

SOCIAL IMPACT ASSESSMENT

VANDERKLOOF SOLAR PV AND BESS PROJECTS (PV1-5 & BESS 1-5)

FREE STATE PROVINCE

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Prepared

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EXECUTIVE SUMMARY

INTRODUCTION

Cape EAPrac was appointed to manage the Environmental Impact Assessment (EIA) process for the proposed Vanderkloof Solar PV and BESS project (Vanderkloof PV 1-5 & Vanderkloof BESS 1-5) located approximately 2.5km to the south of the town of Luckhoff Ile within the Renosterberg Local within the Letsemeng Municipality (LM) in the Free State Province. Tony Barbour Environmental Consulting was appointed to undertake a specialist Social Impact Assessment (SIA).

SUMMARY OF KEY FINDINGS

The key findings of the study are summarised under the following sections:

- Fit with policy and planning.
- Construction phase impacts.
- Operational phase impacts.
- Cumulative impacts.
- Decommissioning phase impacts.
- No-development option.

Based on the findings of the SIA the social impacts associated with the construction and operation of the BESSs and on on-site substations do not have a bearing on the significance ratings for the Vanderkloof PV Projects (PV 1-5). The assessment ratings for the construction and operational phase therefore include the construction and operation of the BESSs and on-site substations as well as the PV projects. Where reference is made to Vanderkloof PV 1 – 5, it includes the associated BESS i.e. Vanderkloof BESS 1 – 5.

POLICY AND PLANNING ISSUES

The development of and investment in renewable energy is supported by the National Development Plan (NDP), National Infrastructure Plan and Free State Green Economy Strategy which refer to and support renewable energy. The LM IDP also supports the development of renewable energy. The development of the proposed PV project is therefore supported by key policy and planning documents.

CONSTRUCTION PHASE

Based on the findings of the SIA the social impacts associated with the construction phase for each of the five Vanderkloof Solar PV & BESS projects (Vanderkloof PV 1-5 and Vanderkloof BESS 1-5) are similar. Likewise, the significance ratings are also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments were undertaken where this was the case.

Potential positive impacts

- Creation of employment and business opportunities, and the opportunity for skills development and on-site training.

The construction phase for each of the 250 MW Vanderkloof PV 1-4 projects will extend over a period of approximately 18 months and create in region of 250 employment opportunities for each of the four PV projects. The construction phase for the 1 000 MW Vanderkloof PV 5 project will extend over a period of approximately 24-30 months and create in the region of 400-450 employment opportunities. Members from the local communities in Luckhoff and other towns in the LM may potentially qualify for low skilled and semi-skilled and some skilled employment opportunities. The LM IDP notes that Luckhoff has the highest unemployment levels in the LM. The creation of employment opportunities will therefore represent a significant, if localised, social benefit. However, the low education and skills levels in the area may limit the opportunities for local employment.

The wage bill for each Vanderkloof PV 1-4 project will be in the region of R 60 million (2025 Rand values). The wage bill for the Vanderkloof PV 5 project will be in the region of R 100 million (2025 Rand values). A percentage of the wage bill will be spent in the local economy which will also create opportunities for local businesses in the local towns in the area. This will benefit the local economy, specifically shops such as the OK Mini Mark in Luckhoff.

The capital expenditure for each of 250 MW Vanderkloof PV 1-4 projects will be approximately R 4 billion (2025 Rand value). The capital expenditure for the 1 000 MW Vanderkloof PV 5 project will be in the region of R 12 billion (2025 Rand values). Due the lack of diversification in the local economy the potential for local companies in the LM is likely to be limited. Most benefits are therefore likely to accrue to contractors and engineering companies based outside the LM. However, the GWK Pty Ltd cooperative in Luckhoff is likely to benefit from providing services and materials for the project.

The local service sector will also benefit from the construction phase. The potential opportunities would be linked to accommodation, catering, cleaning, transport, and security, etc. associated with the construction workers on the site.

