

## **Bonsmara Solar PV (RF) (Pty) Ltd Scoping - Social Impact Assessment**

**DEA Reference:** *(or applicable)*  
**Report Prepared by:** Nondumiso Bulunga  
**Issue Date:** 23 September 2022  
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# **Bonsmara Solar PV (RF) (Pty) Ltd**

## **Scoping - Social Impact Assessment**

### **Executive summary**

Synergy Global Consulting (Pty) Ltd was appointed by SiVEST (Pty) Ltd to conduct an assessment of social impacts associated with the Bonsmara Solar PV Energy Facility (SEF). Bonsmara Solar PV (RF) (Pty) Ltd is proposing the construction of the 100MW Bonsmara SEF and related grid connection infrastructure, including the Battery Energy Storage Systems (BESS) near the town of Kroonstad in the Free State Province of South Africa. The proposed SEF will connect to the grid through a 2km 132kv powerline from the on-site substation to the Kroonstad switching station.

The assessment of impacts in this scoping phase entails an analysis of the legal and policy frameworks at national, provincial, and local levels, with which this project is compatible. The report also provides a preliminary assessment of social issues associated with the construction, operational and decommissioning phases of the project.

The findings of the legal and policy review indicate that renewable energy aligns with the development agenda at national, provincial, and local levels.

The findings of the social impact scoping assessment show that the development of the Bonsmara SEF will create skilled and unskilled jobs during the construction and operational phases. While skilled employment will be open to experts across the country, unskilled labour may be mostly reserved for the locals. There will also be business opportunities associated with the project that local businesses may benefit from. Skills transfer may also be one of the positive impacts of the project on local people.

During the decommissioning phase, negative impacts will include the loss of jobs, business opportunities and other developments associated with the project. Plans to mitigate these negative impacts will be required, such as effectively managed downscaling plans and retrenchment packages. Negative social impacts associated with the construction and operational phases include potential cultural disruptions, increase in HIV infections and unwanted pregnancies, project-induced migration, increased pressure on public services, increase in road and traffic hazards, increased noise levels, increased crime and social unrest. Social management plans must be put in place to prevent and/or counter potential negative social impacts. These plans must be developed and implemented in collaboration with surrounding communities. This report is compiled in-line with the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended) and the EIA Regulations, 2014 (as amended).

**NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6)**

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 1
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Specialist Declaration of Interest
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 2
(cA) an indication of the quality and age of base data used for the specialist report;	Section 4
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 5
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 2
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 2
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative;	Section 4 Section 5
g) an identification of any areas to be avoided, including buffers;	N/A
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	N/A
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;	Section 5
k) any mitigation measures for inclusion in the EMPr;	Appendix A

l) any conditions for inclusion in the environmental authorisation;	Section 6
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Appendix A
n) a reasoned opinion- <ul style="list-style-type: none"> <li>i. (as to) whether the proposed activity, activities or portions thereof should be authorised; <ul style="list-style-type: none"> <li>(iA) regarding the acceptability of the proposed activity or activities; and</li> </ul> </li> <li>ii. if the opinion is that the proposed activity, activities, or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;</li> </ul>	Section 6
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 2
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
q) any other information requested by the competent authority.	N/A
2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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

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

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

#### PROJECT TITLE

Bonsmara Solar PV Facility, Free State Province

#### Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
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Environment House  
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Arcadia

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

## 1. SPECIALIST INFORMATION

Specialist Company Name:	Synergy Global Consulting			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	100%	Percentage Procurement recognition	
Specialist name:	Teboho Mosuo-Tsietsi and Thandiwe Chidzungu			
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## 2. DECLARATION BY THE SPECIALIST

I, Teboho Tsietsi & Thandiwe Chidzungu, declare that –

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

---

Signature of the Specialist

Synergy Global Consulting

---

Name of Company:

---

Date:

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

---

Signature of the Specialist

---

Name of Company

---

Date

---

Signature of the Commissioner of Oaths

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Date

# Bonsmara Solar PV (RF) (Pty) Ltd

## Scoping - Social Impact Assessment

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### **List of Abbreviations**

B-BBEE	Broad-Based Black Economic Empowerment
BESS	Battery Energy Storage Systems
DETEA	Department of Economic Development, Tourism and Environmental Affairs
DFFE	Department of Forestry Fisheries and the Environment
DM	District Municipality
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMPr	Environmental Management Programme
GNR	Government Notice
IDP	Integrated Development Plan
IEP	Integrated Energy Plan
IRP	Integrated Resource Plan
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality
NEMA	National Environmental Management Act (No. 107 of 1998)
NDP	National Development Plan
NSDP	National Spatial Development Perspective
NFEPA	National Freshwater Ecosystem Priority Area
PGDS	Provincial Growth and Development Strategy
PICC	Presidential Infrastructure Coordinating Committee
PSDF	Provincial Spatial Development Framework
SDF	Spatial Development Framework
SEF	Solar Energy Facility
SIA	Social Impact Assessment
SIP	Strategic Infrastructure Project
STATSSA	Statistics South Africa

# Bonsmara Solar PV (RF) (Pty) Ltd

## Scoping - Social Impact Assessment

# Bonsmara Solar PV (RF) (Pty) Ltd

## Scoping - Social Impact Assessment

### 1 INTRODUCTION

Bonsmara Solar PV (RF) (Pty) Ltd is proposing the construction of the 100MW Bonsmara Solar PV Energy Facility (SEF), Battery Energy Storage Systems (BESS) and associated grid connection infrastructure. This facility is planned to be located on a site approximately 12km south-east of the town of Kroonstad, in the Moqhaka Local Municipality (LM), in the Free State Province (Figure 1.1). Synergy Global Consulting (Synergy) was appointed to support SiVEST (Pty) Ltd to assess social impacts associated with the development of the Bonsmara SEF and related infrastructure. The proposed SEF will connect to the grid through a 2km 132kv powerline from the on-site substation to the Kroonstad Switching Station.

Figure 1.1: Regional context



Source: <https://municipalities.co.za/provinces/view/2/free-state>

## 1.1 Scope and Objectives

This report is the output of the initial scoping phase of the Social Impact Assessment (SIA) for the Bonsmara SEF, undertaken in support of the Environmental Impact Assessment (EIA) conducted by SiVEST. The report is premised on the following objectives:

- To prepare and finalise the SIA for Bonsmara SEF and associated grid connection.

## 1.2 Terms of Reference

The proposed Bonsmara SEF near the town of Kroonstad is subject to full EIA processes in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended) and the EIA Regulations, 2014 (as amended). The full SIA, to be compiled after the initial scoping phase, will be undertaken in support of the EIA.

## 1.3 Specialist Credentials

This report was written by Teboho Mosuoe-Tsietsi and Thandiwe Chidzungu of Synergy Global Consulting.

- Teboho is an impact and sustainability consultant with a diverse background in the areas of social impact assessment, social research, social development and academia, working in Lesotho and South Africa. Through her understanding of the complexities underpinning social risks and impacts in industrial and business development, her proficiency in stakeholder engagement, and critical research skills, she works with various industry partners to help them manage risks and impacts on stakeholders.
- Thandiwe Chidzungu is a social impact practitioner and has been doing research in mining communities in Mpumalanga, South Africa for the past four years. She is currently working as a research consultant within the coal mining space focused on South Africa's Just Energy Transition and the socio-economic impacts thereof on workers and communities. Her core professional skills include socio-economic analysis, academic research, presentations and community engagement.

