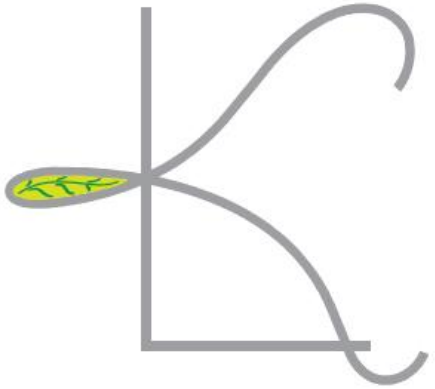

Leandri Kruger

Researcher & Social Impact Assessment Consultant

SOCIAL IMPACT ASSESSMENT

FOR

BOITSHOKO SOLAR (RF) (PTY) LTD ENERGY FACILITY

NORTHERN CAPE PROVINCE

***April* 2016**

Prepared for

Boitshoko Solar (RF) (Pty) Ltd

By

Leandri Kruger

EXECUTIVE SUMMARY

INTRODUCTION AND LOCATION

This report contains the findings of the Social Impact Assessment (SIA) as part of the Environmental Impact Assessment (EIA). Environamics was appointed by Subsolar Energy (Pty) Ltd to manage the EIA process as the lead consultant for the proposed project, 75MW – 115MW Boitshoko Solar (RF) (Pty) Ltd (further referred to as Boitshoko SPP) and its associated infrastructure. Additionally, Leandri Kruger, Social Impact Assessment Consultant, was appointed by Subsolar Energy (Pty) Ltd to conduct the SIA for Boitshoko Solar (RF) (Pty) Ltd as part of the EIA process.

The Boitshoko SPP is located on the remaining extent of Portion 1 of the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located approximately 8km South West of the town Kathu. This SPP falls within the Gamagara Local Municipality, which is located in the John Taolo Gaetsewe District Municipality.

PROJECT DESCRIPTION

The Boitshoko SPP is an Independent Power Producer (IPP) which will feed the energy of the 75MW – 115MW Boitshoko SPP into the Eskom grid. The precise number of the photovoltaic panels and the placement thereof as well as its associated infrastructures, will be finalized based on the outcome of the Scoping Report and Environmental Impact Assessment (EIA) by the EAPs. In Figure 1.1 an alternative site has also been identified by the EAPs, however the preferred site for the development of the proposed SPP is still recommended after site visits.

Based on a review of previous similar projects and the basic project information received for the purpose of this SIA, the scope of work and basic infrastructure that are inclusive of any ancillary activities and that can be associated with the proposed Boitshoko SPP would include:

- A Solar PV – single axis tracker and/or fixed tilt and a 75MW – 115MW SPP:

This proposed energy facility would require numerous linked solar PV panels. Multiple PV panels are required in order to form the solar PV energy facility and to produce the required output of 75MW – 115MW. There are two proposed methods of fixing the PV panels. The first is where the panels are placed at a fixed angle, equivalent to the latitude at which the site is located in order to capture optimize sun radiation. The second method requires the panels to be fixed to a single-axis horizontal tracking structure. The orientation of this panel will vary according the sun's movement during the time of the day.

- The wiring to Central Inverters:

Sections of the SPP will be wired to Central Inverters. The purpose of the central inverters is to convert direct current electricity to alternating current electricity at a grid frequency.

- The connection to the grid and electrical reticulation network:

To connect the SPP to the electrical grid a transformation of the voltage is required. For this reason the normal components and the dimension of a distribution rated electrical substation is required. Therefore, the SPP will be connected with the nearby Eskom substation and transmission lines into the national grid.

- The supporting infrastructure:

A control facility with basic services such as water and electricity will be constructed on the proposed site and will constitute approximately 400m² in size. This facility will include an office, switch gear and relay room, staff lockers and changing rooms, parking area and security control. Other supporting infrastructure might include voltage and current regulators and a protection circuitry.

- Fencing:

The proposed energy facility will be fenced off from the surrounding farm area for safety, security and health reasons.

- Internal roads and access road:

Access to the proposed Boitshoko SPP will be obtained from the main road, the R380. There is no need for a new access road, because the site will make use of the existing entrance to the site. Internal site road networks to provide access to the SPP and its associated infrastructure will be required. However, all roads on site as well as the access road require a width of approximately 4m to accommodate heavy vehicles and need to be constructed in such a way that it will be able to withstand the weight of the heavy vehicles.

The scope of the assessment included the PV Solar Energy Facility and its associated structures and infrastructure (such as the power line and access route). The impacts associated with the power line and access route that run beyond the site are considered to be negligible since the actual footprints of disturbance of the power lines is confined to the pylon bases. Furthermore, the power line and access route are aligned with existing roads as far as possible to avoid any negative environmental impacts (See Figure 1.6 in Section 1 of this Report).

The construction phase for a SPP similar to the proposed Boitshoko SPP will extend over a period of 18 – 24 months. The anticipated capital expenditure value of the proposed Boitshoko SPP on completion will be approximately R1.1 – 1.9 Billion. The construction phase in terms of employment will employ approximately 60 new skilled, 220 low-skilled and 120 semi-skilled employment opportunities over a period of 18 – 24 months. The operational phase however, will employ approximately 3 new skilled, 40 low-skilled and 10 semi-skilled employment opportunities over a period of 20 years.

APPROACH TO THE STUDY

The research approach followed for the development of an SIA study is based on the Guidelines for Involving Social Impact Assessment Specialists in the EIA process that was prepared for the Department of Environmental Affairs and Development Planning for the Western Cape Province of South Africa in February 2007. These guidelines for development and planning of Social Impact Assessments (SIA) are based on international best practice guidelines. The key components of the SIA process, which are embodied in these guidelines include:

- Describe and obtain a basic understanding of the proposed development (type, scale and location). Also obtain an understanding of the individuals and/or communities which are likely to be affected by the intervention, and determine the need and the scope of conducting and SIA;
- Collecting the baseline data for the proposed intervention based on the current social environment and historical social trends;
- Assess and document the significance of the social impacts, which are associated with the proposed intervention; and
- Based on the baseline data and the identification and assessment of the social impacts likely to be associated with the proposed intervention, identify alternatives and mitigation measures for the social impacts of the proposed intervention (Barbour, 2007).

This study followed the research approach similar to the components identified above. This study followed a qualitative research approach. The steps involved in the research approach for this study involved:

- The review of demographic data from the 2011 Census Survey and relevant data as received from the identified municipalities;
- The review of relevant planning and policy frameworks for the proposed area of intervention;
- The collection of site specific data during site visits and interviews held with interested and affected parties (IAPs), also the review of information from similar projects;
- The identification and description of social impacts, which can be associated with the proposed intervention; and
- The formulation of key findings and recommendations based on the collected data for the proposed intervention.

SUMMARY OF KEY FINDINGS

This section of the executive summary, summarises in short the key findings of this Social Impact Assessment (SIA). The following sections' findings will be discussed in this section: Fit with policy

and planning, the impacts of the construction-, operational- and decommissioning phase, as well as the option of a no-development alternative.

Fit with Policy and Planning:

The legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with the proposed Boitshoko SPP. For this reason the proposed development project will be assessed in terms of its fit with the key policy and planning documents. The review of the following documents on National, Provincial, District and Local level was conducted for the purpose of this SIA:

- The National Energy Act no 34 of 2008;
- White Paper on the Energy Policy of the Republic of South Africa of 1998;
- White Paper on Renewable Energy of 2003;
- Integrated Resource Planning for Electricity for South Africa of 2010-2030;
- National Development Plan of 2030;
- National Infrastructure Plan of South Africa;
- New Growth Path Framework;
- Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012;
- John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016; and
- Gamagara Local Municipality Draft Integrated Development Plan for 2015 – 2017.

The main findings of the review of the policy documents on all levels of Government indicated that strong support was given towards renewable energy, specifically solar energy. The White Paper on the Energy Policy of the Republic of South Africa of 1998 stated that due to the fact that renewable energy resources operates from an unlimited resource base, for example the sun, renewable energy can increasingly contribute towards a long-term sustainable energy for future generations. This policy further highlights that due to the unlimited resources base of renewable energy in South Africa, renewable energy applications like solar and wind energy is more sustainable in terms of social and environmental costs. The Integrated Resource Planning for

Electricity for South Africa of 2010-2030, the National Infrastructure Plan of South Africa and the New Growth Path Framework all support the development of the renewable energy sector. In particular, the IRP also indicated that 43% of the energy generations in South Africa is allocated to renewable energy applications. On District and Local level not much attention is given particularly to renewable sources like solar energy, however the documents reviewed do make provision for energy efficiency in improving the quality of lives in terms of efficient physical infrastructure.
At Provincial, District and Local level the policy documents support the applications of renewables. The Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012 indicated that the development of renewable energy applications such as solar, could be some of the means in which the Northern Cape can benefit from economically.

The review of the relevant policies and documents related to the energy sector thus indicate that renewables like solar energy and the establishment of these facilities are supported on a National, Provincial, District and Local level. The author of this SIA is thus of opinion that the establishment of the Boitshoko SPP is supported by the policies and planning documents reviewed in Section 3 of this SIA, on all levels of Government.

The significance rating of the impacts refers to whether the impact has any influence in the decision making of an intervention. A low significance rating refers to where the identified impact didn't have a direct influence on the decision making of the intervention. A medium significance rating refers to where the impact might influence the decision making of the intervention, unless it is effectively mitigated. Lastly, a high significance rating refers to where the impact must have an influence on the decision making of the proposed intervention. In this regard the identified impacts with their significance ratings and positive or negative status, without and with mitigation are illustrated in Table 1 - 3 below. The social impacts of the construction phase, operational phase and the decommissioning phase will be summarized separately. For more information regarding the farmers' comments, obtained during interviews for the purpose of this SIA, on certain social impacts in the different phases of the proposed Boitshoko SPP, see Section 4 in this SIA.

Social Impacts of the Construction Phase:

The key social impacts identified in Section 4 of this report for the construction phase are:

- Potential Positive Impact: The creation of local employment and business opportunities, skills development and training;
- Potential Positive Impact: Technical support to local farmers and municipalities;
- Potential Negative Impact: Potential loss of productive farmland;
- Potential Negative Impact: In-migration or potential influx of job seekers;
- Potential Negative Impact: The presence of construction workers on the local communities;
- Potential Negative Impact: Potential risks to livestock and farming infrastructure, which are associated with the construction phase and the presence of the workers on the site of the Boitshoko SPP;
- Potential Negative Impact: The potential impacts of heavy vehicles and construction related activities; and
- Potential Negative Impact: The increased risk of potential veld fires associated with the construction phase.

Table 1. Significance ratings of the potential positive and negative impacts identified during the construction phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: The creation of local employment and business opportunities, skills development and training.	Medium (+)	Medium (+)
Potential Positive Impact: Technical support to local farmers and municipalities.	Low (-)	Medium (+)
Potential Negative Impact: Potential loss of productive farmland.	Medium (-)	Low (-)
Potential Negative Impact: In-migration or potential influx of job seekers.	Low (-)	Low (-)
Potential Negative Impact: The presence of construction workers on the local communities.	Low (-)	Low (-)
Potential Negative Impact: Potential risks to livestock and	Low (-)	Low (-)

farming infrastructure, which are associated with the construction phase and the presence of the workers on the site of the Boitshoko SPP.		
Potential Negative Impact: The potential impacts of heavy vehicles and construction related activities.	Low (-)	Low (-)
Potential Negative Impact: The increased risk of potential veld fires associated with the construction phase.	Medium (-)	Low (-)

In terms of the two positive impacts identified, the proposed Boitshoko SPP will employ the approximately 60 new skilled, 220 low-skilled and 120 semi-skilled employment opportunities over a period of 18 – 24 months during the construction phase. During the construction phase construction companies with the necessary expertise will undertake the associated work. The creation of employment opportunities will provide a social benefit to the local community. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion. The wages that the workers will receive will also have a positive impact on the local economy, because a percentage of their wages will be spent on the local businesses as well as on the hospitality industry. The economic benefits in this regard will however only remain for the period of the construction phase, however the local economic development of the local and district municipalities will be benefitted. The construction phase also provide the staff involved during construction the opportunity to provide technical support and advice to the local farmers as well as the local municipality in terms of the installation of solar energy technologies. This could be done in the form of having private consultations, workshops or site visits to already established SPPs. All affected areas, which are disturbed during the construction phase, need to be rehabilitated prior to the operational phase and should be continuously monitored by the Environmental Control Officer (ECO). Social monitoring should be applied quarterly by an ECO that has knowledge over social issues. This can be in the form of social monitoring plans, regular public participation meetings etc.

As indicated in Table 1 above the significance of the negative impacts identified for the proposed Boitshoko SPP during the construction phase are of a low significance. However, all the negative impacts identified above can be effectively mitigated if the recommended mitigation measures proposed in Section 4 of this SIA are implemented.

Social Impacts of the Operational Phase:

The key social impacts identified in Section 4 of this report for the operational phase are:

- Potential Positive Impact: The creation of local employment and business opportunities, skills development and training;
- Potential Positive Impact: The establishment of a Community Trust;
- Potential Positive Impact: The development of infrastructure for the generation of renewable energy;
- Potential Negative Impact: The potential loss of productive farmland;
- Potential Negative Impact: The visual impact and impacts on sense of place; and
- Potential Negative Impact: The impact on tourism.

Table 2. Significance ratings of the potential positive and negative impacts identified during the operational phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: The creation of local employment and business opportunities, skills development and training.	Medium (+)	Medium (+)
Potential Positive Impact: The establishment of a Community Trust.	Medium (+)	Medium (+)
Potential Positive Impact: The development of infrastructure for renewable energy.	Medium (+)	Medium (+)
Potential Negative Impact: The potential loss of productive farmland.	Low (-)	Low (-)
Potential Negative Impact: The visual impact and impact on sense of place.	Low (+/-)	Low (+/-)
Potential Negative Impact: The impact on tourism.	Low (-)	Low (-)

The operational phase will employ approximately 3 new skilled, 40 low-skilled and 10 semi-skilled employment opportunities over a period of 20 years. During the operational phase workers with the necessary expertise will undertake the work in this regard and the creation of employment opportunities will provide a social benefit to the local community. The anticipated capital

expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion. The wages that the workers will receive will also have a positive impact on the local economy, because a percentage of their wages will be spent on the local businesses as well as on the hospitality industry. The economic benefits in this regard will however only remain for the period of the operational phase, however the local economic development of the local and district municipalities will be benefitted.

Additionally the establishment of a Community Trust during the operational phase of the proposed Boitshoko SPP, will also benefit the local community in the long-term, however, the fund need to be managed effectively. The proposed Boitshoko SPP also represents an investment in infrastructure for the generation of renewable energy. In this regard the proposed Boitshoko SPP as and Independent Power Provider (IPP) in renewable energy will make a positive contribution to the energy sector and a positive social benefit for the local community. Again, continuous monitoring by an Environmental Control Officer (ECO) is required especially with regards to the management of a Community Trust. Social monitoring plans should be included in this regard.

The potential social impact associated with the establishment of an SPP will have a visual impact on the environment and its surroundings. In effect this will also impact the sense op place of the surrounding areas of the proposed Boitshoko SPP. The proposed Boitshoko SPP might slightly be visible from the R380, but the impact hereof on the sense of place is likely to be low. In addition the transmission lines to the substation is also linked to visual impact and the areas sense of place. However, the potential significance of the social impacts associated with the transmission lines will also be low.

As indicated in Table 2 above the significance of the negative impacts identified for the proposed Boitshoko SPP during the operational phase are of a low significance. However, all the negative impacts identified above can be effectively mitigated if the recommended mitigation measures are implemented.