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities.
- Impacts related to the potential influx of jobseekers.
- Increased safety and security risks to landowners and farming operations associated with presence of construction workers on the site.
- Increased risk of grass fires associated with construction related activities.
- Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.
- Impact on productive farmland.

The findings of the SIA indicate that the significance of all the potential negative impacts with mitigation are likely to be **Low Negative**. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. Table 1 summarises the significance of the impacts associated with the construction phase.

Table 1: Summary of social impacts during construction phase

Impact	Significance No Mitigation/Enhancement	Significance With Mitigation/Enhancement
Creation of employment and business opportunities (PV 1-4)	Medium (+)	Medium (+)
Creation of employment and business opportunities (PV 5)	Medium (+)	High (+)
Presence of construction workers and potential impacts on family structures and social networks (PV 1-5)	Medium (-)	Low (-)
Influx of job seekers (PV 1-5)	Medium (-)	Low (-)
Safety and security risk, to landowners and farming associated with presence of construction workers (PV 1-5)	Medium (-)	Low (-)
Increased risk of grass fires (PV 1-5)	Medium (-)	Low (-)
Nuisance impacts associated with construction activities (PV 1-5)	Medium (-)	Low (-)
Loss of farmland (PV 1-5)	Low (-)	Low (-)

OPERATIONAL PHASE

Based on the findings of the SIA the social impacts associated with the operational phase for each of the five Vanderkloof Solar PV & BESS projects (Vanderkloof PV 1-5 and Vanderkloof BESS 1-5) are similar. Likewise, the significance ratings are also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments were undertaken where this was the case.

Potential positive impacts

- Establishment of infrastructure to improve energy security and support renewable sector.
- Creation of employment and business opportunities.
- Benefits for project landowners.
- Benefits associated with socio-economic contributions to community development.

The proposed project will supplement South Africa’s energy and assist to improve energy security. In addition, it will also reduce the country’s reliance on coal as an energy source. This represents a positive social benefit.

Potential negative impacts

- Visual impacts and associated impacts on sense of place.
- Potential impact on property values.

- Potential impact on tourism.

The findings of the SIA indicate that the significance of all the potential negative impacts except for visual impacts will be **Low Negative** with mitigation. Most potential negative impacts can therefore be effectively mitigated. The significance of the impacts associated with the operational phase are summarised in Table 2.

Table 2: Summary of social impacts during operational phase

Impact	Significance No Mitigation/Enhancement	Significance With Mitigation/Enhancement
Establishment of infrastructure to improve energy security and support renewable sector (PV 1-5)	High (+)	High (+)
Creation of employment and business opportunities (PV 1-4)	Medium (+)	Medium (+)
Creation of employment and business opportunities (PV 5)	Medium (+)	High (+)
Benefits associated with socio-economic contributions to community development (PV 1-5)	Medium (+)	High (+)
Benefits for landowners	Low (+)	High (+)
Visual impact and impact on sense of place (PV 1-5)	Medium (-)	Low-Medium (-)
Impact on property values (PV 1-5)	Low (-)	Low (-)
Impact on tourism (PV 1-5)	Low (-)	Low (-)

CUMULATIVE IMPACTS

- **Cumulative impact on sense of place:** The establishment of the proposed Vanderkloof Solar PV and BESS project and other renewable energy facilities in the area will create the potential for combined and sequential visibility impacts. This impact is rated as **Medium Negative**.
- **Cumulative impact of construction workers local services and accommodation:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact of construction workers on local communities:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact of job seekers on local communities and services:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact on local economy:** The significance of this impact with enhancement was rated as **High Positive**.

DECOMMISSIONING PHASE

Given the number of people employed during the operational phase (~ 30 for PV 1-4 and 100 for PV 5), the social impacts at a community level associated with decommissioning can be managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative). However, in the case of the proposed facility the decommissioning phase is likely to involve the disassembly and replacement of the existing components with more modern technology.