## 1.4 Assessment Methodology

### 1.4.1 Purpose of the study

The purpose of this scoping process is to outline potential social impacts and the areas in which the full SIA is required for the Bonsmara SEF. SIA is defined as the process of analysing, monitoring, and managing the intended and unintended social consequences of development interventions, such as policies, programmes, plans, and projects, and the resultant social change over time (Vanclay, 2003). It includes changes to one or more of the following areas (ibid.):

- People's way of life: how they live, work, play and interact with one another on a day-to-day basis.
- Culture: shared beliefs, customs, values and language or dialect.
- Community: its cohesion, stability, character, services, and facilities.
- Political systems: the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.

- The environment: the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust, and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- Health and wellbeing: a state of complete physical, mental, social, and spiritual wellbeing in addition to the absence of disease or infirmity.
- Personal and property rights: civil liberties, including the ability to participate in the economy, social and political spaces, access to resources, and ability to acquire and/accumulate assets

This SIA scoping process focuses on the following:

- Provides baseline information describing the social environment within which the project is proposed, and which may be impacted (both positively and negatively) by the proposed development.
- Identifies and describes possible social risks / fatal flaws and social impacts that may arise as a result of the proposed development (in terms of the detailed design and construction, operation, and decommissioning phases of the project).

#### **1.4.2 Approach to the study**

This scoping report outlines the current socio-economic setting within which the Bonsmara SEF is proposed, and how that can be affected by the construction, operation and decommissioning of the facility. Through the review of secondary data, it identifies potential areas of positive and negative impacts that may arise across the phases of the development of the facility, from construction to decommissioning. The report highlights areas in which a detailed SIA and other specialists' studies are required. All the studies, including the SIA and the EIA, will contribute to the development of the environmental and social management plan (ESMP), which will outline measures to mitigate and manage potential and actual consequences.

The scoping process comprised the following:

- Review of existing information, including national, provincial, district, and local plans, policies, programmes, census data, and available literature from previous studies conducted within the area and similar settings. Project specific information was obtained from the project proponent.
- Desktop identification of potential direct, indirect, and cumulative impacts likely to be associated with the construction, operation, and decommissioning of the proposed project.
- Preparation of the social scoping report for inclusion in the overall scoping report for the Bonsmara SEF, which will inform more detailed specialist studies in the next stage of the environmental and social impact assessment (ESIA).
- No stakeholder engagement has been undertaken at this stage. The full SIA process will include the engagement of stakeholders.

#### **1.4.3 Review of existing information**

Existing desktop information relevant to the proposed project and context was reviewed, and included the following:

- Project maps

- Google Earth imagery
- A description of the project as provided by the project proponent
- Census Data (2011)
- Local Government Handbook (2020)
- Planning documentation such as Provincial Growth and Development Strategies (PGDSs), Climate Change Response Strategy, local and district municipality Integrated Development Plans (IDPs), spatial development frameworks (SDFs), and development goals and objectives
- Relevant legislation, guidelines, policies, plans, and frameworks
- Available literature pertaining to social issues associated with the development and operation of solar energy facilities and associated infrastructure.

## **2 ASSUMPTIONS AND LIMITATIONS**

- All data that informed this report was collected from secondary sources. Data collection from primary sources will form part of the full SIA.
- Some of the data used to provide the baseline profile of the study area was derived from dated sources, such as the 2011 Census; Free State Provincial Growth and Development Strategy (2007); Free State Climate Change Response Strategy (2017); Moqhaka Local Municipality Integrated Development Plan (2017-2022). Changes in the demographic, socio-economic, and socio-political changes, amongst other areas, are likely not sufficiently reflected in the report.
- This social scoping report only provides an overview, and not full details, of the current social context, and assists in the identification of potential social impacts.
- No stakeholder mapping has been undertaken to determine relevant stakeholders for engagement during the SIA phase, and no consultation has been conducted with key stakeholders as part of the scoping process to date.
- This report was prepared based on the information available to the specialist at the time of preparation. The sources reviewed are not exhaustive, and additional information might influence changes in some aspects of the report.
- It is assumed that the motivation for, and planning and feasibility study of the project, was undertaken with integrity; and that information provided by the project proponent is accurate and true at the time of preparing this report.

## **3 TECHNICAL DESCRIPTION**

### **3.1 Project Location**

The planned 100MW Bonsmara SEF and associated infrastructure will be constructed approximately 12km south-east of Kroonstad in the Free State Province. The facility will be located on Portion 0 of Farm 636 and Portion 1 of Farm 636 located in the Moqhaka LM, in the Fezile Dabi District Municipality (DM). The facility will comprise several arrays of PV panels and associated infrastructure that includes BESS, and will have a contracted capacity of 100MW.

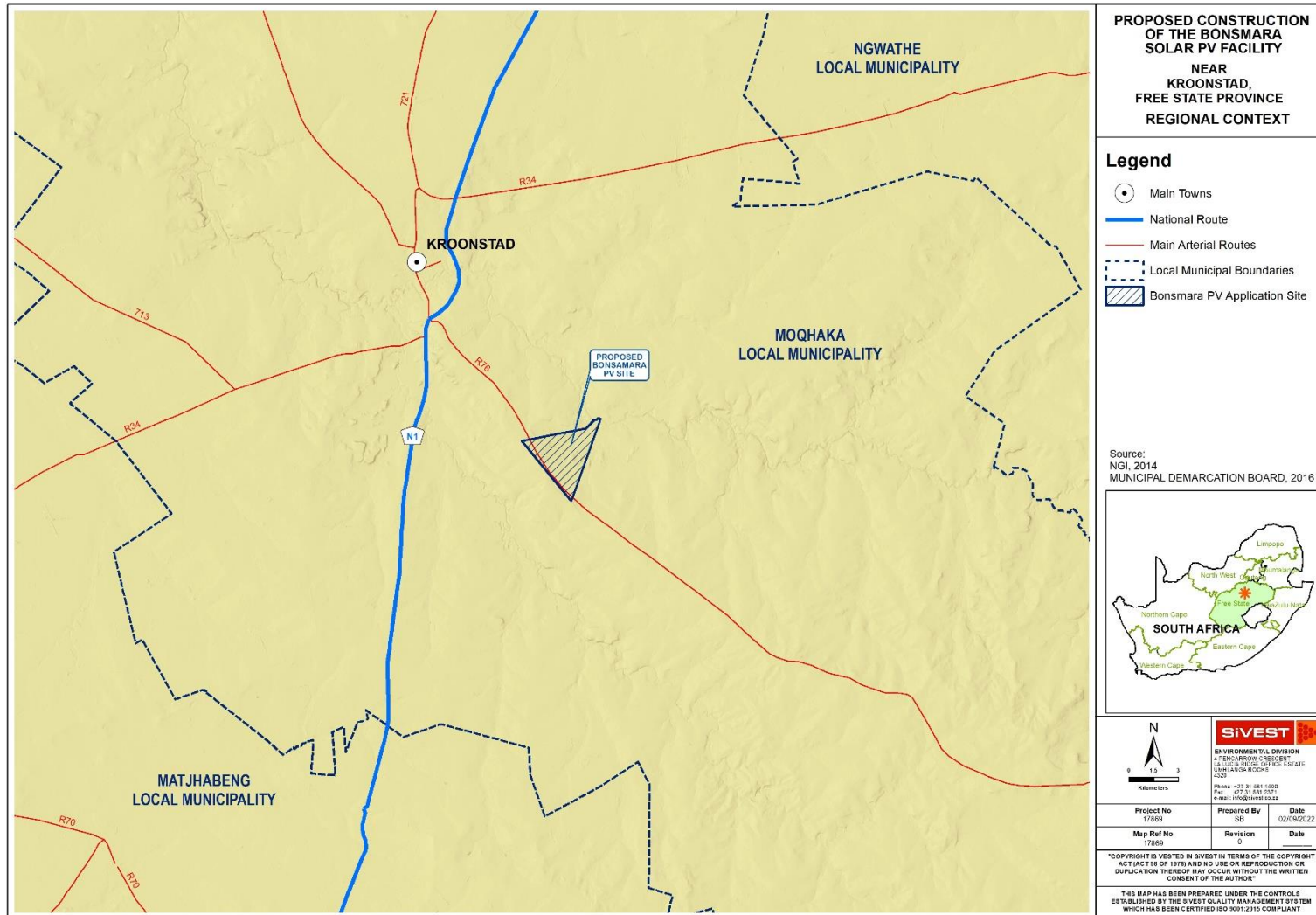
The Solar PV facility will connect to the grid via a 2km 132kv powerline from the on-site substation to the Kroonstad switching station. The project is located over the farm portions detailed in Table 3.1 and 3.2 below.