Social Impacts of the Decommissioning Phase:

The key social impacts identified in Section 4 of this report for the decommissioning phase are:

- Potential Negative Impact: The loss of employment and income.

Table 3. Significance ratings of the potential positive and negative impacts identified during the decommissioning phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Negative Impact: The loss of employment and income.	Medium (-)	Medium (-)

As indicated in the discussion of the potential positive impacts during the construction and operational phase a large number of people might be employed. Therefore, the decommissioning thereof might have a negative social impact on the local community. The likely negative impact associated with the decommissioning phase is the loss of employment and income, which has a direct impact on the households of the employee's and the communities in which they live. The significance rating of this impact is medium. The impacts identified that are associated with the decommissioning phase can however be managed with the implementation of downscaling programmes, retrenchment packages and an Environmental Rehabilitation Fund.

In contrast this proposed development also represents an investment for South Africa in renewable energy. This will thus represent a positive social and economic benefit, given the challenges posed by climate change. Thus, the establishment of the proposed Boitshoko SPP is supported by the findings of this SIA.

The "No-development" alternative:

The no-development alternative poses a lost opportunity for South Africa to supply renewable energy to its consumers. This in effect represents a negative social cost. It should however be noted that the development of the proposed Boitshoko SPP is not a unique development. A significant number of other renewable energy facilities are also proposed in the Northern Cape and already established renewable energy facilities are already operational in certain parts of South Africa. Thus, by following the no-development alternative would not compromise the renewable energy development across the Northern Cape province and in South Africa, but the socio-economic benefits to local municipalities and the communities will be lost. The establishment of

the proposed Boitshoko SPP should be developed. However, the enhancement and mitigation measures proposed in Section 4 in this SIA as well as in other specialist studies for this proposed project should be implemented. Regarding the impact on the sense of place and the surrounding land issues of the proposed Boitshoko SPP, the impacts thereof need to be addressed in the final decision of the location, design and layout of the proposed Boitshoko SPP.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the findings of this Social Impact Assessment (SIA) conducted for the proposed Boitshoko SPP indicates, that during the construction and the operational phase of the proposed project, various employment opportunities, with different levels of skills will be created. In addition this will also create local business opportunities benefitting the socio-economic development of the local community. The local community will however benefit from the establishment of a Community Trust if it is managed effectively.

The challenges posed by climate change and global warming will be addressed by the investment in renewable energy facilities like the proposed Boitshoko SPP. The establishment of the proposed Boitshoko SPP is supported by the findings of this report and therefore, also creating a positive social benefit for society. It is however recommended that the environmental authorities consider the potential visual impacts addressed in the Visual Impact Assessment (VIA) of this proposed project and impacts to the sense of place, regarding this proposed project.

IMPACT STATEMENT

The findings of this Social Impact Assessment (SIA) conducted for the proposed Boitshoko SPP indicates that during the construction and the operational phase of the proposed project, various employment opportunities, with different levels of skills will be created. In addition this will also create local business opportunities benefitting the socio-economic development of the local community. The local community will however benefit from the establishment of a Community Trust if it is managed effectively.

It is therefore recommended that the proposed Boitshoko SPP be supported as it was proposed. However, this recommendation is made subject to the implementation of the suggested mitigation measures contained in Section 4 of this SIA, as well as the recommendations and mitigation measures made in other specialist studies for the proposed Boitshoko SPP.

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ACRONYMS

DM	District Municipality
EIA	Environmental Impact Assessment
IDP	Integrated Development Plan
IPP	Independent Power Producer
LM	Local Municipality
MW	Megawatt
NCP	Northern Cape Province
PSDF	Provincial Spatial Development Framework
PV	Photovoltaic
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SPP	Solar Power Plant

DECLARATION OF INDEPENDENCE

The specialist, Leandri Kruger, herby declares that:

- All the work undertaking relating to the proposed project was done as an independent consultant;

- The specialist have the necessary required expertise to conduct Social Impact Assessments and that all work was done in an objective manner; and

- The specialist has no vested- or financial interest in the proposed project or the outcome thereof.

SPECIALIST DETAILS

Leandri Kruger has 5 years experience in Social Impact Assessments. In 2012 she obtained her Masters degree in Geography and Environmental Management. She has worked as a researcher for the past 5 years where she was involved on various research projects, national and international. She is also a lecturer for post- graduate studies. Her research interests and expertise include Social Impact Assessments, disaster risk reduction, climate change and sustainability, training and group facilitation as well as social research.

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SECTION 1 – INTRODUCTION

1.1. INTRODUCTION

This report contains the findings of the Social Impact Assessment (SIA) as part of the Environmental Impact Assessment (EIA). Environamics was appointed by Subsolar Energy (Pty) Ltd to manage the EIA process as the lead consultant for the proposed project, 75MW – 115MW Boitshoko Solar (RF) (Pty) Ltd (further referred to as Boitshoko SPP) and its associated infrastructure. Additionally, Leandri Kruger, Social Impact Assessment Consultant, was appointed by Subsolar Energy (Pty) Ltd to conduct the SIA for the Boitshoko Solar (RF) (Pty) Ltd as part of the EIA process. The Boitshoko SPP is located on the remaining extent of Portion 1 of the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located approximately 8km South West of the town Kathu. This SPP falls within the Gamagara Local Municipality, which is located in the John Taolo Gaetsewe District Municipality (Figure 1.1).

In Figure 1.1 the red shaded block indicates the locality of the proposed Boitshoko SPP site within the borders of the farm Lime Bank No. 471 portion 1 (indicated as a solid black line). The yellow shaded area indicates the location of the alternative site of the proposed development. The purple line indicated on the map refers to the transmission line that will link the proposed SPP to the nearby Eskom Substation. There is currently existing Eskom transmission lines in the same position as the proposed transmission line of the site, thus the transmission line is not included in the scope of the study, for the impact hereof are likely to be low. Socio-economic trends refer to the social and cultural values and practices within a society. The current socio-economic trends of the Northern Cape Province are discussed in further detail in Section 2 of this report. The baseline information on social trends for this proposed site is however limited due to the availability of current data. Section 1 of this report refers to the introduction to the SIA report. In this regard this section will further on discuss the terms of reference of the SIA report, the background and overview of the related project, the project site description and surrounding land orientation, the approach to the study and the methodology used for this project assessment, assumptions and limitations and also the layout of the report.

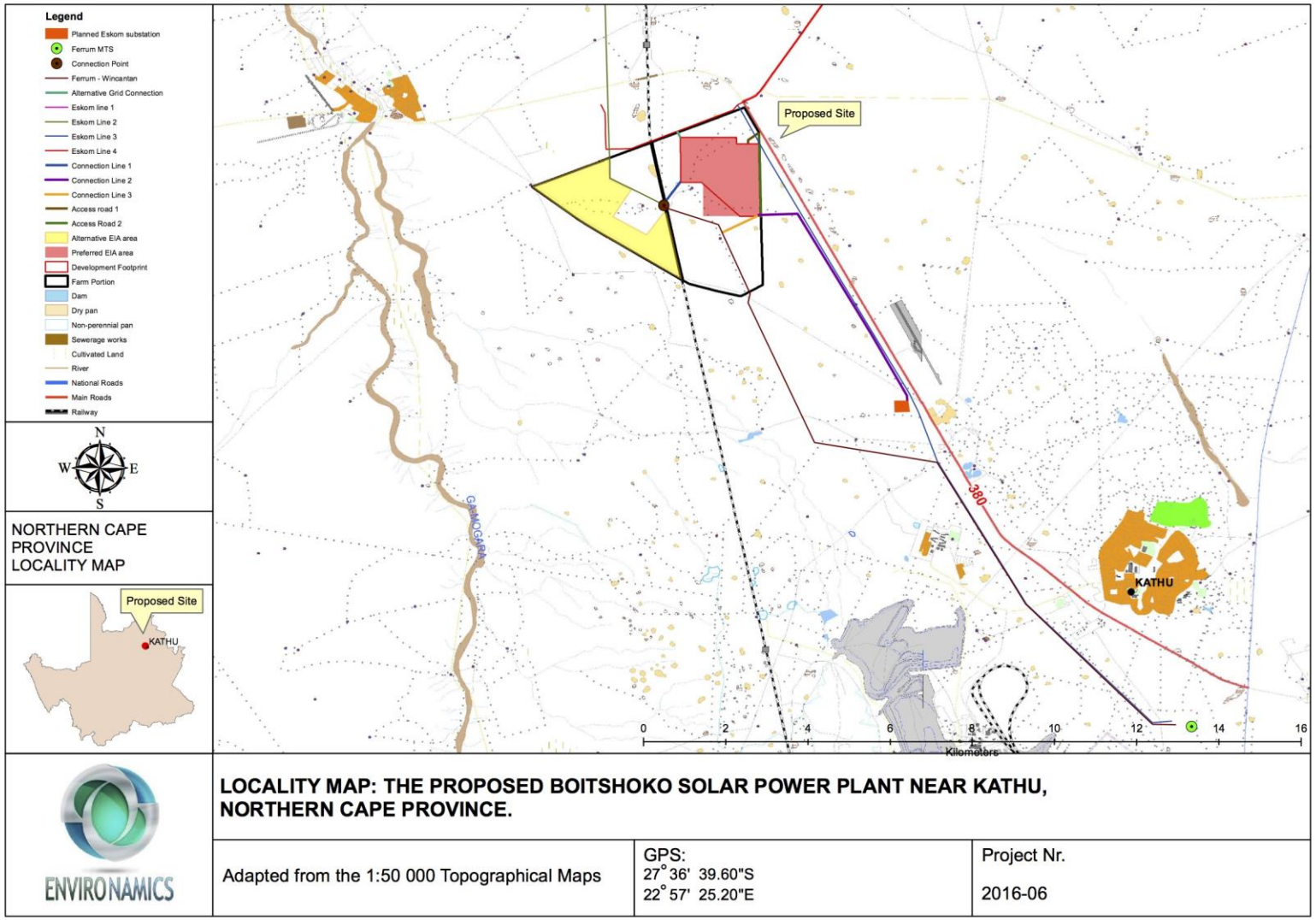


Figure 1.1. Locality map of the Boitshoko Solar (RF) (Pty) Ltd energy facility (Also see Addendum A).

1.2. TERMS OF REFERENCE

The terms of reference (TOR) in an SIA according to Barbour (2007:28) should indicate how and to what extent the SIA specialist should be involved for the purpose and scale of the proposed intervention. The TOR as provided and agreed upon with Environamics include the following:

Specialists in their field of expertise will consider baseline data and identify and assess impacts according to predefined rating scales. Specialists will also suggest optional or essential ways in which to mitigate negative impacts and enhance positive impacts. Further, specialists will, where possible, take into consideration the cumulative effects associated with this and other projects, which are either developed or in the process of being developed in the local area. The results of these specialist studies will be integrated into the Draft Scoping Report (DSR) to be submitted in April 2016. The Terms of Reference (ToR) or general requirements proposed for the inputs are presented below and specialists are encouraged to comment and provide input on these.

General Requirements:

Specialists' reports must comply with Appendix 6 of GNR982 published under sections 24(5), and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and whereby the following are to be included:

- The details of the specialist who prepared the report and the expertise of that specialist to compile a specialist report including a curriculum vitae;
- A declaration that the specialist is independent in a form as may be specified by the competent authority;
- An indication of the scope of, and the purpose for which, the report was prepared;
- The date and season of the site investigation and the relevance of the season to the outcome of the assessment;
- A description of the methodology adopted in preparing the report or carrying out the specialised process; the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;

- An identification of any areas to be avoided, including buffers;
- A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;
- A description of any assumptions made and any uncertainties or gaps in knowledge;
- A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;
- Any mitigation measures for inclusion in the EMPr;
- Any conditions for inclusion in the environmental authorisation;
- Any monitoring requirements for inclusion in the EMPr or environmental authorisation;
- A reasoned opinion as to whether the proposed activity or portions thereof should be authorised, and if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;
- A description of any consultation process that was undertaken during the course of preparing the specialist report;
- A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and
- Any other information requested by the competent authority.

In addition to the above, specialists are expected to:

- Review the Scoping Report, with specific reference to the Comments and Response Report to familiarize with all relevant issues or concerns relevant to their field of expertise;
- In addition to the impacts listed in the Scoping Report, identify any issue or aspect that needs to be assessed and provide expert opinion on any issue in their field of expertise that they deem necessary in order to avoid potential detrimental impacts;
- Assess the degree and extent of all identified impacts (including cumulative impacts) that the preferred project activity and its proposed alternatives, including that of the no-go alternative, may have;
- Identify and list all legislation and permit requirements that are relevant to the development proposal in context of the study;

- Reference all sources of information and literature consulted; and
- Include an executive summary to the report.

The terms of reference for this SIA requires to provide the following:

- A detailed description and overview of the of the proposed project;
- A detailed description of the environment likely to be affected by the proposed project;
- A detailed assessment and description of the potential social issues, which are associated with the proposed project and the manner in which the environment might be affected by this intervention; and
- The identification of enhancement measures and mitigation measures aimed at reducing and avoiding the negative impacts of the intervention and maximizing the positive impacts of the proposed intervention.

The key activities in the SIA process as embodied in the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007) will include:

- Describing and obtaining an understanding of the proposed intervention (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 intervention; and
- Identifying alternatives and mitigation measures.

In this regard the study should involve:

- Review of demographic data from the Census Survey;
- Review of relevant planning and policy frameworks for the area;

- Site specific information collected during the site visits to the area and interviews with key stakeholders;
- Review of information from similar projects; and
- Identification of social issues associated with the proposed project.

1.3. BACKGROUND AND PROJECT OVERVIEW

Photovoltaic (PV) energy facilities make use of the sun's energy in order to generate electricity. This process is also better known as the "Photovoltaic Effect". The Photovoltaic Effect refers to the photon collision with electrons, placing the electrons into a higher state of energy in order to create electricity. A photovoltaic panel consists of the following components: The photovoltaic cells, the inverter, transformers and support structure (Figure 1.2 and 1.3). The components of the PV energy facility will be discussed below.

Figure 1.2. Photovoltaic (PV) energy facility.

Figure 1.3. Stationary solar PV panels.

- Photovoltaic Cells:

PV cells consist of silicon. This is referred to as the semiconductor, which when it is charged on either side (positively- and negatively charged) with electrical conductors also attached on either side, forms a circuit which captures the released electrons in the form of an electric current. In order to form a photovoltaic panel, the individual PV cells are being linked in a circuit and are placed behind a protective glass cover sheet (Figure 1.4).

Figure 1.4. Photo Voltaic Cells and Panels.

- Transformer:

The transformer raises the voltage of alternating current, which generates into voltage of the electricity distribution network. Through this process the PV plant will inject the generated electricity to the electrical grid.

- Inverter:

The inverter is required to transmit the generated power within the Eskom grid. The PV effect produces electricity in direct current, but through the inverter the power within the Eskom grid will be transmitted and converted to alternating current.

- Support Structure:

The PV panels are fixed to a support structure, which are approximately 3.4 meter off the ground (Figure 1.5). The angle of the panels depends on the latitude of the proposed facility and also the angle to optimize the maximum amount of solar radiation during winter and summer times.

Figure 1.5. PV panels support structure.

As previously mentioned the Boitshoko SPP is located on the remaining extent of Portion 1 of the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located approximately 8km South West of the town Kathu and falls within the Gamagara Local

Municipality, which is located in the John Taolo Gaetsewe District Municipality. This Independent Power Producer (IPP) will feed the energy of the 75MW – 115MW Boitshoko SPP into the Eskom grid. The precise number of the photovoltaic panels and the placement thereof as well as its associated infrastructures, will be finalized based on the outcome of the Environmental Impact Assessment (EIA) by the EAPs. In Figure 1.1 an alternative site has also been identified by the EAPs, however the preferred site for the development of the proposed SPP is still recommended after site visits.