NO-DEVELOPMENT OPTION

The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with clean, renewable energy. Given South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant negative social cost. The No-Development option is not supported by the findings of the SIA.

CONCLUSIONS

The findings of the SIA indicate that the proposed Vanderkloof Solar PV and BESS Projects (PV 1-5 and BESS 1-5) and associated infrastructure will create several significant social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phases. As the largest single PV project in South Africa the Vanderkloof Solar PV and BESS Project (PV 1-5 and BESS 1-5) will create a unique opportunity for the upliftment of the town of Luckhoff and investment in the LM.

The project will also create economic development opportunities for the local community. The significance of this impact is rated as **High Positive**. The proposed development also represents an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts associated a coal-based energy economy and the challenges created by climate change, represents a significant positive social benefit for society as a whole. The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) has resulted in significant socio-economic benefits, both at a national level and at a local, community level. These benefits are linked to foreign Direct Investment, local employment and procurement and investment in local community initiatives.

The findings also indicate that the potential negative impacts associated with both the construction and operational phase are likely to be **Low Negative** with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented.

Statement and reasoned opinion

The establishment of the proposed Vanderkloof Solar PV and BESS Project (PV 1-5 and BESS 1-5) and associated infrastructure is therefore supported by the findings of the SIA.

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CONTENTS OF THE SPECIALIST REPORT – CHECKLIST

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
(a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a <i>curriculum vitae</i> ;	Section 1.6, Annexure C
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Section 1.7, Annexure D
(c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.1, Section 1.2
(cA) an indication of the quality and age of base data used for the specialist report;	Section 1.2, Section 3
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 4
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	N/A for SIA
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 1.2, Annexure B
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 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;	Section 3
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.5
(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 4, Section 5,
(k) any mitigation measures for inclusion in the EMPr;	Section 4
(l) any conditions for inclusion in the environmental authorisation;	Section 4, Section 5
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	N/A
(n) a reasoned opinion— i. as to whether the proposed activity, activities or portions thereof should be authorised; iA. Regarding the acceptability of the proposed activity or activities; and 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 or Environmental Authorization, and where applicable, the closure plan;	Section 5.3
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
(p) any other information requested by the competent authority	N/A
Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	