**Table 3.1: Bonsmara Solar PV Facility Farm Details**

<b>Farm name</b>	<b>SG Code</b>
Farm Scheveningen No. 636 Portion 0	F02000000000063600000
Farm Scheveningen No. 636 Portion 1	F02000000000063600001

**Table 3.2 Grid Farm Details**

<b>Farm name</b>	<b>SG Code</b>
Farm Oslaagte No. 2564 Portion 0	F02000000000256400000





## 3.2 Project Description

### Solar Farm Components

Preliminary technical details of the respective solar farm are included below.

- PV modules and mounting structures (monofacial or bifacial) with fixed, single, or double axis tracking mounting structures;
- Associated stormwater management infrastructure;
- Battery Energy Storage System (BESS);
- Site and internal access roads (up to 6 m wide);
- Auxiliary buildings (offices, parking, etc.);
- Ablution facilities and associated infrastructure;
- Temporary laydown area during the construction phase for the construction camp and laydown area (which will be a permanent laydown area for the BESS during the operational phase);
- Infrastructure including offices, operational control centre, operation and maintenance area, ablution facilities etc.;
- On-site 33 kV/132kV on-site substation (facility substation);
- Grid connection infrastructure including medium-voltage cabling between the project components and the facility substation (underground cabling will be used where practical (up to 33kV);
- Perimeter fencing; and
- Rainwater and/or groundwater storage tanks and associated water transfer infrastructure.

### 3.2.1 Layout Alternatives

#### Location Alternatives

No other location alternatives are being considered. Many areas in South Africa are constrained from exporting capacity as per the Generation Connection Capacity Assessment of the 2024 Transmission Network (GCCA - 2024). The site is located approximately 2km from a grid connection point that has been confirmed to have sufficient capacity to evacuate the generation. The land has been confirmed as available in the form of private landowners who have made the development possible on the site. Agriculture is the largest constraint in this region; however, a prefeasibility study was conducted by the agricultural specialist, and the site has been identified in terms of agricultural sensitivity.

#### Technology Alternatives

No technology alternatives are being considered. CSP technology would not be suitable for this site because it requires a flat surface, has a high visual impact, and requires large volumes of water. In addition, CSP has not been catered for in the Integrated Resource Plan of 2019 (IRP 2019). The climatic conditions show that the wind resource in the area is not suitable for a wind energy facility.

#### SEF Layout Alternatives

Design and layout alternatives will be considered and assessed as part of the EIA, taking into consideration the environmental constraints identified by the various specialists, and the amended layout where necessary. In terms of the BESS, laydown areas and substations etc., these are all optimally located in the south-east corner of the site,

closest to the grid connection point and access roads. The powerline takes the shortest route to the grid connection point and a portion of it follows an existing 132kV powerline.

## 4 LEGAL REQUIREMENTS AND GUIDELINES

The legislative and policy context applicable to a project plays an important role in identifying and assessing the potential social impacts associated with the development. In this regard, a key component of the SIA process is to assess a proposed development in terms of its alignment to key planning and policy documents.

The following key documents were reviewed as part of this process:

### **National Policy and Planning Context:**

- Constitution of the Republic of South Africa, 1996
- National Environmental Management Act (No. 107 of 1998) (NEMA)
- White Paper on the Energy Policy of the Republic of South Africa (1998)
- National Energy Act (No. 34 of 2008)
- Integrated Energy Plan (IEP) (2015)
- National Development Plan (NDP) 2030 (2012)
- Strategic Infrastructures (SIPs).

### **Provincial Policy and Planning Context:**

- Free State Provincial Growth and Development Strategy (FSGDS) (2005 – 2014)
- Free State Provincial Growth and Development Strategy (FSGDS), Revised October 2007
- Free State Provincial Spatial Development Framework (PSDF) - Executive Summary (Inception Report)
- Free State Climate Change Response Strategy (2017)
- Free State Green Economy Strategy (2014)
- Free State Investment Prospectus (2019).

### **Local Policy and Planning Context:**

- Integrated Development Plan (IDP) of the Fezile Dabi District Municipality 2016-2017
- Integrated Development Plan (IDP) of the Moqhaka Local Municipality 2021/2022.

### 4.1 National Policy and Planning Context

Any project which contributes positively towards the objectives mentioned within national policies could be considered strategically important for the country. A brief review of the most relevant national legislation and policies is provided in Table 4.1 below.

**Table 4.1: Relevant National Legislation and Policies for the Bonsmara Solar PV Facility**

Relevant legislation or policy	Relevance to the proposed project
Constitution of the Republic of South Africa, 1996	<p>Section 24 of the Constitution pertains specifically to the environment. It states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p> <p>The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for vulnerable communities who are most at risk of environmental impacts.</p>
National Environmental Management Act (No. 107 of 1998) (NEMA)	<p>This legislation is South Africa's key piece of environmental legislation, and sets the framework for environmental management in the country. Aligned with the constitution, NEMA is founded on the principle that everyone has the right to an environment that is not harmful to their health or well-being.</p> <p>The national environmental management principles state that the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be made in light of such consideration and assessment.</p> <p>The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA.</p>
National Development Plan 2030 (2012)	<p>The National Development Plan (NDP) 2030 is a plan prepared by the National Planning Commission in consultation with the South African public, which is aimed at eliminating poverty and reducing inequality by 2030.</p> <p>In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes:</p> <ul style="list-style-type: none"> <li>• Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.</li> <li>• Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.</li> <li>• Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.</li> </ul> <p>The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy.</p>
White Paper on the Energy Policy of the Republic of South Africa (1998)	<p>The White Paper on Energy Policy places emphasis on the expansion of energy supply options to enhance South Africa's energy security. This can be achieved through increased use of Renewable Energy (RE) and encouraging new entries into the generation market. South Africa has an attractive range of cost-effective renewable resources, taking into consideration social and environmental costs. The government's policy on RE is, thus, concerned with meeting the following objectives:</p> <ul style="list-style-type: none"> <li>• Ensuring that economically feasible technologies and applications are implemented.</li> <li>• Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options.</li> <li>• Addressing constraints on the development of the renewable energy industry.</li> </ul>

