred and is currently being upgraded. The roads to the proposed site are currently in good condition and are utilised on a daily basis by a large number of trucks going to and from the Lerthabo Power Station and Anglo Vaal Colliery.
» *Transportation of components and equipment:* Transportation of project components and equipment to the proposed site would be transported using vehicular / trucking transport. The existing access road is off the R716 located on the west boundary of the site. The R716 and the secondary roads to the site will be the primary roads used for transportation of project components and equipment.

Operational phase:

» *Duration:* PV panels are designed to be operational for at least 20-25 years.
» *Employment*: Full-time operational and maintenance crews would be required for the solar energy facility. Based on information provided from the proponent, the 75MW Solar Energy Facility on the alternative site 1 will create approximately 50 jobs during the lifespan of the 75MW solar energy facility.

The 35MW PV facility located on the alternative site 2 will create approximately 25 jobs for the lifespan of the development.

» *Skills development and training:* There will be opportunities for on-site skills development and training for the operation phase.

» *On-site presence*: PV panels are designed to operate continuously, unattended and with low maintenance. Regular monitoring and maintenance activities every few weeks would be required to ensure safe and consistent operation (i.e. A mobile team for maintenance such as, cleaning of solar panels and road and vegetation maintenance) for at least 20-25 years of operation.

Decommissioning phase:

The PV infrastructure is anticipated to have a lifespan of approximately 25 years. It is likely that the PV panels will be replaced with more modern technology at the end of their lifespan, but this will depend on the need for the facility at the time. Disassembling and replacement activities will require the transport of abnormal loads to and within the site. Decommissioned components will be removed from the site and reused, recycled or disposed of in accordance with regulatory requirements. According to current legislation, infrastructure will have to be removed and the site rehabilitated once final decommissioning has occurred.

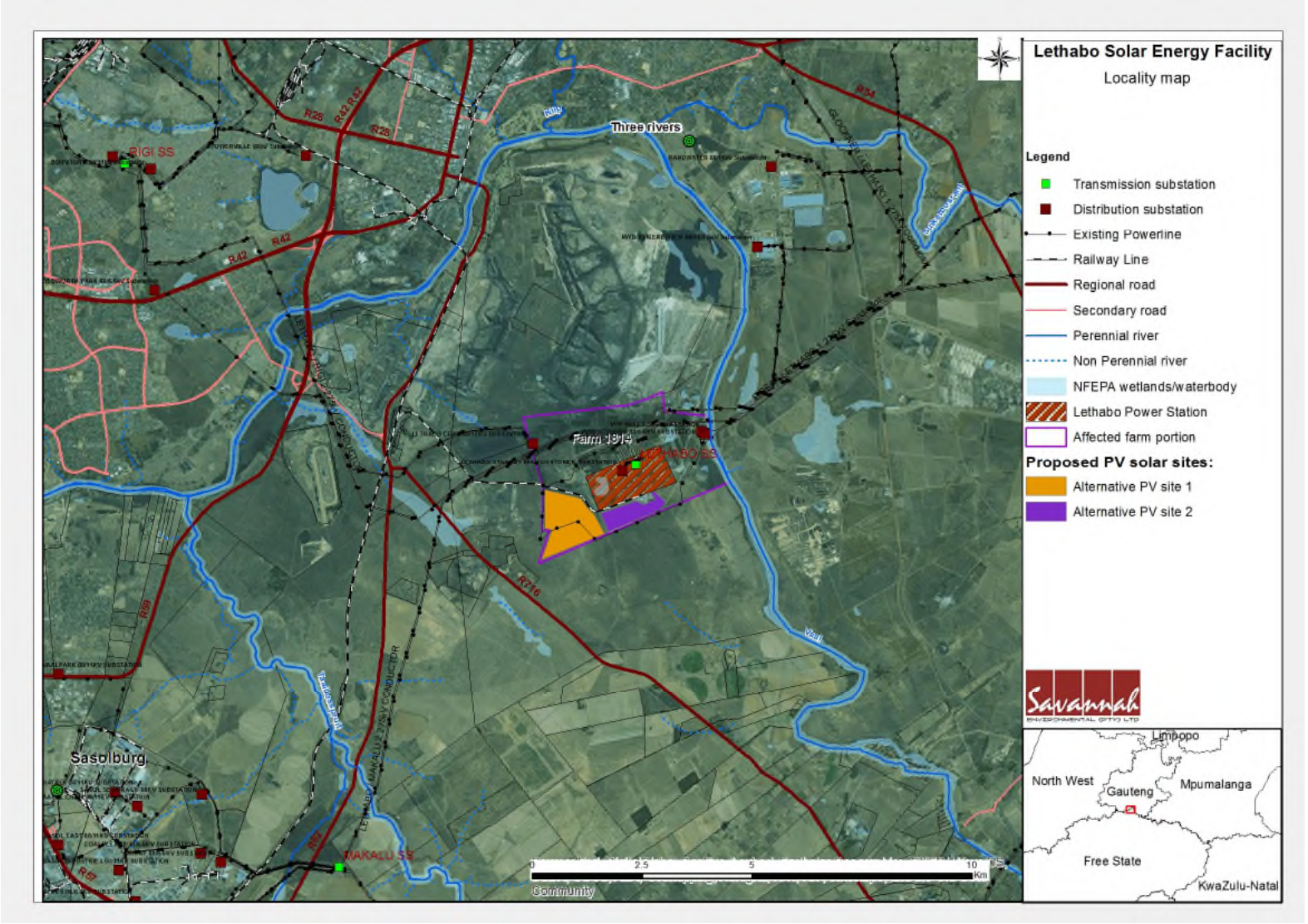

Figure 1: Location of the proposed alternative sites for the Lethabo Solar Energy Facility

2. Methodology and Approach

2.1. Approach to Study

The main aim for the social report is to determine the social impacts that may arise from the proposed development. The approach used for the SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007). These guidelines are based on the international best practice, the key objectives in the SIA process include:

- » Describing and obtaining an understanding of the proposed development (type, scale, location), the communities likely to be affected and determining the need and scope of the SIA;
- » Collecting baseline data on the current social environment and historical social trends;
- » Identifying and collecting data on the Social Impact Assessment variables and social change processes related to the proposed intervention. This requires consultation with affected individuals and communities;
- » Assessing and documenting the significance of social impacts associated with the proposed project;
- » Assessing the project (including any feasible alternatives) and identifying potential mitigation and enhancement measures;
- » Developing an Environmental Management Plan.

2.2. Data Collection

Primary and secondary data sources were utilised to inform the study in aid of the objectives of the study. Primary data sources for the SIA included the following (refer to Figure 2):

- » A site visit was undertaken during the week of 18-20 February 2015. Observations were also made while on site and within the study area.
- » Meetings were arranged and held with key representative stakeholders to collect primary social data. Meetings were held with individuals that were both directly and indirectly associated with the proposed development. Data collection was primarily gathered from meetings held with the impacted landowner, adjacent landowners and the local municipality.
- » Consultations with key stakeholders took place on Wednesday 18 February 2015. Numerous key stakeholders were visited personally or phoned. Where face-to-face meetings were not possible, telephonic discussions took place with as many stakeholders that could be reached. More than

10 telephone calls were made to stakeholders in the area to advise them of the project and/ or to arrange meetings. Stakeholders that were unable to meet were briefed over the phone on the background of the project, an overview of the environmental assessment process was provided and social issues / concerns / questions with the proposed development were discussed.

» Key stakeholders were contacted and meeting arrangements were made with key stakeholders during the social consultation process (see appendix B).
» Email correspondence took place with the key stakeholders that were willing to meet. The background information document and the comments and response form was emailed to the stakeholders to provide more detailed information about the project, advise them of the opportunity to comment and to arrange meetings.
» A project specific questionnaire was developed and utilized for the semi-structured meetings (see minutes of meetings in Appendix C). These meetings formed the basis of the primary data collection and assisted with the gathering of baseline information as well as establishing the stakeholder's perceptions, interests and concerns on the proposed development.

Secondary data collection methods mostly centred on desktop study were gathered and analysed for the purpose of the study, in which the following documents were examined (refer to Figure 2):

» Project maps
» A desktop aerial study of the affected area through the use of the latest version of Google Earth 2015
» The scoping report was reviewed to ensure that all the issues have been addressed at the EIA stage of the process
» Review of the background information document (BID)
» The Lethabo Solar Energy Facility stakeholder database
» Review of data was primarily retrieved from Census data, the 2011 South African Census Survey and the Local Government Handbook.
» Planning documentation such as District Municipality (DM) Integrated Development Plans (IDPs), Spatial Development Framework (SDF) and Environmental Management Framework (EMF) as well as the Local Municipality (LM) IDPs and policies.
» Review of relevant guidelines, policies and plan frameworks in relation to the project and in relation to the area were utilised, as outlined in Section 3 of this report.
» Other similar specialist studies were reviewed and relevant information has been fed into the SIA where there have been cross-cutting issues;

including the EIAs undertaken for previous solar energy facilities in South Africa.

» Literature reviews of social issues associated with solar energy facilities.

Information that was relevant to the project was identified and assessed from these sources within the context of the pre-construction, construction, operational and decommissioning phases of the proposed project. The evaluation of the social impacts involved the assessment of both quantitative and qualitative data and the use of professional judgement. Quantitative data collected through national sources or local level interviews is assessed and analysed using sociological techniques (see figure 2). However, qualitative data collected using the same methodology is more open to interpretation. In addition, what is a major impact to one person, one household or one community may be a minor impact to another according to specific personal circumstances. Hence, the results do not lend themselves easily to being ranked or assessed in exactly the same way as environmental data.

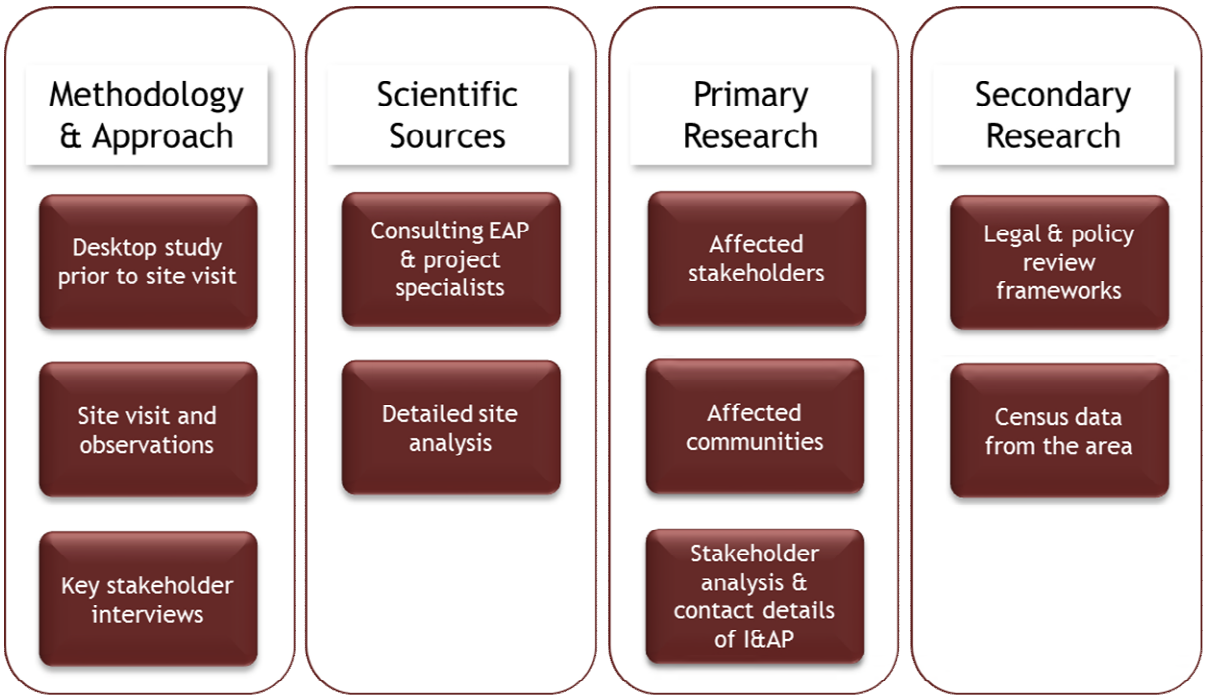

Figure 2: Research methodology and sources diagram

2.3. Public Participation Process

The process of stakeholder disclosure consultation is an ongoing overarching requirement that applies to the entire SIA process. The consultation was of critical importance in gaining insights into the key environment and social issues and concerns of communities and other stakeholders, and in aiding the development of potential strategies for addressing these impacts. Effective consultation with stakeholders is important to understand the concerns and

requirements of affected communities and ensuring their participation in the formulation and refinement of the project design. The Public Participation Process (PPP) played an important part in the EIA process. The communications during the PPP and written submission of comments have been reviewed. Issues raised through this process have been incorporated into the SIA where relevant. Where possible, the PPP and SIA processes have been integrated. The public participation process involves raising awareness of the proposed development to various stakeholders. It consists of providing information about the proposed project to all various interested and affected parties and providing an opportunity for these parties to raise any issues and/or concerns regarding the project. Relevant stakeholders are informed about the proposed project and thereafter are able to register and participate in the environmental impact assessment process.

2.4. Impact Evaluation Method

This section provides an overview of the method used to identify and evaluate the social impacts for the construction and operation phase of the proposed Lethabo solar energy facility. The main objective is to determine the social risks and opportunities, positive and adverse impacts of the solar energy facility. Identification includes both technical view and stakeholder understanding and valuation of their social assets that will be affected by the project footprint. Social Impact Assessment methodology assists in the evaluation of the overall effect of a proposed activity on the social environment. This includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of social impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).

The **nature** of the impact refers to the causes of the effect, what will be affected and how it will be affected.

Extent (E) of impact
Local (site or surroundings) to Regional (provincial)
Rating = 1 (low) to 5 (high).

Duration (D) rating is awarded as follows:
Whether the life-time of the impact will be:

» Very short term – up to 1 year: Rating = 1
» Short term – >1 – 5 years: Rating = 2
» Moderate term - >5 – 15 years: Rating = 3
» Long term – >15 years: Rating = 4
  » The impact will occur during the operational life of the activity, and recovery may occur with mitigation (restoration and rehabilitation).
» Permanent – Rating = 5
  » The impact will destroy the ecosystem functioning and mitigation (restoration and rehabilitation) will not contribute in such a way or in such a time span that the impact can be considered transient.

Magnitude (M) (severity):
A rating is awarded to each impact as follows:

» Small impact – the ecosystem pattern, process and functioning are not affected.
  Rating = 0
» Minor impact - a minor impact on the environment and processes will occur.
  Rating = 2
» Low impact - slight impact on ecosystem pattern, process and functioning.

Rating = 4

» Moderate intensity – valued, important, sensitive or vulnerable systems or communities are negatively affected, but ecosystem pattern, process and functions can continue albeit in a slightly modified way.
Rating = 6

» High intensity – environment affected to the extent that the ecosystem pattern, process and functions are altered and may even temporarily cease. Valued, important, sensitive or vulnerable systems or communities are substantially affected.
Rating = 8

» Very high intensity – environment affected to the extent that the ecosystem pattern, process and functions are completely destroyed and may permanently cease.
Rating = 10

Probability (P) (certainty) describes the probability or likelihood of the impact actually occurring, and is rated as follows:

» Very improbable – where the impact will not occur, because of either design or historic experience.
Rating = 1

» Improbable – where the impact is unlikely to occur (some possibility), either because of design or historic experience.
Rating = 2

» Probable - there is a distinct probability that the impact will occur (<50% chance of occurring).
Rating = 3

» Highly probable - most likely that the impact will occur (50 – 90% chance of occurring).
Rating = 4

» Definite – the impact will occur regardless of any prevention or mitigating measures (>90% chance of occurring).
Rating = 5

Significance (S) - Rating of low, medium or high. Significance is determined through a synthesis of the characteristics described above where:
S = (E+D+M)*P

The **significance weighting** should influence the development project as follows:

» Low significance (significance weighting: <30 points)
If the negative impacts have little real effects, it should not have an influence on the decision to proceed with the project. In such circumstances, there is a significant capacity of the environmental resources in the area to respond to

change and withstand stress and they will be able to return to their pre-impacted state within the short-term.

» Medium significance (significance weighting: 30 – 60 points)
If the impact is negative, it implies that the impact is real and sufficiently important to require mitigation and management measures before the proposed project can be approved. In such circumstances, there is a reduction in the capacity of the environmental resources in the area to withstand stress and to return to their pre-impacted state within the medium to long-term.
» High significance (significance weighting: >60 points)
The environmental resources will be destroyed in the area leading to the collapse of the ecosystem pattern, process and functioning. The impact strongly influences the decision whether or not to proceed with the project. If mitigation cannot be effectively implemented, the proposed activity should be terminated.

2.5. Limitations and Assumptions

The following assumptions and limitations were relevant:

» The 2011 Census is the most recent source of official statistics and this has been used for generating a lot of the information provided in baseline profile of the study area, in addition to this the latest District and Local Municipality policies and plans were also utilised in generating information. While the data does provide useful information, it should be noted that this data may now be out of date to some degree and may no longer accurately reflect the current socio-economic profile;
» This study was done with the information available to the specialist at the time of executing the study, within the available timeframes. The sources consulted are not exhaustive, and additional information which might strengthen arguments, contradict information in this report and/or identify additional information might exist. The specialist did try to take an evidence-based approach in the compilation of this report and did not intentionally exclude scientific information relevant to the assessment;
» Some of the actual project projections may be higher or lower than estimated in this report; depending on the finalised project details
» It was assumed that the motivation for, planning and feasibility study of the project were undertaken by the developer with integrity, and that information provided to date by the project proponent, the independent environmental assessment practitioner and the public participation consultant was accurate.

3. Legislation and Guidelines

A review of the policy environment provides valuable insight into the government's priorities and plans. The review of the relevant planning and policy documents was undertaken as a part of the SIA process. The key documents reviewed included:

National Policies:

- The Constitution Act 108 of 1996
- National Environmental Management Act 107 of 1998 (NEMA)
- National Energy Act (2008)
- National Development Plan 2030
- National Climate Change Response Green Paper (DEA, 2010)
- White Paper on Energy Policy of the Republic of South Africa (1998)
- White Paper on Renewable Energy of the Republic of South Africa (2003)
- National Integrated Resource Plan South Africa (2010-2030)
- Strategic Infrastructure Projects (SIPs)

Provincial Policies:

- Free State Provincial Growth and Development Strategy (FSPGDS) (2030)
- Free State Provincial Spatial Development Framework (FSPSDF) (2012)

District and Local Policies:

- Fezile Dabi District Growth and Development Strategy (2004-2014)
- Fezile Dabi District Municipality Integrated Development Plan (2012-2017)
- Metsimaholo Local Municipality Integrated Development Plan (IDP) (2012/13-2016/17)
- Metsimaholo Local Municipality Local Economic Development (LED) (2012)
- Metsimaholo Spatial Development Framework (SDF) (2012)

Solar Energy Policies:

- Solar Energy Technology Roadmap (2013)

The legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regards a key component of the SIA process is to assess the proposed development in terms of its suitability with regards to the key planning and policy documents. A brief overview of the most relevant policies, plans and guidelines, in relation to the proposed solar facility are discussed in this section below.

3.1. National Policies

Any project contributing to the objectives mentioned within the national policies discussed briefly below could be considered strategically important for the nation. The review of the policy environment suggests that utilisation of renewable energy sources in the country is considered to be an integral means of reducing

carbon footprint of South Africa, diversifying the national economy, and reducing poverty. As the project would contribute renewable energy supply to provincial and national targets set out and supported within these national policies, it is considered that the proposed development fits within the national policy framework. A brief review of the most relevant national policies is provided below.