Based on a review of previous similar projects and the basic project information received for the purpose of this SIA, the scope of work and basic infrastructure that are inclusive of any ancillary activities and that can be associated with the proposed Boitshoko SPP would include:

- A Solar PV – single axis tracker and/or fixed tilt and a 75MW – 115MW SPP:

This proposed energy facility would require numerous linked solar PV panels. Multiple PV panels are required in order to form the solar PV energy facility and to produce the required output of 75MW – 115MW. There are two proposed methods of fixing the PV panels. The first is where the panels are placed at a fixed angle, equivalent to the latitude at which the site is located in order to capture optimize sun radiation. The second method requires the panels to be fixed to a single-axis horizontal tracking structure. The orientation of this panel will vary according the sun's movement during the time of the day.

- The wiring to Central Inverters:

Sections of the SPP will be wired to Central Inverters. The purpose of the Central Inverters is to convert direct current electricity to alternating current electricity at a grid frequency.

- The connection to the grid and electrical reticulation network:

To connect the SPP to the electrical grid a transformation of the voltage is required. For this reason the normal components and the dimension of a distribution rated electrical substation is required. Therefore the SPP will be connected with the nearby Eskom substation and transmission lines into the national grid.

- The supporting infrastructure:

A control facility with basic services such as water and electricity will be constructed on the proposed site and will constitute approximately 400m² in size. This facility will include an office, switch gear and relay room, staff lockers and changing rooms, parking area and security control. Other supporting infrastructure might include voltage and current regulators and a protection circuitry.

- Fencing:

The proposed energy facility will be fenced off from the surrounding farm area for safety, security and health reasons.

- Internal roads and access road:

Access to the proposed Boitshoko SPP will be obtained from the main road, the R380. There is no need for a new access road, because the site will make use of the existing entrance to the site. Internal site road networks to provide access to the SPP and its associated infrastructure will be required. However, all roads on site including the access road, require a width of approximately 4m to accommodate heavy vehicles, and withstand the weight of heavy vehicles.

The scope of the assessment included the PV Solar Energy Facility and its associated structures and infrastructure (such as the power line and access route). The impacts associated with the power line and access route that run beyond the site are considered to be negligible since the actual footprints of disturbance of the power lines is confined to the pylon bases. Furthermore, the power line and access route are aligned with existing roads as far as possible to avoid any negative environmental impacts (Figure 1.6).

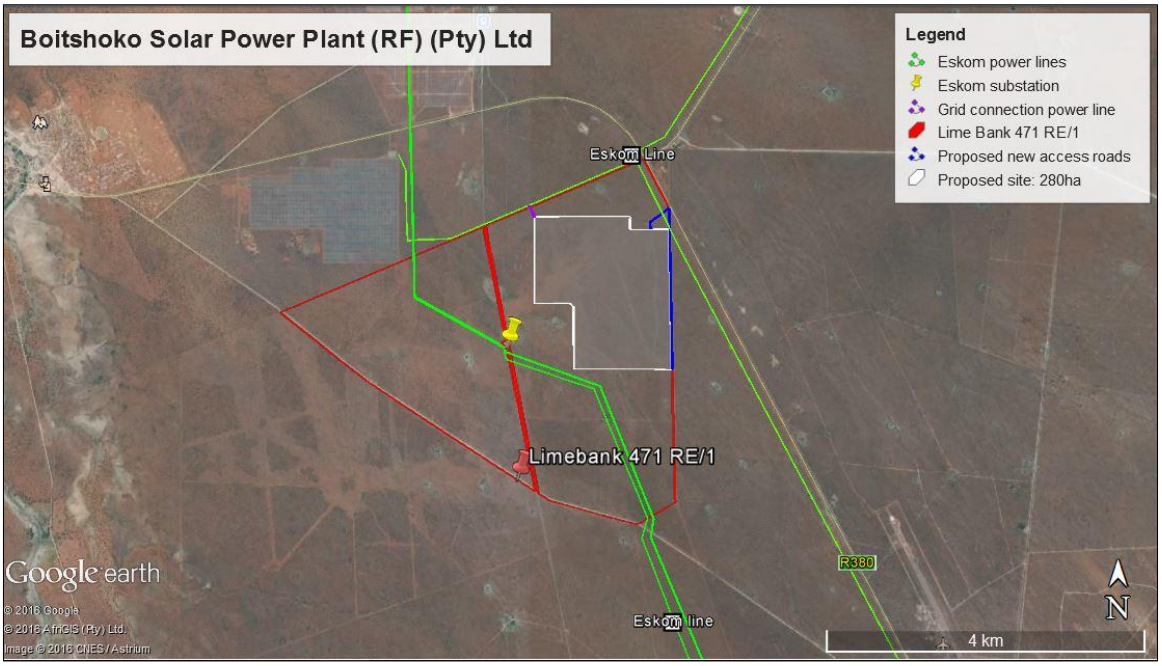


Figure 1.6. Map indicating the exact location of the proposed power lines and access route.

1.3.1. Socio-economic values associated with the proposed project

According to the basic information received by Environamics to conduct the SIA, and a review of previous similar projects, the construction phase for a SPP similar to the proposed Boitshoko SPP will extend over a period of 18 – 24 months. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion.

In terms of employment the construction phase will employ approximately 60 new skilled, 220 low-skilled and 120 semi-skilled employment opportunities over a period of 18 – 24 months. The operational phase however, will employ approximately 3 new skilled, 40 low-skilled and 10 semi-skilled employment opportunities over a period of 20 years.

1.4. PROJECT SITE DESCRIPTION AND SURROUNDING LAND ORIENTATION

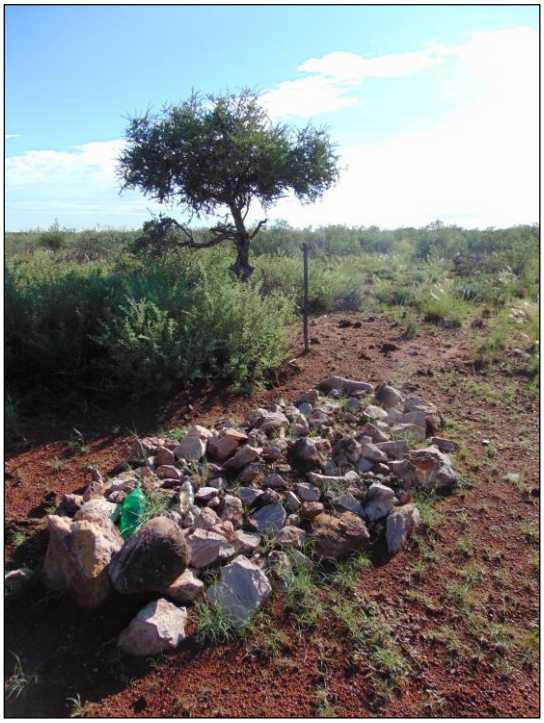
The Boitshoko SPP is located on the remaining extent of Portion 1 of the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located approximately 8km South West of the town Kathu. The town Kathu is known as the iron ore capital of the Northern Cape province. Kathu is also the home of one of the world's largest single-pit open-cast iron mines.

Photograph 1.4.1. Overview of the proposed Boitshoko SPP from the main road (R380) in a Southern direction.

Photograph 1.4.2. Overview of the R380 road to Kathu from the entrance to the Boitshoko SPP site.

Photograph 1.4.3. Overview of the R380 road to Dibeng from the entrance to the Boitshoko SPP site.

Photograph 1.4.4. View from the entrance to the Boitshoko SPP site in a Southern direction.



Photograph 1.4.5. Historical grave site just South West of the proposed Boitshoko SPP site.

South West of the proposed Boitshoko SPP site is a few historical graves. Other infrastructure near the Boitshoko SPP site include a railway line, an Eskom substation and transmission line, which is located South West of the proposed site. An established solar plant North West of the proposed site already feeds into the Eskom substation and transmission line. The areas to be avoided for the development of the Boitshoko SPP include the historical graves found near the proposed site. A few dry pans are also near the site. The final placement of the sites was adjusted to avoid these areas (See also Figure 1.1).

Photograph 1.4.6. Eskom substation South West of the Boitshoko SPP site.

Photograph 1.4.7. Eskom transmission line South West of the Boitshoko SPP site.

1.5. APPROACH TO STUDY AND METHODOLOGY

The research approach followed for the development of an SIA study is based on the Guidelines for Involving Social Impact Assessment Specialists in the EIA process that was prepared for the Department of Environmental Affairs and Development Planning for the Western Cape Province of South Africa in February 2007. These guidelines for development and planning of Social Impact Assessments (SIA) are based on international best practice guidelines. The key components of the SIA process which are embodied in these guidelines include:

- Describe and obtain a basic understanding of the proposed development (type, scale and location). Also obtain an understanding of the individuals and/or communities which are likely to be affected by the intervention, and determine the need and the scope of conducting and SIA;
- Collecting the baseline data for the proposed intervention based on the current social environment and historical social trends;
- Assess and document the significance of the social impacts which are associated with the proposed intervention; and
- Based on the baseline data and the identification and assessment of the social impacts likely to be associated with the proposed intervention, identify alternatives and mitigation measures for the social impacts of the proposed intervention (Barbour, 2007).

The research approach to this study is similar to scientific social research methods. A literature review was conducted to define and gain a basic understanding of the key concepts.

Vanclay (2003) described social change processes as a very discreet, describable and observable process, which changes the characteristics of a society. These processes are set in motion by different project interventions and or development policies. If these changes are managed effectively it may not create impacts, but depending on the context, these social change processes might lead the social impact on a community. Examples of such social processes include the increase of population, the influx of temporary workers, relocation of communities etc. According to Vanclay (2002) the term “social impacts” can be defined as “the consequences to human

populations of any public or private actions (these include policies, programmes, plans and/or projects) that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally live and cope as members of society. These impacts are felt at various levels, including individual level, family or household level, community, organisation or society level. Some social impacts are felt by the body as a physical reality, while other social impacts are perceptual or emotional". It is important to note that social impacts can vary in both space and time. Social impacts can also differ in the way people differ from gender, culture, religion, ethnicity and in general how they view the world. This is better known as the social construct of reality and refers to people's worldview and they manner in which they react to impacts and changes.

The term "Social Impact Assessment" refers to the efforts to analyse, monitor and manage, in advance, the unintended and intended social consequences, positive or negative, which are likely to follow from proposed interventions, policies and/or programmes (IAIA, 2003; Vanclay 2006). The objective of an SIA is to identify the intended as well as the unintended effects of planned interventions in order to achieve sustainable development (Hildebrandt, 2014). Esteves and Vanclay (2009:140) and Hildebrandt (2014) go further by stating that SIA should be seen as an umbrella assessment, which incorporates the evaluation of all impacts on people and on all the ways in which people interact with their socio-cultural, biophysical and economic surroundings.

This research study made use of a qualitative research approach. A qualitative research approach answers questions about the complex nature of a phenomenon. The aim of this approach is to describe and understand the phenomena from a participants' point of view (De Vos et al., 2011). This research approach mainly relies on converting information from observations, reports and recordings into data and then into the written word.

This study followed the research approach similar to the components identified above. The steps involved in the research approach for this study involved:

- The review of demographic data from the 2011 Census Survey and relevant data as received from the identified municipalities;

- The review of relevant planning and policy frameworks for the proposed area of intervention;
- The collection of site specific data during site visits and interviews held with interested and affected parties (IAPs), also the review of information from similar projects;
- The identification and description of social impacts, which can be associated with the proposed intervention; and
- The formulation of key findings and recommendations based on the collected data for the proposed intervention.

The identification of the potential social issues associated with the proposed intervention is based on the review of relevant documentation, experience from previous projects and the observations during the project site visits. Annexure A includes the list of the farmers with which interviews were held. The methodology used to assign the significance ratings to the assessment process will be discussed below.

The social impacts identified during the investigations of the specialist will be assessed according to the following criteria's:

The significance of each potential impact was assessed using the following formula:

Significance (S) = (Extent (E) + Duration (D) + Magnitude (M)) x Probability (P)

- The significance, determined according to the above formula, is being assessed as low, medium or high. The significance weights for each potential impact are indicated as:

- Low = <30 points. An example of this is where the impact did not have a direct influence on the decision making for the particular intervention.
- Medium = 30 – 60 points. An example of this is where the impact might influence the decision making for the particular intervention, unless it is effectively mitigated.
- High = >60 point. An example hereof is where the impact must have an influence on the decision making of the proposed intervention.

- The nature of the proposed intervention includes the description of what will be affected, how it will be affected and what the cause thereof is.

- The extent refers to the indication whether the impact will be local, regional, national or international. A score between 1 and 5 will given, with 1 referring to low and 5 referring to high.
- The duration refers to the length in lifetime of the impact. The duration will thus indicate whether the lifetime of the impact be of a very short duration (0-1 years) (assigned a score of 1), short duration (2-5 years) (assigned a score of 2), medium term (5-15years) (assigned a score of 3), long term (>15 years) (assigned a score of 4) and permanent (assigned a score of 5).
- The magnitude of the impact is quantified on a scale from 0-10. The scores are assigned as follow:
  - Small and will have no effect on the environment = Score 0.
  - Minor and will not result in an impact on processes = Score 2.
  - Low and will cause a slight impact on processes = Score 4.
  - Moderate and will result in processes continuing, but in a modified way = Score 6.
  - High and processes are altered to an extent that they temporarily ceased = Score 8.
  - Very high and results in complete destruction of patterns and permanent cessation of processes = Score 10.
- The probability refers to the likelihood of the impact of actually occurring. Again a score will be assigned to the probability of occurrence. The scores are assigned as:
  - Very improbable meaning that the impact will not happen = Score 1.
  - Improbable meaning that there is some possibility that the impact might occur, but it is not likely = Score 2.
  - Probable meaning that there is a distinct possibility that the impact might occur = Score 3.
  - Highly probable meaning that the impact is most likely to occur = Score 4.
  - Definite meaning that the impact will occur regardless of any prevention or mitigation measures = Score 5.
- The status refers to the degree to which an impact can be reversed (positive status), may cause irreplaceable loss of resources (negative) and can be mitigated (neutral).

1.6. ASSUMPTIONS AND LIMITATIONS

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

1.6.1. Limitations

The one limitation identified for this SIA study is the use and availability of demographic data. The information used in this report coincides with the data from the 2011 Census. Dated data was treated with care and have been updated with the relevant 2011 Census data where needed. The other limitation in this study was that one of the neighbouring farmers' comments on the interview questions could not be reached in time of this SIA. However, this does not affect the outcome of this SIA, for the data gathered during interviews was satisfactory and representative of the neighbouring farmers.

1.6.2. Assumptions

The first assumption identified is the strategic importance of promoting renewable energy like solar energy. This however is supported by the national and provincial policies discussed in Section 3 of this report. In addition to this the fit with key planning and policy documents is a key component of the SIA process, in order to identify and assess the potential social impacts of the development. In the case where the findings of this review reflect that the proposed development doesn't conform to the related policy documents, then the proposed development can't be supported. However, as indicated above this proposed study do recognise the strategic importance of promoting solar energy. Secondly, it is assumed that the proposed development site for the Boitshoko SPP is technically suitable for the establishment thereof.

1.7. LAYOUT OF REPORT

This SIA report starts of by giving an executive summary of the SIA that has been conducted. This SIA report is divided into five (5) main sections:

Section 1: Introduction;

Section 2: Overview of study area;

Section 3: Related policy and planning documents;

Section 4: Identification of key issues; and

Section 5: Summary of key findings.

After the final sections a reference list with the Annex will be given.