Relevant legislation or policy	Relevance to the proposed project
	<p>The policy states that the advantages of renewable energy include; minimal environmental impacts during operation in comparison with traditional supply technologies, generally lower running costs, and high labour intensities. Disadvantages include; higher capital costs in some cases; lower energy densities; and lower levels of availability, depending on specific conditions, especially with sun and wind-based systems. Nonetheless, renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The White Paper on Energy Policy, therefore, supports the advancement of RE sources and ensuring energy security through the diversification of supply.</p>
<p>National Energy Act (No.34 of 2008)</p>	<p>The purpose of the National Energy Act (No. 34 of 2008) is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation; while taking environmental management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies (REs). The objectives of the Act are, amongst others, to:</p> <ul style="list-style-type: none"> <li>• Ensure uninterrupted supply of energy to the Republic.</li> <li>• Promote diversity of supply of energy and its sources.</li> <li>• Facilitate energy access for improvement of the quality of life of the people of the Republic.</li> <li>• Contribute to the sustainable development of South Africa's economy.</li> </ul> <p>Hence, the National Energy Act recognises the significant role which electricity plays in growing the economy, while improving citizens' quality of life. The Act provides the legal framework that supports the development of RE facilities for the greater environmental and social good, and provides the backdrop against which South Africa's strategic planning on future electricity provision and supply takes place. It also provides the legal framework which supports the development of RE facilities for the greater environmental and social good.</p>
<p>Integrated Energy Plan (IEP) (2016)</p>	<p>The Integrated Energy Plan (IEP) (which was developed under the National Energy Act (No. 34 of 2008)), recognises that energy is essential to many human activities, and is critical to the social and economic development of a country. The purpose of the IEP is to ensure the availability of energy resources, and access to energy services in an affordable and sustainable manner, while minimising associated adverse environmental impacts. Energy planning, thus, needs to balance the need for continued economic growth with social needs, and the need to protect the natural environment.</p> <p>The IEP is a multi-faceted, long-term energy framework which has multiple aims including:</p> <ul style="list-style-type: none"> <li>• To guide the development of energy policies and, where relevant, set the framework for regulations in the energy sector.</li> <li>• To guide the selection of appropriate technologies to meet energy demand (i.e. the types and sizes of new power plants and refineries to be built, and the prices that should be charged for fuels).</li> <li>• To guide investment in and the development of energy infrastructure in South Africa.</li> <li>• To propose alternative energy strategies which are informed by testing the potential impacts of various factors such as proposed policies, introduction of new technologies, and effects of exogenous macroeconomic factors.</li> </ul>
<p>Strategic Infrastructure Projects (SIPs)</p>	<p>The Presidential Infrastructure Coordinating Committee (PICC) are integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs), which have the following 5 core functions:</p> <ul style="list-style-type: none"> <li>• To unlock opportunity.</li> <li>• To transform the economic landscape.</li> <li>• To create new jobs.</li> <li>• To strengthen the delivery of basic services.</li> <li>• To support the integration of African economies.</li> </ul>

Relevant legislation or policy	Relevance to the proposed project
	<p>A balanced approach is being fostered through the greening of the economy, boosting energy security, promoting integrated municipal infrastructure investment, facilitating integrated urban development, accelerating skills development, investing in rural development and enabling regional integration.</p> <p>SIP 8 of the energy SIPs supports the development of RE projects as follow:</p> <ul style="list-style-type: none"> <li>• SIP 8: Green energy in support of the South African economy:</li> </ul> <p>Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010), and support bio-fuel production facilities.</p>

The development of the proposed project is, therefore, aligned with national legislation and policies, as it constitutes a clean energy initiative, which would contribute to socio-economic development, while avoiding adverse environmental impacts associated with high carbon energy generation technologies.

## 4.2 Provincial Policies

This section provides a brief review of the most relevant provincial policies. The proposed Bonsmara SEF and associated infrastructure is considered to align with the aims of these policies. A brief review of the most relevant provincial policies is provided in Table 4.2 below.

**Table 4.2: Relevant Provincial Policies for the Bonsmara Solar PV Facility**

Relevant policy	Relevance to the proposed project
<p>Free State Provincial Growth and Development Strategy (FSGDS) (2005 - 2014)</p>	<p>The overarching goal of the Free State Growth and Development Strategy (FSGDS) is to align the provincial and national policies and programmes, and to guide development in terms of effective and efficient management and governance to achieve growth and development. The strategy is a living document that uses the latest business planning and evaluation tools in order to maximise the effect of all spending.</p> <p>Based on the social and economic development challenges of the province, the strategy identifies a few primary objectives, including stimulating economic development and developing and enhancing the infrastructure for economic growth and social development, poverty alleviation through human and social development, ensuring a safe and secure environment for all, and the promotion of effective and efficient governance and administration.</p> <p>The development of the energy and infrastructure development supports the overall objective of stimulating economic development and infrastructure investment towards growth and social development, by contributing to the energy mix, supply and infrastructure of the province. The development of the facility will also contribute to the alleviation of poverty through the creation of direct and indirect employment opportunities.</p>
<p>Free State Provincial Spatial Development Framework (PSDF) - Executive Summary (Inception Report)</p>	<p>The Free State PSDF is a provincial spatial and strategic planning policy that responds to and complies with, in particular, the National Development Plan Vision 2030 and the National Spatial Development Perspective (NSDP). The latter encourages all spheres of government to prepare spatial development plans and frameworks (such as the PSDF) that promote a developmental state in accordance with the principles of global sustainability as is advocated by, among others, the South African Constitution and the enabling legislation.</p>

Relevant policy	Relevance to the proposed project
	<p>The Free State Provincial Growth and Development Strategy states that sustainable economic development is the only effective means by which the most significant challenge of the Free State, namely poverty, can be addressed. The PSDF gives practical effect to sustainable development, which is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.</p> <p>The proposed RE facility will contribute to sustainable economic development objectives of the Free State PSDF, through the generation of clean energy and creation of jobs and business opportunities.</p>
Free State Green Economy Strategy (2014)	<p>This green economy strategy for Free State Province (FSGES) was developed in alignment with the national green economy strategy elaborated in the National Green Economy Framework and Green Economy Accord, as well as the Free State Provincial Growth and Development Strategy.</p> <p>The objective was to develop a green economy strategy to assist the province to, inter alia, improve environmental quality and economic growth, and to develop green industries and energy efficiency within the province.</p> <p>The proposed SEF development will contribute to the aim of energy efficiency and green industry while promoting economic growth, and is therefore consistent with this strategy.</p>
Free State Investment Prospectus (2019)	<p>The prospectus states that opportunities are opening up in the province for the energy sector, including renewable energy. Rezoning for the development of multiple solar energy facilities has already been undertaken in the province. The development of a Solar Farm in the Moqhaka LM is seen as a driver of growth along the banks of the Orange River.</p> <p>Considering future opportunities available for the development of renewable energy facilities (including solar PV facilities), the development of the Bonsmara SEF is considered to be in-line with the Investment Prospectus of the Province.</p>

### 4.3 District and Local Municipalities Policies

The strategic policies at a district and local levels have similar objectives for the respective areas, namely, to accelerate economic growth, create jobs, and uplift communities. The proposed Bonsmara SEF is considered to align with the aims of these policies. A brief review of the most relevant district and local municipal policies is provided in Table 4.3 below.