The Constitution Act 108 of 1996

The Constitution of the Republic of South Africa (Act 108 of 1996) has been adopted as the supreme law of the country and forms the foundations for a democratic society in which fundamental human rights are protected. In terms of the environment, Chapter 2 Section 24 states that everyone has a right:

(a) "To an environment that is not harmful to their health or well-being; and
(b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

i. prevent pollution and ecological degradation;
ii. promote conservation; and
iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

Chapter 7 defines the role of local government in its community. Five objectives of local government are described in section 152:

- To provide democratic and accountable government for local communities.
- To ensure the provision of services to communities in a sustainable manner.
- To promote social and economic development.
- To promote a safe and healthy environment.
- To encourage the involvement of communities and community organisations in the matter of local government.

The Constitution of South Africa outlines the need to promote social and economic development. An SIA is a requirement for sustainable development as it assesses the social impacts associated with development and aims towards safeguarding people's future well-being. The proposed solar energy facility aims to increase the economic opportunities of the area by providing more job opportunities for the residents of the study area, and surrounding areas. The development will also promote a health environment through the provision of clean, renewable energy.

The National Environmental Management Act 107 of 1998 (NEMA)

NEMA is the legislation setting out the framework for environmental management in South Africa. The Act promotes cooperative environmental governance and establishes principles for decision making on matters affecting the environment. An overarching principle in Chapter 1 emphasises that development must be socially, environmentally and economically sustainable.

The EIA Regulations (Government Notice (GN) R385, GN R386 and GN R387 of April 2006) defines an environmental impact assessment as 'the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application'. The SIA aims to fulfil these requirements by providing all social information relevant to the consideration of the project.

The National Energy Act (2008)

The National Energy Act was promulgated in 2008 (Act No 34 of 2008). One of the objectives of the Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including solar:

> *"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, taking into account environmental management requirements; to provide for increased generation and consumption of renewable energies (Preamble)."*

The National Energy Act aims 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, taking into account environmental management requirements and interactions amongst economic sectors, as well as matters relating to renewable energy. The Act provides the legal framework which supports the development of renewable energy facilities for the greater environmental and social good.

National Development Plan 2030

The National Development Plan aims to eliminate poverty and reduce inequality by 2030. Given the complexity of national development, the plan sets out a number of interlinked priorities, some of which include:

- Bringing about faster economic growth, higher investment and greater labour absorption.

- » Focusing on key capabilities of people and the state.
- » Building a capable and developmental state

Enabling milestones include:

- » Increase employment from 13 million in 2010 to 24 million in 2030.
- » Establish a competitive base of infrastructure, human resources and regulatory frameworks.
- » Ensure that skilled, technical, professional and managerial posts better reflect the country's racial gender and disability makeup.
- » Increase the quality of education.
- » Provide affordable access to quality health care.
- » Establish effective, safe and affordable public transport.
- » Produce sufficient energy to support industry at competitive prices, ensuring access for poor households, while reducing carbon emissions per unit of power by about one-third.
- » Ensure that all South Africans have access to clean running water in their homes.
- » Make high-speed broadband internet universally available at competitive prices.
- » Realise a food trade surplus, with one-third produced by small-scale farmers or households.

The National Development Plan aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy. The proposed solar energy facility will assist in reducing carbon emissions targets and create jobs in the local area as well as assist in creating a competitive infrastructure based on terms of energy contribution to the national grid.

National Climate Change Response White Paper (2011)

South Africa's response to climate change has two objectives: 1) to effectively manage the inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity; and 2) To make fair contribution to the global efforts to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enabled economic, social and environmental development to proceed in a sustainable manner. The paper proposes a number of approaches dealing with climate change impacts with respect to selected sectors. Energy, in this context, is considered to be one of the key sectors that provides for possible mitigations to address climate changes. The White Paper provides support for the proposed development of renewable energy facility which will contribute to managing climate change impacts, supporting the emergency response capacity as well as assist in reducing greenhouse gas emission in a sustainable manner.

White Paper on the Energy Policy of the Republic of South Africa (1998)

The White Paper on Energy Policy states the need to improve the energy security in the country by means of expanding the energy supply options. This implies the increase in the use of renewable energy and encouraging new entries into the generation market. The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account. Government policy on renewable energy is thus concerned with meeting the following challenges:

- » Ensuring that economically feasible technologies and applications are implemented;
- » Ensuring that an equitable level of national resources are invested in renewable technologies, given their potential and compared to investments in other energy supply options; and,
- » Addressing constraints on the development of the renewable industry.

The policy states the advantages of renewable energy which include minimal environmental impacts in 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. Therefore the policy supports the advancement of renewable energy sources at ensuring energy security through the diversification of supply, which is in line with the proposed solar energy facility.

White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)

The White paper on renewable energy supplements the Governments overarching policy on energy as set out in its White Paper on the Energy Policy of the republic of South Africa (DME, 1998). The White Paper on Renewable Energy Policy recognizes the significance of the medium and long-term potential of renewable energy. The main aim of the policy is to create the conditions for the development and commercial implementation of renewable technologies. The White Paper on Energy Policy's position with respect to renewable energy is based on the integrated resource planning criterion of:

> *"Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options."*

This White Paper on Renewable Energy (November, 2003) sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa. South Africa relies heavily on coal to meet its energy needs because it is well-endowed with coal resources; in particular. However South Africa is endowed with renewable energy resources that can be sustainable alternatives to fossil fuels, so far these have remained largely untapped. The White Paper on Renewable Energy sets a target of generating 10 000GWh from renewable energy sources. Therefore the policy supports the investment in renewable energy facilities sources at ensuring energy security through the diversification of supply.

National Integrated Resource Plan for South Africa (2010-2030)

The primary objective of the Integrated Resource Plan (IRP 2010) is to determine the long term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing and cost. However, the IRP 2010 also serves as input to other planning functions, *inter alia* economic development, and funding, environmental and social policy formulation. The accuracy of the IRP 2010 is to be improved by regular reviews and updates, and a draft revised Plan is currently available for public comment. The National Integrated Resource Plan 2010 projected that an additional capacity of up to 56 539MW of generation capacity will be required to support the country's economic development and ensure adequate reserves over the next twenty years. The required expansion is more than two times the size of the existing capacity of the system. A significant component of the plan, amongst others, is the expansion of the use of renewable energy sources to reduce carbon emissions involved in generating electricity. In this regard, the IRP supports the development of 17GW of renewable energy generation by 2030. The proposed solar energy facility contributes to the targets in this policy.

Strategic Infrastructure Projects (SIPs)

The Presidential Infrastructure Coordinating Committee (PICC) are integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have five core functions: to unlock opportunity, transform the economic landscape, create new jobs, strengthen the delivery of basic services and support the integration of African economies. A balanced approach is being fostered through greening of the economy, boosting energy security, promoting integrated municipal infrastructure investment, facilitating integrated urban development,

accelerating skills development, investing in rural development and enabling regional integration.

SIP 8 of the energy SIPs supports the development of the solar energy facility which is as follow:

» *SIP 8: Green energy in support of the South African economy:*

Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010) and supports bio-fuel production facilities.

3.2. Provincial Policies

A brief review of the most relevant provincial policies is provided below. The proposed development is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

Free State Provincial Growth and Development Strategy (FSPGDS) (2030)

The draft Provincial Growth and Development Strategy (PGDS) – Free State Vision 2030 was released in May 2012. The PGDS is a critical instrument to shape and coordinate the allocation of national, provincial and local resources, and private sector investment to achieve sustainable development outcomes based on provincial development needs and priorities. The Free State Vision 2030 marks a break with the current five-year planning approach and is a reflective long-term strategic framework envisioned to create an environment to respond to the complexities that characterise the provincial development landscape. Underpinning the vision is the ability of government together with the people to map out the destiny of the province. The Free State 2030 targets include:

» Economic Restructuring, Growth and Employment Creation
» Education, Innovation and Skills Development
» Improved Quality of Life
» Sustainable Rural Development
» Build Social Cohesion

Solar energy, specifically PV solar energy industry, therefore provides the Free State with an opportunity to diversify its economy in a way that will assist in employment opportunities and contribute towards economic growth and development.

Free State Provincial Spatial Development Framework (FSPSDF) (2012)

The vision, the FSGDS and the FSPSDF collectively respond to the need for the province to describe and map its future destiny through long-term development planning, and to forge a common and shared development agenda across a wide spectrum of service delivery mechanisms. This relates to the interconnectedness between development imperatives and the capacity of the various forms of capital vested in the province and to ultimately bring about a better life for all. The PSDF is a spatial and strategic supplement to the Free State Provincial Growth and Development Strategy (FSPGDS, 2030) as it relates to the shaping and coordination of the allocation of national, provincial and local resources, and private sector investment to achieve sustainable development outcomes based on provincial development needs and priorities.

The Free State Vision 2030 envisages that, by 2030, the Free State shall have a resilient, thriving and competitive economy that is inclusive, with immense prospects for human development anchored on the principles of unity, dignity, diversity, equality and prosperity for all. Impelled by this vision, the Free State of 2030 will be characterised by an economy that encourages the development of new growth sectors with emphasis on the knowledge-based industries and the green economy (FSGDS). The transition towards a resilient, thriving and competitive economy will be pursued within the overarching framework of redistribution of economic resources, ownership and control of the provincial economy, and the creation of opportunities for the marginalised to play a central and meaningful role in the growth and development. The Free State Vision 2030 furthermore envisages that, by 2030, ownership and control patterns of the economy will be transformed, spatial under-development will be addressed, and basic services such as healthcare, education, electricity, water and sanitation will be equitably accessed by the people of the province. In the quest for inclusive economic growth and development, the environment will be protected for future generations. Lasting responses to climate changes will be part of the landscape of the development of the province. Provincial strategic growth and development pillars include:

- Pillar 1: Inclusive economic growth and sustainable growth job creation
- Pillar 2: Education, innovation and skills development
- Pillar 3: Improved quality of life
- Pillar 4: Sustainable rural development
- Pillar 5: Build social cohesion
- Pillar 6: Good Governance

The overarching goal of PSDF is to enable sustainability through sustainable development. In the Free State renewable energy is a key focus area of the Free State Development Corporation, especially the solar energy sector. The Free State has significant potential for the harvesting of solar energy. Projects for the manufacturing of solar panels and geysers have already been conceptualized. On

19 March 2012, the MEC of DETEA in the Free State stated that *we will strive to ensure an increasing bias towards the 'Green Economy Everything' we must reduce our carbon footprint and be environmentally sustainable…..To this end, we are engaging with various independent power producers particularly in relation to renewable energy technology. The Xhariep region in the southern part of the Free State has the highest solar radiation, in South Africa, after Upington.*

The Free State SDF emphasises the need for economic growth and renewable energy investment. Thus the proposed development is aligned to the economic and investment priorities of the Free State provincial government.

3.3. District and Local Municipality Policies

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

Fezile Dabi District Growth and Development Strategy (2004-2014)

The Fezile Dabi District Growth and Development Strategy (FSDGDS) aims to provide a framework for sustainable growth and economic development for the District from 2004 to 2014. . The strategy aims for targeted investments in the district with the purpose of offering opportunities to the people in skills development, employment and the improved quality of life. The FDDGDS focuses on 6 thrusts considered to be the main economic drivers of the area. The following describes the 6 drives and the main priority areas.

» *Agriculture:* Stimulate the agricultural sector through the sustenance of commercial farming by expanding the sector through variety of value adding initiatives. Linked to this is the transformation and development of subsistence farming through capacity building, facilitating access to markets, finance, infrastructure, machinery, agro-processing technology and skills.
» *Infrastructure Development:* Identify infrastructure backlogs to enable the district municipality to intervene decisively through the provision of infrastructure services. The emphasis is in developing road networks that links economic activities within the District Municipality to cut the costs of doing business. Tied to this is the provision of basic services such as housing, telecommunications, water and sanitation, which are critical in jettisoning economic growth within the municipality.

» *Manufacturing:* Identify manufacturing opportunities from other sectors, particularly mining and agriculture, linking such with the overall SMME's strategy in the municipality. Create export markets for regionally produced goods, both at national and international levels.
» *Mining:* Through understanding of the entire mining value chain with the view to identify mining opportunities like beneficiation, opening of new mines, outsourcing and procurement, shareholding, etc. All these must be approached within the context of the new mining legislative framework including the Mining Charter.
» *SMME Development:* Set clear SMME developmental goals in financing and supporting SMME's, targeting previously disadvantaged people, women, youth and people living with disabilities. This must find practical expression in municipal institutional arrangements and all social partners' outsourcing and procurement policies.
» *Tourism:* Assess the entire district tourism sector, including operators, products and services to enable social partners to identify critical intervention areas.

The preservation of the productive integrity of agricultural land is identified as of high importance in the Free State province. The SDF also identifies tourism as one of the major growth industries in the region. Minimizing visual impacts, protecting scenic areas and preserving the integrity of historic settlements are identified as important points to consider with regard to new developments in the area. The proposed development is located within an industrial area so the impacts on the agricultural industry, scenic areas and tourism will be minimal therefore the project falls in line with the FSDGDS.

Fezile Dabi District Municipality Integrated Development Plan (2012-2017)

The FDDM IDP outlines the municipalities plan for 2012-2017. The core mission of the municipality is to improve the lives of citizens and progressively meet their basic, social and economic needs, thereby restoring community confidence and trust in government. Of the 57 key performance areas, the following goals and objectives are of specific relevance to this study:

» To enhance human capacity and productivity within the municipality
» To maintain sound labour relations
» To create skills development opportunities for students & the unemployed in the district
» To create an environment that stimulates the local economic growth

The proposed solar energy facility is in line with the FDDM IDP objectives as the development will assist in providing opportunities to create skills development for

the unemployed in the district and will contribute in creating an environment that stimulates local economic growth.

Metsimaholo Local Municipality Integrated Development Plan (IDP) (2012/13-2016/17)

The MLM collected and based its strategy on the strategic areas identified by both National and Provincial Government. The five-year plan (2012/13 – 2016/17) is aligned to the local priorities reflected in election manifesto and is further based on the Medium Term Strategic Framework (MTSF) outcomes and the revised National Key Performance Indicators (NKPIs). Policies that the IDP follows that relates to the proposed development includes the New Growth Path which identifies five other priority areas as part of the programme to create jobs, through a series of partnerships between the State and the private sector. The one priority area in the New Growth path that is in line with the proposed development includes: "Green economy- expansions in construction and the production of technologies for solar, wind and biofuels are supported by the draft Energy on Integrated Resource Plan. Clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade."

The MLM mission is "To promote the sustainable socio-economic development of our communities through effective, efficient and affordable service delivery and sound institutional and financial management." The MLM strategic priorities, key performance areas (KPAs), objectives and programmes include:

Table 3: Strategic priorities of the MLM

Strategic Priority	KPA	Programmes
SP1: Build our local economy to create more employment, decent work and sustainable livelihoods	KPA1: Local Economic Development	P8-Local Economic Development P9-Job Creation P10-Sustainable livelihoods
SP2: Broaden access to and improve the quality of municipal services	KPA2: Basic service delivery and infrastructure development	P1-Water P2-Sanitation P3-Electricity P4-Roads and storm water P11-Waste management P12-Community facilities
SP3: Build united, non-racial, integrated and safer communities	KPA3: Community development and social cohesion KPA2: Basic service delivery and infrastructure development	P13-Clean communities P14-Safe communities P15-Healthy communities P16-Arts and culture P17-Disaster management P5-Human settlements P6-Spatial development P7-Public transport
SP4: Promote active community participation	KPA4: Good governance and community participation	P18-Participatory governance

SP5: Ensure more effective, accountable and clean local government that works together with national and provincial government	KPA4: Good governance and community participation KPA5: Financial management and viability KPA6: Municipal transformation and institutional development	P19-Corporate governance P20-Intergovernmental Relations P21-Customer care P22-Revenue and cash flow management P23-SCM and Expenditure management P24-Budgeting and reporting P25-Clean Audit P26-Asset management P27-Facilities management P28-Human capital P29-Institutional excellence

The proposed solar energy facility development will advance the objectives of local economic development and job creation outlined in the strategic priorities of the MLM IDP.

Metsimaholo Local Municipality Local Economic Development (LED) (2012)

The purpose of the MLM LED Strategy (Draft) is to develop a framework for economic growth and development. Whilst the development of economic sectors and industries is the focal point, the objective is to ensure skills development, quality employment, SMME and co-operative development becomes part of the outcome during implementation. The economic outcomes of the strategy is not intended at measuring growth only, but the ability to respond to social needs like education, health, recreation and the general quality of life. The purpose of the MLM LED Strategy includes the following:

» The development of local human capital that will provide capacity to the development of sectors
» The creation of quality employment for local people in various sectors of the local economy
» The stimulation of entrepreneurship through value chain development in sectors

The objectives of the MLM strategy include the following:

» To beneficiate the existing manufacturing industry and diversify the local economy (that is, the ability to develop value chain in any industry)
» To develop and position the Metsimaholo economy as the most performing economy in the Free State Province.
» To develop and position the Metsimaholo economy as a leading leisure destination in the Free State Province
» To develop and position the Metsimaholo economy as a leading retail destination in the Fezile Dabi District.

The intended impacts include the following:

» The development of highly skilled people in the local economy
» The increase in employment of local people in the local economy
» The development of SMMEs and Co-operatives in various sectors of the local economy

The LED lists a number of key considerations that apply to all future planning actions in the MLM area that is relevant to the proposed development, such as increase employment opportunities, development of local human capital and diversifying the local economy. The proposed development will contribute to these key plans by introducing a relatively new industry to the area (diversifying the local economy), it will create new employment opportunities for the local community and introduce skills development and training that will develop the local human capital.

Metsimaholo Spatial Development Framework (SDF) (2012)

The municipality strategy aims at meeting the needs of its environmental, economic and social challenges, with a planning strategy which:
» Protects and improves the environment and encourages high quality design.
» Relate the development of land to a fair and effective distribution of resources.
» Achieves sustainable and less energy intensive forms of development.
» Attempts to secure economic diversification.
» Sustains and enhances the role of the Town Centres for commercial and leisure purposes and a place to live.
» Fosters regeneration and redevelopment in the municipality's disadvantaged areas and the town centres currently facing decay as a result of decentralisation of economic activities on the edges of the municipal area (the Gauteng bordering areas).
» Encourages development in the growth areas to ensure the fair distribution of economic activities within the municipality.
» The protection of major open spaces within the urban and rural settlements from inappropriate development.

The municipality attaches considerable importance to "green" issues including for example energy conservation, the protection of its blue corridors, the retention of the green wedges and other areas of open space and heritage significance.

Key strategic guiding issues of the SDF that are of specific relevance to the proposed development include:

» Sasolburg, Deneysville and Oranjeville are three of the major urban centres in the Municipality at various scales. These areas are also the

major areas within which development opportunities exist and should be concentrated for higher density development.

» The development of these areas is therefore critical for job creation and new housing development. A number of other smaller areas located outside of these urban centres are also identified for new development or redevelopment.

» The development of these areas must be in line with the intention of providing job opportunities and minimising travelling for the poor to benefit from these opportunities.

The SDF identifies a number of priority areas which are regarded as relevant to the proposed development which include; sustainable and less energy intensive forms of development and economic diversification. The proposed development is located in close proximity to Sasolburg within an industrial area. The development also has the intention of providing job opportunities for the local community which is line with the SDF.