SECTION 2 – OVERVIEW OF STUDY AREA

2.1. INTRODUCTION

After a basic introduction to this SIA report in Section 1, Section 2 of this SIA report provides a baseline description of the area under study. In this section the adminisrtrative and regional, demographic and economic context of the area under study will be given. The municipal service levels will also be given.

2.2. ADMINSTRATIVE AND REGIONAL CONTEXT

The Boitshoko SPP is located on the remaining extent of Portion 1 of the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located approximately 8km South West of the town Kathu. The Northern Cape Province is divided into five (5) district municipalities, Frances Baard, John Taolo Gaetsewe, Namakwa, Pixley ka Seme and the ZF Mgcawu (former Siyanda) District Municipality. The Boitshoko SPP is located within John Taolo Gaetsewe District Municipality. There are four (4) local municipalities situated in the John Taolo Gaetsewe District Municipality, they are Joe Morolong (formerly Moshaweng), Ga-Segonyana, Gamagara and Kalahari. The Boitshoko SPP is situated within the Gamagara Local Municipality (GLM). Figure 2.2.1 indicates the location of the District Municipality (on the left) and the Local Municipality (on the right).

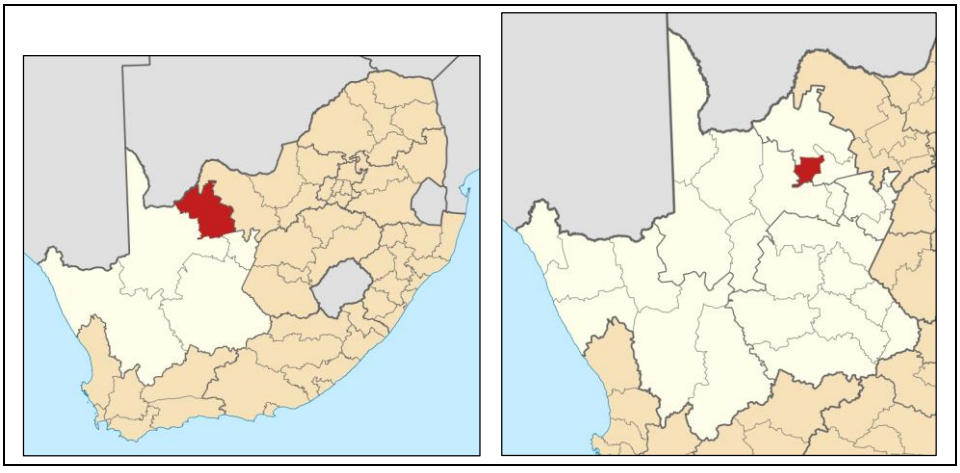


Figure 2.2.1. Maps indicating the location of the John Taolo Gaetsewe District Municipality and the Gamagara Local Municipality. (Source: Wikipedia).

The John Taolo Gaetsewe District Municipality covers an area of approximately 27 283 km². The GLM comprises of 2 619 km² and the administrative seat of the GLM is located within the town of Kathu. Kathu and Dibeng are identified as the main towns in the GLM. The town Kathu is known as the iron ore capital of the Northern Cape province and is also the home of one of the world's largest single-pit opencast iron mines. Dibeng is a town situated on the banks of the dry Gamagara river. Both towns are known for their mining activities, but are also considered as the service centre for the surrounding farm areas.

2.3. DEMOGRAPHIC CONTEXT

In this section the demographic context of the respective Province, District and Local municipality will be discussed. The information below was obtained from the Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012 (Page 27-72), John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016 and the Gamagara Local Municipality Draft Integrated Development Plan for 2015 - 2017. Where necessary the data where updated from the 2011 Census data.

2.3.1. Province

The Northern Cape province is located in the North Western corner of South Africa. South Africa has nine (9) provinces of which the Northern Cape is the largest province. This province covers approximately 372 889 km², which is 30.5% of the total land surface of the country. In terms of population, this province has the smallest population in the country, despite the size of the province. According to the Northern Cape PSDF of 2012 the total population of the province in 2005 was estimated at 991 919 people with the major ethnic group being the black population, representing 46% of the entire population. The sex structure was almost equal with approximately 51% (512 126) of the total population being female and approximately 49% (479 793) being male.

According to the 2011 Census data the total population of the province is 1, 145, 861 people and it was estimated to grow to 1, 185, 600 people by the year 2015.

2.3.2. District Municipality

The John Taolo Gaetsewe District Municipality (JTGDM) is surrounded by three (3) district municipalities, Dr Ruth Segomotsi Mompati, Francis Baard, ZF Mgcawu and also borders with the Republic of Botswana. The JTGDM comprises of three (3) local municipalities, the Joe Morolong, Ga-Segonyana and the Gamagara local municipality. The JTGDM according to the 2011 Census is 27 383 km² in size, which is the second smallest district in the Northern Cape. This district comprises of 186 towns and settlements.

According to the 2011 Census this District has a population of 224 799 people. There has been a decline in the population of the local municipalities due to out-migration and the prevalence of HIV/AIDS (JTGDM IDP: 11-31). The average household size according to the JTGDM IDP of 2012 - 2016, was 4.06 in 2007, which is higher than the provincial and national figures. The age profile in 2007 was 34% between the ages of 0-14, 60,21% between the ages of 15-64 years and 5.79% is older than 65. The gender distribution of the population is, 52.55% female and 47.45% male.

2.3.3. Local Municipality

The Gamagara Local Municipality is located within the John Taolo Gaetsewe District Municipality. This municipal area is approximately 2,619 km^2 in geographical size. The Gamagara Local municipal area consists of five (5) towns and their surrounding suburbs. These towns are, Kathu, Sesheng, Dibeng, Dingleton and Olifantshoek.

According to the 2011 Census the population of this municipal area consist of 41 617 people. According to the Gamagara IDP of 2015/2016 the population increased with 79% form 2001 to 2011 and is growing at a rate of 5.84% yearly. The majority of the population is considered to be black (55%), while 28.7% are coloured and 14% of the population white. Afrikaans and Tswana are also the most spoken languages in this municipal area.

2.4. ECONOMIC CONTEXT

In this section the economic context of the respective Province, District and Local municipality will be discussed. The information below was obtained from the Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012 (Page 27-72), John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016 and the Gamagara Local Municipality Draft Integrated Development Plan for 2015 - 2017. Where necessary the data where updated from the 2011 Census data.

2.4.1. Province

The economy of the Northern Cape mainly relies heavily on two sectors, namely the mining and agriculture sectors. These two sectors employ approximately 57% of all employees in the province. Over the past eight (8) years there has been little to no increase or decrease in the overall standard of living of the communities in the Northern Cape Province. According to the PSDF of 2012 this trend is unlikely to change in the foreseeable future, mainly due to the marginal economic base of the poorer areas, and the consolidation of the economic base in the relatively better-off areas of the province.

The Northern Cape PSDF of 2012 reports that the percentage of the people living in the Northern Cape province, that lives below the poverty line and has decreased from 40% in 1995 to 27% in 2011, while the poverty gap has decreased from 11% in 1995 to 8% in 2011. It is the province's goal to decrease the percentage of people living below the poverty line by 2015 to 20%.

As reported by the Northern Cape Provincial Government, unemployment still remains a big challenge in the province. Unemployment was reported to be at 24.9% during the fourth quarter of 2013. Unemployment also declined from 119000 unemployed people in the fourth quarter of 2012 to 109000 unemployed people in the fourth quarter of 2013. The PSDF further reports that the unemployment level in the province is lower than the national average, but that the not economically-active population is higher than the average for South Africa. According to the PSDF of 2012 the community and social services sector is the largest employer in the province at 29%,

followed by the agricultural sector (16%), wholesale and retail trade (14%), finance (8%) manufacturing (6%) and mining (6%), where the mining sector is the largest contributor to the provincial GDP at 26%.

In terms of education the average adult education attainment levels in the province are lower than the adult education attainment levels of South Africa as a whole. Approximately 19.7% of the Northern Cape adults have no schooling in comparison to South Africa's 18.1%. The Northern Cape has the second lowest percentage of adult individuals (5.5%) that obtained a tertiary education in South Africa (PSDF, 2012).

The overall economic growth of the province has shown significant recovery since 2000/2001 when it had a negative economic growth rate of -1.5%. However, the province is still the smallest contributing province to South Africa's economy (only 2% to South Africa GDP per region in 2007).

2.4.2. District Municipality

It is reported by the JTGDM IDP of 2012 – 2016 that in 2007 the mining sector in the district was the most significant contributor to the district's GDP (49.6%). Other contributors included the government services sector (12.6%), the trade sector (9.1%) and the finance and business services (7.7%). Through these figures it is evident that this District heavily relies on the mining sector.

The JTGDM IDP of 2012 – 2016 reports that poverty is widespread throughout this District, specifically in the rural areas of the District. The IDP further reports that approximately 83.7% of the district's households live below the poverty line, which is R19 200 per year for household subsistence. The low employment level in the JTGDM is reflected in the income figures for the district, with 35.41% of the population of the JTGDM aged between 15 and 65, receiving no income. The above-mentioned high levels of poverty and deprivation reflect the education profile of the district. The JTGDM has the second highest percentage of those with no schooling (11.53%) and the lowest percentage of those with Grade 12 (7.72%). As for higher education, whereas the share of the national population residing in the JTGDM is 0.38%, only 0.27% of those in the country with a university degree, reside in the district (JTGDM IDP).

Lastly, the IDP of 2012 – 2016 reports that nearly one in every three persons between 15 and 65 years of age in the JTGDM (30.3%) are not economically active. This is the highest figure in the Northern Cape Province, 4.2% higher than the Northern Cape Provincial figure of 26.28% and 6.56% higher than the national figure of 23.74%.

2.4.3. Local Municipality

The IDP of 2015/2016 of the Gamagara Local Municipality indicates that the literacy level of this municipal area is low with only 24.9% of the population with matric and only 3.6% that went through higher education. With regards to employment, the majority of the employment sector is male, with most of the females unemployed or as discouraged work-seekers. According to the IDP most of the job creation initiatives should be targeted at females for the majority of the females are economically inactive. The IDP further states that according to the 2011 Census 17.7% of the Gamagara population were unemployed and 65% of those constitute to the youth. The majority of the population in this area also have no monthly income, therefore development initiatives should be directed towards them.

The main sector that contributes to the economic development of this area and the province is the mining sector. The mining sector of this municipal area is an important contributor to the South African mining sector and adds to the international mining value chain. The IDP states that 43% of the employed population in this municipal area are employed in the formal sector, while 5% are employed in the informal sector.

The Gamagara Local Municipality according to the IDP of 2015/2016 aimed in achieving to provide the following basic services to the communities within these municipal boundaries:

- that 99% of households have access to water;
- that 87.9% of the households have access to electricity;
- that 91.5% of the households have access to sanitation; and
- that 100% of the households receive refuse removal.

It is therefore the intension of the municipality to provide high levels of services in all areas of basic services to the population of the Gamagara Local Municipality (IDP, 2015/2016).

SECTION 3 – RELATED POLICY AND PLANNING DOCUMENTS

3.1. INTRODUCTION

Section 3 of this SIA report provides an overview of the related policy and planning documents affecting the proposed project. The overview of these documents includes policy and planning documents on National, Provincial, District and Local level. The following policy and planning documents were reviewed to meet the objectives of this SIA report:

National Level – Related policy and planning documents

- The National Energy Act no 34 of 2008;
- White Paper on the Energy Policy of the Republic of South Africa of 1998;
- White Paper on Renewable Energy of 2003;
- Integrated Resource Planning for Electricity for South Africa of 2010-2030;
- National Development Plan of 2030;
- National Infrastructure Plan of South Africa; and
- New Growth Path Framework.

Provincial Level – Related policy and planning documents

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

District Level – Related policy and planning documents

- John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016.

Local Level – Related policy and planning documents

- Gamagara Local Municipality Draft Integrated Development Plan for 2015 - 2017.

3.2. NATIONAL LEVEL – RELATED POLICY AND PLANNING DOCUMENTS

The following related policy and planning documents on National level relates to the proposed project and will be discussed in the section below.

3.2.1. The National Energy Act no 34 of 2008

The National Energy Act no 34 of 2008 was promulgated in the year 2008. Section 1 of this Act refers to the term "renewable energy" as energy, which is generated from natural resources that are non-depleting. This section specifically refers to solar energy as a form of generating renewable energy. With this definition of renewable energy by this Act, this Act's main focus is to ensure that diverse energy resources are available to the South African economy. This Act has a few aims described in the Preamble of the Act, but the one aim in particular relate to the proposed project. The aim that relate to this proposed project as described in this Act aims "to provide for energy planning, increased generation and consumption of renewable energies, contingency energy supply, holding of strategic energy feedstocks and carriers, adequate investment in, appropriate upkeep and access to energy infrastructure".

3.2.2. White Paper on the Energy Policy of the Republic of South Africa of 1998

The White Paper on the Energy Policy of the Republic of South Africa of 1998 (further referred to as the White Paper) provides an overview of the South Africa' energy sector's contribution to the country's economic sector. The White paper states that the South African Energy systems can greatly contribute to a successful development strategy, and a more sustainable national growth. Therefore, this White Paper supports investment initiatives in renewable energy.

Globally there has been rapid development in renewable energy technologies, due to its many advantages, including cost-effectiveness. However, in South Africa the development and the implementation hereof have been neglected. According to the White Paper approximately 10% of South Africa's primary energy resources are provided through renewable energy resources. The advantages of renewable energy applications include: the impact on the environment is kept to the minimum, more cost-effective than traditional supply technologies and higher labour intensities.

The disadvantages of the renewable energies include: higher capital costs, lower densities and level of availability (depending on specific environmental systems like the sun and wind). Despite these disadvantages, renewable energy resources still operate from an unlimited resource base, meaning that another major advantage is that renewable energy is a more sustainable energy resource on the long-term.

South Africa's consist of very attractive renewable energy resources, including solar. This statement according to the White Paper guides the development of South Africa's renewable energy policy. The Government policy according to the White Paper (1998:79) is still concerned with meeting the following challenges:

- To ensure that the technologies and applications, which are being implemented are economically feasible;
- To ensure that an equitable level of national resources is invested in these renewable energy technologies; and
- To address the constraints experienced on the development of the renewable energy industry.

Despite the Government policy's concerns, the policy still recognises renewable energy sources as unlimited resource bases with potential sustainability for the long-term. The Government stated also its support by stating in the White Paper on the Energy Policy of the Republic of South Africa of 1998 (1998:80) that the "Government will provide focused support for the development, demonstration and implementation of renewable energy sources for both small and large-scale applications".

3.2.3. White Paper on Renewable Energy of 2003

The White Paper on Renewable Energy of 2003 (further referred to as the White Paper) sets out the Government's vision, goals, objectives, policies and principles with regards to promoting and implementing renewable energy in South Africa. This Paper can be considered as a supplement paper to the White Paper on Energy Policy of 1998, which recognised the significant potential of renewable energy over medium- and long-term periods. The White paper has two overarching

goals, namely to inform the public and Government agencies, including the Organs of the State, and the international community, of the Government's goals and the manner in which the Government plan to achieve these goals.

The Paper states that the Government recognised the emission of greenhouse gasses and the effect of climate change globally. For this reason the Government committed in reducing the greenhouse gas footprint of South Africa. According to the White Paper the Government's vision for renewable energy is "an energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation".

Besides referring to other technologies of renewable energy, this paper specifically refers to the potential of solar resources for solar water heating applications, solar photovoltaic and solar thermal power generation in South Africa, directly relating to the proposed project. The medium term target (10 years) for the Government as set out in this White Paper is: "10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. The renewable energy is to be utilised for power generation and non-electric technologies such as solar water heating and bio-fuels. This is approximately 4% (1667 MW) of the projected electricity demand for 2013 (41539 MW) (Executive Summary, ix)". The long-term goal of the Government is to establish renewable energy industries that will provide fully non-subsides alternatives to fossil fuels that will be more sustainable for future generations.