**Table 4.3: Relevant District and Local Municipal Policies for the Bonsmara Solar PV Facility**

Relevant policy	Relevance to the proposed project
Integrated Development Plan (IDP) of the Fezile Dabi District Municipality 2016-2017	<p>The vision of the municipality is to be a community-orientated entity characterised by a sound political and administrative capacity, with sustainable and enabling business environment. With the main challenges within the municipal area being poverty, and unemployment sitting at 46.03% (STATSSA 2011), this proposed project will contribute towards the creation of employment, and to some level of poverty reduction.</p>
Integrated Development Plan (IDP) of the	<p>The need for sustainable, clean energy supply, nationally, is also applicable in the Moqhaka municipal area. The Moqhaka LM IDP (2022-2027) notes that while 98% of households within the municipality have access to electricity, there is a need for the expansion of public lighting.</p>

Relevant policy	Relevance to the proposed project
Moqhaka Local Municipality (2022-2027)	The proposed SEF will contribute to the national grid, which, in turn, will add to the supply of electricity for communities across the country.

#### 4.4 Conclusion

The review of relevant legislation, policies and documentation pertaining to the proposed development indicates that the establishment of the solar farm and associated infrastructure is supported at a national, provincial, and local levels, and that the proposed project will contribute positively towards several targets and policy aims.

## 5 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This chapter provides an overview of the social environment of the province, district municipality (DM), and local municipality (LM) within which the proposed Bonsmara SEF is located. Table 5.1 below shows the administrative geography of the area in which the proposed SEF will be located.

**Table 5.1: The Administrative Geography of the Proposed Bonsmara SEF**

Governance Level	Location
Province	Free State
District	Fezile Dabi DM
Local	Moqhaka LM
Nearest Town	Kroonstad

**Figure 5.1: Map showing the districts and local municipalities of the Free State**



**Source:** List of municipalities in the Free State. (2022, April 27). In Wikipedia. [https://en.wikipedia.org/wiki/List\\_of\\_municipalities\\_in\\_the\\_Free\\_State](https://en.wikipedia.org/wiki/List_of_municipalities_in_the_Free_State)

### 5.1 The Free State's Socio-Economic Environment

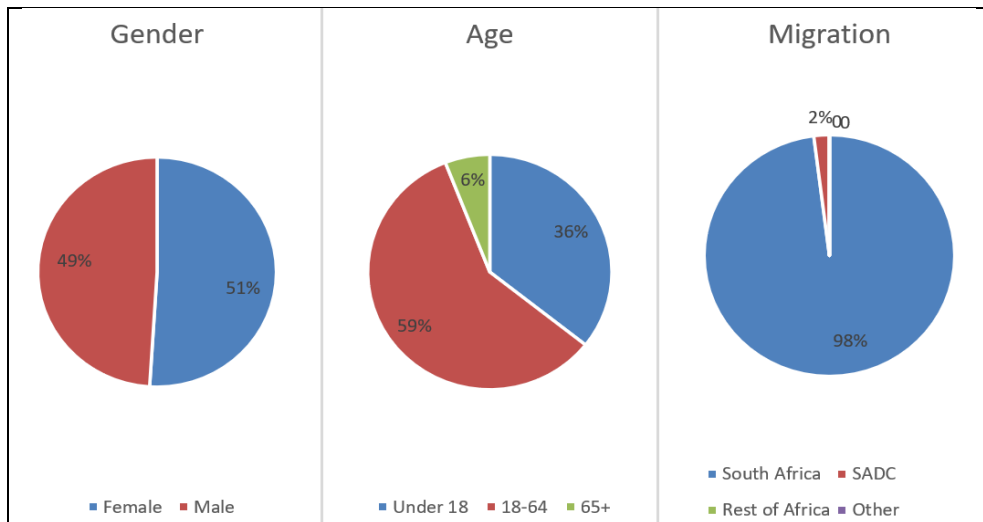
The Free State is one of the nine provinces of South Africa. It represents 10.6% of the total land area of the country, with a total area of 130 041.5 km<sup>2</sup>, a population density of 21.8 people per km<sup>2</sup>, and a population of 2834, 714.

#### Demography

Key demographic data is shown in Figure 5.2 below.

**Figure 5.2: Provincial Population by Gender, Age, and Migration**





**Source:** Wazi Maps

According to the data provided in the 2016 Community Survey, the female population is larger than that of males. There is a high percentage of the economically active group between the ages of 18-64, relative to other age cohorts, and the population is predominantly South African, with only 2% coming from the SADC countries (Statistics South Africa, 2016).

### Socio-economic analysis

The educational levels in the Free State Province are low, with a 39.7 % matric completion rate and 68.6 % having completed Grade 9. The employment rate is 36%, with the rest of the population either unemployed (17%), discouraged job seekers (6%) or not economically employed (41%) (Statistics South Africa, 2016).

### Access to basic services

An estimated 4.8% (134,750) of the population in the Free State has no access to electricity, lower than the national rate of 7.29%. Approximately 74% have access to flush or chemical toilets, higher than the national rate (63.53%). On the other hand, 1.3% (36,831) have no access to any sanitation facilities in the province, which is about half the national rate of 2.39% (1,332,582). Water is provided to an estimated 94.2% (269,748) of the population by a regional or local service provider, which is approximately 10% higher than the rate in South Africa, at 86.2%. There are 946,637 formal households, less than 10% of South Africa's total of 16,923,307. An estimated 14% (132, 448) of households live in informal dwellings (shacks), which is about 10% higher than the national rate of 12.96% (2,193,968) (Statistics South Africa, 2016).

## 5.2 Fezile Dabi District Municipality’s Socio-Economic Environment

The Fezile Dabi DM is a Category C municipality, with municipal executive and legislative authority in an area that includes more than one municipality, as per the Local Government Municipal Structure Act 117 of 1998. It is situated in the north of Free State. The municipality is the smallest district in the province, making up 16% of its geographical area. It consists of four local municipalities: Moqhaka, Metsimaholo, Ngwathe, and Mafube. The main attraction, the Vredefort Dome, which is the third-largest meteorite site in the world, is located within the district, making it a tourist destination.

### 5.3 Moqhaka Local Municipality Socio-Economic Environment

The Moqhaka LM is situated in the southern part of the Fezile Dabi DM. The former Kroonstad, Steynsrus, and Viljoenskroon Transitional Local Councils and sections of the Riemland, Kroonkop, and Koepel Transitional Rural Councils are included in the Moqhaka Local Municipality. A large proportion of the rural population is active within the agricultural sector (Moqhaka Local Municipality, (2020-21).

#### Migration

An estimated 99% of the total population in the Moqhaka LM are South African citizens and 1% come from the SADC countries. Similar proportions are found in the Fezile Dabi DM, where 99% are South African citizens and 1% come from SADC. As is the case in the rest of the Free State Province, rural-to-urban migration is a common phenomenon.

#### Gender

In Moqhaka, females make up 51% of the population while men make up 49%. In Fezile Dabi DM, both the male and female populations are 50%.