3.4. Solar Energy Technology Roadmap 2013

Diffusion of renewable energy, generally, and solar technology, specifically, in South Africa is meant to address the government's desire to aggressively integrate renewable energy technologies into the national energy mix to reduce the country's carbon emissions levels, to help address its growing electricity generation needs, and its industrial heat needs (DEA draft integrated Energy planning report, 2012). The use of solar radiation for power generation is considered a non-consumptive use of a natural resource which produces zero greenhouse gas emissions during its operation. The generation of renewable energy will contribute to South Africa’s electricity market which has, to date, been heavily dominated by coal-based power generation. The advancement of renewable energy is a priority for South Africa as the government has set a 17GW of electricity by 2030, as part of the IRP 2010. Furthermore, recent policy highlights the desirability of clean, green energy and solar generated energy will play a significant role in reaching these quotas.

3.5. Conclusion

The findings of the review of the relevant policies and documents pertaining to the energy sector therefore indicate that solar energy and the establishment of the Proposed Lethabo solar energy facility is supported at a national, provincial, and local level, and that the proposed project will contribute towards the various targets and policy aims at all three levels.

4. Background information on the study area, proposed site and key stakeholder identification

The proposed solar energy facility is proposed to be established within the Lethabo power station boundary, which is located within the Metsimaholo Local Municipality (MLM), as part of the Fezile Dabi District Municipality (FDDM) of the Free State Province. This section will provide a brief overview of the study area, describe the impacted and surrounding land uses as well as provide a description of the key stakeholders of the proposed development.

4.1. Free State Province

According to the Local Government Handbook 2012, the Free State Province is a rural province of farmland, mountains, goldfields and widely dispersed towns. The economy is dominated by agriculture, mining and manufacturing. About 90% of the province is under cultivation for crop production. The province is the world's fifth-largest gold producer, with mining the major employer. It is a leader in the chemicals industry, being home to the giant synthetic-fuels company, Sasol. The Vredefort Dome, 10km in diameter, about 100km south-west of Johannesburg, is South Africa's seventh World Heritage Site.

4.2. Fezile Dabi District Municipality

The Fezile Dabi District Municipality is situated within the northern portion of the Free State with the major towns being Kroonstad, Parys, Sasolburg and Vredefort. Fezile Dabi district municipality is one of the five district municipalities located within the Free State province. It comprises of four local municipalities, which are: Metsimaholo local municipality, Mafube local municipality, Moqhaka local municipality and Ngwathe local municipality. The district municipality measures a total of 21 301 square kilometres in extent and is bordered by the Vaal Dam and Vaal River to the north which also serves as a boundary between the Free State, Gauteng and North West Province (FDDM IDP 2012-2017). The seat of Northern Free State is Sasolburg. Main economic sectors include; Trade (22%), community services (20%), manufacturing (13%), households (13%), agriculture (12%), finance (7%), construction (6%) and transport (5%). The main tourist attraction in the District is the Vredefort Dome, being the third largest Meteorite site in the world (Local Government Handbook, 2012).

4.3. Metsimaholo Local Municipality

Metsimaholo Local Municipality (MLM) is situated in the northern part of the Fezile Dabi District. The MLM comprises the following (FDDM IDP, 2012-2017):

Urban Configuration:

» Sasolburg/Zamdela is located in the heart of worldly renowned coalfields. This predominantly industrial town is further located in close proximity (20km) to the nationally well-known industrial areas of Vereeniging/Vanderbijlpark. Apart from the internationally known Sasol 'oil from coal refinery', a vast number of by-products including olefins, waxes, alcohols, tar products, inorganic chemicals, rubber, gases, plastics, fertilizers, etc. are manufactured in the area. The Lethabo Power Station is located approximately ~15km north east from Sasolburg in an industrial area.

» Deneysville / Refengkgotso urban area is situated in the north-eastern section of the Metsimaholo Region. Industrial activities are exclusively related to the boating industry. The town's close proximity to the coal mining and industrial activities in Sasolburg and its nearby location to the large industrial complexes of Vereeniging and Vanderbijlpark influence economic activities in Deneysville. The largest number of the inhabitants of Refengkgotso is employed in Sasolburg and the adjacent industrial complexes of Vereeniging and Vanderbijlpark. Refengkgotso can thus be labelled as a typical satellite residential town to the surrounding industrial areas. These factors contribute to the relatively low level of economic activity in the Deneysville area.

» The Oranjeville / Metsimaholo urban area is located on the riparian of the Vaal Dam in close proximity to the northern boundary of the Free State Province. Although the prominent economic sector of the area is agriculture, recreation and tourism sector is prominent as the town is bound on three sides by the Vaal Dam and located in close proximity to the Gauteng.

Recreation and Tourism:

» The hunting and guesthouse industries are rapidly growing.

» The Vaal Dam and the Vaal River Barrage are key recreational areas both for permanent residents and for weekend visitors.

» Power boating, angling and shoreline recreational activities are of significant economic value and as such may be influenced by water quality changes.

» Apart from Abrahamsrust, most of the resorts are situated on the Gauteng side of the Vaal River indicating possibilities for future development to provide for similar facilities on the Free State side.

» Three scenic routes were recently identified as having tourism potential. Two thereof run virtually parallel to the Vaal River in the Koepel area and comprise of extreme beauty, unique topography and landscape features. The routes also provide in some instances access to the Vaal River and are identified as:

  o The Koepel Scenic Route (Sections of Roads S264, 212, 80 & 713).

- The Vaal Eden Scenic Route (Sections of Roads S1052 & 171).
- Roads S159 and sections of Road R716 (to Jim Fouché Resort) providing relatively good access to various tourist destinations along the Vaal Dam.

Conservation / Natural Resources:

» Exceedingly prominent coal reserves are located within the municipal area, which makes large areas unavailable for agriculture.
» Large areas within the Sasolburg Region, in close proximity to the Vaal River, are utilised for coal mining.
» Other natural resources principally relate to productive soils of agricultural significance, which are the most prominent in the Sasolburg/Parys area.
» The tourism and agricultural sectors are directly dependent on the sustainable use and management of these natural resources.
» The most serious threats to soil resources are erosion, compaction, acidification, salination, and infestation by weeds and pathogens.

Regional Infrastructure
Rail:

» Passenger service from East London through Bloemfontein, Kroonstad, Sasolburg towards Johannesburg.
» The railway line is predominantly utilised by Sasol for industrial purposes.
» No commuter service is provided to the Greater Sasolburg community

Roads:
The well-developed character of the region is a direct result of it being serviced by means of a strategically important road network. The most significant of these arterials are identified as the:

» N1 National road linking the area with Gauteng and central Free State.
» N3 National road, stretching through the eastern section of the area.
» R59 linking Sasolburg, Parys and Viljoenskroon / Orkney to the North West Province.
» R57 linking the industrial areas of Heilbron with Sasolburg and subsequently linking the Eastern Free State and KwaZulu-Natal via Sasolburg with the Gauteng Province.

4.4. Baseline Socio-Economic Environment

The purpose of the section is to provide an overview of the current socio-economic baseline environment and context in which the proposed project will take place within the Metsimaholo Local Municipality (MLM) and Fezile Dabi District Municipality (FDDM) in the Free State Province. This section of the report

will provide a strategic understanding of the socio-economic profile of the study area, in order to develop a better understanding of the socio-economic dynamics as a background to the development of the project. The data presented in this section has been largely derived from the Free State Census 2011 Municipal Report, FDDM IDP 2012-2017, MLM IDP 2014/2015, the Census Survey 2011 (Stats SA), as well as the local government handbook 2012.

Population

The population trends in a geographical area affect the rate of economic growth through the provision of labour and entrepreneurialism and the demand for goods and services. These trends also indicate the number of people who are likely to be impacted by the proposed project. The proposed development will be constructed in the FDDM within the MLM. The population of the FDDM in 2011 was approximately 488 036 people, of which 149 108 people reside in the MLM. The average annual population growth rate in the study area is estimated by comparing data from 2001 to 2011 (see table 5).

Table 4: Population statistics (Source: Census 2011)

Census 2011	**Area (km^2)**	**Population total**	**Population density /km^2**	**Population growth rate % (2001 - 2011)**
Free State Province	129 825	2 745 590	21/km^2	0.1
Fezile Dabi DM	20 668	488 036	24/km^2	0.6
Metsimaholo LM	1 717	149 108	87/km^2	2.5
Moqhaka LM	7 925	160 532	20/km^2	-0.4
Ngwathe LM	7 055	120 520	17/km^2	0.1
Mafube LM	3 971	57 876	15/km^2	0.2

Over this period the FDDM experienced an average growth rate of 0.6% and a growth rate of 2.5% within the MLM. This is notably greater than the average growth rate for the Free State. Assuming these growth rates remain consistent the increase in population in these areas will translate into an increased demand for electricity.

Population groups and languages

The population groups and language distribution gives an indication of the cultural dynamics of the area and has implications for the proposed project in terms of the approach that should be used for communication regarding the project as well as implementation of the project. Table 3 demonstrates a comparison of the population and language distribution in the province, district municipality and local municipalities.

Table 5: Population groups & language distribution (Source: Census 2011)

	Population groups				**Predominant languages**	
	Black African	*Coloured*	*Indian/ Asian*	*White*	*Sotho*	*Afrikaans*
Free State Province	87.6%	3.1%	0.4%	8.7%	64.2%	12.7%
Fezile Dabi DM	86.1%	1.9%	0.3%	11.4%	67.3%	13.8%
Metsimaholo LM	82.3%	0.7%	0.3%	16.4%	57.9%	16.2%
Moqhaka LM	87.2%	2.9%	0.3%	9.3%	74.6%	13.6%
Ngwathe LM	86.5%	2.6%	0.3%	10.3%	67.8%	13.2%
Mafube LM	91.9%	0.6%	0.3%	7%	63.8%	8.2%

The population distribution of the municipalities' population groups and prominent languages indicates that the local municipalities are likely to be culturally similar to one another. In all the municipalities the majority of the population belong to the Black African group and the most spoken language is Sotho. In the MLM it is evident that:

» The most spoken language is Sotho at 71.7% followed by Afrikaans at 16.2%. This indicates that in addition to English, Setho and Afrikaans should also be used for communication processes throughout the project process

» The most dominant population group is Black Africans comprising 82.3% of the LM population, see figure 3 below for population distribution.

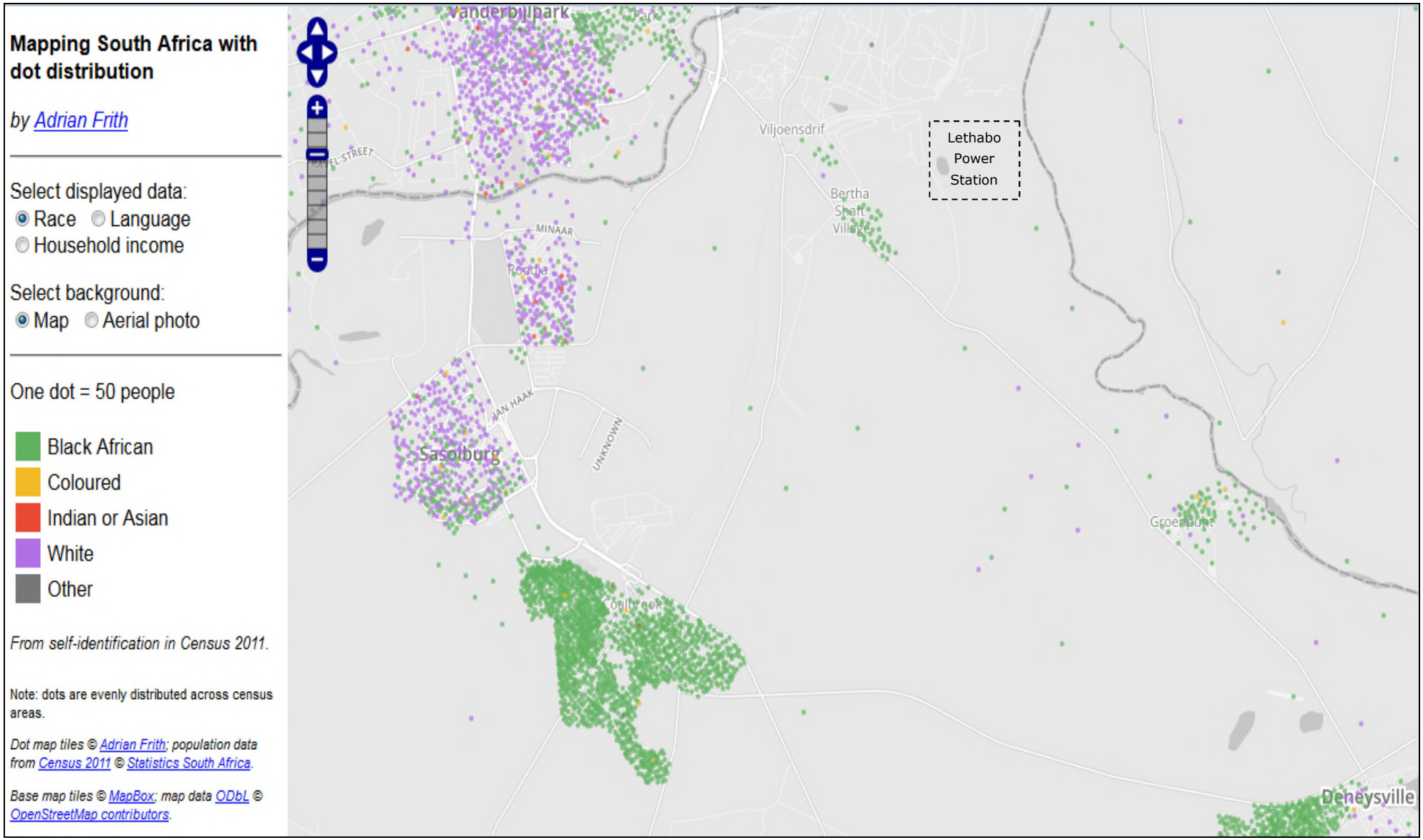

Figure 3: Distribution of population groups in the local area

Age composition and gender differentiation

The age structure of a population is extremely important for planning purposes. Table 4 indicates the age and gender profile of citizens at a provincial and municipal level.

Table 6: Age distribution (Source: Census 2011)

	AGE			Dependency Ratio	GENDER	
	Age: 0-14	Age: 15-64	Age: 65+		Male	Female
Free State Province	29.1%	65.4%	5.5%	52.9%	48.5%	51.5%
Fezile Dabi DM	28.1%	65.8%	6.1%	51.9%	49.1%	50.8%
Metsimaholo LM	26.3%	69.4%	4.3%	44.3%	47.9%	52.1%
Moqhaka LM	27.1%	66.4%	6.5%	50.5%	49.5%	50.5%
Ngwathe LM	30.2%	62.4%	7.4%	60.2%	47.6%	52.4%
Mafube LM	31.5%	62.2%	6.3%	61.1%	48%	52%

The age distribution of the population is very similar throughout the local municipalities with the greatest proportion of the population falling within the age group of 15-64 years. The gender differentiation is also quite similar where there are slightly more females in the local municipalities; except for the MLM. The male population is slightly more prominent in the MLM; this is most likely linked to the industrial character of the area.

The dependency ratio indicates the number of individuals that are below the age of 15 and over the age of 64, that are dependent on the Economically Active Population (EAP) (Individuals that are aged 15-64 that are either employed or actively seeking employment). The total dependency ratio is used to measure the financial burden pressure on the productive population. Dependents increase the burden on the EAP / productive population to raise children and to look after the elderly. A high dependency ratio can also cause problems for municipalities as the largest proportion of government expenditure is on health, social grants and education that are mostly utilised by the young and old population. As demonstrated in the table above, it is evident in the MLM that:

- 69.4% of the MLM population comprise the Economically Active Population (EAP)
- The dependency ratio is 44.3% of the MLM population (that is almost half of the local population)

The high proportion of potentially economically active persons implies that there is a larger human resource base for development projects to involve the local population.

Education levels

Education plays a critical role in the development of communities and impacts greatly on economies. The type of education and training received by individuals equally determines the occupation or career they would eventually pursue. It provides a set of basic skills for development, creativity and innovative abilities. The level of education influences growth and economic productivity of a region. There is a positive correlation between a higher level of education and the level of development and standard of living. Education levels in any given population will influence economic and human development. It is clear that low education levels lead to low skills base in an area, while high education levels have the opposite effect, producing a skilled or highly skilled population. Household and personal income levels are also either positively or adversely affected by education levels.

The skills available indicate whether it is possible to employ local residents in the construction and operation phase of a project. Table 5 demonstrates the level of education/skills availability in the study area.

Table 7: Education levels of population aged 20 years and older (Source: Census 2011 & Free State Municipal Report)

	No schooling	**Some primary**	**Completed primary**	**Some secondary**	**Grade 12/Matric**	**Higher Education**
Free State Province	7.1%	16.2%	5.4%	34.7%	26.8%	9.8%
Fezile Dabi DM	7.3%	15.9%	4.9%	35.2%	27.6%	9.1%
Metsimaholo LM	5.7%	11.9%	4.2%	35.8%	29.9%	12.5%
Moqhaka LM	5.4%	16.7%	5.5%	35.9%	27.9%	8.6%
Ngwathe LM	8.5%	19.2%	5.3%	34.7%	25.9%	6.4%
Mafube LM	14.2%	18.1%	5.2%	31.9%	24.4%	6.2%

The education levels in the area are generally low. More than half of the population aged 20 years and older in all the municipalities have only some secondary education or less (in the MLM this being 57.6% of the population); this indicates that the more than half of the local population are semi- skilled or unskilled. This reflects the rural nature of the region and relatively poor access to education. Only 29.9% of the MLM have a matric and 9.1% have higher education; indicating that a relatively small proportion of the population are skilled or highly skilled.

The skills profile of the area indicates that the availability of local labour for the proposed project is largely limited to low-skilled construction workers and a small number of skilled workers.

Employment

The employment profile of the study area is an important indicator of human development. The quality of labour is reflected, among other things, by the educational profile of the economically active population and the availability of training facilities in the region. The term labour force refers to those people who are available for employment in a certain area. According to Statistics South Africa, the definitions of the following employment indicators are:

» Economically active person: "A person of working age (between 15 and 65 years inclusive) who is available for work, and is either employed, or is unemployed but has taken active steps to find work in the reference period."
» Employed: "Those who performed work for pay, profit or family gain for at least one hour in the seven days prior to the interview or who were absent from work during these seven days, but did have some form of paid work to return to."
» Official and expanded definition of unemployment: "The unemployed are those people within the economically active population who: (a) did not work during the seven days prior to the interview, (b) want to work and are available to start work within two weeks of the interview, and (c) have taken active steps to look for work or start some form of self-employment in the four weeks prior to the interview."
» Labour force: "All employed and unemployed persons of working age".
» Unemployment rate: "The percentage of the economically active population that is unemployed."

The employment profile of the study area is an important indicator of human development, but also of the level of disposable income and subsequently the expenditure capital of the residing population. Poverty and unemployment are closely correlated. The proposed project is expected to generate employment opportunities in the construction and operation phases. Table 6 demonstrates the unemployment rate in the study area.

Table 8: Distribution of population aged 15-64 years by employment status (Source: Census 2011)

	Employed	**Unemployed**	**Unemployment Rate**
Free State Province	638 331	309 857	33%
Fezile Dabi DM	115 844	59 594	34%
Metsimaholo LM	43 220	20 528	32%
Moqhaka LM	35 674	19 438	35%
Ngwathe LM	25 376	13 814	35%
Mafube LM	11 574	5 816	33%

The MLM is largely populated by potentially economically active population. In the MLM the unemployment rate is 32% and there are approximately 20 528 people who are unemployed. This implies that there is a lot of human capital available for any kind of work, but also that there is space for training and developing economically active population in the relevant fields needed. This could increase the employment

level and decrease the poverty level in the local area. Local workers should be utilised as much as possible for the proposed development in order to alleviate local unemployment.