3.2.4. Integrated Resource Planning for Electricity for South Africa of 2010-2030

The Integrated Resource Plan for Electricity for South Africa of 2010-2030 (further referred to as the IRP) is a "living plan" which is expected to be revised and updated continuously as necessary due to changing circumstances. According to the Summary of the plan the current IRP for South Africa, which was originally initiated by the Department of Energy (DoE) in June 2010, led to the Revised Balanced Scenarios (RBS) for the period 2010 - 2030.

"This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then "balanced" in accordance with qualitative measures such as local job creation". In addition to all existing and committed power plants, the RBS included 11,4 GW of renewables, which relates to the proposed project. In 2010 several changes where made to the IRP model. The main changes in the IRP were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP) and wind options.

The summary of the IRP further explains that traditional cost-optimal scenarios were developed based on the previously mentioned changes in the IRP. This resulted in the Policy-Adjusted IRP, which stated that:

- "The installation of renewables (solar PV, CSP and wind) have been brought forward in order to accelerate a local industry;
- To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6 GW is included in the IRP;
- The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) is maintained; and
- Energy efficiency demand-side management (EEDSM) measures are maintained at the level of the RBS" (IRP, 2011:6).

"The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 GW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources" (IRP, 2011:6).

The IRP highlights the commitments before the next IRP. The commitments pertaining to the purpose of the proposed project in renewable energy is:

- "Solar PV programme 2012-2015: In order to facilitate the connection of the first solar PV units to the grid in 2012 a firm commitment to this capacity is necessary. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first

four years from 2012 to 2015 require firm commitment".

- "Solar PV 2016 to 2019: As with wind, grid upgrades might become necessary for the second round of solar PV installations from 2016 to 2019, depending on their location. To trigger the associated tasks in a timely manner, a firm commitment to these capacities is necessary in the next round of the IRP at the latest. By then, the assumed cost decreases for solar PV will be confirmed" (IRP, 2011:17).

In conclusion the IRP as envisage in the Policy-Adjusted IRP should pursue solar PV programmes and an accelerated roll-out renewable energy options should be allowed with regards to the benefits of the localization in renewable energy technologies.

3.2.5. National Development Plan of 2030

The National Development Plan aims to "eliminate poverty and reduce inequality by 2030". In order to eliminate or reduce inequality, the economy of South Africa need to grow faster in order to benefit all South Africans. In May 2010 a draft national development plan was drafted, which highlighted the nine (9) key challenges for South Africa. The highest priority areas according to the plan are considered to be the creation of employment opportunities and to improve the quality of national education.

In this regard, the plan sets out three (3) priority areas, namely to raise employment by a faster growing economy, improve the quality of education and to build the capability of the state in order to play a more developmental and transformative role. One of the key challenges identified was that the economy is unsustainably resource intensive and the acceleration and expansion of renewable energy was identified as a key intervention strategy to address this challenge.

3.2.6. National Infrastructure Plan of South Africa

In the year 2012 the South African Government adopted a National Infrastructure Plan (further referred to as the Plan). The aim of this plan is to transform the economic landscape, while strengthening the delivery of basic services and creating new employment opportunities. This plan also supports the integration of African communities. This plan also sets out the challenges and

enablers that our country needs in order to respond to the planning and development of infrastructure with regards to fostering economic growth.

The Plan has developed eighteen (18) strategic integrated projects (further referred to as SIPs). These SIPs stretches over all nine (9) provinces, covering social and economic infrastructure, and projects that enhances development and growth. Of the eighteen (18), five (5) are geographically focused, three (3) spatial, three (3) energy, three (3) social infrastructure, two (2) knowledge, one (1) regional integration, and one (1) water and sanitation focussed. The three (3) SIPs according to the Plan, which are energy focused and correlate to the proposed project are as follow:

- SIP 8: Green energy in support of the South African economy;
- SIP 9: Electricity generation to support socio-economic development; and
- SIP 10: Electricity transmission and distribution for all.

SIP 8 according to the plan "support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the IRP 2010 and support bio-fuel production facilities". The purpose of SIP 9 according to the plan is to "accelerate the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances". SIP 9 should also monitor the implementation of major projects such as new power stations like Medupi, Kusile and Ingula. Lastly, SIP 10's aim is to "expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development" (NIP, 2012:20).

3.2.7. New Growth Path Framework

The New Growth Path was developed after 16 years of South Africa's democracy, to respond to emerging opportunities and risks while building on policies. This framework provides a dynamic vision on how to collectively achieve a more developed, equitable and democratic society and economy. This framework mainly reflects the commitment of the South African Government to create employment opportunities for its people in all economic policies.

This framework sets out the markers for job creation and growth and also identify where there is viable changes in the character and structure of production, in order to create a more inclusive, greener economy on the long-term. It is stated in the framework that in order for this framework to reach its objectives, the Government is committed to:

- Identify the possible areas of employment creation; and
- Develop a policy to facilitate employment creation especially with regards to social equity, sustainable employment and growth in the creation of employment activities.

This framework also identifies investments in five key areas, one of which is energy. This framework also states that the green economy is a priority area, which includes the construction and investment of renewable energy technologies like solar. In this regard it will also assist creating employment opportunities over the medium- and long-term.

3.3. PROVINCIAL LEVEL – RELATED POLICY AND PLANNING DOCUMENTS

The following related policy and planning document on Provincial level relate to the proposed project and will be discussed in the section below.

3.3.1. Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012

The Northern Cape Provincial Spatial Development Framework (further referred to as the PSDF) of 2012 in compliance with the Northern Cape Planning and Development act 7 of 1998 (Chapter IV, Section 14), aims to "ensure that the use and allocation of the province's resources, both renewable and non-renewable, are informed by the a set of integrated and coordinated policies, objectives, implementation strategies, programmes and, where appropriate, projects aimed at:
(i) setting and monitoring, where appropriate, measurable standards with regard to, amongst other, public access to health, safety, amenities, education and economic opportunity;

(ii) ensuring that the supply of public infrastructure is directed towards meeting the required standards in a prioritised, coordinated, sustainable and cost-effective way, in terms of capital and maintenance expenditure;

(iii) ensuring the protection and sustainable utilisation of land, water and air where these are important for the maintenance of ecologically-sensitive systems or processes, areas of biological diversity, public health or public amenities;

(iv) providing an investment and expenditure programme coordinated with budgetary cycles and capable of securing financial and other resources from National Government and any other funding agencies as well as public/private sector partnerships; and

(v) informing and guiding the preparation and implementation of district and local municipal infrastructure management plans and land development plans" (PSDF 2012:4).

The PSDF mainly aims to build a prosperous, sustainable growing provincial economy to firstly improve social development and to eradicate poverty. The PSDF adopted the International Union for Conservation of Nature (IUCN) mission as their main goal. This goal states that essential ecological processes are being maintained, that natural resources are being preserved and utilised in a sustainable manner, that the use of the biosphere are managed while also maintaining its potential for future generations.

The PSDF of 2012 highlights that renewable energy sources such as solar thermal and wind, comprise 25% of the Northern Cape's energy generation capacity by the year 2020, and should be progressively phased in as appropriate into the province. The PSDF further sets out energy objectives, which include the following:

- To promote the development of renewable energy supply schemes;
- To enhance the efficiency of Eskom's power station at the Vanderkloof power station;
- Reinforce additional electricity supply especially renewable energy projects; and
- Develop and implement innovative energy technologies to improve access to reliable, sustainable and affordable energy services. Also recognize that the objective should be to obtain sustainable economic growth.

Lastly the PSDF notes that the Northern Cape need to develop large-scale renewable energy supply schemes in order to address the growing demand in energy and to promote a green economy in the province.

3.4. DISTRICT LEVEL – RELATED POLICY AND PLANNING DOCUMENTS

The following related policy and planning documents on District level relates to the proposed project and will be discussed in the section below.

3.4.1. John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016

The John Taolo Gaetsewe District Municipality's Integrated Development Plan for 2012-2016 (further referred to as the Plan) highlights the achievements of the municipality. One of these challenges is that the growth in access to electricity as a primary source of energy in the district has been spectacular. Over the period of 2001-2007 electricity as a source of energy has increased to 90% in the district municipality. Thus there, has been a growth of 31.8 % over six (6) years.

The Plan goes further by stating the development priorities of the municipality. They are:

- Priority 1: Water and Sanitation;
- Priority 2: Roads and Transport;
- Priority 3: Local Economic Development (LED);
- Priority 4: Land Development and Reform;
- Priority 5: Integrated Human Settlements;
- Priority 6: Sustainable Development Orientated Municipalities;
- Priority 7: Environmental Management, Climate Change and Municipal Health;
- Priority 8: Disaster Management; and
- Priority 9: HIV/Aids and TB.

One of the long-term strategic objectives of the district, according to the Plan, that particularly relate to the proposed project is "Environmental, Climate Change and Municipal Health". Under this strategic objective one of the common issues that affect the district identified by the Plan is the use of solar energy for future purposes. The Plan goes further by stating that "serious investment in and exploitation of renewable sources of energy has not only resulted in the district becoming self-reliant in the generation of electricity, but seen it make a sizeable injection on the national electricity grid."

Furthermore, the plan describes the local economic development strategy of the district. Key thrusts were identified. Thrust 5 (Industrial Development) relate to the proposed project. This thrust refers to the programmes that relate to the manufacturing projects identified and the associated enabling public sector interventions. This thrust also refers to the general improvement in living conditions, infrastructure and overall economic growth, which should serve as a boost of potential in this sector. An example of these projects includes solar energy plants.

3.5. LOCAL LEVEL – RELATED POLICY AND PLANNING DOCUMENTS

The following related policy and planning documents on Local level relates to the proposed project and will be discussed in the section below.

3.5.1. Gamagara Local Municipality Draft Integrated Development Plan for 2015 - 2017

The vision of the Gamagara Local Municipality is to provide a prosperous community with a futuristic economy. The mission of the municipality to "provide universal sustainable services to the community in order to attain a safe and healthy environment, as well as socio-economic development by exploiting economic benefits and strengthening stakeholder relations. According to the Gamagara Local Municipality Draft Integrated Development Plan for 2015 – 2017 the following were identified as the key priority areas for the years 2015 -2016, they are: basic service delivery, water and sanitation, electricity, roads and sanitation, mixed developing houses and construction of RDP houses.

This Plan further refers to the creation of employment initiatives in the area. The prospects for economic growth and development within the municipal area for the short – and long-term will focus on manufacturing, heritage and tourism, wholesale and retail trade and solar energy.

3.6. ASSESSMENT ON POLICY AND PLANNING FIT

The legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with the proposed development project. For this reason the proposed development project will be assessed in terms of its fit with the key and planning documents. The review of the following documents on National, Provincial, District and Local level was conducted for the purpose of this SIA:

- The National Energy Act no 34 of 2008;
- White Paper on the Energy Policy of the Republic of South Africa of 1998;
- White Paper on Renewable Energy of 2003;
- Integrated Resource Planning for Electricity for South Africa of 2010-2030;
- National Development Plan of 2030;
- National Infrastructure Plan of South Africa;
- New Growth Path Framework;
- Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012;
- John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016; and
- Gamagara Local Municipality Draft Integrated Development Plan for 2015 – 2017.

The main findings of the review of the policy documents on all levels of Government indicated that strong support was given towards renewable energy, specifically solar energy. The White Paper on the Energy Policy of the Republic of South Africa of 1998 stated that due to the fact that renewable energy resources operates from an unlimited resource base, for example the sun, renewable energy can increasingly contribute towards a long-term sustainable energy for future

generations. This policy further highlights that due to the unlimited resources base of renewable energy in South Africa, renewable energy applications like solar and wind energy is more sustainable in terms of social and environmental costs. The Integrated Resource Planning for Electricity for South Africa of 2010-2030, the National Infrastructure Plan of South Africa and the New Growth Path Framework all support the development of the renewable energy sector. In particular, the IRP also indicated that 43% of the energy generations in South Africa is allocated to renewable energy applications.

At Provincial, District and local level the policy documents support the applications of renewables. The Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012 indicated that the development of renewable energy applications such as solar, could be some the means in which the Northern Cape can benefit from economically. At District and Local level the application of renewables like solar energy are being recognised as an alternative source of energy that could provide more sustainability to economy, provide better livelihoods for its communities, and creating a sustainable future for generations to come.

The review of the relevant policies and documents related to the energy sector, thus indicate that renewables like solar energy and the establishment of these facilities are supported on a National, Provincial, District and Local level. The author of this SIA is thus of opinion that the establishment of the Boitshoko SPP in the area is supported by the policies and planning documents reviewed in this section on levels of Government.

SECTION 4 – IDENTIFICATION OF KEY ISSUES

4.1. INTRODUCTION

Section 4 of this SIA report focuses on the identification of the key social issues, which were identified during this study. The identification of these key issues were identified based on the following:

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

This section will identify and assess the key issues related to this proposed Boitshoko SPP that are associated with the construction phase, operational phase and the decommissioning phase of the proposed development. The assessment of the "no-development" alternative will also be discussed.

4.2. SOCIAL IMPACTS RELATED TO THE CONSTRUCTION PHASE

This section of the SIA will give a detailed discussion on the social impacts that are related to the construction phase of the proposed Boitshoko SPP. The key potential positive and negative impacts, which are associated with the construction phase of the Boitshoko SPP are given in the Table 4.2.1 below. After the Table 4.2.1 a detailed discussion of each of the identified impacts will be discussed. The positive impacts will be discussed first, and thereafter a discussion of all the negative impacts will follow.

Table 4.2.1. Identification of key potential positive and negative impacts associated with the construction phase of the Boitshoko SPP.

Potential Positive Impacts	Potential Negative Impacts

- The creation of local employment and business opportunities, skills development and training. - Technical support to local farmers and municipalities.	- Potential loss of productive farmland. - In-migration or potential influx of job seekers. - The potential impacts associated with the presence of construction workers on the local communities. - The potential risks to livestock and farming infrastructure, which are associated with the construction phase and the presence of the workers on the site of the Boitshoko SPP. - The potential impacts of heavy vehicles and construction related activities. - The increased risk of potential veld fires associated with the construction phase.

4.2.1. Potential Positive Impact: Creation of local employment and business opportunities, skills development and training

According to the basic information received by Environamics to conduct the SIA, and a review of previous similar projects, the construction phase for a SPP similar to the proposed Boitshoko SPP will extend over a period of 18 – 24 months. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion.

In terms of employment the construction phase will employ approximately 60 new skilled, 220 low-skilled and 120 semi-skilled employment opportunities over a period of 18 – 24 months. During the construction phase construction companies with the necessary expertise will undertake the work in this regard. The creation of employment opportunities will provide a social benefit to the local community.

Based on the information from other SPP projects the monthly wage for low-skilled workers will be in the range of R5000, semi-skilled workers R10 000 and skilled workers R30 000. This will have a positive impact on the local economy for a percentage of the wages will be spent on the local businesses. The hospitality industry will especially benefit from the construction of the Boitshoko SPP, regarding the housing of construction workers and contractors for a period of 18 - 24 months. The economic benefits in this regard will however only remain for the period of the construction phase.

Through the implementation of the enhancement measures discussed below, the construction of the proposed Boitshoko SPP would enable the support and co-operation between public and private sectors. In this regard the local economic development of the local and district municipalities will also be supported.

Table 4.2.2. Assessment of potential positive impacts related to the creation of local employment, business opportunities and training.