#### Age

Table 5.2 below shows the share of age groups within the Fezile Dabi DM and Moqhaka LM.

**Table 5.2: Shows the Age Group in the Fezile Dabi District and Moqhaka Local Municipality**

Age Group	Fezile Dabi District Municipality	Moqhaka Local Municipality
<18	33%	32%
18-64	60%	60%
>65	7%	8%

*Source: Fezile Dabi Wazi Maps*

#### Socio-economic profile

The socio-economic profiles of the district and local municipalities in which the proposed Bonsmara SEF will be located are depicted in the tables below, showing the employment status (Table 5.3), level of education (Table 5.4), and access to basic services (Table 5.5).

**Table 5.3: Employment Status in Fezile Dabi DM and Moqhaka LM**

Employment Status	Fezile Dabi DM	Moqhaka LM
Employed	37%	34%
Unemployed	19%	18%
Discouraged Job Seeker	4%	4%
Not Economically Employed	40%	44%

*Source: Fezile Dabi Wazi Maps*

Nearly 20% of the population in the Fezile Dabi DM and the Moqhaka LM is unemployed.

## Educational profiles

The matric completion rate and grade nine completion rates for the district and local municipalities are shown in the table below.

**Table 5.4: Fezile Dabi and Moqhaka Educational Profiles**

Educational Attainment	Fezile Dabi DM	Moqhaka LM
Completed grade nine or higher	68.5%	68%
Completed matric	38.9%	38%

*Source: Fezile Dabi and Moqhaka Wazi Maps*

## Access to basic services

Six categories of basic services in the Fezile Dabi and Moqhaka municipalities are shown in Table 5.5 below, reflecting the percentages of the population with access to the services. These categories are property ownership, access to water, access to electricity, access to sanitation services, refuse removal, and the Internet connection.

**Table 5.5 Fezile Dabi and Moqhaka Service Delivery Profiles**

Basic services	Fezile Dabi DM	Moqhaka LM
Property ownership	71.3%	62.1%
Access to water	93.3%	90.5%
Access to electricity	93.4%	97.1%
Access to sanitation services	82.6%	92.7%
Refuse removal	86.5%	89.9%
Access to the Internet	47%	43.5%

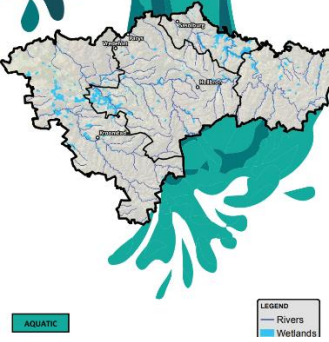
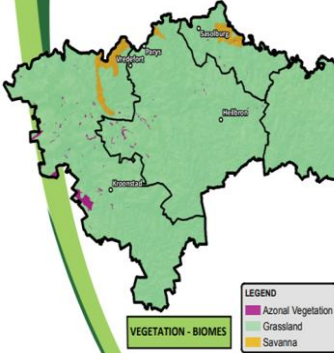
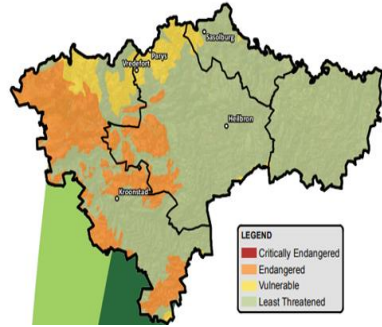
*Source: Fezile Dabi and Moqhaka Wazi Maps*

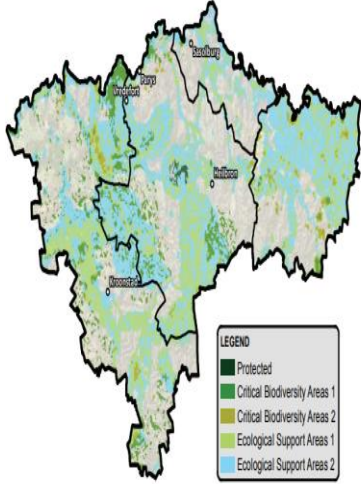

## 5.4 Environmental Parameters with a Bearing on the Social Environment

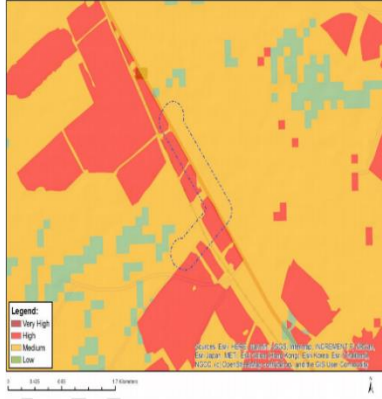

The Fezile Dabi District Municipality's environmental profile is based on existing information made available by the Department of Environmental Affairs (DEA) in consideration of Critical Biodiversity, National Freshwater Ecosystem Priority Area (NFEPA), Air Quality, Climate Risk and Vulnerability, and Climate Change Mitigation.

**Table 5.6: Environmental Impacts**

Features and Description	Impacts	Sensitivity	Mapping the features
<p><b>1. Aquatic Environments</b></p> <p><b>a). Rivers</b></p> <p>The Vaal Dam is located on the Vaal River and supplies water to Gauteng, Free State, as well as other surrounding provinces and South Africa as a whole.</p>	<p>Substantial water requirements for large scale solar installations exist unless the plant is dry cooled, in which case water is not used.</p>	<p>High Sensitivity</p>	<p><b>Figure 5.3: Aquatic Environments</b></p>

Features and Description	Impacts	Sensitivity	Mapping the features
<p><b>b). Wetlands:</b> They are "transitional between terrestrial and aquatic systems" and are a critical part of our natural environment. The Integrated Coastal Management Act (Act 24 of 2008) (ICMA).</p>	<p>Wetlands to reduce floods and absorb pollutants. Solar PV may interfere with this role.</p>	<p>High Sensitivity</p>	 <p>Source: SANBI &amp; CSIR. 2011-2012 (<a href="http://bgis.sanbi.org/nfepa/project.asp">http://bgis.sanbi.org/nfepa/project.asp</a> in Fezile Dabi Environmental Profile n. d</p>
<p><b>2. Terrestrial Biomes</b> <b>The Savanna Biome:</b> It is comprised of bushveld, shrubland, duneveld and thornveld vegetation and is the dominant biome in the district.</p>	<p>Land clearing to make way for large solar PV infrastructure will have an impact on grassland biomes:</p> <ul style="list-style-type: none"> <li>• fuelwood supply</li> <li>• agriculture</li> </ul>	<p>High sensitivity</p>	<p><b>Figure 1.4: Vegetation Biomes</b></p>  <p>Source: Adapted from South African National Biodiversity Institute. 2012 in Fezile Dabi Environmental Profile n. d</p>
<p><b>3. Tourism</b></p>	<p>Clearance of large areas to make way for solar PV installation may affect the preservation and protection of biodiversity, impacting on tourist attractions.</p>	<p>High Sensitivity</p>	<p><b>Figure 5.5: Endangered Ecosystems</b></p>  <p>Source: Adapted from Source: South African National Biodiversity Institute. 2011 in Fezile Dabi Environmental Profile n. d</p>