Household trends

Analysis of household data provides important indicators in relation to the consumption of electricity. The number of households the FDDM is approximately 144 980 and approximately 45 757 households within the MLM. This equates to an average household size of 3.2 people in the FDMM and 3.1 people in the MLM. Majority of the local population reside in formal households (see table 7).

Table 9: Distribution of average household size and type (Source: Census 2011)

Census 2011	**Number of households**	**Average household size**	**Household type: *Formal***	**Household type: *Traditional***	**Household type: *Informal***
Free State Province	823 316	3.2	81.6%	2.3%	15.6%
Fezile Dabi DM	144 980	3.2	83.5%	0.4%	15.3%
Metsimaholo LM	45 757	3.1	83.9%	0.2%	14.2%
Moqhaka LM	45 661	3.2	88.7%	0.4%	10.3%
Ngwathe LM	37 102	3.2	81.3%	0.4%	17.5%
Mafube LM	16 460	3.4	70.9%	1.4%	27.5%

From 2001 to 2011 there has been a significant increase in the proportion of household residents in formal dwellings across all the municipalities and alongside is the decline in the proportion of household residents in informal and traditional dwellings. The continuous increase in the number of households will have an upward impact on electricity demand thus requiring greater electrical capacity.

Household income levels

Household income is one of the most important determinants of welfare in a region. The ability to meet basic needs, such as adequate food, clothing, shelter and basic amenities, is largely determined by the level of income earned by the households. Poverty is often defined as the lack of resources to meet these needs. Household income levels are one avenue for determining poverty levels in a community. Households that have either no income or low income fall within the poverty level (R0- R38 200 per annum); indicating the difficulty to meet basic needs requirements. A middle-income is classified as earning R38 201- R307 600, and a high income is classified as earning R307 601 or more per annum. Table 8 indicates the household income levels of the residents in the DM.

Table 10: Distribution of average household income (Source: Census 2011)

	Low Income *(No income- R38 200)*	**Middle Income** *(R38 201- R307 600)*	**High Income** *(307 601 – R2 457 601+)*
Fezile Dabi DM	68.7%	26.8%	4.2%
Metsimaholo LM	59.1%	33.1%	7.8%
Moqhaka LM	67.4%	28.7%	3.7%
Ngwathe LM	74.3%	22.4%	2.9%
Mafube LM	74.1%	23.2%	2.5%

It is evident that the MLM has the lowest percentage of low income households and the highest percentage of middle and high income households in the district.

The average household incomes of the MLM are as follows:

- 59.1% of households are classified as low income earners.
- 33.1% of households are classified as middle income earners;
- 7.8% of households are classified as high income earners.

The high percentage of low income households indicates that that there is a high demand for employment opportunities which will help decrease the dependence on forms of assistance either from government and or non-government organisations. The high poverty level of 59.1% has social consequences such as not being able to pay for basic needs and services. The lower average income levels indicate a higher demand for employment opportunities in the economy. However skill levels are less likely to improve unless education levels improve which will lead to more skilled people which will in turn lead to the opportunity to earn higher income levels. This means that there should be less focus on the quantity of job creations and more focus on the quality of jobs created.

Access to services

Households are entitled to a minimum level of services. The proportion of households in the study area with minimum access to services is indicated in table 9.

Table 11: Distribution of average access to services (Source: Census 2011)

	Flush connected to sewerage	**Weekly refuse removal**	**Access to piped (tap) water inside dwelling**	**Access to electricity**
Free State Province	68.2%	71.1%	45.3%	90.3%
Fezile Dabi DM	78.2%	81.7%	56.7%	89.9%
Metsimaholo LM	74%	78.9%	71.7%	86.4%
Moqhaka LM	85.6%	84.9%	57.7%	93.3%
Ngwathe LM	74.5%	81.9%	44.7%	92%
Mafube LM	77.2%	80.2%	39.80	84.4%

Access to basic services is generally greater in the MLM than at a provincial level demonstrating that service delivery is generally more accessible. This is attributed to high population density in the MLM which decreases the cost of infrastructure development and service delivery compared to less dense areas.

Economic trends

Fezile Dabi is the second largest contributor to the Provincial GGP (31%) and Motheo District the largest (35%) contributor. The economy of Fezile Dabi (4%) has been the largest growing economy in the province (FDDM IDP 2012-2017). The economy of the Free State Province has been restructuring from a primary sector economy to a tertiary economy. This shift has been happening also on the economy of Metsimaholo. The shift of the economy from a primary to a tertiary economy is resulting in a large number of jobs losses and the mining sector is identified as suffering the largest loses. Table 12 indicates the growth rate trends in each economic sector in the Free State Province and FDDM.

Table 12: Growth rate trends per economic sector (Source: FSSDF, 2013 & FDDM IDP)

Sector	Free State growth trend from 2003-2010	Fezile Dabi DM growth rate from 2000-2006
Agriculture	1.7%	-6.1%
Mining	-0.5%	-6.9%
Manufacturing	2.6%	1.3%
Electricity & Water	2.3%	0.9%
Construction	7.1%	3.8%
Transport & Comms	2.5%	3.3%
Trade	3.5%	5.1%
Finance	5.4%	5.6%
Community Services	3.6%	-0.1%

Metsimaholo has been earmarked as a developmental nodal point for the coming 20 years. This status is important as it marks the development vision determined by the provincial administration (MLM SDF, 2012). The sectors that are growing in the municipality are located within the wealthier areas of the municipality such as Sasolburg, Vaal Park and in the Deneysville and Oranjeville town centres. These sectors are identified as manufacturing, retail and community services. Others that present opportunities for growth are residential real estate and tourism.

Summary

Summary and key challenges of the local area:

The socio-economic profile provided an overview of the study area. The following is a summary of the key baseline findings as a result of the study conducted on the FDDM and the MLM, in the Free State province. In summary, the area was found to have the following general characteristics:

- The population of the FDDM in 2011 was approximately 488 036 people, of which 149 108 people reside in the MLM.
- The majority of the local population belong to the Black African group and the most spoken language is Sotho.
- 69.4% of the MLM population comprise the Economically Active Population (EAP); this implies that there is a larger human resource base for development projects to involve the local population. The dependency ratio is high at 30.6% of the MLM population (that is almost a third of the local population) which puts pressure the EAP and local municipalities.
- The male population is slightly more prominent in the MLM; linked to the industrial character of the area.
- The skills profile of the area indicates that the availability of local labour for the proposed project is largely limited to low-skilled construction workers and a small number of skilled workers.
- There is high unemployment rate in the MLM (32%) with a large economically active population seeking employment opportunities. Local workers should be utilised as much as possible for the proposed development in order to alleviate local unemployment.
- The continuous increase in the number of formal households in the local area will have an upward impact on electricity demand thus requiring greater electrical capacity.
- Higher unemployment and lower income levels in the study area demonstrate the need for job creation.
- The high demand for employment can be addressed (although marginally) through direct job creation during the construction and operation phase of the proposed development
- Access to basic services is generally greater in the MLM than at a provincial level demonstrating that service delivery is generally more accessible.
- The shift of the economy from a primary to a tertiary economy is resulting in a large number of jobs losses and the mining sector is identified as suffering the largest loses. Metsimaholo has been earmarked as a development nodal point for the coming 20 years which is line with the proposed development.

Overall baseline conclusion

The proposed development supports the social and economic development through enabling skills development and training in order to empower individuals and promote

employment creation within the local area. The development would mainly focus on economic benefits to the area and introduce a relatively new industry into the local economy. Negative dimensions of impacts such as influx of jobseekers into the area putting pressure on the provision of basic services and poverty level will be weighed in the impact assessment during the EIA phase.

4.5. Land use character of the proposed site and surrounding area

The proposed site is located between Vereeniging and Sasolburg in the Free State Province. Majority of the land surrounding the proposed site and the alternative site comprises large industrial mining areas and agricultural areas. There is a vast industrial character within the area, large areas are utilised for coal mining. There is also Sasol (oil from coal refinery) and a number of by-products including olefins, waxes, alcohols, tar products, inorganic chemicals, rubber, gases, plastics, fertilisers etc., that are manufactured in the nearby area. Prominent features within or surrounding the proposed site and the alternative site include (see figure 1):

- The Lethabo Power Station is located directly adjacent to the proposed PV sites within the same farm (see figure 4 and figure 6 below)
- Anglo American owns the adjacent land north (Farm Mac Caw Vlei RE/121), adjacent land south (Bankfontein RE/9) and the adjacent land west (Farm Bankfontein 1849) of the Lethabo Power Station located on Farm 1814 (see figure 6).
- Anglo Vaal Colliery; open cast mining occurs on the adjacent land North of the Lethabo Power Station.
- Anglo's mining activities (coal stock yard and/ or ash dumps / coal processing plant) is located west of the Lethabo Power Station.
- Anglo leases the adjacent land south of the Lethabo Power Station to farmers who utilise the land for agricultural purposes. Mr Van Der Merwe leases Farm Bankfontein RE/9 from Anglo and primarily utilises the area for livestock and game farming (see figure 5 below that demonstrates the agricultural farmland and figure 6).
- The adjacent land east of the proposed site is currently vacant and no industrial or agricultural activities are taking place. After speaking to Eskom, Anglo American and the local farmers (tenants), it's currently unknown who owns the farm.
- A railway line runs along the southern boundary of the proposed site and also along the north boundary of the alternative site (the railway line is predominantly utilised for industrial purposes)
- Electricity transmission lines are a predominant feature traversing and surrounding the proposed site and the alternative site
- There are 4 distribution substations and one transmission substation located near the study area

- » PV Solar Panels at Lethabo power station have been completed and are located directly adjacent to the Lethabo Power Station, along the northern boundary of the power plant, within farm 1814.
- » Low density residential area is located south west of the proposed site (approximately 1.6km in distance) and west / south west of the alternative site (approximately 2.2km away);
- » The R716 regional road is located to the west of the study area, approximately 2km away ;
- » The Vaal River lies along the eastern boundary of the impacted farm, as well as there are numerous NFEPA wetlands/ water bodies in the surrounding area

Figure 4: Lethabo Power Station & Alternative site 2 (Photo taken from the southern boundary of Farm 1814)

Figure 5: Adjacent farmland south of Lethabo Power Station (Farm Bankfontein RE/9- Anglo leases land to farmers for livestock farming)

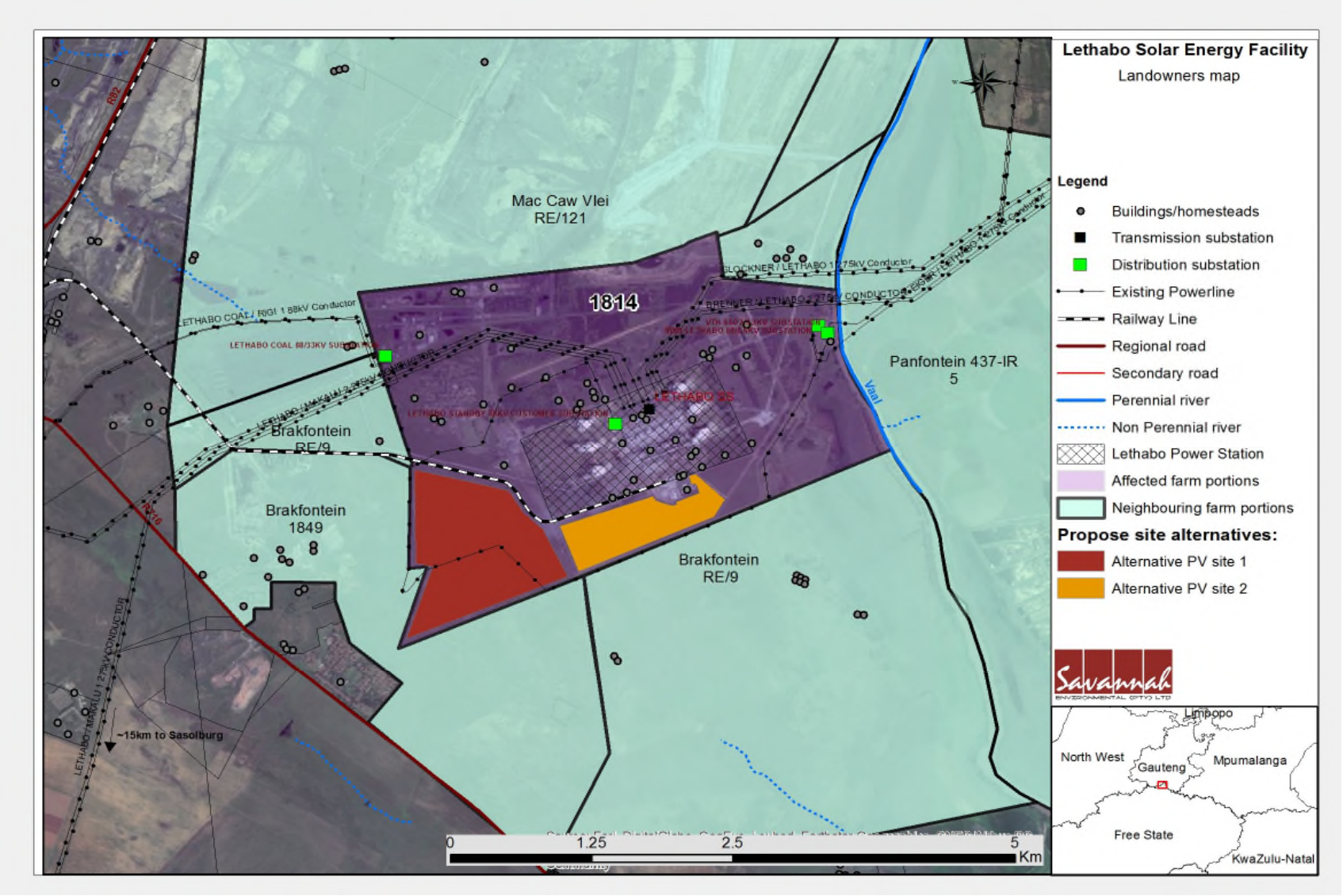

Figure 6: Landowners map

4.6. Stakeholder Identification and Analysis

Stakeholders are defined as "any group or organisation which may affect or be affected by the issue under consideration (UN, 2001: 26)". These may be direct or indirect stakeholders and may include organisations, institutions, groups of people or individuals, and can be at any level or position in society, from the international to the national, regional, household level (Farnke & Guidero, 2012). Stakeholders are those who need to be considered and whose participation and support are crucial to achieving the success of project goals.

Stakeholder analysis involves identifying the key stakeholders in the project. The first step in the process of stakeholder analysis is stakeholder identification; determining who the project stakeholders are, and their key grouping and sub-groupings (IFC, 2007). Identifying stakeholders that are directly and indirectly affected by the project is important to determine who might be affected and in what way. The key stakeholders in the proposed project have been identified, grouped / sub grouped and demonstrated in figure 7 below (as per Ilse Aucamp SIA methodology & Aucamp et al, 2011). There are direct and indirectly affected stakeholders to the proposed development. Directly affected stakeholders are sensitive social receptors that may potentially be affected by the proposed development; this relates to the locations of sensitive receptors. A sensitive receptor is an area or structure sensitive to a predicted social impact. Potentially sensitive receptors include dwellings, farming activities and other sensitive properties such as schools, hospitals, places of worship and other community facilities that was identified and discussed as part of the social EIA process.

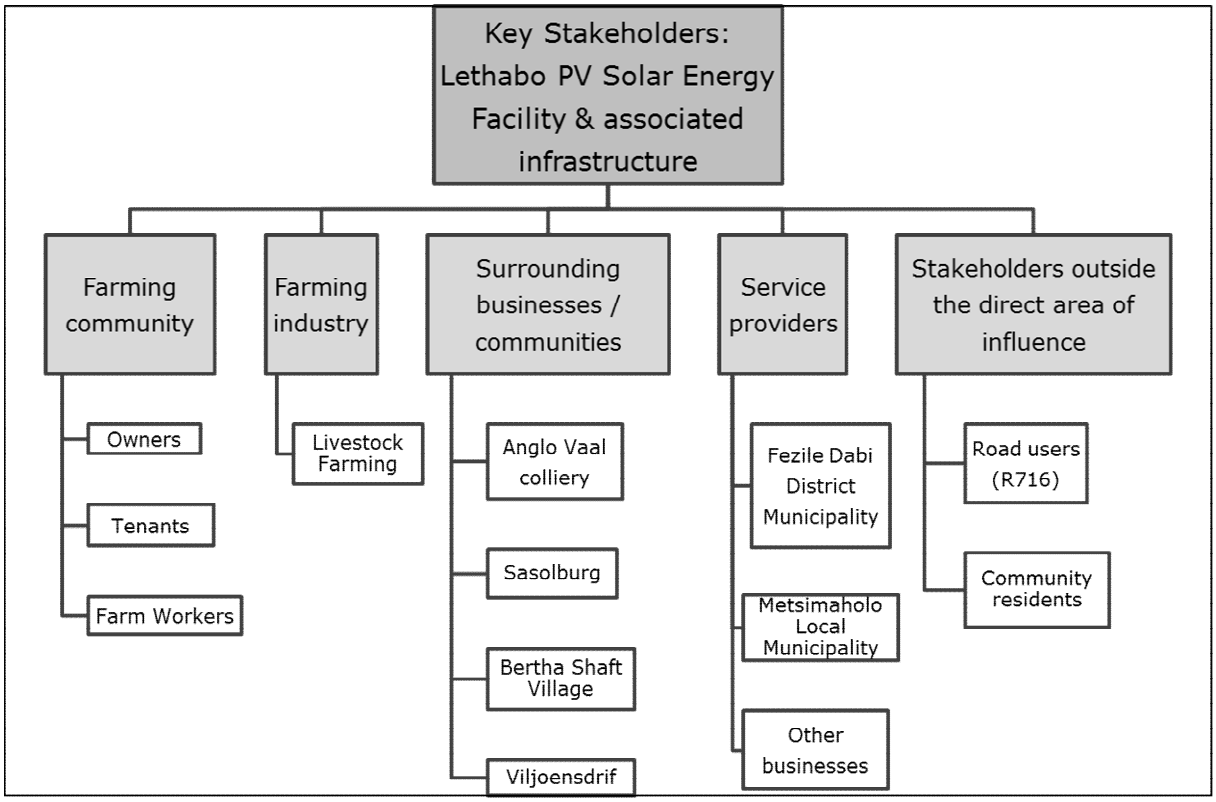

Figure 7: Key stakeholders associated with the proposed development

A description of each of the stakeholders groups in relation to the proposed development is discussed in the section below:

» *Farming community;* the farming community have been grouped into three categories, namely- farm owners, farm tenants and farm workers. Farm owners include farmers who own the land and make a living from their properties. Farm tenants are people who rent the land and work the land for income. Lastly the farm workers, people who work and may also live on the farms (farm workers and their families). The farming community in the study area includes the farm owners who are Anglo American, the tenants who lease farm Bankfontein RE/8 from Anglo for livestock farming and the farm workers that work/reside on farm Bankfontein RE/9.

» *Farming industry:* There are potentially vulnerable farming activities in the study area. The primary agricultural activity is livestock and game farming. Impacts that may arise include stock theft and poaching from an increase of in-migrants in the area (especially during the construction phase). Sensitive social receptors include directly adjacent farmland where livestock/ game farming occurs (farm Bankfontein RE/9 located south of the Lethabo Power Station).