Nature: The potential positive impacts or benefits regarding the creation of local employment and business opportunities and training during the construction phase of the Boitshoko SPP.		
	Without Mitigation	**With Enhancement**
Extent	Local (3)	Local (4)
Duration	Short duration (2)	Short duration (2)
Magnitude	Moderate (6)	High (8)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Medium (40)	Medium (45)
Status	Positive	Positive
Reversibility	N/A	-
Irreplaceable loss of resources?	N/A	
Can impact be enhanced?	Yes	-

Recommended enhancement measures:

The following enhancement measures can be implemented to effectively enhance the potential impacts regarding the creation of employment and business opportunities and training:

- The proposed Boitshoko SPP should liaise with the local municipality regarding the establishment of a local database of companies, which can be identifies as potential service providers.
- These providers/companies should be notified of the tender process and be assisted in this regard.
- Strategies need to be identified by the local municipality and the business sectors in order to maximise the potential benefits associated with the establishment of the Boitshoko SPP.

- The existence of a skills database for the local municipal area should be developed with the assistance from the local municipality in order to establish the extent of the available service providers in the local area.
- Efforts should be made to employ local contractors first and contractors that are compliant with the Broad Based Black Economic Empowerment (BBBEE) criteria. Gender equality should also be promoted.
- If possible a training and skills development programme for the local workers should be initiated prior to the construction phase.

Assessment of No-Go option:

The current status quo are maintained due to no impact, however the no-go option would signify that the positive impacts regarding employment and economic benefits would be lost.

Cumulative impacts:

The cumulative impacts associated with the creation of employment and business opportunities and training during the construction phase, are that there is an opportunity for employment seekers to improve their skills.

Residual impacts:

The residual impacts associated with the creation of employment and business opportunities and training during the construction phase is that the workers can improve their skills by gaining more experience.

4.2.2. Potential Positive Impact: Providing technical support to local farmers and to municipalities

During the construction phase of the Boitshoko SPP, the staff involved in the project has the opportunity to provide technical support and advice to the local farmers as well as the local municipality in terms of the installation of solar energy technologies. This could be done by either private consultations, workshops and site visits to already established SPPs.

Table 4.2.3. Assessment of potential positive impacts related to the technical advice provided to municipalities and local farmers.

Nature: The potential positive impacts or benefits regarding the provision of technical advice to municipalities and local farmers, on the installation of solar energy technologies in order to supply local municipalities and local communities in their energy needs.		
	Without Mitigation	**With Enhancement**
Extent	Local (1)	Local (2)
Duration	Short duration (1)	Long duration (4/5)
Magnitude	Minor (2)	Moderate (6)
Probability	Probable (3)	Highly Probable (4)
Significance	Low (15)	Medium (35)
Status	Negative	Positive
Reversibility	Yes	-
Irreplaceable loss of resources?	N/A	
Can impact be mitigated?	Yes	-

Recommended enhancement measures:

The following enhancement measures can be implemented to effectively enhance the potential impacts regarding the benefits of providing technical advice to municipalities and local farmers in addressing their energy needs:

- Private consultation sessions with local farmers can be held to inform them about the installation of solar energy facilities, the benefits thereof, the process and costs.
- Workshops can also be held for the local farmers as well as the local municipality to also advice them regarding the installation of SPPs and the process and costs thereof.
- Site visits to existing SPPs can also be arranged so that the local municipality representatives and local farmers can see an established SPP first hand.

Assessment of No-Go option:

The current status quo are maintained due to no impact, however the no-go option would signify that the positive impacts regarding energy savings and a more sustainable future would be lost.

Cumulative impacts:

The cumulative impacts associated with the provision of technical advice regarding solar energy and renewable energy is that more movement will be made towards the use of renewable energy technologies. This will impact the mining industries, because minerals like coal won't be so much relied on in the provision of energy of the future.

Residual impacts:

The residual impacts associated with the provision of technical advice regarding solar and renewable energy is the same as the cumulative impacts discussed above.

4.2.3. Potential Negative Impact: Potential loss of productive farmland

A negative impact identified for the construction phase is the potential loss of productive farmland. The activities associated with the construction phase may have a potential impact in terms of the loss of available farmland for grazing as well as other agricultural activities. The current land uses of the identified area for the proposed Boitshoko SPP is used for the grazing of livestock (cattle). The livestock can however be relocated to other areas of the farm. The farm owner has entered into a lease agreement with Subsolar Energy (Pty) Ltd for the use of the land for the proposed Boitshoko SPP, and the income from Subsolar Energy (Pty) Ltd will cover the impact on the income of the farming activities due to the loss of grazing for livestock. The owner of the farm Lime Bank, on which the proposed Boitshoko SPP will be developed, also indicated in an interview with the specialist that the potential loss of productive farmland won't have a negative economic impact on the farm, due to the income that the farmer will receive for the hiring of the farmland. He also indicated that his cattle that are currently grazing on the site, will be moved to another camp, away from the site once the development starts. The impact on the productive farmland during the construction phase can also be mitigated by the careful placement of the SPP on the proposed site ensuring that the footprint size of the SPP is minimised and ensuring that the disturbed area of the SPP are fully rehabilitated for livestock grazing after the construction phase. The mitigation measures will be discussed below.

Table 4.2.4. Assessment of potential impacts related to the potential loss of productive farmland.

Nature: The potential loss in productive farmland during the construction phase, due to factors such as the construction of roads, the preparation of foundations, power lines, offices etc.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Long duration (4)	Short duration (2)
Magnitude	Moderate (6)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Medium (35)	Low (20)
Status	Negative	Negative
Reversibility	Yes	-
Irreplaceable loss of resources?	Yes. Loss of productive farmland.	Yes. Loss of productive farmland. Affected areas can be rehabilitated.
Can impact be mitigated?	Yes	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts on productive farmland for agricultural purposes:

- The proposed site for the Boitshoko SPP need to be fenced off prior to the construction phase and all construction related activities should be confined in this fenced off area.
- Livestock grazing on the proposed site need to be relocated.
- All affected areas, which are disturbed during the construction phase, need to be rehabilitated prior to the operational phase and should be continuously monitored by the Environmental Control Officer (ECO). Social monitoring should be applied quarterly by an ECO that has knowledge over social issues. This can be in the form of social monitoring plans, regular public participation meetings etc.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the loss of productive farmland are the effect it has on the livelihoods of the farmers, their families and also the workers on the farmers and their families. As indicated above this impacted can be mitigated.

Residual impacts:

The residual impacts for the potential loss of productive farmland are the overall loss of grazing for livestock.

4.2.4. Potential Negative Impact: In-migration or potential influx of job seekers

In the case of large construction projects, job seekers tend to migrate to the area of development in search of jobs. In some cases the job seekers' families accompany them. Whether or not the job seekers find a job, themselves and their families can become economically stranded in the associated area. The influx of the job seekers is not a social impact itself, but their presence and behaviours can impact community structures and social networks, competition for housing and jobs, which might lead to xenophobia, and crime. The issues identified here is very similar to the issues identified in section 4.2.5. However, the risks that are associated with the influx or in-migration of job seekers are likely to be low, because the proposed project will accommodate locals first. The farmers that was interviewed for the purpose of this SIA all indicated that the influx of job seekers to the nearby area and town of Kathu is a common event. They also indicated that there is a shortage in specialised and trained workers in the area. They thus are in favour of the development of the proposed Boitshoko SPP, and in contributing to the economy of this area.

Table 4.2.5. Assessment of potential impacts related to the influx of job seekers.

Nature: The potential impacts posed by the in-migration or influx of job seekers in the local communities.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Permanent (5)	Long duration (4)

Magnitude	Minor (2)	Low (1)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (20)
Status	Negative	Negative
Reversibility	In the case of HIV/AIDS, no.	In the case of HIV/AIDS, no.
Irreplaceable loss of resources?	Human capital plays a critical role in communities that rely on farming for their livelihoods. If workers with HIV/AIDS are contracted then yes, there will be an irreplaceable loss of resources.	
Can impact be mitigated?	Yes, to some extent.	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts posed by the influx of job seekers:

- A policy that no employment will be available at the gate should be implemented.
- Job seekers from the local community should be employed first.

The impact of the influx of job seekers due to the construction of the proposed Boitshoko SPP will be low, however the influx of job seekers to the local area can't be prevented.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the influx of job seekers include the long-term impacts on family structures and social networks of communities. In the case of HIV/AIDS or unwanted pregnancies the impacts might be permanent and have permanent cumulative impacts on the affected individuals, families and the community.

Residual impacts:

The residual impacts for the potential influx of job seekers include the pressure on local services provided by the local municipality, for example, schools, housing, health services etc.

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

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

Table 4.2.6. Assessment of potential impacts related to the presence of construction workers on local communities.

Nature: The potential impact posed to farmers and farm workers due to the presence of construction workers on local communities. These impacts include the risks posed to family structures and social networks of the local community.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Short duration (2)	Short duration (2)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (20)
Status	Negative	Negative
Reversibility	In the case of diseases like HIV and AIDS, no.	In the case of diseases like HIV and AIDS, no.
Irreplaceable loss of resources?	Human capital plays a critical role in communities that rely on farming for their livelihoods. If workers with HIV/AIDS are contracted then yes, there will be an irreplaceable loss	

	of resources.	
Can impact be mitigated?	Yes, to some extent.	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts identified above, related to the presence of construction workers on the local community:

- The proposed site of the Boitshoko SPP should be fenced off and the movement of construction workers should be limited to the vicinity of the site.
- Transportation for the construction workers need to be arranged by the contractor to ensure that there will be no trespassing of properties by any staff. Necessary arrangements to enable workers to return to their hometowns over weekends should also be arranged in order to reduce the risks posed to local family structures and social networks.
- No staff should be accommodated over night on site, except for security staff.
- Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages or losses. This code of conduct should also outline the acceptable behaviour an activities of construction workers.
- Awareness programmes for HIV/AIDS should be implemented for the construction workers.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the presence of construction workers and their impact on local communities include:

- The impacts of workers presence of family structures and social networks of the community might persist for a long time period.

- In the case of HIV/AIDS or unwanted pregnancies the impacts might be permanent and have permanent cumulative impacts on the affected individuals, families and the community.

Residual impacts:

No residual impacts, see cumulative impacts above.

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

During the construction phase the presence of construction workers on the proposed Boitshoko SPP site poses potential risks to the local farmers as well as to their farm workers. These potential risks might include damage to farming infrastructure, like gates and fences, loss of livestock due to damaged fences and farm gates being left open, and stock theft. The farmers that were interviewed for the purpose of this SIA, indicated that the presence of workers on site is problematic. Their concern lies with possible theft and security risks, as well as illegal trespassing on other properties besides the project site. They have however suggested that all workers should only be working within the vicinity of the site, and that no workers should be allowed to stay over at night on site, except for security staff. The presence of construction workers will however be limited to the vicinity of the proposed Boitshoko SPP site, thus the potential risk to other farms' infrastructure will be low.

Table 4.2.7. Assessment of potential impacts related to the presence of construction workers on site.

Nature: The potential impact posed to farmers and farm workers due to the presence of construction workers on site. These impacts might include safety risks, damage to farming infrastructure and loss of livestock and theft.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Short duration (2)	Short duration (2)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)

Significance	Low (25)	Low (20)
Status	Negative	Negative
Reversibility	Yes	-
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts identified above, related to the presence of construction workers on site:

- The proposed site of the Boitshoko SPP should be fenced off and the movement of construction workers should be limited to the vicinity of the site.
- Transportation for the construction workers need to be arranged by the contractor to ensure that there will be no trespassing of properties by any staff.
- No staff should be accommodated over night on site, except for security staff.
- Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages or losses. Any form of theft, damaged infrastructure and trespassing will lead to immediate dismissal and the workers would be held liable for the costs thereof.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

There are no cumulative impacts, because the potential losses can be compensated for.

Residual impacts:

No residual impacts, because the potential losses can be compensated for.

4.2.7. Potential Negative Impact: Potential impacts of heavy vehicles and construction related activities

It was indicated earlier in this assessment that the Boitshoko SPP is located on the farm Lime Bank No. 471 and covers a proposed magnitude of 280ha. The Boitshoko SPP is located in the Northern Cape Province of South Africa, situated approximately 8km South West of the town Kathu. The main entrance to the site is on the farms' gravel road entrance from the R380. The R380 provides access to other farms in the area and is also the main road linking to the major towns in the area, like Kathu and Dibeng. The movement of the heavy construction vehicles during the construction phase might potentially damage the current farm roads and in the process also create dust and safety impacts in the associated area. The contractor should thus repair all damages to the road before the end of the construction phase. There is already heavy vehicle traffic on the R380 to and from Kathu, however the construction phase of this project is unlikely to significantly add to the traffic load on the R380. Although there is already significant traffic on the R380, the farmers that were interviewed commented that the road still need to be maintained. Drivers of the heavy vehicles should also have the correct licensing and vehicles need to be road worthy. They also commented that drivers need to comply with the law and the speed limits. The volume of the traffic is also low on this road. The impact of the noise levels and the load of the traffic on the road are likely to be low.

Table 4.2.8. Assessment of potential impacts of heavy vehicles and construction related activities.

Nature: The potential damage to the road surfaces and impacts of safety and dust, associated with the movement of construction related traffic to and from the proposed Boitshoko SPP site.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Short duration (2)	Short duration (2)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (15)
Status	Negative	Negative
Reversibility	Yes	-

Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts identified above, related to the movement of heavy construction vehicles:

- With regards to all safety measures, the drivers of the vehicles must be qualified and all vehicles must be road worthy. Drivers should also be made aware of the strict speed limits on and off site and the potential road safety issues on site.
- Vehicles that are used for the transportation of loose building materials, like sand, should be fitted with covers to avoid spillage.
- Measures for dust suppression should be implemented regularly to minimise dust pollution. An example hereof is the wetting of gravel roads.
- The contractor must repair any damages to the gravel roads on the site, during the construction phase, and any cost with regards to the repair of the roads must be borne by the contractor.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

There are no cumulative impacts, because the potential losses can be compensated for. However, temporary noise disturbances might occur due to the movement on heavy vehicles and construction related activities. The noise impact is unlikely to be significant. The construction related activities should be limited to normal working hours and days.

Residual impacts:

No residual impacts, because the potential losses can be compensated for.

4.2.8. Potential Negative Impact: Increased risk of potential veld fires

During the construction phase there is an increased risk of veld fires due to the presence of construction related activities as well as the presence of construction workers on site. The risk of veld fires poses further threats to the loss of livestock, crops and farmsteads in the area. This could result in the loss or damage of farm infrastructure and also threaten human lives. All farmers that were interviewed for the purpose of this SIA expressed their concern regarding the risk of veld fires during the construction phase. They have all suggested that the necessary mitigation measures should be taken, the site need to be equipped with the correct fire fighting equipment and workers should be trained in fire fighting and how to work with the equipment. The area of the site also needs to be fenced off, to keep construction related activities within the vicinity of the site. They also mentioned that the area around the farm's and site's fences need to be cleared to ensure that veld fires that might occur won't jump to the neighbouring farms. For effective mitigation measures in this regard, see the mitigation measures given below.

Table 4.2.9. Assessment of potential impacts of increased risk of potential veld fires.

Nature: The potential loss of livestock, crops and farmsteads in the area. This also includes the damage and loss of farm infrastructure and the threatening of human lives that are associated with the increased risk of veld fires.		
	Without Mitigation	**With Mitigation**
Extent	Local (4)	Local (2)
Duration	Short duration (2)	Short duration (2)
Magnitude	High (8)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (40)	Low (25)
Status	Negative	Negative
Reversibility	Yes	-
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	-

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts of veld fires during the construction phase:

- A firebreak should be implemented before the construction phase. The firebreak should be controlled and constructed around the perimeters of the project site.
- Adequate fire-fighting equipment should be provided and readily available on site and all staff should be trained in fire-fighting and how to use the fire-fighting equipment.
- No staff (except security) should be accommodated over night on site and the contractor should ensure that no open fires are allowed on site. The use of cooking or heating implements should only be used in designated areas.
- Contractors need to ensure that any construction related activities that might pose potential fire risks, are done in the designated areas where it is also managed properly.
- Precautionary measures need to be taken during high wind conditions or during the winter months when the fields are dry.
- The contractor should enter an agreement with the local farmers before the construction phase that any damages or losses during the construction phase related to the risk of fire and that are created by staff during the construction phase, are borne by the contractor.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

There are no cumulative impacts, because the potential losses can be compensated for.