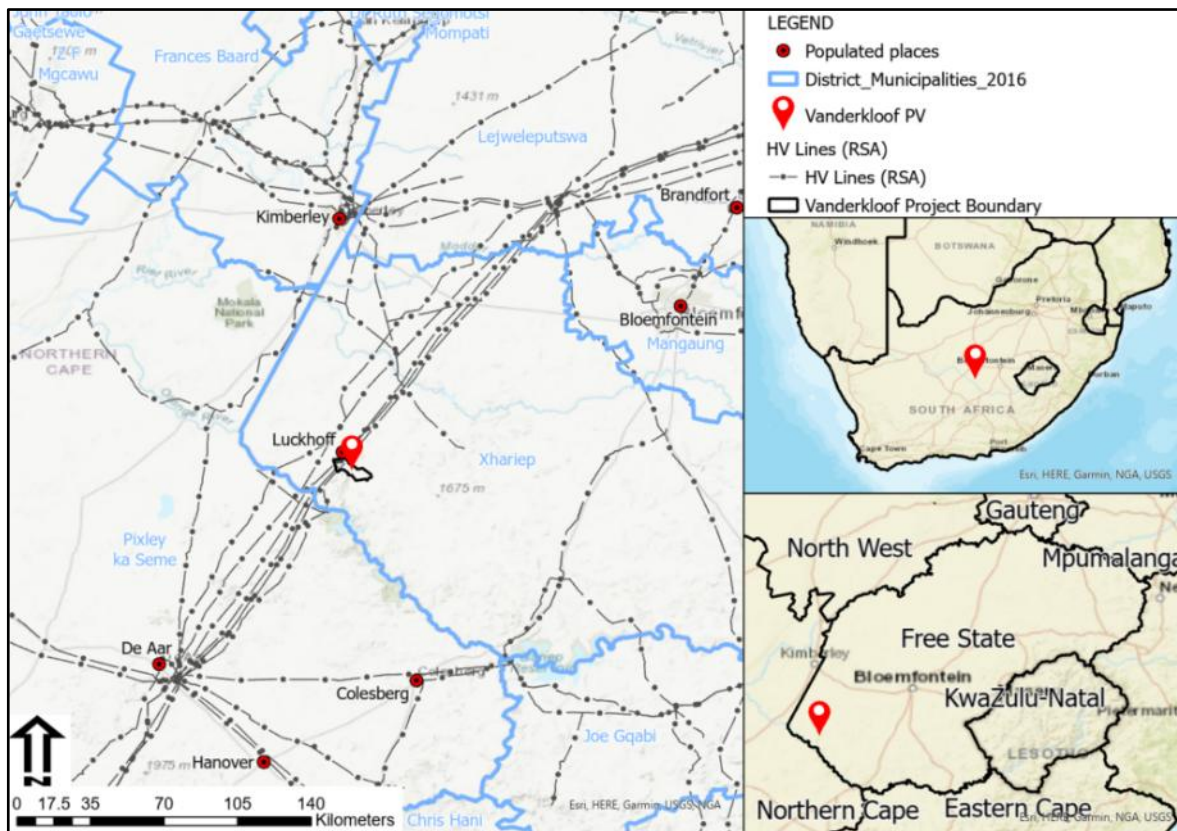
ACRONYMS

BESS	Battery Energy Storage System
DEA	Department of Environmental Affairs
DM	District Municipality
EIA	Environmental Impact Assessment
HD	Historically Disadvantaged
IDP	Integrated Development Plan
IPP	Independent Power Producer
kV	Kilovolts
LED	Local Economic Development
LM	Letsemeng Municipality
MW	Megawatt
SEF	Solar Energy Facility
SDF	Spatial Development Framework
SIA	Social Impact Assessment

SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Cape EAPrac was appointed to manage the Environmental Impact Assessment (EIA) process for the proposed Vanderkloof Solar PV and BESS Projects (PV 1-5) and Vanderkloof BESS Projects (BESS 1-5) located approximately 2.5km to the south of the town of Luckhoff within the Letsemeng Municipality (LM) in the Free State Province (Figure 1.1). Tony Barbour Environmental Consulting was appointed to undertake a specialist Social Impact Assessment (SIA).



(Source: VIA VRM Africa, 2025)

Figure 1.1: Location of Vanderkloof Solar PV and BESS Project (PV 1-5 & BESS) (red location pin)

1.2 TERMS OF REFERENCE AND APPROACH

The approach to the SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007). These guidelines are based on international best practice and are used throughout South Africa. The key activities in the SIA process embodied in the guidelines include:

- Describing and obtaining an understanding of the proposed intervention (type, scale, and location), the settlements, and communities likely to be affected by the proposed project.

- Collecting baseline data on the current social and economic environment.
- Identifying the key potential social issues associated with the proposed project. This requires a site visit to the area and consultation with affected individuals and communities. As part of the process a basic information document was prepared and made available to key interested and affected parties. The aim of the document was to inform the affected parties of the nature and activities associated with the construction and operation of the proposed development to enable them to better understand and comment on the potential social issues and impacts.
- Assessing and documenting the significance of social impacts associated with the proposed intervention.
- Identifying and assessing alternatives and recommending alternatives and mitigation measures.