» *Surrounding businesses / communities:* Sasolburg is the closest town to the proposed site located approximately 15km away. Sasolburg is a large industrial town and is known for the petro-chemical industry (SA Places, 2015). There may be positive social impacts associated with the construction phase for the surrounding towns in terms of economic growth and development (economic opportunities such as employment opportunities and local procurement)

» *Service providers:* The major service providers which will be affected by the project include the surrounding municipalities and local businesses in the area. The local municipalities that will be directly impacted by the proposed development will be Metsimaholo Local Municipality (ward 19). The municipality will absorb a number of social impacts (positive and negative), impacts may relate to a marginal influx of people coming into the area, since they will be responsible to deliver services to people residing within their municipal area. There are a number of local businesses in the area that could benefit from the proposed development in terms of an increase in demand for goods and services (positive cumulative impacts).

» *Stakeholders outside the direct area of influence:* There are a number of stakeholders that reside outside the direct area of influence but who may be marginally affected by the project. These include road users that use the R716 on a frequent basis as part of their daily or weekly movement patterns (people travelling from Viljoensdrif to Deneysville, employees of Lethabo Power station, employees at Anglo Colliery and farmers that farm nearby). As well as road users that utilise the secondary access road to access Lethabo Power Station or their farms (employees of Lethabo Power station, employees at Anglo Colliery and farmers that farm nearby). Construction vehicles and trucks will be utilising these roads during the construction phase of the development, which will increase the traffic and may increase the wear and tear on these roads. Due to the proposed site being located in an industrial area there are already a number of trucks that utilise these roads on a frequent basis for the Lethabo Power Station and Anglo Gold Colliery. The development may also have an indirect effect on the town's local residents; with influx of in-migrants and marginal growth in the local economy from jobseekers or a possible workforce being brought into the area.

5. Social Impact Assessment

This section provides a detailed description and assessment of the potential social impacts associated with the construction, operational and decommissioning phases of the proposed solar energy facility.

5.1. Construction Phase

Impacts associated with the construction phase of a project are usually of a short duration, temporary in nature, but could have long-term effects on the surrounding social environment if not managed appropriately. The alternative site 1, 75MW component, is expected to extend over a period of 18-24 months. The construction period for the alternative site 2 for the 35MW solar energy facility will be approximately 8-12months.

5.1.1. Direct employment and skills development

The construction of the proposed project will require a workforce and therefore direct employment will be generated. The proposed development will create employment opportunities for the local community. This is therefore a positive social impact. Although the exact number of employment opportunities has not been determined at this stage, it is estimated that during the construction phase approximately the 75MW solar energy facility on the alternative site 1 is likely to create approximately 250-300 employment opportunities, for approximately 18-24 months. The alternative site 2 with a generating capacity of 35MW solar energy facility will generate approximately 150-200 employment opportunities, for approximately 8-12months. However this number is likely to vary depending on the final designs of the proposed project. In terms of skills requirements, it is common that approximately 45% of the opportunities will be available to low-skilled workers (construction labourers, security staff etc.), 22% will be available to semi-skilled workers (drivers, equipment operators etc.), and 33% will be available to skilled personnel (engineers, land surveyors, project managers etc.). The total wage bill for the construction for the 75MW facility on the alternative site 1 is estimated to be in the region of R13 million. The wage bill for the alternative site 2 will be less, in the region of R7 million for the 35MW facility. The injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area.

The nearest town to the proposed sites is Sasolburg. The population of Sasolburg is approximately 113 038 people. According to the Municipal Manager from the Metsimaholo Local Municipality, there is a large economically active population in search for employment opportunities in Sasolburg (especially within the Zamdela area) and within the local municipality. The Metsimaholo Local Municipality has a high level of unemployment at 32.1%. The Municipal Manager stated that" if the project

could draw as many employees as possible from the local area it would assist in reducing the unemployment pressure and stimulate the local economy." There will be significant job opportunities available for low skilled (construction and security workers) and semi-skilled workers, which can be sourced from the local area. The proponent will need to demonstrate a commitment to local employment targets in order to maximise the opportunities and benefits for members of the local community. It is likely that an Engineering, Procurement and Construction (EPC) contractor will be appointed by the developer who will hire the necessary employees. The applicant has indicated that training will also be provided to employees with the proposed development. More positive economic opportunities will come from the Alternative site 1, as it is a 75MW development which means more employment opportunities will be available for a longer period of time in comparison to the Alternative site 2. Employment opportunities for the proposed development will peak during construction phase and significantly decline during the operation phase.

Table 13: Impact assessment on direct employment opportunities and skills development

Construction Phase				
Nature: The creation of employment opportunities and skills development opportunities during the construction phase for the country and local economy				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without enhancement	**With enhancement**	**Without enhancement**	**With enhancement**
Extent	Local- Regional (2)	Local- Regional (2)	Local- Regional (2)	Local- Regional (2)
Duration	Short term (2)	Short term (2)	Very short term (1)	Very short term (1)
Magnitude	Low (4)	Moderate (6)	Minor(2)	Low (4)
Probability	Probable (3)	Highly probable (4)	Probable (3)	Highly probable (4)
Significance	**Low (24)**	**Medium (40)**	**Low (15)**	**Low (28)**
Status (positive or negative)	Positive	Positive	Positive	Positive
Reversibility	N/A			
Irreplaceable loss of resources	N/A			
Can impacts be enhanced	Yes			
Enhancement measures: In order to enhance the local employment, skills development and business opportunities associated with the construction phase the following measures should be implemented:				

» It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force. Eskom 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, Ward 19, if this is not possible, then the broader focus areas should be considered for sourcing employees such as the Metsimaholo Local Municipality. » Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria » In the recruitment selection process; consideration must be given to women during recruitment process » It is recommended to set realistic local recruitment targets for the construction phase » Training and skills development programmes should be initiated prior to the commencement of the construction phase
Cumulative impacts Opportunity to upgrade and improve skills levels in the area
Residual impacts Improved pool of skills and experience in the local area

The impact for Alternative site 1 is therefore assessed to be positive; local and district in extent; temporary in duration; moderate in intensity and highly probable. The impact is assessed to be of medium significance to the decision making process.

The impact for Alternative site 2 is therefore assessed to be positive; local and district in extent; temporary in duration; low in intensity and highly probable. The impact is assessed to be of low significance to the decision making process.

5.1.2. Economic multiplier effects

There are likely to be opportunities for local businesses to provide services and materials for the construction phase of the development. The local service sector will also benefit from the proposed development. The site is located approximately 15km north east of Sasolburg. Given the relative proximity of the site to town, no on-site accommodation construction camp is envisaged. Off-site accommodation in the nearest town would be required for contract workers and certain employees. The economic multiplier effects from the use of local goods and services opportunities will include, but is not limited to, construction materials and equipment and workforce essentials such as services, safety equipment, ablution, accommodation, transportation and other goods.

The total construction capital expenditure associated with the establishment of the 75MW solar energy facility (alternative site 1) is estimated to be in the region of R1.8 billion for the solar energy facility. The alternative site 2 is estimated to cost

approximately R1 billion for the 35MW solar energy facility. In terms of business opportunities for local companies, expenditure during the construction phase will create business opportunities for the regional and local economy. In terms of business opportunities for local companies, expenditure during the construction phase will create business opportunities for the regional and local economy. The increase in demand for new materials and services in the nearby area may stimulate local business and local economic development (however locally sourced materials and services will be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses. The proponent or contractors should source services needed from the local area as much as possible. These necessities should be sourced from nearby town and local service providers.

Also the injection of income into the area in the form of wages will represent an opportunity for the local economy and businesses in the area. Through the stimulation of employment and income is the creation of new demand within the local and regional economies. With increased income comes additional income for expenditure on goods and services supplied. The intention is to maximise local labour employment opportunities, this is likely to have a positive impact on local communities and have downstream impacts on household income, education and other social aspects. The implementation of the enhancement measures below can enhance the opportunities for local area.

Table 14: Economic multiplier effects impact assessment

Construction Phase				
Nature: Significance of the impact from the economic multiplier effects from the use of local goods and services				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without enhancement	**With enhancement**	**Without enhancement**	**With enhancement**
Extent	Local- regional (2)	Local- Regional (2)	Local- regional (2)	Local- Regional (2)
Duration	Short term (2)	Short term (2)	Very short term (1)	Very short term (1)
Magnitude	Low (4)	Moderate (6)	Minor (2)	Low (4)
Probability	Probable (3)	Highly probable (4)	Probable (3)	Highly probable (4)
Significance	**Low (24)**	**Medium (40)**	**Low (15)**	**Low (28)**
Status (positive or negative)	Positive	Positive	Positive	Positive
Reversibility	N/A			
Irreplaceable loss of resources	N/A			

Can impacts be enhanced	Yes

Enhancement

» It is recommended that a local procurement policy is adopted by the developer to maximise the benefit to the local economy, where feasible (Metsimaholo Local municipality)

» Eskom should develop a database of local companies, specifically Historically Disadvantaged (HD) which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors; these companies should be notified of the tender process and invited to bid for project-related work where applicable

» It is a requirement to source as much good and services as possible from the local area; engage with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible

Cumulative impacts

Opportunity for local capital expenditure, potential for the local service sector

Residual impacts

Improved local service sector, growth in local business

The impact for the Alternative site 1 is therefore assessed to be positive; local and district in extent; temporary in duration; moderate intensity; and highly probable. The impact is assessed to be of medium significance to the decision-making process.

The impact for the Alternative site 2 is therefore assessed to be positive; local and district in extent; temporary in duration; low intensity; and highly probable. The impact is assessed to be of low significance to the decision-making process.

5.1.3. Safety and security impacts

An increase in crime is often associated with construction activities. The perceived loss of security during the construction phase of the proposed project due to the influx of workers and/or outsiders to the area (as influxes of construction workers, newcomers or jobseekers are usually associated with an increase in crime), may have indirect effects, such as increased safety and security issues for neighbouring properties and damage to property, such as the risk of veld fire, stock theft, crime and so forth. The perception exists that construction related activities (influx of jobseekers, and construction workers and so forth) is a contributor to increased criminal activities in an area. The alternative site 1 is likely to create approximately 250-300 employment opportunities (approximately 18-24 months). The alternative site 2 will generate approximately 150-200 employment opportunities (approximately 8-12 months). An influx of construction workers will be significantly more and for a

longer period of time for the Alternative site 1, therefore increasing the perceived safety and security risks in comparison to Alternative site 2.

Apart from construction crew that poses a potential increased risk there may also be an influx of people looking for economic opportunities (job seekers). Safety and security impacts are a reality in South Africa which needs to be addressed through appropriate mitigation measures. The adjacent landowners were interviewed and safety and security concerns were discussed; it was concluded that the adjacent landowners / tenants don't have concerns with safety and security in terms of possible crime, damage to property or stock theft for either of the proposed sites (see minutes of meetings in Appendix B), therefore the impact is assessed to be of low significance. Nevertheless, precautions will still need to put in place to limit any possible negative impacts associated with safety and security.

Table 15: Assessment of safety and security impacts

Construction Phase				
Nature: Temporary increase in safety and security concerns associated with the influx of people during the construction phase				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	Local (2)	Local (2)	Local (2)	Local (2)
Duration	Short term (2)	Short term (2)	Very short term (1)	Very short term (1)
Magnitude	Low (4)	Low (4)	Minor (2)	Minor (2)
Probability	Probable (3)	Improbable (2)	Probable (3)	Improbable (2)
Significance	**Low(24)**	**Low (16)**	**Low (15)**	**Low (10)**
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Yes			
Irreplaceable loss of resources	No			
Can impacts be mitigated	Yes			
Mitigation » Access in and out of the construction area should be strictly controlled by a security company » The appointed EPC contractor must appoint a security company and appropriate security procedures are to be implemented » The contractor must ensure that open fires on the site for heating, smoking or cooking are not allowed except in designated areas » Contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.				

» A comprehensive employee induction programme would cover land access protocols, fire management and road safety. This must be addressed in the construction EMPr as the best practice. » A Community Liaison Officer should be appointed as a grievance mechanism. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process
Cumulative impacts Possible increase in crime levels (with influx of people) with subsequent possible economic losses, however limited considering the nature of the area (industrialised area)
Residual impacts None anticipated

The impact of the Alternative site 1 is assessed to be negative; local in extent; temporary in duration; low intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

The impact of the Alternative site 2 is assessed to be negative; local in extent; temporary in duration; minor intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

5.1.4. Impacts on daily living and movement patterns

An increase in traffic due to heavy vehicles could create short-term disruptions and safety hazards for current road users. Transportation of project components and equipment to the proposed site will be transported using vehicular / trucking transport. The existing secondary access road is off the R716, the same access road that is utilized to access the Lethabo Power Station and the Anglo Vaal Colliery. This secondary road will be the primary access road to the proposed site. The primary roads that will be used for transportation of project components and equipment will be the R716 and the secondary road off the R716. There are regular daily movement patterns on the R716 and secondary road off the R716 from employees of Eskom that work at the Lethabo Power Station and adjacent landowners (employees at Anglo Vaal Colliery and local famers) that utilize these roads to access their place of work. The R716 is a tarred road and the secondary road off the R716 is tarred and is currently being upgraded. The roads to the proposed site are currently in good condition and are utilised on a daily basis by a large number of trucks going to and from the Lethabo Power Station and Anglo Vaal Colliery. Increased traffic due to heavy vehicles could cause disruptions to the local community and increase safety hazards. The use of local roads and transport systems may cause road deterioration and congestion.

An increase of traffic from the rise in construction vehicles is a safety concern for other road users and local communities in the area. The movement of construction

related activities crossing over the R716 does have the potential to increase the risk for road users. Also with wear and tear on roads that is not maintained / repaired; the safety risk also increases. The R716 and the access road would mainly be affected and the use of unroadworthy vehicles, drivers disobeying traffic rules and the obstruction of motorist's views will contribute to this potentially negative impact.

The current state of the area should be taken into consideration. The site is located within the Lethabo Power Station boundary. Adjacent to the Lethabo Power Station is the Anglo New Vaal Colliery. The New Vaal Colliery supplies the nearby Lethabo Power Station with 15 million tons of coal per year. The colliery is an opencast strip mine and the coal is loaded and transported to the plant using a fleet of electric shovels and 170t rear dump trucks (Vaal industrial & business guide, 2015). As a result of the industrial activities taking place in the surrounding areas, the current roads disturbance has taken place leading to the transformation of the area. Due to the Alternative site 1 being a larger solar energy facility, there will be significantly more construction vehicles and traffic for a longer period of time in comparison to the Alternative site 2.

Table 16: Assessment of impacts on daily living and movement patterns

Construction Phase				
Nature: Temporary increase in traffic disruptions and movement patterns during the construction phase				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	Local (1)	Local (1)	Local (1)	Local (1)
Duration	Short term (2)	Short term (2)	Very short term (1)	Very short term (1)
Magnitude	Moderate (6)	Moderate (6)	Low (4)	Low (4)
Probability	Highly Probable (4)	Probable (3)	Highly Probable (4)	Probable (3)
Significance	**Medium (36)**	**Low (27)**	**Low (24)**	**Low (18)**
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Yes			
Irreplaceable loss of resources	No			
Can impacts be mitigated	Yes			
Mitigation » All vehicles must be road worthy and drivers must be qualified, obey traffic rules, follow speed limits and be made aware of the potential road safety issues.				

» Heavy vehicles should be inspected regularly to ensure their road safety worthiness. » Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules. » Avoid heavy vehicle activity during 'peak' hours (when people are driving to and from work) » The developer and engineering, procurement and construction (EPC) contractor's must ensure that any damage / wear and tear caused by construction related traffic to the roads is repaired » Provision of adequate and strategically placed traffic warning signs and control measures along the R716 and secondary roads to warn road users of the construction activities taking place, displaying road safety messages and speed limits for the duration of the construction phase. » A comprehensive employee induction programme to cover land access protocols and road safety. This must be addressed in the construction EMPr as the best practice. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process
Cumulative impacts Possible increased traffic and traffic disruptions impacting local communities movement patterns and increased risks for road users
Residual impacts Non anticipated

The impact of the Alternative site 1 is assessed to be negative; local in extent; temporary in duration; moderate intensity and probable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

The impact of the Alternative site 2 is assessed to be negative; local in extent; temporary in duration; low intensity and probable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

5.1.5. Pressure on economic and social infrastructure impacts from an in-migration of people

The in-migration of people to the area as either non-local workforce of construction workers and/or jobseekers could result in pressure on economic and social infrastructure due to in migration of construction workers and jobseekers and pressure on local population (rise in social conflicts and social dynamics). Influx of people into the area, especially by job seekers, could further lead to a temporary increase in the level of crime, cause social disruption and put pressure on basic services. Adverse impacts could occur if a large in-migrant workforce, culturally different from the local

indigenous group, is brought in during construction. This influx of non-local work force could also strain the existing community infrastructure and social services. The local municipalities already have a large indigence population that relies on free basic services from the municipality, which has constrained the municipalities' bulk infrastructure due to a lack of funding. The proposed development will create a range of employment possibilities and thus it will attract jobseekers. The Alternative site 1 (75MW PV facility) will create more job opportunities than the smaller proposed facility on Alternative site 2 (35MW PV facility). The 75MW facility will require a larger workforce which may attract more job seekers to the area as there will be more economic opportunity. An influx of people looking for economic opportunities could result in pressure on economic and social infrastructure on the local population (rise in social conflicts and change in social dynamics). Influx of jobseekers into the area, could lead to a temporary increase in the level of crime, cause social disruption and put pressure on basic services. A further negative impact that could result due to an inflow of jobseekers is that local unemployment levels could rise due to an oversupply of an available workforce. The high unemployment rates and expectations of job creation is already a source of competition among locals and could be exacerbated through outsiders coming into the area resulting in conflict. Another consequence of a bringing in an outside workforce is that they often remain in the area after completion of the project, thereby posing a negative long-term impact on services and infrastructure. The 75MW PV facility on Alternative site 1 will require a larger workforce for a longer period of time in comparison to the 35MW PV facility on Alternative site 2and therefore bringing in a larger outside workforce will create more conflicts, tensions and possible long-term impacts.

Sasolburg is the closest town to the proposed site and is seen as sensitive social receptor and in-migrants (either bringing in an outside workforce or jobseekers) coming into the area could put pressure on social infrastructure; create social problems, tensions and conflicts. The impact associated with in-migration of jobseeker and/or an outside workforce includes pressure on local municipal services and infrastructure such as sanitation, electricity, water, waste management, health facilities, transportation and availability of housing. Squatter settlements may develop near towns to accommodate jobseekers. It is very difficult to control the influx of people into an area, especially in a country where there's high levels of unemployment. An influx of jobseekers to an area often results in an increase in prostitution activities and temporary sexual relations with locals; this could result increase in the spreading of HIV/Aids and STD's and unwanted pregnancies. The disruption of the local area as a result of the proposed PV facility development largely depends on the level of local employment achievable and clearly stipulating a local employment regime to limit outsiders coming into the area. Employment opportunities can be sourced from the surrounding local area first, Ward 19, and if availability of labour is limited then the search can be extended to the local

municipality. The local municipality's population could fulfil the majority of the lower and semi-skilled employment opportunities that emerge.

The degree to which society is disrupted largely depends on the level of local employment achievable and in the case of this project a significant portion of the workforce is expected to be sourced locally and the overall number of outsiders would not be significant to cause great disruption.