Residual impacts:

The residual impacts include the impact on livelihoods and the income generated by the farming activities. The reduced carrying capacity due the loss of grazing fields. In the case thereof compensation need to be paid in the case of any damages and losses.

4.3. SOCIAL IMPACTS RELATED TO THE OPERATIONAL PHASE

This section of the SIA will give a detailed discussion on the social impacts that are related to the operational phase of the proposed Boitshoko SPP. The key potential positive and negative impacts, which are associated with the operational phase of the Boitshoko SPP are given in the Table 4.3.1 below. After Table 4.3.1 a detailed discussion of each of the identified impacts will be discussed. The positive impacts will be discussed first, and thereafter a discussion of all the negative impacts will follow.

Table 4.3.1. Identification of key potential positive and negative impacts associated with the operational phase of the Boitshoko SPP.

Potential Positive Impacts	Potential Negative Impacts
- The creation of local employment and business opportunities, skills development and training. - The establishment of a Community Trust. - Development of infrastructure for the generation of renewable energy.	- Potential loss of productive farmland. - Visual Impacts and impact on sense of place. - Impact on tourism.

4.3.1. Potential Positive Impact: Creation of local employment and business opportunities, skills development and training

According to the basic information received by Environamics to conduct the SIA, and a review of previous similar projects, the operational phase for a SPP similar to the proposed Boitshoko SPP will extend over a period of 20 years. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion.

In terms of employment the operational phase will employ approximately 3 new skilled, 40 low-skilled and 10 semi-skilled employment opportunities over a period of 20 years. During the operational phase workers with the necessary expertise will undertake the work in this regard. The

creation of employment opportunities will provide a social benefit to the local community.

Based on the information from other SPP projects the monthly wage for low-skilled workers will be in the range of R5000, semi-skilled workers R10 000 and skilled workers R30 000. This will have a positive impact on the local economy for a percentage of the wages will be spent on the local businesses. The hospitality and housing industry will especially benefit from the operation of the Boitshoko SPP, regarding the housing of workers and for a period of 20 years. The economic benefits in this regard will however only remain for the period of the operational phase.

Table 4.3.2. Assessment of potential positive impacts related to the creation of local employment, business opportunities and training.

Nature: The potential positive impacts or benefits regarding the creation of local employment and business opportunities and training during the operational phase of the Boitshoko SPP.		
	Without Mitigation	**With Enhancement**
Extent	Local (3)	Local (4)
Duration	Long duration (4)	Long duration (4)
Magnitude	Low (3)	Low (3)
Probability	Probable (3)	Highly Probable (4)
Significance	Medium (30)	Medium (40)
Status	Positive	Positive
Reversibility	N/A	-
Irreplaceable loss of resources?	N/A	
Can impact be enhanced?	Yes	-

Recommended enhancement measures:

The following enhancement measures can be implemented to effectively enhance the potential impacts regarding the creation of employment and business opportunities and training:

- The enhancement measures suggested in the construction phase should have been implemented.
- If possible a training and skills development programme for the local workers should be initiated prior to the operational phase.

- The establishment of a Community Development Trust should be explored in this regard.

Assessment of No-Go option:

The current status quo are maintained due to no impact, however the no-go option would signify that the positive impacts regarding employment and economic benefits would be lost.

Cumulative impacts:

The cumulative impacts associated with the creation of employment and business opportunities and training during the operational phase, are that there are permanent employment opportunities available for local communities. Additional business and economic opportunities will also benefit from the operational phase of the proposed Boitshoko SPP.

Residual impacts:

The residual impacts associated with the creation of employment and business opportunities and training during the operational phase is that it benefits the local economy.

4.3.2. Potential Positive Impact: The Establishment of Community Trust

A review of previous similar projects identified that the Department of Energy indicated in their request for proposals, that all bidders for operating licences for renewable energy projects, like the proposed Boitshoko SPP, must in their proposal indicate what the benefit would be to the local community with regards to the development of the proposed Boitshoko SPP. The establishment of a Community Trust will therefore assist in this regard and will be funded by the revenues generated from the proposed Boitshoko SPP.

Due to the fact that the operational phase is estimated to extend over a period of 20 years, the Community Trust can benefit from this in assisting long-term project initiatives for the benefit of the local community. These long-term project initiatives can include for example feeding schemes for schools, provision of affordable health services, training and skills development. In a review of previous projects it was however indicated that a Community Trust could be mismanaged.

Therefore, in order to benefit from the Community Trust, the issue of mismanagement need to be addressed before the establishment thereof.

Table 4.3.3. Assessment of potential positive impacts related to the establishment of a Community Trust.

Nature: The potential positive impacts or benefits regarding the establishment of a Community Trust.		
	Without Mitigation	**With Enhancement**
Extent	Local (2)	Local (3)
Duration	Long duration (4)	Long duration (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Highly Probable (4)
Significance	Medium (35)	Medium (45)
Status	Positive	Positive
Reversibility	N/A	-
Irreplaceable loss of resources?	N/A	-
Can impact be mitigated?	Yes	-

Recommended enhancement measures:

The following enhancement measures can be implemented to manage the funds of the Community Trust:

- Potential trustees to sit on the Community Trust need to be identified with the assistance of the local municipality.
- Strict financial management controls need to be in place in order to manage the funds generated for the Community Trust from the proposed Boitshoko SPP. Financial managements controls also include an annual audit.
- The criteria for identifying and the funding of community projects should be clear in order to optimally benefit the local community.

Assessment of No-Go option:

The current status quo are maintained due to no impact, however the no-go option would signify that the positive impacts regarding the social and economic developments would be lost.

Cumulative impacts:

The cumulative impacts associated with the establishment of a Community Trust include the overall well-being of the local community and promoting the socio-economic development of the local area.

Residual impacts:

No residual impacts identified for the proposed SPP.

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

Based on a review from previous projects and the basic information provided from Environamics, South Africa currently relies on coal-powered energy to meet more than 90% of its energy needs. The overall contributions of the proposed Boitshoko SPP to South Africa's total energy grid is relatively small, but it will assist in the offset of the total carbon emissions in terms of the energy generation sector in South Africa. In this regard the proposed Boitshoko SPP as and Independent Power Provider (IPP) in renewable energy will make a positive contribution to the energy sector.

Table 4.3.4. Assessment of potential positive impacts related to the development of infrastructure for the generation of renewable energy.

Nature: The potential positive impacts or benefits regarding the development of infrastructure for the generation of renewable energy.		
	Without Mitigation	**With Enhancement**
Extent	Local, Provincial and National (4)	Local, Provincial and National (4)
Duration	Long duration (4)	Long duration (4)
Magnitude	Low (4)	Low (4)
Probability	Highly Probable (4)	Highly Probable (4)

Significance	Medium (50)	Medium (50)
Status	Positive	Positive
Reversibility	Yes	-
Irreplaceable loss of resources?	Yes in terms of the impact of climate change on ecosystems.	-
Can impact be enhanced?	Yes.	-

Recommended enhancement measures:

The establishment of renewable energy facilities like the proposed Boitshoko SPP can be regarded as a mitigation measure itself. The following enhancement measures can be implemented with regards to the development of renewable energy facilities:

- Training and skills development programmes need to be implemented for the locals for the at least the first 5 years of the operational phase in order to maximise the amount of locals employed during this phase.
- The public's exposure to the proposed Boitshoko SPP needs to be maximised. This can be done through extensive communication and advertisement.
- Utilise the proposed Boitshoko SPP to promote and increase South Africa's contributions of renewable energy to the national energy supply grid.

Assessment of No-Go option:

The current status quo are maintained due to no impact, however the no-go option would signify that the positive impacts regarding the generation of renewable energy for South Africa would be lost.

Cumulative impacts:

The cumulative impacts associated with the development of infrastructure for the generation of renewable energy includes the benefits in terms of climate change and global warming and the carbon footprint of South Africa will thus be reduced.

Residual impacts:

No residual impacts identified for the proposed SPP.

4.3.4. Potential Negative Impact: Potential loss of productive farmland

A negative impact identified for the operational phase is the potential loss of productive farmland. The activities associated with the operational phase may have a potential impact in terms of the loss of available farmland for grazing as well as other agricultural activities. The current land uses of the identified area for the proposed Boitshoko SPP is used for the grazing of livestock (cattle). The livestock can however be relocated to other areas of the farm. The farm owner has entered into a lease agreement with Subsolar Energy (Pty) Ltd for the use of the land for the proposed Boitshoko SPP, and the income from Subsolar Energy (Pty) Ltd will cover the impact on the income of the farming activities due to the loss of grazing for livestock. The owner of the farm Lime Bank, on which the proposed Boitshoko SPP will be developed, also indicated in an interview with the specialist that the potential loss of productive farmland won't have a negative economic impact on the farm, due to the income that the farmer will receive for the hiring of the farmland. He also indicated that his cattle that are currently grazing on the site, will be moved to another camp, away from the site once the development starts. The impact on the productive farmland during the operational phase can also be mitigated by the careful placement of the SPP on the proposed site ensuring that the footprint size of the SPP is minimised and ensuring that the disturbed area of the SPP are fully rehabilitated for livestock grazing after the operational phase. The mitigation measures will be discussed below.

Table 4.3.5. Assessment of potential impacts related to the potential loss of productive farmland.

Nature: The potential loss in productive farmland during the operational phase, which might have an impact on the farming income.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Long duration (4)	Short duration (2)
Magnitude	Minor (6)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (20)
Status	Negative	Negative
Reversibility	Yes. The disturbed areas can be rehabilitated.	-

Irreplaceable loss of resources?	Yes. Loss of productive farmland.	Yes. Loss of productive farmland.
Can impact be mitigated?	Yes, to some extent.	Yes, to some extent.

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts on productive farmland for agricultural purposes:

- The proposed mitigation measures for the construction phase should have been implemented at this stage.
- Establish a rehabilitation fund. This fund can be utilised for the rehabilitation of the proposed Boitshoko SPP in the decommissioning phase.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the loss of productive farmland are the affect it has on the livelihoods of the farmers, their families and also the workers on the farmers and their families. As indicated above this impacted can be mitigated through rehabilitation.

Residual impacts:

The residual impacts for the potential loss of productive farmland are the overall loss of grazing for livestock if the productive farmland is not rehabilitated in the decommissioning phase.

4.3.5. Potential Negative Impact: Impact on tourism

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

Table 4.3.6. Assessment of potential impacts related to the impact on tourism.

Nature: The potential impact on tourism due to the establishment of the Boitshoko SPP.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (2)
Duration	Long duration (4)	Long duration (4)
Magnitude	Low (2)	Low (1)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (23)
Status	Positive and Negative - Potential to attract tourist and the potential to distract from the tourist experience.	Positive and Negative - Potential to attract tourist and the potential to distract from the tourist experience.
Reversibility	Yes.	-
Irreplaceable loss of resources?	N/A	N/A
Can impact be mitigated?	Yes.	Yes.

Recommended mitigation measures:

To effectively mitigate the impact on tourism during the operational phase of the proposed Boitshoko SPP, it is suggested that the recommendations made in the Visual Impact Assessment (specialist study) should be followed in this regard.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the impact on the tourism sector are not rated significant. Other SPP's have been constructed in municipal area and no impact on the tourism sector was identified.

Residual impacts:

There are no residual impacts identified.

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

The potential social impact associated with the establishment of an SPP will have a visual impact on the environment and its surroundings. In effect this will also impact the sense op place of the surrounding areas of the proposed Boitshoko SPP. The proposed Boitshoko SPP might slightly be visible from the R380, but the impact hereof on the sense of place is likely to be low. In addition the transmission lines to the substation is also linked to visual impact and the areas sense of place. However, the potential social impacts associated with the transmission lines will be low. The farmers interviewed for the purpose of this SIA have no objection regarding the potential visual impact of the proposed Boitshoko SPP and the impact on the sense of place, because the site of the SPP is situated out of the public eye, and in general will only economically benefit the community. There is already an established SPP in the area, also contributing to the economy of the local community.

Table 4.3.7. Assessment of potential visual impacts and impact on the sense of place.

Nature: The potential visual impacts and impacts on the sense of place due to the establishment of the proposed Boitshoko SPP.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (1)
Duration	Long duration (4)	Long duration (4)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Low (25)	Low (21)
Status	Negative	Negative
Reversibility	Yes. In case of the no development alternative or in the removal of the SPP.	-
Irreplaceable loss of resources?	N/A	N/A

Can impact be mitigated?	Yes.	Yes.

Recommended mitigation measures:

To effectively mitigate the visual impact and the impact on sense of place during the operational phase of the proposed Boitshoko SPP, it is suggested that the recommendations made in the Visual Impact Assessment (specialist study) should be followed in this regard.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

The cumulative impacts associated with the visual impact and sense of place is the potential impact on the current sense of place of the associated area.

Residual impacts:

No residual impacts identified.

4.4. SOCIAL IMPACTS RELATED TO THE DECOMMISSIONING PHASE

This section of the SIA will give a detailed discussion on the social impacts that are related to the decommissioning phase of the proposed Boitshoko SPP. The key potential positive and negative impacts, which are associated with the decommissioning phase of the Boitshoko SPP are given in the Table 4.4.1 below. After the Table 4.4.1 a detailed discussion of each of the identified impacts will be discussed. Only one negative impact is identified associated with the decommissioning phase.

Table 4.4.1. Identification of key potential negative impact associated with the decommissioning phase of the Boitshoko SPP.

Potential Negative Impacts
- Loss of employment and potential income.

4.4.1. Potential Negative Impact: Loss of local employment and income

Due to the large number of people that might be employed during the construction and operational phase of the establishment of the proposed Boitshoko SPP, the decommissioning thereof might have a negative social impact on the local community. The likely negative impact associated with the decommissioning phase is the loss of employment and income, which has a direct impact on the households of the employee's and the communities in which they live. The impacts identified that are associated with the decommissioning phase can however be managed with the implementation of downscaling programmes and retrenchment packages.

Table 4.4.2. Assessment of potential negative impacts related to the loss of employment and income.

Nature: The potential negative impact related to the loss of employment and income during the decommissioning phase of the proposed Boitshoko SPP.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (2)
Duration	Medium duration (2)	Short duration (1)
Magnitude	High (8)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Medium (40)	Medium (35)
Status	Negative	Negative
Reversibility	Yes, to some extent	Yes, to some extent
Irreplaceable loss of resources?	N/A	
Can impact be mitigated?	Yes, to some extent	

Recommended mitigation measures:

The following mitigation measures can be implemented to effectively mitigate the potential impacts regarding the loss of employment and income:

- During the decommissioning phase, retrenchment packages should be made available to all staff being retrenched.
- An Environmental Rehabilitation Trust fund should be established to cover all costs during the decommissioning phase.
- During the decommissioning phase all related infrastructures associated with the proposed Boitshoko SPP should be dismantled and transported off-site. Funds should also be allocated to the rehabilitation of the site and the closure of the proposed Boitshoko SPP.

Assessment of No-Go option:

The current status quo are maintained due to no impact.

Cumulative impacts:

There are no cumulative impacts.

Residual impacts:

No residual impacts.