Features and Description	Impacts	Sensitivity	Mapping the features
<p><b>4.Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)</b></p> <p>CBAs are areas considered critical for meeting biodiversity targets and thresholds.</p> <p>ii. CBAs Optimal Areas are more suitable for development negotiations but they have a lower irreplaceability value.</p> <p>The ESAs are areas required to support and sustain the ecological functioning of CBAs.</p>	<p>Land clearing to make way for solar PV may expose:</p> <ul style="list-style-type: none"> <li>• Plant species to illegal harvesting</li> <li>• Animal species to poaching.</li> </ul>	<p>High Sensitivity</p>	<p><b>Figure 5.6: Ecological Support Areas</b></p>  <p>Source: DESTEA. 2015</p>
<p><b>5. Air Quality</b></p> <p>It is the composition of the air in terms of the pollution it contains and is classified into indoor air quality and ambient (outdoor) air quality.</p>	<p>The solar PVs have less impact on air quality. However, there is no technology to recycle or dispose of them after their end of life.</p> <p>There is potential environmental pollution during the manufacturing of the solar panel films.</p>	<p>Low Sensitivity</p>	<p><b>Figure 5.7: Air quality monitoring stations and emissions license facilities</b></p>  <p>Sources: Department of Environmental Affairs ,2017</p>
<p><b>6.Agriculture</b></p>	<p>Land clearing impacts agricultural viability, which may lead to food insecurity.</p>	<p>High sensitivity</p>	<p><b>Figure 5.8: Agriculture</b></p>

Features and Description	Impacts	Sensitivity	Mapping the features
			 <p data-bbox="986 645 1337 674">Source: Screening Report, 2022</p>
<p data-bbox="132 687 384 748"><b>7. Archaeological and Cultural Heritage</b></p>	<p data-bbox="480 687 753 1070">The history and cultural richness of historical and cultural sites may be compromised if clearing land results in the eviction of residents close to sacred places, altering their cultural practices.</p>	<p data-bbox="775 687 887 748">Medium sensitivity</p>	<p data-bbox="986 687 1374 748"><b>Figure 5.9: Figure Archaeological and Cultural heritage</b></p>  <p data-bbox="986 1108 1337 1137">Source: Screening Report, 2022</p>

## 6 SPECIALIST FINDINGS / IDENTIFICATION AND ASSESSMENT OF IMPACT

This section provides a summary of the anticipated social impacts likely to result from the project. These are inferred from the findings of similar projects in similar socio-economic settings. However, in-depth investigations are imperative to ensure site-specific mitigation measures suitable for the historical, socio-economic, political, cultural, and governance context of the local environment. Stakeholder engagement may afford a deeper understanding of the socio-economic environment. The significance ratings used for the different phases are based on studies from projects of a similar nature and are subject to confirmation in the assessment phase.

The following project phases determined by SiVEST are considered:

- Planning and preconstruction
- Construction
- Operation
- Decommissioning.

### 6.1 Planning and Preconstruction

This is the initial phase of the project and can determine the impacts of subsequent phases of the project.

**Project phase requirements:**

- Public engagement to get the buy-in of local communities.
- Informed EIAs and SIAs legitimise and promote socially oriented decision making.

**Potential negative impacts:**

- A lack of adequate public engagement can cause upheavals around the project.
- If ESIA's are not undertaken diligently, some impacts may be underrepresented.

**Table 6.1: Summary of Impacts in the Planning and Preconstruction Phase**

<b>Impacts</b>	<b>Generic Measures</b>	<b>Significance without Mitigation</b>	<b>Significance with Mitigation</b>
1.Exclusion of communities	Active involvement of the community is required to capacitate them to make informed decisions.	Medium negative impacts.	Low negative impacts.
2. Inadequate impact identification and mitigation.	Use of specialist SIAs teams.	Medium negative impacts.	High positive impacts.

**6.2 Construction phase**

These are impacts that may be experienced during the construction stage. They can either be positive or negative.

**Potential positive impacts**

The erection of solar PV in the area will create employment opportunities for both skilled and unskilled workers during the construction stage. If recruitment processes are efficiently managed, work opportunities can be localised as much as possible, with a trend visible in the industry that local people will be most ready to take up unskilled jobs, while employment requiring specialised skills tends to attract specialists from across the country. Business opportunities associated with the construction phase may also be open for local enterprises, especially in the supply of goods and services, such as food and other essential supplies. Skills transfer can also occur to the benefit of local people, yet targeted measures are required for this to take place. Various further business opportunities may also occur in the supply chain during the construction phase, but depending on the availability of local businesses capable of providing such services, opportunities may also extend to the province or the country. Again, timely and targeted support measures to support business readiness can enhance the possibilities for local enterprises to benefit from contracts during this project phase.

**Potential negative impacts**

Development projects across the country, in various sectors including energy, have demonstrated that, in many cases, there is an over-estimation by the public of perceived available employment opportunities associated with projects. Often, this leads to increased in-migration and a subsequent rise in unemployment rates within the local areas. If a similar trend emerges in this proposed project, the result could be a rise in crime levels and social unrest resulting from tensions between the locals and migrants. The potential influx of

people into the area may also lead to changes in the social context within the local communities. Changes in social behaviour may result in increased HIV infections, unwanted pregnancies, and other social problems. The influx may also impact service delivery, as more pressure is put on public infrastructure and services. Increased road and traffic hazards and noise levels from construction activities may also be expected during the construction phase. Table 6.2 below shows a summary of social impacts associated with the construction phase and the necessary mitigation measures.

**Table 6.2: Summary of Impacts during the Construction Phase**

<b>Impacts</b>	<b>Generic Mitigation</b>	<b>Significance Without Mitigation</b>	<b>Significance with Mitigation</b>
1. Short and long-term employment	Honestly communicate the temporary nature of the employment benefits associated with the solar facility.	Low positive impact	Medium positive impact
2. Support for small local business	Procurement policies should support small businesses. And timely, appropriate business preparedness measures can be considered.	Low-positive impact	Medium positive impact
3. Opportunities for local skills development	Continuous on the job training.	Low-positive impact	Medium positive impact
4. Increase in sex work	Facilitate HIV/AIDS awareness programmes and easy access to contraceptives and ARVs, and ensure that these are extended to the local communities.	Medium negative impacts	Low Negative impact
5. Noise and dust pollution	Put noise buffers in place and employees with protective equipment.	Medium negative impact	Low negative impact
6. Road and traffic hazards	Ensure that nearby roads are maintained properly and enforce traffic laws among transport personnel. Ensure the nearby roadways are maintained properly and police traffic laws for transporting workers, contractors, and contractors.	Medium negative impact	Low negative impact
7. Health and safety	Ensure consistent adherence to health and safety policies and provide workers with protective clothing and equipment.	Medium Negative	Low negative
8. Vandalism	Establish or strengthen community policing in collaboration with local communities, and alongside professional security services.	Medium negative impact	Low negative

### **6.3 Operational Phase Impacts at the Bonsmara Solar Energy Facility**

These are impacts that may be expected during the operational phase of the project.



### Potential Positive Impacts

- Creation of employment that could benefit the unemployed.
- Procurement and other business opportunities
- The employment of security guards can increase general security in the area.
- Skills transfer.

### Potential Negative Impacts

- The influx of immigrants may lead to social disruption.
- Skilled jobs are usually dominated by migrants, leading to conflicts with locals.
- Informal settlements and illegal occupation of land in the area may put the Solar PV site at risk of vandalism.