Table 17: Assessment of pressure on economic and social infrastructure from an in migration of people

Construction Phase				
Nature: Added pressure on economic and social infrastructure during construction as a result of in-migration of people				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	Local-regional (2)	Local- regional (2)	Local-regional (2)	Local- regional (2)
Duration	Short-term (2)	Short-term (2)	Very short-term (1)	Very short-term (1)
Magnitude	Moderate (6)	Low (4)	Low (6)	Minor (4)
Probability	Probable (3)	Improbable (2)	Probable (3)	Improbable (2)
Significance	**Medium (30)**	**Low (16)**	**Low (27)**	**Low (14)**
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	No			
Irreplaceable loss of resources	No			
Can impacts be mitigated	Yes			
Mitigation » A 'locals first' policy should be advertised for construction employment opportunities, especially for semi and low-skilled job categories. Enhance employment opportunities for the immediate local area, Ward 19, if this is not possible, then the broader focus areas should be considered for sourcing employees such as the Metsimaholo Local Municipality » It is recommended that local employment policy is adopted to maximize the opportunities made available to the local labour force. » Recruitment of temporary workers at the gates of the development site should not be allowed. A recruitment office located in town with a Community Liaison officer should be established to deal with jobseekers. » Have clear rules and regulations for access to the proposed site to control loitering.				

» A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process
Cumulative impacts » Additional pressure on infrastructure due to additional people in the area » Possible increase in criminal activities and economic losses in area for property owners
Residual impacts Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure

The impact of the Alternative site 1 is assessed to be negative; local to regional in extent; temporary in duration; low intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

The impact of the Alternative site 2 is assessed to be negative; local to regional in extent; temporary in duration; low intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

5.1.6. Nuisance Impacts (noise & dust)

Impacts associated with construction related activities include noise, dust and disruption to adjacent properties is a potential issue. Experience from other solar energy facilities projects and other developments indicate that site clearing does increase the risk of dust being generated, which can in turn impact on adjacent properties. The potential impacts can be addressed by implementing effective mitigation measures. The movement of heavy construction vehicles during the construction phase also has the potential to create noise, damage to roads and dust. The primary sources of noise during construction would be from the construction equipment and other sources of noise include vehicle traffic. Generation of dust would come from construction activities. Short-term increases in the use of local roads would occur during the construction period. Heavy equipment would most likely remain at the site for the construction period. The proposed site is located within the boundary of the Lethabo Power Station area, so the impact will be less significant as it's located within an industrial area. The adjacent landowners/ tenants that were interviewed also indicated that these nuisance impacts would not be of concern during the construction phase (see minutes of meetings in Appendix B). The noise, dust and increased use of the local roads are expected to be negative but short term impact. Social impacts for Alternative site 1 and Alternative site 2 will be similar. The only significant differences of the alternative sites is that the construction phase will be longer for Alternative site 1 as the size of the solar energy facility is larger (75MW, 18-24 months of construction), therefore the negative construction impacts such as

disruption from nuisance impacts (traffic, noise and dust during construction) and would be experienced for a longer period of time in comparison to alternative site 2 (35MW, 8-12 months of construction). However, the proposed development is located in an industrial area and the surrounding landowners do not have any concerns in terms of nuisance impacts and safety and security impacts, therefore these impacts are neutral and have low significance.

Table 18: Assessment of nuisance impacts

Construction Phase				
Nature: Nuisance impacts in terms of temporary increase in noise and dust, and the wear and tear on private farm roads for access to the site				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	Local (1)	Local (1)	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)	Very short-term (1)	Very short-term (1)
Magnitude	Minor (2)	Minor (2)	Minor (2)	Minor (2)
Probability	Probable (3)	Improbable (2)	Probable (3)	Improbable (2)
Significance	**Low (15)**	**Low (10)**	**Low (12)**	**Low (8)**
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Yes			
Irreplaceable loss of resources	No			
Can impacts be mitigated	Yes			
Mitigation The potential impacts associated with construction and heavy vehicles can be effectively mitigated. The mitigation measures include: » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers » Ensure that drivers adhere to speed limits » Ensure all vehicles are road worthy; drivers are qualified and are made aware of the potential noise and dust issues. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process				
Cumulative impacts				

» Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads.
Residual impacts None anticipated

The impact of the Alternative site 1 is assessed to be negative; local in extent; temporary short term in duration; minor intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

The impact of the Alternative site 2 is assessed to be negative; local in extent; temporary very short term in duration; minor intensity and improbable with mitigation measures. The impact is assessed to be of low significance to the decision making process.

5.2. Operation Phase

The solar energy facility will be operational for approximately 20-25years. The potential positive and negative impacts which could arise as a result of the operation of the Project include the following:

5.2.1. Direct employment and skills development

The operation phase (20-25years) of the proposed development will require a workforce and therefore direct employment will be generated. Although the exact number of construction workers is not confirmed at this stage, it is estimated that approximately ~50 jobs will be generated during the operation phase for the 75MW facility and approximately ~25 jobs created for the 35MW facility. Given that solar energy facilities are relatively new in South Africa, a number of highly skilled personnel may need to be recruited from outside the Local Municipal area. The employees would include skilled engineers (specialised in both electrical and mechanical engineering) as well as less skilled services such as safety and security and engineering assistants. Routine activities would include operation of the solar facility to produce power, and regular monitoring and maintenance activities to ensure safe and consistent operation. Maintenance will be carried out throughout the lifetime of the solar energy facility. Typical activities during maintenance include washing solar panels routinely (in the evening) and vegetation control and maintenance. Employment opportunities will be created during the operation phase and is rated as positive impact although limited.

Table 19: Employment opportunities and skills development

Operational Phase
Nature: The creation of employment opportunities and skills development opportunities

during the operation phase for the country and local economy				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without enhancement	**With enhancement**	**Without enhancement**	**With enhancement**
Extent	Local- Regional (3)	Local-Regional (3)	Local- regional (3)	Local- Regional (3)
Duration	Long term (4)	Long term (4)	Long term (4)	Long term (4)
Magnitude	Low (4)	Low(4)	Minor (2)	Minor (2)
Probability	Probable (3)	Highly Probable (4)	Probable (3)	Highly Probable (4)
Significance	**Low (30)**	**Medium (40)**	**Low (27)**	**Medium (36)**
Status (positive or negative)	Positive	Positive	Positive	Positive
Reversibility	N/A			
Irreplaceable loss of resources	N/A			
Can impacts be enhanced	Yes			
Enhancement » It is recommended that a local employment policy is adopted by the developer to maximise the project opportunities being made available to the local community. Enhance employment opportunities for the immediate local area, Ward 19, if this is not possible, then the broader focus areas should be considered for sourcing employees such as the Metsimaholo Local Municipality. » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible » The developer should establish vocational training programs for the local employees to promote the development of skills				
Cumulative impacts Opportunity to upgrade and improve skills levels in the area				
Residual impacts Improved pool of skills and experience in the local area				

The impact of the Alternative site 1 is assessed to be positive; local to regional in extent; long term in duration; low intensity and highly probable with enhancement measures. The impact is assessed to be of medium significance to the decision making process.

The impact of the Alternative site 2 is assessed to be positive; local to regional in extent; long term in duration; minor intensity and highly probable with enhancement measures. The impact is assessed to be of medium significance to the decision making process.

5.2.2. Development of clean, renewable energy infrastructure

Energy production has been and still is one of the main pivots of the social and economic development of South Africa. South Africa currently relies on coal-generated energy to meet its energy needs. Almost 72% of South Africa's primary energy is from coal, over half used to generate electricity and a quarter used for synfuels production. South Africa's carbon emissions are higher than those of most developed countries partly because of the energy-intensive sectors which rely heavily on low quality coal. Use of low quality coals is the main contributor of GHG emission (ERC, 2004). The energy-intensive sectors of the economy emit carbon emissions that are higher than those of most developed economies. The use of solar radiation for power generation is considered a non-consumptive use of a natural resource which produces zero greenhouse gas emissions. The generation of renewable energy will contribute to South Africa's electricity market. The advancement of renewable energy is a priority for South Africa. The government considers the use of renewable energy as a contribution to sustainable development (White Paper on Renewable Energy, 1998). As most of the sources are indigenous and naturally available, its use will strengthen energy security as it will not be subjected to disruption by international crisis. Furthermore, recent policy highlights the desirability of clean; green energy and solar generated energy will play a significant role in reaching these quotas (ERC, 2004). Given South Africa's reliance on Eskom as a power utility, the benefits associated with an Independent Power Producer based on renewable energy are regarded as an important contribution.

Bringing in the renewable energy sector to the Metsimaholo economy may contribute to the diversification of the local economy and provide greater economic stability. The growth in the renewable energy sector could introduce skills and development into the area. The development of the solar energy facility could therefore add to the stability of the economy, and even though this proposed development is small scale in comparison to the overall potential of the sector, it could contribute to the local economy. The proposed 75MW facility or 35MW facility will help contribute to offset the total carbon emissions associated with energy generation in South Africa. Internationally there is an increase in the deployment of renewable energy technologies for the generation of electricity due to concerns such as climate change and exploitation of non-renewable resources. Through the Integrated Resource Plan (IRP), the South African Government has set a target for renewable energy of 17 GWh renewable energy contributions to final energy consumption by 2030, to be produced mainly from biomass, wind, solar and small-scale hydro. Eskom has already successfully installed PV systems at offices and parking lots within Eskom-owned property to promote renewable energy awareness and to diversify their own energy mix. Furthermore, Eskom is looking at further reducing their self-consumption at their various owned or utilised sites by introducing Eskom's Ilanga PV Project Portfolio which aims to install 150MWp at their various power stations, offices and substations,

which includes the proposed Lethabo Photovoltaic solar energy facility. The solar PV facilities will promote the reduction of Eskom's carbon footprint and support the demand side management energy efficiency programme.

Table 20: Assessment of the development of clean, renewable energy infrastructure

Operational Phase				
Nature: Development of clean, renewable energy infrastructure				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without enhancement	**With enhancement**	**Without enhancement**	**With enhancement**
Extent	Local- Regional- National (4)	Local- Regional- National (4)	Local- Regional- National (4)	Local- Regional- National (4)
Duration	Long term (4)	Long term (4)	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)	Minor (2)	Minor (2)
Probability	Highly probable (4)	Highly probable (4)	Highly probable (4)	Highly probable (4)
Significance	**Medium (48)**	**Medium (48)**	**Medium (40)**	**Medium (40)**
Status (positive or negative)	Positive	Positive	Positive	Positive
Reversibility	Yes			
Irreplaceable loss of resources	Yes (impact of climate change)			
Can impacts be enhanced	No			
Enhancement None anticipated				
Cumulative impacts Reduce carbon emissions through the use of renewable energy and contribute to reducing global warming				
Residual impacts Reduce carbon emissions through the use of renewable energy and contribute to reducing global warming				

The impact of the Alternative site 1 is assessed to be positive; local to national in extent; long term in duration; low intensity and highly probable with enhancement measures. The impact is assessed to be of medium significance to the decision making process.

The impact of the Alternative site 2 is assessed to be positive; local to national in extent; long term in duration; minor intensity and highly probable with enhancement

measures. The impact is assessed to be of medium significance to the decision making process.

5.2.3. Visual impact and sense of place impacts

The sense of place is developed over time as the community embraces the surrounding environment, becomes familiar with its physical properties, and creates its own history. The sense of place is created through the interaction of various characteristics of the environment, including atmosphere, visual resources, aesthetics, climate, lifestyle, culture and heritage. Importantly though it is a subjective matter and is dependent on the demographics of the population that resides in the area and their perceptions regarding trade-offs. An impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light. The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of the proposed solar energy facility.

The proposed development is located within an industrial area, within the boundary of the Lethabo Power Station area and is located adjacent to the Anglo Vaal Colliery (open cast mining). The adjacent landowner is Anglo American. The environmental officer from Anglo and the tenant who leases some of the adjacent land for livestock farming indicated that there won't be any anticipated visual issues from their side as is it located in an industrial area. The Lethabo Power Station located next to the site, the power and transmission lines and the open cast mining are infrastructural and disrupting elements that currently affect visual resources in the immediate local area. Therefore the anticipated impact on the areas visual quality and sense of place is expected to be of very low significance.

Table 21: Visual impact and impacts on sense of place assessment

Operational Phase				
Nature: Visual impacts and sense of place impacts associated with the operation phase of the project				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	Local (1)	Local (1)	Local (1)	Local (1)
Duration	Long term (4)	Long term (4)	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)	Minor (2)	Minor (2)
Probability	Improbable (2)	Improbable (2)	Improbable (2)	Improbable (2)
Significance	**Low (18)**	**Low (18)**	**Low (14)**	**Low (14)**
Status	Negative	Negative	Negative	Negative

(positive or negative)				
Reversibility	Yes			
Irreplaceable loss of resources	No			
Can impacts be mitigated	Yes			
Mitigation » Vegetation screening implemented if required.				
Cumulative impacts None anticipated				
Residual impacts None anticipated if the visual impact will be removed after decommissioning, provided the solar energy facility infrastructure is removed and the site is rehabilitated to its original (current) status.				

The impact of the Alternative site 1 is assessed to be negative; local in extent; long term; low intensity; and improbable. The impact is assessed to be of low significance to the decision-making process due to the development taking place within the industrial area of the Lethabo Power Station boundary.

The impact of the Alternative site 2 is assessed to be negative; local in extent; long term; minor intensity; and improbable. The impact is assessed to be of low significance to the decision-making process due to the development taking place within the industrial area of the Lethabo Power Station boundary.

5.3. Decommissioning Phase

Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the adjacent landowners who are directly affected, the communities within which they live, and the relevant local authorities. However, in the case of the proposed facility the decommissioning phase is likely to involve the disassembly and replacement of the existing components with more modern technology. This is likely to take place in 20-25 years post commissioning. The decommissioning phase is therefore likely to create additional, construction type jobs, as opposed to the job losses typically associated with decommissioning however for a limited period of time.

Given the relatively small number of people employed during the operation phase for the Alternative site 1 75MW solar energy facility (approximately ~50) and even less for the Alternative site 2 35MW solar energy facility (approximately ~25), the social impacts at a community level associated with decommissioning are likely to be low.

In addition, potential impacts associated with the decommissioning phase can be effectively managed with the implementation of a retrenchment and downscaling programme. Based on the current situation of the local area the impacts are assessed to be Low with mitigation measures.

Table 22: Social impacts associated with decommissioning

Nature: Social impacts associated with retrenchment including loss of jobs and source of income				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
	Without Mitigation	**With Mitigation**	**Without Mitigation**	**With Mitigation**
Extent	Local- district (2)	Local- district (2)	Local- district (2)	Local- district (2)
Duration	Short term (1)	Short Term (1)	Short term (1)	Short Term (1)
Magnitude	Low (4)	Low (4)	Minor (2)	Minor (2)
Probability	Highly Probable (4)	Probable (3)	Highly Probable (4)	Probable (3)
Significance	**Low (28)**	**Low (21)**	**Low (20)**	**Low (15)**
Status	Negative	Negative	Negative	Negative
Reversibility	Yes, assumes retrenchment packages are paid to all affected employees			
Irreplaceable loss of resources?	No			
Can impact be mitigated?	Yes			
Mitigation » The proponent should ensure that retrenchment packages are provided for all staff retrenched when the plant is decommissioned. » All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning; » There should be a decommissioning/ rehabilitation fund established as part of the environmental management programme, allocated to rehabilitate disturbed areas.				
Cumulative impacts Loss of jobs and associated loss of income etc. can impact on the local economy and other businesses.				
Residual impacts				

Loss of jobs and associated loss of income, can impact on local economy and other businesses.

The impact of the Alternative site 1 is assessed to be negative short term; low intensity; and probable. The impact is assessed to be of low significance to the decision-making process.

The impact of the Alternative site 2 is assessed to be negative short term; minor intensity; and probable. The impact is assessed to be of low significance to the decision-making process.

5.4. Assessment of Alternatives

The SIA analysis of alternatives will focus on the Alternative site 1, Alternative site 2 and the no-go alternative. Social impacts, unlike most environmental impacts, are not site specific and occur in the communities surrounding the proposed site.

Alternative site 1 and Alternative site 2

Social impacts for Alternative site 1 and Alternative site 2 will be similar. The only significant differences is that the construction phase will be longer for Alternative site 1 as the size of the solar energy facility is larger (75MW), therefore the negative construction impacts such as disruption from nuisance impacts (traffic, noise and dust during construction) and safety and security impacts would be experienced for a longer period of time. However, the proposed development is located in an industrial area and the surrounding landowners do not have any concerns in terms of nuisance impacts and safety and security impacts, therefore these impacts are neutral and have low significance. With the Alternative site 1 having a longer construction phase (18-24 months for a 75MW facility) in comparison to the Alternative site 2 (8-12 months for a 35MW facility) more economic benefits will be experienced for a longer period of time such as; more employment opportunities, wages for a longer period, capital expenditure, skills development and economic multiplier benefits. Therefore these impacts are positive and consequently the Alternative site 1 would represent more socio-economic opportunities for the local area.

No-go option

The impacts of pursuing the No-go option are both positive and negative as follows:

» The benefits would be that there is no disruption from, nuisance impacts (traffic, noise and dust during construction) and safety and security impacts. The impact is therefore neutral.

» There would also be an opportunity loss in terms of diversifying Eskom's energy mix, loss of job creation, skills development and associated economic multipliers for the local economy.

Foregoing the proposed development would not necessarily compromise the development of renewable energy facilities in South Africa. However, the socio-economic benefits for local communities would be forfeited.

5.5. **Cumulative Impacts**

Cumulative impacts have been considered as part of this social impact assessment and identified where relevant. The proposed Lethabo solar energy facility has the potential to result in significant positive cumulative impacts; specifically with the establishment of a number of solar energy facilities in the vicinity of Metsimaholo Local Municipality will create a number of socio-economic opportunities for the area, which, in turn, will result in a positive social benefit. The positive cumulative impacts include creation of employment, skills development and training opportunities, and downstream business opportunities. Benefits to the local, regional and national economy through employment and procurement of services could be substantial should many renewable energy facilities proceed. This benefit will increase significantly should critical mass be reached that allows local companies to develop the necessary skills to support construction and maintenance activities and that allows for components of the renewable energy facilities to be manufactured in South Africa. Furthermore at municipal level, the cumulative impact could be positive and could incentivize operation and maintenance companies to centralize and expand their activities towards education and training.

Table 23: Cumulative impacts 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 energy facility		
	Without enhancement	**With enhancement**
Extent	Local- regional (3)	Local- Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Highly Probable (4)
Significance	**Medium (33)**	**Medium (52)**
Status (positive or negative)	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources	N/A	
Can impacts be enhanced	Yes	

Enhancement The establishment of a number of solar energy facilities in the area does have the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted and local services providers are utilised by the developers to maximise the project opportunities available to the local community.
Cumulative impacts » Opportunity to upgrade and improve skills levels in the area » Cumulative impacts on local entrepreneurs in developing their businesses
Residual impacts » Improved pool of skills and experience in the local area » Economic growth for small-scale entrepreneurs

The impact is assessed to be positive; local to regional in extent; long-term; low intensity and probable. The overall impact is likely to have a medium positive significance to the local area.

The potential impact of the proposed Lethabo solar energy facility on the areas sense of place is likely to be low-medium as it's located within an industrial area. The potential impact of numerous solar energy facilities in the area could be an issue that does need to be taken into consideration. The Environmental Authorities in the provinces however should be aware of the potential cumulative impacts when evaluating applications.

6. Conclusion and Recommendations

The SIA has primarily focused on the collection of primary data to identify and assess social issues and potential social impacts. Secondary data was collected and presented in a literature review and primary data was collected through the public participation process and face to face interviews with key stakeholders. The environmental assessment framework for assessment of impacts and the relevant criteria were applied to evaluate the significance of the potential impacts. A summary of the potential positive and negative impacts identified in the SIA for the construction and operation phase are presented in Tables 24 and 25 below.