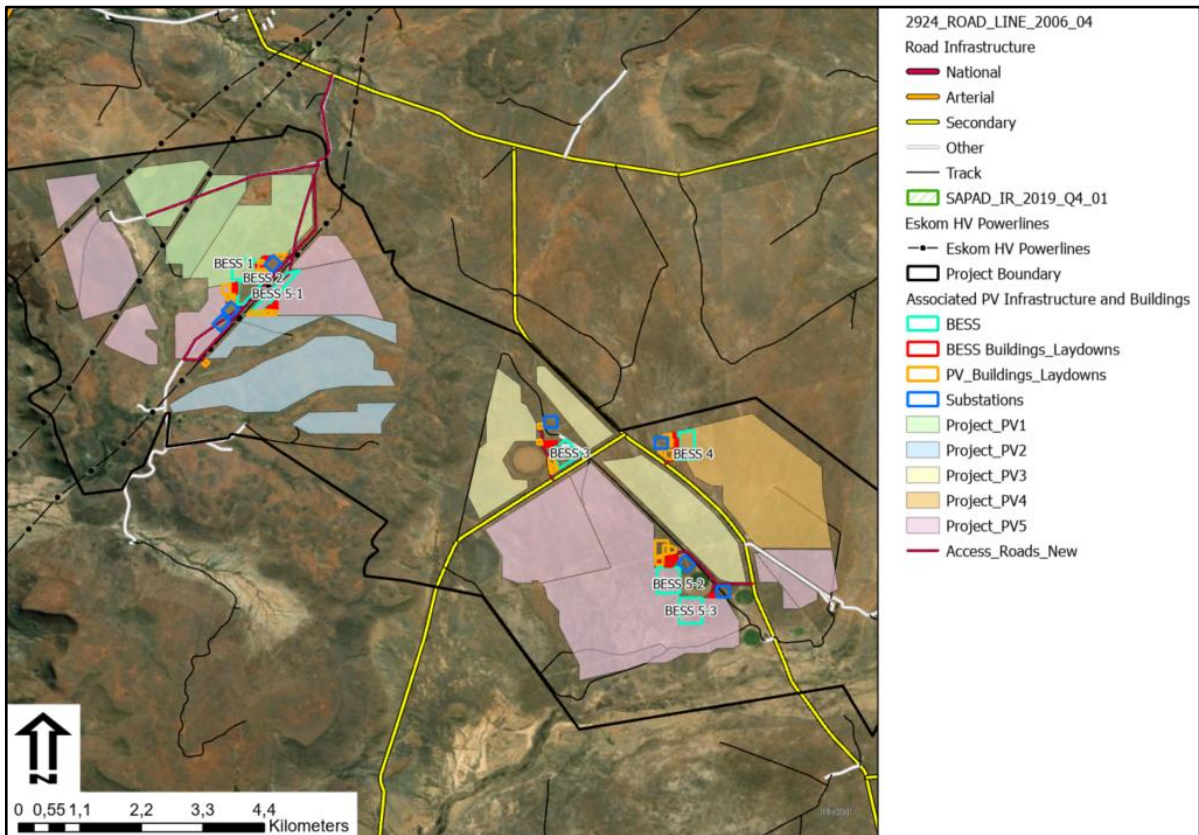
In this regard the study involved:

- Review of socio-economic data for the study area.
- Review of relevant planning and policy frameworks for the area.
- Review of information from similar studies, including the SIAs undertaken for other renewable energy projects.
- Site visit and interviews with key stakeholders.
- Identifying the key potential social issues associated with the proposed project.
- Assessing and assessing the significance of social impacts associated with the proposed project.
- Identification of enhancement and mitigation measures aimed at maximizing opportunities and avoiding and or reducing negative impacts.

Annexure A contains a list of the secondary information reviewed and interviews conducted. Annexure B summarises the assessment methodology used to assign significance ratings to the assessment process.

1.3 PROJECT DESCRIPTION

The Applicant, Vanderkloof Solar (Pty) Ltd, is proposing the construction of a number of photovoltaic (PV), and Battery Energy Storage System (BESS) energy facility (collectively known as Vanderkloof Solar PV and BESS) located on the Portion 1 of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province. A study site of approximately 7478ha was assessed as part of this Environmental Process and the infrastructure associated with each of the projects is outlined below. Figure 1.2 illustrates the layout.