Table 6.3 below shows a summary of social impacts associated with the operational phase, and the necessary mitigation measures

**Table 6.3: Summary of Impacts During the Operational Phase**

Impacts	Generic Mitigation	Significance without Mitigation	Significance with Mitigation
1. Employment creation	Maximise the creation of employment through indirect jobs, especially for semi-skilled and unskilled workers.	Medium-High positive	High- positive impact
2. Small business promotion	In order to support business readiness, there needs to be integration into the value chain of solar facilities	Medium positive impact	Medium positive impact
3. Influx of migrants may result in recruitment/job related conflicts	Recruitment processes should prioritise the locals as much as possible. Social management plans must be put in place to address the consequences of project-induced migration.	High negative impacts	Medium negative impact
4 Community investment	Strategically plan for and effectively manage community investments to create lasting positive impact for local economy and community.	Medium negative impact	High positive impact

## 6.4 Decommissioning impacts

### Positive and negative impacts

The general findings of SIAs undertaken for similar developments point to the potential negative impacts associated with decommissioning, such as the loss of jobs, loss of project-related developments, and other opportunities associated with the project. These impacts can be managed through downsizing plans, closure plans, and retrenchment packages. Table 6.4 below shows the summary of impacts associated with the decommissioning phase.

**Table 6.4: Summary of impacts during the decommissioning phase**

<b>Impacts</b>	<b>Generic Measures</b>	<b>Significance Without Mitigation</b>	<b>Significance with Mitigation</b>
1. Job losses	Deployment of those with transferable skills to other RE facilities.	Medium negative impact	Low negative impact
2. Loss of associated developments	Promote business incubators and access to loans for local businesses. Promote investments in the area through incentives.	Medium negative impact	Low negative impact
3. Economic contraction at the local level	Promote investments in the area and investor confidence through tax incentives.	High negative impact	Low negative impact

## **6.5 Cumulative Impacts**

Based on the initial assessment of the receiving environment, it is anticipated that the proposed project will have both negative and positive social impacts. The establishment of an RE facility in the district will have positive cumulative impacts, which include job creation in the sector and its allied industries in the value chain. There is also potential for skills upgrading through on-the-job training. Additionally, if most of the solar components are produced locally, there could be an increase in employment in the manufacturing industry. These positive outcomes have medium-to-high impact significance.

The negative impacts may include the influx of migrant workers, which may result in changes in the social context and conflict at the grassroot level. Increased road and traffic flow may also negatively impact public infrastructure during the construction and subsequent phases. Most of these negative impacts have low to medium significance.

## **6.6 Overall Impact Rating**

The impacts across the four phases are rated using the SiVEST matrix that includes a description of the key monitoring recommendations for each applicable mitigation measure identified for each phase of the proposed development, for inclusion in the Environmental Management Program (EMPr) or Environmental Authorisation (EA). Table 6.5 below shows the ratings for overall social impacts.

**Table 6.5: Rating of Social Impacts**

<b>Social Parameter</b>	<b>Issue / Impact / Environmental Effect/ Nature</b>	<b>Social Impact Significance Before Mitigation</b>	<b>Recommended Mitigation Measures</b>	<b>Social Impact Significance After Mitigation</b>
Employment creation: construction and operational phases	RE-related jobs are few, and the semi-skilled jobs are low-paying and temporary.	Medium	Promote job creation through tax incentives for investors.	Low
Job losses- operational and decommissioning phases	Loss of livelihoods.	High	Transparency and pro-activity about job losses and, where possible, facilitation of job placements in similar projects for affected workers.	Low
Skills gap- construction and operational phases	Some of the locals are unemployable in the skills intensive RE sector.	High	Provide on the job training.	Medium
SMMEs- all phases	SMMEs may not easily access funding or may lack capacity.	Medium	Business incubators could help upcoming SMMEs.	Low
Traffic congestion- all phases	Increased road and traffic hazards.	High	Consistent enforcement of road and traffic laws, and maintenance of affected roads. Where possible, the creation of alternative routes may be required.	Low
Agriculture- construction phase	Loss of arable land	Medium	Avoid encroachment on arable land.	Low

<b>Social Parameter</b>	<b>Issue / Impact / Environmental Effect/ Nature</b>	<b>Social Impact Significance Before Mitigation</b>	<b>Recommended Mitigation Measures</b>	<b>Social Impact Significance After Mitigation</b>
HIV/AIDS increase - all phases	Increased HIV infections and ill health.	High	Establishment of AIDS awareness programmes and improving access to sexual health services for employees and within the local communities.	Medium
In-migration- all phases	Pressure on available resources.	High	Facilitate the recruitment of locals where possible.	Medium
The solar PV pollution-decommissioning phase	The solar PVs reduce pollution, but the absence of a well-developed technology to recycle or dispose of the solar panels remains a challenge.	Medium	Research and development are needed to deal with the impacts in the long term.	Low

## **7 COMPARATIVE ASSESSMENT OF ALTERNATIVES**

### **7.1 No-Go Alternative**

As per the requirements of the National Environmental Management Act (Act No. 107 of 1998) (NEMA), the alternative of not proceeding with the proposed project, should be assessed as an alternative. The No-Go Alternative would mean not constructing the proposed Solar Energy Facility.

The option of not proceeding with the project implies that all the potential benefits, such as new job creation, skills transfer, new investments, and enhancement of the national grid with renewable energy sources, would not materialise.

### **7.2 Conclusion**

#### **7.2.1 Summary of Findings**

For the proposed project, the merits of the identified social benefits outweigh the negative social impacts, making the project beneficial. Although this is subject to a comprehensive assessment of the impacts from the findings of the full impact assessment report.

From a societal standpoint, it is determined that the adverse effects from the planning to the decommissioning stages are within acceptable parameters and can be addressed.

The project may be beneficial to the local people through the creation of employment and other economic opportunities. On a broader level, the project would also contribute to the national power grid.

It is, therefore, recommended that a full SIA be conducted as part of the EIA. Based on the scoping process, the following recommendations are suggested:

- Review the comments from the multi-stakeholder engagements that include the local communities, local businesses, policymakers, and relevant government departments.
- Make necessary changes to existing baseline information using new information obtained from site visits and proponents.
- Assess the nature, magnitude, intensity, duration, status, significance, and degree of irreversibility. of impacts
- Identify potential mitigation measures to ameliorate the demerits and boost the merits for consideration in an environmental management programme (EMPr).
- Identify any monitoring requirements for inclusion in the EMPr or Environmental Authorisation (EA).
- Consider aspects like gender equity, migrant worker recruitment, local SMME support, as well as any factors likely to cause local opposition against the project.

## **8 IMPACT STATEMENT**

The proposed development can be authorised considering the new skills development and upgrading of transferable skills that would be gained. Furthermore, solar energy is environmentally friendly and thus contributes to climate change mitigation, with minimal negative impacts limited to silicon component manufacturing. So, South Africa imports already manufactured components, thus reducing the pollution borne during manufacturing. Moreover, solar energy provides an alternative source of energy that is not dependent on coal. Once installed, it is cost-effective and readily available given the abundance of sunshine in South Africa. All these positive impacts render the Bonsmara SEF beneficial to local communities and the country. render the Bonsmara SEF beneficial to local communities and the country.

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