Table 24: Summary of social impacts during construction phase

CONSTRUCTION PHASE				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
Impact	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**
Positive Impacts				
Direct employment and skills development	Low	Medium	Low	Low
Economic multiplier effects	Low	Medium	Low	low
Negative Impacts				
Safety and security risks	Low	Low	Low	Low
Impacts on daily living and movement patterns	Medium	Low	Low	Low
Pressure on economic and social infrastructure impacts from an in migration of people	Medium	Low	Low	Low
Nuisance impacts (noise & dust)	Low	Low	Low	Low

Table 25: Summary of social impacts during operation phase

OPERATION PHASE				
	Alternative site 1 (75MW)		**Alternative site 2 (35MW)**	
Impact	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**	**Significance Without Mitigation/ enhancement**	**Significance With Mitigation/ enhancement**
Positive Impacts				
Direct employment and skills development	Low	Medium	Low	Medium
Development of clean, renewable energy infrastructure	Medium	Medium	Medium	Medium
Negative Impacts				
Visual and sense of place impacts	Low	Low	Low	Low

Key findings

From a social perspective it is concluded that either development is supported, but that mitigation measures should be implemented and adhered to. Positive and negative social impacts have been identified. The assessment of the key issues indicated that there are no negative impacts that can be classified as fatal flaws and which are of such significance that it cannot be successfully mitigated. Positive impacts could be enhanced by implementing appropriate enhancement measures and through careful planning. Based on the social assessment, the following general conclusions and findings can be made:

» The potential negative social impacts associated with the construction phase are typical of construction related projects and not just focussed on the construction of PV facilities (these relate to influx of non-local workforce and jobseekers, intrusion and disturbance impacts, safety and security) and could be reduced with the implementation of the mitigation measures proposed.
» Employment opportunities will be created in the construction and operation phase and the impact is rated as positive even if only a small number of individuals benefit in this regard.

» The proposed project could assist the local economy in creating entrepreneurial development, especially if local business could be involved in the provision of general material and services during the construction and operational phases.
» Capacity building and skills training among employees are critical and would be highly beneficial to those involved, especially if they receive portable skills to enable them to also find work elsewhere and in other sectors.
» The proposed development also represents an investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society as a whole.

Recommendations

The following recommendations are made on the basis of the Social Impact Assessment and a thorough review of the concerns and suggestions raised by stakeholders and interested and affected parties during the stakeholder engagement process. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts. Based on the social assessment, the following recommendations are made:

» In terms of employment related impacts, it is important to consider that job opportunities for the unskilled and semi-skilled are scarce commodities in the study area and could create competition among the local unemployed. Introducing an outside workforce will therefore most likely worsen local endeavours to obtain jobs and provoke discontent as well as put pressure on the local services available. Local labour should be utilised to enhance the positive impact of employment creation in the area. Local businesses should be involved with the construction activities where possible. It is important that local labour be sourced to ensure that benefits accrue to the local communities. Preference should thus be given to the use of local labour during the construction and operational phases of the project as far as possible.
» Locals should also be allowed an opportunity to be included in a list of possible local suppliers and service providers, enhancing the multiplier effect. This aspect would serve to mitigate other subsequent negative impacts such as those associated with the inflow of outsiders to the area, the increased pressure on the infrastructure and services in the area, as well as the safety and security concerns.
» Impacts associated with the construction period should be carefully mitigated to minimise any possible dust and noise pollution.
» Safety and security concerns should be taken into account during the planning and construction phases of the proposed project.

Overall Conclusion

The proposed Lethabo solar energy facility and associated infrastructure is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the proposed Lethabo solar energy facility alternative site 1 or alternative site 2 could be developed subject to the implementation of the recommended mitigation measures and management actions contained in the report. The proposed development represents greater positive social potential than negative implications due to the development being located in an industrial area. From the analysis of alternatives it can be concluded that the alternative site 1 is the socially preferred alternative as this development would bring more positive socio-economic benefits to the local area for a longer period of time; in terms of job creation, capital expenditure, wage bill expenditure and a higher amount of MWs of renewable energy. Therefore the alternative site 1 is the socially preferred option based on the greater socio-economic benefits the development will provide to the local area with minimal negative social impacts due to the site being located in an industrial area.

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Appendix A: SIA Environmental Management Programme (EMPr)

Construction Phase:

Direct employment and skills development

OBJECTIVE: Maximise local employment and skills opportunities associated with the construction phase			
Project component/s	Construction of the proposed Lethabo solar energy facility and associated infrastructure		
Potential Impact	The opportunities and benefits associated with the creation of local employment and skills development to be maximised.		
Activity/risk source	» Construction procurement practice employed by the EPC contractor » Developers investment plan		
Enhancement: Target/Objective	The developer should aim to employ as many low-skilled and semi-skilled workers from the local area as possible. This should also be made a requirement for all contractors.		
Enhancement: Action/control		**Responsibility**	**Timeframe**
» Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria		» The Proponent & EPC Contractors	» Pre-construction & construction phase
» Adopt a local employment policy to maximise the opportunities made available to the local labour force (preference to Ward 19, then the Metsimaholo Local Municipality area)		» The Proponent & EPC Contractors	» Pre-construction & construction phase
» In the recruitment selection process; consideration must be given to women during recruitment process		» EPC Contractors	» Pre-construction & construction phase
» Set realistic local recruitment targets for the construction phase (preference to Ward 19, then the Metsimaholo Local Municipality area)		» The Proponent & EPC Contractors	» Pre-construction & construction phase
» Training and skills development programmes to be initiated prior to the commencement of the construction phase		» The Proponent	» Pre-construction &

		construction phase
Performance Indicator	» Employment and business policy document that sets out local employment and targets completed before construction phase commences; » Employ as many semi and unskilled labour from the local area or local municipality as possible (preference to Ward 19, then the Metsimaholo Local Municipality area) » Training and skills development programme undertaken prior to the commencement of construction phase.	
Monitoring	» The developer and EPC contractor must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes.	

Economic multiplier effects

OBJECTIVE: Maximise the local economic multiplier effect during construction phase		
Project component/s	Construction of the proposed Lethabo solar energy facility and associated infrastructure	
Potential Impact	Potential local economic benefits	
Activity/risk source	Developers procurement plan	
Enhancement: Target/Objective	Increase the procurement of goods and services especially within the local economy	
Enhancement: Action/control	**Responsibility**	**Timeframe**
» A local procurement policy to be adopted to maximise the benefit to the local economy (Metsimaholo Local Municipality)	» The Proponent & EPC Contractor	» Pre-construction & construction phase
» Develop a database of local companies, specifically Historically Disadvantaged (HD) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable	» The Proponent& EPC Contractor	» Pre-construction & construction phase
» Source as much goods and services as possible from the local area (Metsimaholo Local Municipality). Engage with local	» The Proponent	» Pre-construction &

authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible		construction phase
Performance Indicator	» Local procurement policy is adopted » Local goods and services are purchased from local suppliers where feasible (Metsimaholo Local Municipality)	
Monitoring	» The developer must monitor indicators listed above to ensure that they have been met for the construction phase	

Safety and security impacts

OBJECTIVE: To avoid or reduce the possibility of the increase in crime and safety and security issues during the construction phase		
Project component/s	Construction of the proposed Lethabo solar energy facility and associated infrastructure	
Potential Impact	Increase in crime due to influx of non-local workforce and job seekers into the area	
Activity/risk source	Safety and security risks associated with construction activities	
Mitigation: Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods	
Mitigation: Action/control	**Responsibility**	**Timeframe**
» Access in and out of the construction site should be strictly controlled by a security company	» EPC contractor	» Construction Phase
» The appointed EPC contractor must appoint a security company and appropriate security procedures are to be implemented	» EPC contractor	» Construction Phase
» Open fires on the site for heating, smoking or cooking are not allowed, except in designated areas.	» EPC contractor	» Construction phase
» Contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.	» EPC contractor	» Pre-construction phase & Construction phase
» A comprehensive employee induction programme to be developed and utilised to cover land access protocols, fire management and road safety	» EPC contractor	» Pre-construction phase & Construction phase

» Method of communication should be implemented whereby local landowners can express any complaints or grievances with the construction process. A Community Liaison officer should be appointed as a grievance mechanism.	» EPC Contractor	» Pre-construction phase & construction phase

Performance Indicator	» Employee induction programme, covering land access protocols, fire management and road safety » The construction site is appropriately secured with a controlled access system » Security company appointed and security procedures implemented
Monitoring	» The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

Impacts on daily living and movement patterns

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

Mitigation: Action/control	**Responsibility**	**Timeframe**
» All vehicles must be road worthy and drivers must be qualified, obey traffic rules, follow speed limits and made aware of the potential road safety issues	» EPC contractor	» Pre-construction phase & Construction phase
» Heavy vehicles should be inspected regularly to ensure their road safety worthiness.	» EPC contractor	» Construction phase
» Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules.	» EPC contractor	» Construction phase
» Any damage / wear and tear caused by construction related traffic to the roads is	» The Proponent &	» Construction phase

repaired	EPC contractor	
» Provide adequate and strategically placed traffic warning signs and control measures along the R716 and secondary roads to warn road users of the construction activities taking place, displaying road safety messages and speed limits for the duration of the construction phase. Traffic warning signs must also be well illuminated at night.	» EPC contractor	» Pre-construction phase & Construction phase
» A comprehensive employee induction programme to cover land access protocols and road safety. This must be addressed in the construction EMPr as the best practice.	» EPC contractor	» Construction phase
» Appoint a Community Liaison Officer and create method of communication whereby local community member can express any complaints or grievances	» EPC contractor	» Pre-construction phase & Construction phase

Performance Indicator	» Vehicles are roadworthy, inspected regularly and speed limits are adhered to » Traffic warning signs along R716 and secondary roads, also illuminated at night
Monitoring	» The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

Pressure on economic and social infrastructure impacts from an in migration of people

OBJECTIVE: Reduce the pressure on economic and social infrastructure and social conflicts from an influx of a non-local workforce and jobseekers during the construction phase		
Project component/s	Construction of the Proposed Lethabo solar energy facility and associated infrastructure	
Potential Impact	Decline on local economic and social infrastructure and services as well as a rise in social conflicts from an influx of a non-local workforce and jobseekers	
Activity/risk source	Influx of migrant workers and jobseekers	
Mitigation: Target/Objective	To avoid or minimise the potential impact on local infrastructure, services and communities and their livelihoods	
Mitigation: Action/control	**Responsibility**	**Timeframe**

» Where possible, make it a requirement for contractors to implement a 'locals first' policy. Should be advertised for construction employment opportunities, especially for semi and low-skilled job categories (preference to Ward 19, then the Metsimaholo Local Municipality area). Enhance employment opportunities for the immediate local area, Sasolburg area, if this is not possible, then the broader focus areas should be considered for sourcing workers such as the Metsimaholo Local Municipality	» The proponent & EPC contractor	» Pre-construction & construction phase
» Prior to construction commencing representatives from the local community e.g. ward councillor, surrounding landowners should be informed of details of the construction schedule and exact size of the workforce.	» EPC contractor	» Pre-construction & construction phase
» Recruitment of temporary workers at the gates of the development should not be allowed. A recruitment office located in town with a Community Liaison officer should be established to deal with jobseekers.	» EPC contractor	» Pre-construction & construction phase
» Have clear rules and regulations for access to the proposed site to control loitering.	» EPC contractor	» Pre-construction & construction phase
» A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process	» EPC contractor	» Construction phase
Performance Indicator	» Percentage of the workers employed in construction that come from local communities	
Monitoring	» The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes	

Nuisance impacts (Noise & dust)

OBJECTIVE: To avoid or minimise the potential impacts of noise and dust from construction activities during the construction phase		
Project component/s	Construction of the proposed Lethabo solar energy facility and associated infrastructure	
Potential Impact	Heavy vehicles and construction activities can generate noise and dust impacts.	
Activity/risk source	Construction activities	
Mitigation: Target/Objective	To avoid and or minimise the potential noise and dust impacts associated with construction activities	
Mitigation: Action/control	**Responsibility**	**Timeframe**
» Implement dust suppression measures for heavy vehicles such as wetting the roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers	» EPC Contractor	» Construction phase
» Ensure all vehicles are road worthy, drivers are qualified and are made aware of the potential noise and dust issues	» EPC Contractor	» Construction phase
» Ensure that drivers adhere to speed limits	» EPC Contractor	» Construction phase
» A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process	» The Proponent & EPC contractor	» Pre-construction & construction phase
Performance Indicator	» Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase » Enforcement of strict speeding limits » Road worthy certificates in place for all vehicles » Community liaison officer available for community grievances and communication channel	
Monitoring	» The EPC contractor must monitor the indicators to ensure that they have been met for the construction phase	

Operation Phase:

Direct employment and skills development during operation phase

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

Project component/s	Operation and maintenance of the proposed Lethabo solar energy facility and associated infrastructure		
Potential Impact	Loss of opportunities to stimulate production and employment of the local economy		
Activity/risk source	Labour practices employed during operations		
Mitigation: Target/Objective	Maximise local community employment benefits in the local economy		
Mitigation: Action/control		**Responsibility**	**Timeframe**
» Adopt a local employment policy to maximise the opportunities made available to the local labour force. (preference to Ward 19, then the Metsimaholo Local Municipality area)		» The Proponent & EPC contractor	» Operation phase
» The recruitment selection process should seek to promote gender equality and the employment of women wherever possible		» The Proponent & EPC contractor	» Operation phase
» Establish vocational training programs for the local labour force to promote the development of skills		» The Proponent	» Operation phase
Performance Indicator	» Percentage of workers that were employed from local communities (preference to Ward 19, then the Metsimaholo Local Municipality area) » Number of people attending vocational training throughout the operation phase		
Monitoring	» The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes		

Visual and 'sense of place' impacts

OBJECTIVE: Reduce the visual and sense of place impacts associated with the operation phase of the project			
Project component/s	Operation and maintenance of the Proposed Lethabo solar energy facility and associated infrastructure		
Potential Impact	Change in the sense of place that also leads to the negative impact on the area and visual intrusions		
Activity/risk source	The PV facility and associated infrastructure		
Mitigation: Target/Objective	Reduce the visual disturbances to minimise the losses of the sense of place		
Mitigation: Action/control		**Responsibility**	**Timeframe**

	» Vegetation screening to be placed between the site and adjacent properties if required.	» The Proponent	» Operation phase
Performance Indicator	» Vegetation screening if required/ necessary		
Monitoring	» The developer must monitor the indicators if vegetation screening is required by adjacent landowners		

Appendix B: I&AP Database, Key Stakeholders Contacted and Meeting Schedule

I&AP Database utilised:

- » The I&AP database was taken from the Public Participation Process and was utilised to reach key stakeholders to arrange meetings
- » See the I&AP Database as part of the Public Participation Process within the EIA appendices
- » Stakeholders that we were unable to reach telephonically were either emailed and/or if no email address was available a voice message was left on their phone

Meeting Schedule:

Key stakeholders were contacted and meeting arrangements were made with the following stakeholders during the social consultation process:

LETHABO POWER STATION MEETINGS - WEDNESDAY 18 FEBRUARY 2015			
Travel from Woodmead to Sasolburg 8:00-9:30 (travel time 1hr30min). Arrive in Sasolburg 9:30			
Meeting:	***Contact Person:***	***Date and Venue:***	***Notes***
Impacted Landowner & Site Visit (Portion 0 of Farm 1814)	Sylvanna Wilson (Eskom Environmental Officer)	*Date:* Wednesday 18 February 2015 *Time*: 09:30-10:30 *Address*: Lethabo Power Station	Meeting was arranged, however Sylvanna was unable to attend the meeting on the day
Adjacent Landowner- Anglo Vaal Colliery (Farm Mac Caw Vlei RE/121 & Farm Bankfontein RE/9)	Nicola Torley (Environmental Superintendent)	*Date:* Wednesday 18 February 2015 *Time*: 11:00-12:00 *Address*: Anglo Vaal Pit Offices	Meeting took place (see minutes and attendance register in Appendix B)
Adjacent tenant (leases Farm Bankfontein RE/9 from Anglo American)	Mr Van Der Merwe	*Date:* Wednesday 18 February 2015 *Time*: 12:00-13:00 *Address*: Farm Bankfontein RE/9	Meeting took place (see minutes and attendance register in Appendix B)
Metsimaholo Local Municipality – Municipal Manager	Steve Molala	*Date:* Wednesday 18 February 2015 *Time*: 13:00-14:00 *Address*: Fichardt Street, Sasolburg, 1947	Meeting took place (see minutes and attendance register in Appendix B)
Metsimaholo Local Municipality – Ward Councillor Ward 19	Khomoliileng Alexis Mare	*Date:* Wednesday 18 February 2015 *Time*: 14:00-14:30 *Address*: Fichardt Street	Meeting was arranged, however Khomoliieng was unable to attend the meeting on the day

		Sasolburg, 1947	
Travel from Sasolburg (Lethabo Power Station) to Standerton (Tutuka Power Station). Depart Sasolburg at 14:30 (travel time 3hr00min) - Arrive in Standerton 17:30 (Overnight stay in Standerton)			

Appendix C: Minutes of Meetings during SIA Stakeholder Consultation Process

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED LETHABO SOLAR ENERGY FACILITY

FREE STATE PROVINCE

Savannah Environmental (Pty) Ltd
Address: PO Box 148
Sunninghill, 2157
Tel: 011 656 3237
Fax: 086 684 0547
E-mail: candice@savannahsa.com

SOCIAL IMPACT ASSESSMENT (SIA) PROCESS

NOTES OF THE MEETING ADJACENT LANDOWNER- ANGLO VAAL COLLIERY (FARM MAC CAW VLEI RE/121 & FARM BANKFONTEIN RE/9)

HELD ON

Wednesday 18 February 2015 at 11:00

VENUE

Notes for the Record prepared by:
Savannah Environmental
Please address any comments to Gabriele Wood at the above address.

MEETING:
PROPOSED LETHABO SOLAR ENERGY FACILITY

Venue: Anglo Vaal Colliery: Pit Offices
Date: Wednesday 18 February 2015
Time: 11:00-11:30

WELCOME AND INTRODUCTION

Candice Hunter welcomed Nicola Torley from Anglo Vaal Colliery and introduced herself as the Social Consultant from Savannah Environmental. She noted that the development of the Lethabo Solar Energy Facility is being undertaken by Eskom and that Savannah Environmental has been appointed as the independent environmental consultancy to undertake the Environmental Impact Assessment (EIA) process for the Solar Energy Facility.

Candice Hunter thanked Nicola from Anglo Vaal Colliery for the opportunity to brief her about the proposed Lethabo Solar Energy Facility near Sasolburg. She noted that the purpose of the meeting was to present the background of the project, provide an overview of the environmental assessment process and discuss any social issues or concerns with the proposed development and associated infrastructure.

MEETING ATTENDEES

Name	Organisation & Position
Nicola Torley (NT)	Anglo Vaal Colliery- Environmental Superintendent
Candice Hunter (CH)	Savannah Environmental – Social Consultant

APOLOGIES

None

BACKGROUND & TECHNICAL ASPECTS REGARDING THE PROPOSED PROJECT

Candice Hunter presented the background and introduction to the project and the Environmental Impact Assessment process. She presented a map including the location of the proposed development.