4.5. "NO-DEVELOPMENT" ALTERNATIVE

This section of the SIA will give a detailed discussion on the social impacts that are related to the no-development alternative of the proposed Boitshoko SPP. The key potential positive and negative impacts, which are associated with the no-development alternative of the Boitshoko SPP are given in the Table 4.5.1 below. After the Table 4.5.1 a detailed discussion of each of the identified impacts will be discussed. Only one negative impact is identified associated with the no-development alternative.

4.5.1. The "no-development" alternative

The no-development alternative poses a lost opportunity for South Africa to supply renewable energy to its consumers. This in effect represents a negative social cost. It should however be noted that the development of the proposed Boitshoko SPP is not a unique development. A significant number of other renewable energy facilities are also proposed in the Northern Cape and already established renewable energy facilities are already operational in certain parts of South Africa. Thus, by following the no-development alternative would not compromise the renewable energy development across the Northern Cape province and in South Africa, but the socio-economic benefits to local municipalities and the communities will be lost.

Table 4.5.1. Assessment of the no-development alternative.

Nature: The no-development alternative would result in the lost opportunity for South Africa to supply renewable energy.		
	Without Mitigation	**With Enhancement**
Extent	Local (4)	Local (4)
Duration	Long duration (4)	Long duration (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Medium (55)	Medium (55)
Status	Negative	Positive
Reversibility	Yes	-
Irreplaceable loss of resources?	Yes in the case of climate change and its impact on ecosystems	-
Can impact be enhanced?	Yes	-

Recommended enhancement measures:

The establishment of the proposed Boitshoko SPP should be developed. However, the enhancement and mitigation measures proposed in this SIA for the Boitshoko SPP as well as in other specialist studies for this proposed project should be implemented.

Regarding the impact on the sense of place and the surrounding land issues of the proposed Boitshoko SPP, the impacts thereof need to be addressed in the final decision of the location, design and layout of the proposed Boitshoko SPP.

Cumulative impacts:

The use of renewable energy will increase. By reducing the use of coal, carbon emissions will reduce and effectively benefit climate change and global warming.

Residual impacts:

No residual impacts, see cumulative impacts.

SECTION 5 – KEY FINDINGS AND RECOMMENDATIONS

5.1. INTRODUCTION

The key findings and recommendations are given in the last section (5) of this SIA report. The key findings and recommendations are based on the review of the basic information identified during the scoping process of the EIA as well as a review of the policy and planning documents which relates to this proposed development project. A review of selected specialist studies, and similar projects and literature were conducted and semi-structured interviews were held with interested and affected parties (IAPs). Based on the findings of these tasks that were conducted during this study, this section will be formulated.

5.2. SUMMARY OF KEY FINDINGS

The key findings of this SIA study for the proposed development project will be summarized in this section. They key findings of each phase of the proposed Boitshoko SPP will be summarised as well as the policy and planning summary pertaining to this proposed development.

5.2.1. Fit with policy and planning

The legislative and policy context plays an important role in identifying and assessing the potential social impacts associated with the proposed development project. For this reason the proposed development project will be assessed in terms of its fit with the key policy and planning documents. The review of the following documents on National, Provincial, District and Local level was conducted for the purpose of this SIA:

- The National Energy Act no 34 of 2008;
- White Paper on the Energy Policy of the Republic of South Africa of 1998;
- White Paper on Renewable Energy of 2003;
- Integrated Resource Planning for Electricity for South Africa of 2010-2030;

- National Development Plan of 2030;
- National Infrastructure Plan of South Africa;
- New Growth Path Framework;
- Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012;
- John Taolo Gaetsewe District Municipality Integrated Development Plan for 2012 – 2016; and
- Gamagara Local Municipality Draft Integrated Development Plan for 2015 – 2017.

The main findings of the review of the policy documents on all levels of Government indicated that strong support was given towards renewable energy, specifically solar energy. The White Paper on the Energy Policy of the Republic of South Africa of 1998 stated that due to the fact that renewable energy resources operates from an unlimited resource base, for example the sun, renewable energy can increasingly contribute towards a long-term sustainable energy for future generations. This policy further highlights that due to the unlimited resources base of renewable energy in South Africa, renewable energy applications like solar and wind energy is more sustainable in terms of social and environmental costs. The Integrated Resource Planning for Electricity for South Africa of 2010-2030, the National Infrastructure Plan of South Africa and the New Growth Path Framework all support the development of the renewable energy sector. In particular, the IRP also indicated that 43% of the energy generations in South Africa is allocated to renewable energy applications. On District and Local level not much attention is given particularly to renewable sources like solar energy, however the documents reviewed do make provision for energy efficiency in improving the quality of lives in terms of efficient physical infrastructure.

At Provincial, District and Local level the policy documents support the applications of renewables. The Northern Cape Provincial Development and Resource Management Plan/ Provincial Spatial Development Framework (PSDF) of 2012 indicated that the development of renewable energy applications such as solar, could be some the means in which the Northern Cape can benefit from economically.

The review of the relevant policies and documents related to the energy sector thus indicate that renewables like solar energy and the establishment of these facilities are supported on a National,

Provincial, District and Local level. The author of this SIA is thus of opinion that the establishment of the Boitshoko SPP is supported by the policies and planning documents reviewed in Section 3, on all levels of Government.

The significance rating of the impacts refers to whether the impact has any influence in the decision making of an intervention. A low significance rating refers to where the identified impact didn't have a direct influence on the decision making of the intervention. A medium significance rating refers to where the impact might influence the decision making of the intervention, unless it is effectively mitigated. Lastly, a high significance rating refers to where the impact must have an influence on the decision making of the proposed intervention. In this regard the identified impacts with their significance ratings and positive or negative status, without and with mitigation are illustrated in Table 5.1 – 5.3 below. The social impacts of the construction phase, operational phase and the decommissioning phase will be summarized separately. For more information regarding the farmers' comments, obtained during interviews for the purpose of this SIA, on certain social impacts in the different phases of the proposed Boitshoko SPP, see Section 4 in this SIA.

5.2.2. Social Impacts related to the construction phase

The key social impacts identified in Section 4 of this report for the construction phase are:

- Potential Positive Impact: The creation of local employment and business opportunities, skills development and training;
- Potential Positive Impact: Technical support to local farmers and municipalities;
- Potential Negative Impact: Potential loss of productive farmland;
- Potential Negative Impact: In-migration or potential influx of job seekers;
- Potential Negative Impact: The presence of construction workers on the local communities;
- Potential Negative Impact: Potential risks to livestock and farming infrastructure, which are associated with the construction phase and the presence of the workers on the site of the Boitshoko SPP;
- Potential Negative Impact: The potential impacts of heavy vehicles and construction related activities; and

- Potential Negative Impact: The increased risk of potential veld fires associated with the construction phase.

Table 5.1. Significance ratings of the potential positive and negative impacts identified during the construction phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: The creation of local employment and business opportunities, skills development and training.	Medium (+)	Medium (+)
Potential Positive Impact: Technical support to local farmers and municipalities.	Low (-)	Medium (+)
Potential Negative Impact: Potential loss of productive farmland.	Medium (-)	Low (-)
Potential Negative Impact: In-migration or potential influx of job seekers.	Low (-)	Low (-)
Potential Negative Impact: The presence of construction workers on the local communities.	Low (-)	Low (-)
Potential Negative Impact: Potential risks to livestock and farming infrastructure, which are associated with the construction phase and the presence of the workers on the site of the Boitshoko SPP.	Low (-)	Low (-)
Potential Negative Impact: The potential impacts of heavy vehicles and construction related activities.	Low (-)	Low (-)
Potential Negative Impact: The increased risk of potential veld fires associated with the construction phase.	Medium (-)	Low (-)

In terms of the two positive impacts identified, the proposed Boitshoko SPP will employ the approximately 60 new skilled, 220 low-skilled and 120 semi-skilled employment opportunities over a period of 18 – 24 months during the construction phase. During the construction phase construction companies with the necessary expertise will undertake the associated work. The creation of employment opportunities will provide a social benefit to the local community. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion. The wages that the workers will receive will also have a positive impact on the local economy, because a percentage of their wages will be spent on the local businesses as well

as on the hospitality industry. The economic benefits in this regard will however only remain for the period of the construction phase, however the local economic development of the local and district municipalities will be benefitted. The construction phase also provide the staff involved during construction the opportunity to provide technical support and advice to the local farmers as well as the local municipality in terms of the installation of solar energy technologies. This could be done in the form of having private consultations, workshops or site visits to already established SPPs. All affected areas, which are disturbed during the construction phase, need to be rehabilitated prior to the operational phase and should be continuously monitored by the Environmental Control Officer (ECO). Social monitoring should be applied quarterly by an ECO that has knowledge over social issues. This can be in the form of social monitoring plans, regular public participation meetings etc.

As indicated in Table 5.1 above the significance of the negative impacts identified for the proposed Boitshoko SPP during the construction phase are of a low significance. However, all the negative impacts identified above can be effectively mitigated if the recommended mitigation measures proposed in Section 4 of this SIA are implemented.

5.2.3. Social Impacts related to the operational phase

The key social impacts identified in Section 4 of this report for the operational phase are:

- Potential Positive Impact: The creation of local employment and business opportunities, skills development and training;
- Potential Positive Impact: The establishment of a Community Trust;
- Potential Positive Impact: The development of infrastructure for the generation of renewable energy;
- Potential Negative Impact: The potential loss of productive farmland;
- Potential Negative Impact: The visual impact and impacts on sense of place; and
- Potential Negative Impact: The impact on tourism.

Table 5.2. Significance ratings of the potential positive and negative impacts identified during the operational phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Positive Impact: The creation of local employment and business opportunities, skills development and training.	Medium (+)	Medium (+)
Potential Positive Impact: The establishment of a Community Trust.	Medium (+)	Medium (+)
Potential Positive Impact: The development of infrastructure for renewable energy.	Medium (+)	Medium (+)
Potential Negative Impact: The potential loss of productive farmland.	Low (-)	Low (-)
Potential Negative Impact: The visual impact and impact on sense of place.	Low (+/-)	Low (+/-)
Potential Negative Impact: The impact on tourism.	Low (-)	Low (-)

The operational phase will employ approximately 3 new skilled, 40 low-skilled and 10 semi-skilled employment opportunities over a period of 20 years. During the operational phase workers with the necessary expertise will undertake the work in this regard and the creation of employment opportunities will provide a social benefit to the local community. The anticipated capital expenditure value of the proposed project on completion will be approximately R1.1 – 1.9 Billion. The wages that the workers will receive will also have a positive impact on the local economy, because a percentage of their wages will be spent on the local businesses as well as on the hospitality industry. The economic benefits in this regard will however only remain for the period of the operational phase, however the local economic development of the local and district municipalities will be benefitted.

Additionally the establishment of Community Trust during the operational phase of the proposed Boitshoko SPP, will also benefit the local community in the long-term, however, the fund need to be managed effectively. The proposed Boitshoko SPP also represents an investment in infrastructure for the generation of renewable energy. In this regard the proposed Boitshoko SPP as and Independent Power Provider (IPP) in renewable energy will make a positive contribution to the energy sector and a positive social benefit for the local community. Again, continuous monitoring

by an Environmental Control Officer (ECO) is required especially with regards to the management of a Community Trust. Social monitoring plans should be included in this regard.

The potential social impact associated with the establishment of an SPP will have a visual impact on the environment and its surroundings. In effect this will also impact the sense op place of the surrounding areas of the proposed Boitshoko SPP. The proposed Boitshoko SPP might slightly be visible from the R380, but the impact hereof on the sense of place is likely to be low. In addition the transmission lines to the substation is also linked to visual impact and the areas sense of place. However, the potential significance of the social impacts associated with the transmission lines will also be low.

As indicated in Table 5.2 above the significance of the negative impacts identified for the proposed Boitshoko SPP during the operational phase are of a low significance. However, all the negative impacts identified above can be effectively mitigated if the recommended mitigation measures are implemented.

5.2.4. Social Impacts related to the decommissioning phase

The key social impacts identified in Section 4 of this report for the decommissioning phase are:

- Potential Negative Impact: The loss of employment and income.

Table 5.3. Significance ratings of the potential positive and negative impacts identified during the decommissioning phase of the proposed Boitshoko SPP.

Potential +/- Impact	Significance rating without mitigation	Significance rating with mitigation
Potential Negative Impact: The loss of employment and income.	Medium (-)	Medium (-)

As indicated in the discussion of the potential positive impacts during the construction and operational phase a large number of people might be employed. Therefore, the decommissioning thereof might have a negative social impact on the local community. The likely negative impact

associated with the decommissioning phase is the loss of employment and income, which has a direct impact on the households of the employee's and the communities in which they live. The significance rating of this impact is medium. The impacts identified that are associated with the decommissioning phase can however be managed with the implementation of downscaling programmes, retrenchment packages and an Environmental Rehabilitation Fund.

In contrast this proposed development also represents an investment for South Africa in renewable energy. This will thus represent a positive social and economic benefit, given the challenges posed by climate change. Thus, the establishment of the proposed Boitshoko SPP is supported by the findings of this SIA.

5.2.5. The "No-development" alternative

The no-development alternative poses a lost opportunity for South Africa to supply renewable energy to its consumers. This in effect represents a negative social cost. It should however be noted that the development of the proposed Boitshoko SPP is not a unique development. A significant number of other renewable energy facilities are also proposed in the Northern Cape and already established renewable energy facilities are already operational in certain parts of South Africa. Thus, by following the no-development alternative would not compromise the renewable energy development across the Northern Cape province and in South Africa, but the socio-economic benefits to local municipalities and the communities will be lost. The establishment of the proposed Boitshoko SPP should be developed. However, the enhancement and mitigation measures proposed in Section 4 in this SIA as well as in other specialist studies for this proposed project should be implemented. Regarding the impact on the sense of place and the surrounding land issues of the proposed Boitshoko SPP, the impacts thereof need to be addressed in the final decision of the location, design and layout of the proposed Boitshoko SPP.

5.3. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the findings of this Social Impact Assessment (SIA) conducted for the proposed Boitshoko SPP indicates, that during the construction and the operational phase of the proposed project, various employment opportunities, with different levels of skills will be created. In addition this will also create local business opportunities benefitting the socio-economic development of the local community. The local community will however benefit from the establishment of a Community Trust if it is managed effectively.

The challenges posed by climate change and global warming will be addressed by the investment in renewable energy facilities like the proposed Boitshoko SPP. The establishment of the proposed Boitshoko SPP is supported by the findings of this report and therefore, also creating a positive social benefit for society. It is however recommended that the environmental authorities consider the potential visual impacts addressed in the Visual Impact Assessment (VIA) of this proposed project and impacts to the sense of place, regarding this proposed project.

5.4. IMPACT STATEMENT

The findings of this Social Impact Assessment (SIA) conducted for the proposed Boitshoko SPP indicates that during the construction and the operational phase of the proposed project, various employment opportunities, with different levels of skills will be created. In addition this will also create local business opportunities benefitting the socio-economic development of the local community. The local community will however benefit from the establishment of a Community Trust if it is managed effectively.

It is therefore recommended that the proposed Boitshoko SPP be supported as it was proposed. However, this recommendation is made subject to the implementation of the suggested mitigation measures contained in Section 4 of this SIA, as well as the recommendations and mitigation measures made in other specialist studies for the proposed Boitshoko SPP.

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ANNEXURE A

Interviews were held with the following list of interested and affected parties (IAPs) of the proposed Boitshoko SPP. In some cases a questionnaire was also sent to the interviewee's in the form of an email.

Interviewee	Date of interview
Hendrik van der Merwe (Lime Bank (owner))	2016-03-14
Derek Conlon (Sonplaas 1- Neigbouring farmer)	2016-03-15
Johan Hatting (Sonplaas 2- Neighbouring farmer)	2016-03-15