DISCUSSION SESSION

Question / Comment	Response
CH: What activities are currently taking place on farm Mac Caw Vlei RE/121 & Farm Bankfontein 1849 & RE/9?	The adjacent land to the north of Lethabo Power Station is currently utilised for coal mining (open cast mining). We have a portion of land south of Lethabo power station within Bankfontein RE/9 that is used for sand mining operation. Farmers lease majority of the land south of power station from Anglo for agricultural purposes. That land has also underground mining activities, So there are underground workings taking place. West of the power station is the Anglo coal stock yard and coal processing plant.
NT: The Anglo coal stock yard is located near the alternative site 1, so that might have an impact on the solar facility in terms of dust settling on the solar panels. Something to consider.	*CH:* Noted.
CH: Are there any other farmers in the area that you think would like to be notified about the proposed project? Do you have their contact details?	*NT:* Contact Fanie Kitching (013-691-5488) from Anglo American (he's the land and states specialist), he'll be able to put you in contact with surrounding farmers that lease the land in the area. (Email- fanie.kitching@angloamerican.com)
CH: Do you know if the farmers that lease the land also reside on the adjacent land south of the site (any farmhouses)?	*NT:* As far as I know the farmers are just using the land for farming purposes and not residing on the farm. You can contact Fanie, he'll be able to confirm those details.
CH: Do you have any social concerns in terms of traffic, noise, dust, safety and security issues and visual impact concerns with the proposed development?	*NT:* No.
CH: Do you have any other questions or concerns with the proposed development?	*NT:* Nothing major at this stage.
CH: Do you support the proposed development?	*NT:* No major concerns from our side. It should be fine. Think it'll be important to engage with the farmers leasing the land south of the proposed site. *CH:* Noted. We will be in contact with the farmers.

WAY FORWARD AND CLOSURE

In closing Candice Hunter noted that the EIA scoping report will be released into the public domain in a couple of weeks' time and the public will then have an opportunity to comment on the report. The comments received from the review period will then be incorporated into the EIA report. Candice Hunter thanked Nicola Torley for her inputs which were provided. The meeting ended at 11:30.

SAVANNAH ENVIRONMENTAL (PTY) LTD				ATTENDANCE REGISTER			
Project	LETHABO SOLAR ENERGY FACILITY			Meeting	ANGLO VAAL COLLIERY		
Date	18 FEB 2015	Time	11:00	Stakeholder	ADJACENT LANDOWNER	Venue	NEW VAAL COLLIERY PIT OFFICES

	Organisation	Name & Postal Address	Contact Details	Signature
1	Savannah Environmental	Candice Hunter	Tel : 011-656-3237	
		PO Box 148	Fax : 086-684-0547	
	Designation	Sunninghill	Cell :	
	Social Consultant	2157	E-mail : candice@savannahsa.com	
2	New Vaal Colliery	Private Bag X414	Tel : 016 450 7291	
		Three Rivers	Fax :	
	Designation	1935	Cell : 082 85 29427	
	Environmental Superintendent	Nicola Torley	E-mail : nicola.torley@angloamerican.com	
3			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
4			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
5			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED LETHABO SOLAR ENERGY FACILITY

FREE STATE PROVINCE

Savannah Environmental (Pty) Ltd
Address: PO Box 148
Sunninghill, 2157
Tel: 011 656 3237
Fax: 086 684 0547
E-mail: candice@savannahsa.com

SOCIAL IMPACT ASSESSMENT (SIA) PROCESS

NOTES OF THE MEETING
METSIMAHOLO LOCAL MUNICIPLAITY
HELD ON
Wednesday 18 February 2015 at 12:00

VENUE
Metsimaholo Local Municipality, 7th Floor: Fichardt Street, Sasolburg, 1947

Notes for the Record prepared by:
Savannah Environmental

MEETING:
PROPOSED LETHABO SOLAR ENERGY FACILITY

Venue: Metsimaholo Local Municipality (Sasolburg)
Date: Wednesday 18 February 2015
Time: 12:00-12:30

WELCOME AND INTRODUCTION

Candice Hunter welcomed the Municipal Manager and introduced herself as the Social Consultant from Savannah Environmental. She noted that the development of the Lethabo Solar Energy Facility is being undertaken by Eskom and that Savannah Environmental has been appointed as the independent environmental consultancy to undertake the Environmental Impact Assessment (EIA) process for the Solar Energy Facility.

Candice Hunter thanked the Municipal Manager from the Metsimaholo Local Municipality for the opportunity to brief him about the proposed Solar Energy Facility near Sasolburg. She noted that the purpose of the meeting was to present the background of the project, provide an overview of the environmental assessment process and discuss any social issues or concerns with the proposed development and associated infrastructure.

MEETING ATTENDEES

Name	Organisation & Position
Steve Molala (SM)	Metsimaholo Local Municipality - Municipal Manager
Candice Hunter (CH)	Savannah Environmental – Social Consultant

APOLOGIES

None

BACKGROUND & TECHNICAL ASPECTS REGARDING THE PROPOSED PROJECT

Candice Hunter presented the background and introduction to the project and the Environmental Impact Assessment process. She presented a map including the location of the proposed development.

DISCUSSION SESSION

Question / Comment	Response
CH: What is the area zoned under where the site is located?	*SM:* Either industrial or agricultural (would have to confirm)
CH: What are the main struggles/ problems of the local area/ municipality?	*SM:* Unemployment is the biggest challenge in the area.
SM: Will we be sent the environmental reports?	*CH:* Yes, a copy of the scoping report that will be released in the next few weeks will be sent to the local municipality. You will have an opportunity of 30 days to comment on the report.
SM: We will wait for the environmental reports and provide our comments then.	*CH:* Noted.
SM: How many employment opportunities will be created?	*CH:* There are two different sites that Eskom are looking into for the solar energy facility. The alternative site 1 will have a generating capacity of 75M and will create approximately 250-300 employment opportunities during construction phase. The alternative site 2 will have a generating capacity of 35MW and will create approximately 150-200 employment opportunities during construction phase.
SM: Would they employ most of the people from the local area or will they be bringing a workforce in?	*CH:* Majority of the labour will be sourced from the local area.
SM: Is the project in the Free State?	*CH:* Yes.
SM: The Zamdela area (local township) near Sasolburg has an extremely high number of unemployed people. If the project could draw employees from that area it would assist in reducing the unemployment pressure and stimulate the local economy.	*CH:* Noted.
CH: Do you have any questions or social concerns?	*SM:* No, it shouldn't be a problem, as it'll bring employment and contribute towards clean energy which is needed.

WAY FORWARD AND CLOSURE

In closing Candice Hunter noted that the EIA scoping report will be released into the public domain within the next few weeks and the public will then have an opportunity to comment on the report. The comments received from review period will then be incorporated into the final EIA report. Candice Hunter thanked Mr Molala for his inputs which were provided. The meeting ended at 12:30.

SAVANNAH ENVIRONMENTAL (PTY) LTD				ATTENDANCE REGISTER			
Project	LETHABO SOLAR ENERGY FACILITY			Meeting	METSIMAHOLO LOCAL MUNICIPALITY		
Date	18 FEB 2015	Time	12:00	Stakeholder	LOCAL MUNICIPALITY	Venue	FICHARDT STREET, SASOLBURG

	Organisation	Name & Postal Address	Contact Details	Signature
1	Savannah Environmental	Candice Hunter	Tel : 011-656-3237	
		PO Box 148	Fax : 086-684-0547	
	Designation	Sunninghill	Cell :	
	Social Consultant	2157	E-mail : candice@savannahsa.com	
2	METSIMAHOLO MUNICIPALITY	SM. MOLALA P.O. BOX 60 SASOLBURG 1947	Tel : 016 9730313	
	Designation		Fax :	
	M.M.		Cell : 0838836061	
			E-mail : molalasm@gmail.com	
3			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
4			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
5			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED LETHABO SOLAR ENERGY FACILITY

FREE STATE PROVINCE

Savannah Environmental (Pty) Ltd
Address: PO Box 148
Sunninghill, 2157
Tel: 011 656 3237
Fax: 086 684 0547
E-mail: candice@savannahsa.com

SOCIAL IMPACT ASSESSMENT (SIA) PROCESS

NOTES OF THE MEETING
ADJACENT LANDOWNER- TENANT (FARM BANKFONTEIN RE/9)
HELD ON
Wednesday 18 February 2015 at 13:00

VENUE
Farm Bankfontein RE/9
Anglo Vaal Colliery- Pit Offices

Notes for the Record prepared by:
Savannah Environmental

MEETING:
PROPOSED LETHABO SOLAR ENERGY FACILITY

Venue: Farm Bankfontein RE/9
Date: Wednesday 18 February 2015
Time: 13:00-13:30

WELCOME AND INTRODUCTION

Candice Hunter welcomed Mr Van Der Merwe (currently leases land from Anglo American) and introduced herself as the Social Consultant from Savannah Environmental. She noted that the development of the Lethabo Solar Energy Facility is being undertaken by Eskom and that Savannah Environmental has been appointed as the independent environmental consultancy to undertake the Environmental Impact Assessment (EIA) process for the Solar Energy Facility.

Candice Hunter thanked Mr Van Der Merwe for the opportunity to brief him about the proposed Lethabo Solar Energy Facility near Sasolburg. She noted that the purpose of the meeting was to present the background of the project, provide an overview of the environmental assessment process and discuss any social issues or concerns with the proposed development and associated infrastructure.

MEETING ATTENDEES

Name	Organisation & Position
Mr Van der Merwe (VdM)	Farmer- leases land from Anglo
Candice Hunter (CH)	Savannah Environmental – Social Consultant

APOLOGIES

None

BACKGROUND & TECHNICAL ASPECTS REGARDING THE PROPOSED PROJECT

Candice Hunter presented the background and introduction to the project and the Environmental Impact Assessment process. She presented a map including the location of the proposed development.

DISCUSSION SESSION

Question / Comment	Response
CH: Do you lease or own farm Bankfontein RE/9?	*VdM:* I've been leasing the land from Anglo since 1999.
CH: What activities are currently taking place on the farm?	*VdM:* I utilise the land for agricultural purposes. I farm livestock and some game.
CH: Do you reside on the farm Bankfontein RE/9?	*VdM:* No, I don't live on the farm.
CH: Do you have any social concerns in terms of traffic, noise, dust, safety and security issues and visual impact concerns with the proposed development?	*VdM*: No, I'm not worried about any of those impacts.
VdM: When do they intend starting the development?	*CH:* Eskom are still within the conception phase and still require relevant authorisations. Relevant timeframes of when the construction phase will commence will be announced at a later stage.
CH: Do you know who owns the land east of Lethabo Power Station, east of the Vaal River?	*VdM*: The land adjacent to the proposed sites on the eastern side (Bankfontein 437) was sold and is not owned by Anglo anymore. It's currently vacant and not utilised for any activities. No farming activities take place on that farm.
CH: Do you have any other questions or concerns with the proposed development?	*VdM:* No I don't have any concerns or other questions with the project.

WAY FORWARD AND CLOSURE

In closing Candice Hunter noted that the EIA scoping report will be released into the public domain in a couple of weeks' time and the public will then have an opportunity to comment on the report. The comments received from the review period will then be incorporated into the EIA report. Candice Hunter thanked Mr Van der Merwe for his inputs which were provided. The meeting ended at 13:30.

SAVANNAH ENVIRONMENTAL (PTY) LTD				ATTENDANCE REGISTER			
Project	LETHABO SOLAR ENERGY FACILITY			Meeting	ADJACENT LANDOWNER – TENANT – FARM BANKFONTEIN RE/9		
Date	18 FEB 2015	Time	13:00	Stakeholder	ADJACENT LANDOWNER	Venue	FARM BANKFONTEIN RE/9

	Organisation	Name & Postal Address	Contact Details	Signature
1	Savannah Environmental	Candice Hunter	Tel : 011-656-3237	
		PO Box 148	Fax : 086-684-0547	
	Designation	Sunninghill	Cell :	
	Social Consultant	2157	E-mail : candice@savannahsa.com	
2	FARMER	J.G. VAN DER MERWE.	Tel : 0833106789.	
	Designation	P.O Box 3153	Fax :	
		VEREENIGING.	Cell :	
		1930	E-mail :	
3			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
4			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	
5			Tel :	
			Fax :	
	Designation		Cell :	
			E-mail :	

Appendix D: Declaration of Independence

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Proposed Lethabo Solar Energy Facility

Specialist:	Candice Hunter		
Contact person:	Candice Hunter		
Postal address:	PO Box 148, Sunninghill		
Postal code:	2157	Cell:	
Telephone:	*(011) 656 3237*	Fax:	*086 684 0547*
E-mail:	candice@savannahsa.com		
Professional affiliation(s) (if any)			

Project Consultant:	Savannah Environmental (Pty) Ltd		
Contact person:	Jo-Anne Thomas / Karen Jodas		
Postal address:	PO Box 148, Sunninghill		
Postal code:	2157	Cell:	
Telephone:	*(011) 656 3237*	Fax:	*086 684 0547*
E-mail:	Joanne@savannahsa.com / Karen@savannahsa.com		

4.2 The specialist appointed in terms of the Regulations_

I, Candice Hunter ,
declare that --

General declaration:

» I act as the independent specialists in this application
» I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
» I declare that there are no circumstances that may compromise my objectivity in performing such work;
» I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
» I will comply with the Act, regulations and all other applicable legislation;
» I have no, and will not engage in, conflicting interests in the undertaking of the activity;
» I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
» **all the particulars furnished by me in this form are true and correct; and**
» **I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.**

Signature of the specialist

Savannah Environmental (Pty) Ltd

Name of company (if applicable):

September 2015

Date:

Appendix E: External Reviewer's Report, Declaration of Independence and CV

External Reviewer's Report:

Dr. Neville Bews & Associates
Social Impact Assessors
Committed to building high trust environments
P. O. Box 145412
Bracken Gardens
Alberton
South Africa
1452

Tel: +27 11 867-0462
Fax: +27 86 621-8345
Mobile: +27 82 557-3489
Skype: neville.bews
Email: bewsco@netactive.co.za

URL: http://www.socialassessment.co.za/

12 June 2015

Savannah Environmental (Pty) Ltd
P.O. Box 148
Sunninghill
2191

Review of the Social Impact Assessment Report for the Proposed Lethabo PV Solar Energy Facility and associated infrastructure near Sasolburg in the Free State Province.

Savannah Environmental (Pty) Ltd compiled the abovementioned Social Impact Assessment Specialist Report and appointed Dr Neville Bews to review the report. The review was concluded on 12 June 2015 and the following comments are made.

1. The proposed project is suitably described.
2. Appropriate methodology and assessment criteria are applied throughout the study.
3. Appropriate legislative guidelines were considered in compiling the report.
4. Adequate background information is provided.
5. The baseline description of the study area is satisfactory.
6. Stakeholders are adequately identified and consulted.

7. The report adequately identifies and addresses the social issues associated with the construction and operational phases of the proposed project.
8. The "No-go Option" is considered.

It can be concluded in considering the SIA in totality that the process and assessment followed was adequate providing a fair indication of the social impacts likely to arise as a result of the project.

Regards

Dr Neville Bews (D Litt et Phil)

External Reviewer's Declaration of Independence:

Peer review of the Social Impact Assessment for the Proposed Lethabo Photovoltaic (PV) Solar Energy Facility and associated infrastructure, situated approximately ~15km north east of Sasolburg within the Lethabo Power Station boundary, on Farm 1814.

DECLARATION OF INDEPENDENCE

I, Neville Bews as authorised representative of Dr Neville Bews & Associates hereby confirm my independence as a specialist and declare that neither I nor Dr Neville Bews & Associates have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Dr Neville Bews & Associates was appointed as social impact assessment specialists in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for work performed, specifically in connection with the review of the SIA Report: Proposed Lethabo Photovoltaic (PV) Solar Energy Facility and associated infrastructure, situated approximately ~15km north east of Sasolburg within the Lethabo Power Station boundary, on Farm 1814.

Signed:  Date: 12 June 2015

External reviewer's CV:

Details and Experience of Independent Consultant

Qualifications:

University of South Africa: B.A. (Honours) – 1984
Henley Management College, United Kingdom: The Henley Post-Graduate Certificate in Management – 1997
Rand Afrikaans University: M.A. (cum laude) – 1999
Rand Afrikaans University: D. Litt. et Phil. – 2000

Projects:

The SIA for the Gautrain Rapid Rail Link; The impact assessment for the Australian – South African sports development programme; SIA for Kumba Resources, Sishen South Project; Evaluation of a Centre for Violence Against Women for The United Nations Office on Drugs and Crime; SIAs for the following Exxaro Resources Ltd.'s mines, Leeuwpan Coal Mine Delmas, Glen Douglas Dolomite Mine Henley-on-Klip, Grootegeluk Open Cast Coal Mine Lephalale; SIA for the South African National Road Agency Limited (SANRAL) on Gauteng Freeway Improvement Project (GFIP); SIA for SANRAL on the N2 Wild Coast Toll Highway; Research into research outputs of the University for the University of Johannesburg; SIA for Waterfall Wedge housing and business development in Midrand Gauteng; SIA for the Environmental Management Plan for Sedibeng District Municipality; Social and Labour Plan for the Belfast Project on behalf of Exxaro Resources Ltd; SIA for the Transnet New Multi-Product Pipeline (Commercial Farmers) on behalf of Golder Associates Africa (Pty) Ltd; SIA for the Proposed Vale Moatize Power Plant Project in Mozambique on behalf of Golder Associates Africa (Pty) Ltd; SIA for Kumba Resources Ltd.'s proposed Dingleton Resettlement Project at Sishen Iron Ore Mine on behalf of Water for Africa (Pty) Ltd; SIA for Gold Fields West Wits Project for EcoPartners; SIA for the Belfast Project for Exxaro Resources Ltd; SIA for Eskom Holdings Ltd.'s Proposed Ubertas 88/11kV Substation on behalf of KV3 Engineers (Pty) Ltd; SIA for the Mokolo and Crocodile River (West) Water Augmentation Project (MCWAP) for the Department of Water Affairs on behalf of Nemai Consulting and the Trans Caledonian Water Authority; Assisted Octagon Consulting with the SIA for Eskom's Nuclear 1 Power Plant on behalf of Arcus GIBB Engineering & Science. SIA for the 150MW Photovoltaic Power Plant and Associated Infrastructure for Italgest Energy (Pty) Ltd, on behalf of Kalahari Survey Solutions cc. SIA for Eskom Holdings Limited, Transmission Division's Neptune-Poseidon 400kV Power Line on behalf of Nemai Consulting. Ncwabeni Off-Channel Storage Dam for security of water supply in Umzumbe, KwaZulu-Natal. Social Impact assessment for Eskom Holdings Limited, Transmission Division, Forskor-Merensky 275kV±130km Power line and Associated Substation Works in Limpopo Province. Social impact assessment for the proposed infilling of the Model Yacht Pond at Blue Lagoon, Stiebel Place,

Durban. ABC Prieska Solar Project; Proposed 75 MWp Photovoltaic Power Plant and its associated infrastructure on a portion of the remaining extent of ERF 1 Prieska, Northern Cape. Sekoko Wayland Iron Ore, Molemole Local Municipalities in Limpopo Province. Langpan Chrome Mine, Thabazimbi, Limpopo; Jozini Nodal Expansion Implementation Project, KwaZulu-Natal, on behalf of Nemai Consulting; SIA for Glen Douglas Dolomite Burning Project, Midvaal Gauteng, on behalf of Afrimat Limited; SIA for Lyttelton Dolomite mine Dolomite Burning Project, Marble Hall Limpopo on behalf of Afrimat Limited. Tubatse Strengthening Phase 1 – Senakangwedi B Integration for Eskom Transmission on behalf of Nsovo Environmental Consulting; Department of Water and Sanitation, South Africa (2014). Environmental Impact Assessment for the Mzimvubu Water Project: Social Impact Assessment DWS Report No: P WMA 12/T30/00/5314/7.

Regularly lecture in the Department of Sociology at the University of Johannesburg and collaborated with Prof. Henk Becker of Utrecht University, the Netherlands, in a joint lecture to present the Social Impact Assessment Masters course via video link between the Netherlands and South Africa and regularly lecture on this course. Presented papers on Social Impact Assessments at both national and international seminars. Published on both a national and international level.

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The International Association for Impact Assessment Southern Africa.

Registered on the database for scientific peer review of iSimangaliso GEF project outputs.