(Source: VIA VRM Africa, 2025)

Figure 1.2: Layout of Vanderkloof Solar PV & BESS Project (PV 1-5 & BESS 1-5)

Vanderkloof PV1

Vanderkloof PV1 is situated on Portion 1 of St. Elmo 113 and Remaining Extent of Annex Goemmansberg 634 and will consist of a 250MW PV Development with a footprint of up to 426ha. The PV footprint will include interspersed internal roads, inverters and mini substations within the footprint of the PV field. Associated infrastructure for this 250MW PV facility will include:

- On site Substation of approximately 4ha.
- Temporary laydown areas of approximately 4ha within the PV footprint.
- Permanent Laydown areas of up to 1ha.
- Permanent auxiliary buildings (~0.5ha) including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof PV 2

Vanderkloof PV2 is situated on Remaining Extent of Goedman's Berg 39 & Remaining Extent Troostenberg 253 and will consist of a 250MW PV Development with a footprint of up to 381ha. The PV footprint will include interspersed internal roads, inverters and mini substations within the footprint of the PV field. Associated infrastructure for this 250MW PV facility will include:

- On site Substation of approximately 4ha.
- Temporary laydown areas of approximately 4ha within the PV footprint.
- Permanent Laydown areas of up to 1ha.
- Permanent auxiliary buildings (~0.5ha) including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof PV 3

Vanderkloof PV3 is situated on Remaining Extent Bergrivier 1132 & Portion 1 of Bergrivier 1132 and will consist of a 250MW PV Development with a footprint of up to 445ha. The PV footprint will include interspersed internal roads, inverters and mini substations within the footprint of the PV field. Associated infrastructure for this 250MW PV facility will include:

- On site Substation of approximately 4ha.
- Temporary laydown areas of approximately 4ha within the PV footprint.
- Permanent Laydown areas of up to 1ha.
- Permanent auxiliary buildings (~0.5ha) including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof PV 4

Vanderkloof PV4 is situated on Remaining Extent Brakleegte 654 and will consist of a 250MW PV Development with a footprint of up to 432ha. The PV footprint will include

interspersed internal roads, inverters and mini substations within the footprint of the PV field. Associated infrastructure for this 250MW PV facility will include:

- On site Substation of approximately 4ha.
- Temporary laydown areas of approximately 4ha within the PV footprint.
- Permanent Laydown areas of up to 1ha.
- Permanent auxiliary buildings (~0.5ha) including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof PV 5

Vanderkloof PV5 is situated on Portion 1 of St. Elmo 113, Remaining Extent of Goedman's Berg 39, Remaining Extent of Annex Goemmansberg 634, Remaining Extent Bergrivier 1132, Portion 1 of Bergrivier 1132 & Remaining Extent Brakleegte 654 will consist of a 1000MW PV Development with a footprint of up to 1855 ha. The PV footprint will include interspersed internal roads, inverters and mini substations within the footprint of the PV field. Associated infrastructure for this 1000MW PV facility will include:

- Three on site Substation of approximately 12ha.
- Temporary laydown areas of approximately 16ha within the PV footprint.
- Permanent Laydown areas of up to 4ha.
- Permanent auxiliary buildings (~2ha) including, Guardhouses, workshops, operations and control centres – each with associated ablutions., Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.8ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof BESS 1

Vanderkloof BESS 1 is situated on Remaining Extent of Annex Goemmansberg 634 and will have a capacity of up to 1000MWh. The total footprint of Vanderkloof BESS 1 will be approximately 12ha and will consist of:

- An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
- On-site substation of approximately 2ha.
- Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
- Permanent laydown area of approximately 0.3ha.
- Permanent auxiliary buildings of approximately 0.5ha including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof BESS 2

Vanderkloof BESS 2 is situated on Remaining Extent of Goedman's Berg 39 and will have a capacity of up to 1000MWh. The total footprint of Vanderkloof BESS2 will be approximately 12ha and will consist of:

- An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
- On-site substation of approximately 2ha.
- Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
- Permanent laydown area of approximately 0.3ha.
- Permanent auxiliary buildings of approximately 0.5ha including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof Solar PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof BESS 3

Vanderkloof BESS 3 is situated on Remaining Extent Bergrivier 1132 and will have a capacity of up to 1000MWh. The total footprint of Vanderkloof BESS 3 will be approximately 12ha and will consist of:

- An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
- On-site substation of approximately 2ha.
- Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
- Permanent laydown area of approximately 0.3ha.
- Permanent auxiliary buildings of approximately 0.5ha including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof Solar PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof BESS 4

Vanderkloof BESS 4 is situated on Remaining Extent Brakleegte 654 and will have a capacity of up to 1000MWh. The total footprint of Vanderkloof BESS 4 will be approximately 12ha and will consist of:

- An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
- On-site substation of approximately 2ha.
- Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
- Permanent laydown area of approximately 0.3ha.
- Permanent auxiliary buildings of approximately 0.5ha including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof Solar PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).

Vanderkloof BESS 5

Vanderkloof BESS 5 is situated on Remaining Extent of Goedman's Berg 39 & Portion 1 of Bergrivier 1132 and will have a capacity of up to 4000MWh. The total footprint of Vanderkloof BESS 4 will be approximately 48ha and will consist of:

- An up to 32ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
- Three on-site substation with a total footprint of approximately 6ha.
- Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
- Permanent laydown area of approximately 1ha.
- Permanent auxiliary buildings of approximately 2ha including, Guardhouses, workshops, operations and control centres – each with associated ablutions, Offices, accommodation – each with associated canteens and ablutions.
- Temporary accommodation buildings with associated canteens and ablutions of up to 0.5ha.
- Main Access roads of up to 8m wide and approximately 14km long are required to cumulatively for the Vanderkloof Solar PV and BESS projects. Approximately 6.5km of these roads are existing (to be upgraded) and approximately 7.5km are to consist of new roads).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m³ cumulatively for the entire Vanderkloof Solar PV and BESS Facilities).



Photograph 1.1: Typical PV SEF facility



Photograph 1.2: Example of BESS located in storage containers

1.4 ASSUMPTIONS AND LIMITATIONS

1.4.1 Assumptions

Technical suitability

It is assumed that the development site represents a technically suitable site for the establishment of the proposed PV facility, BESS and associated infrastructure.

Strategic importance of the project

The strategic importance of promoting renewable and other forms of energy is supported by the national and provincial energy policies.

Fit with planning and policy requirements

Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard, a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported.

1.4.2 Limitations

Demographic data

The 2022 Census data does not include information on household income levels. Data from the 2011 Census has been referred to. This limitation does not have a material bearing on the findings of the SIA.

1.5 SPECIALIST DETAILS

Tony Barbour, lead author of this report, is an independent specialist with 30 years' experience in the field of environmental management. In terms of SIA experience Tony Barbour has undertaken in the region of 350 SIAs and is the author of the Guidelines for Social Impact Assessments for EIA's adopted by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007. Annexure C contains a copy of Tony Barbour's CV.

1.6 DECLARATION OF INDEPENDENCE

This confirms that Tony Barbour, the specialist consultant responsible for undertaking the study and preparing the SIA Report, is independent and does not have any vested or financial interests in the proposed power line being either approved or rejected. Annexure D contains a signed declaration of independence.

1.7 REPORT STRUCTURE

The report is divided into five sections, namely:

- Section 1: Introduction.
- Section 2: Summary of key policy and planning documents.
- Section 3: Overview of the study area.
- Section 4: Identification and assessment of key social issues.
- Section 5: Summary of key findings and recommendations.

SECTION 2: POLICY AND PLANNING ENVIRONMENT

2.1 INTRODUCTION

Legislation and policy embody and reflect key societal norms, values, and developmental goals. The legislative and policy context therefore plays an important role in identifying, assessing, and evaluating the significance of potential social impacts associated with any given proposed development. An assessment of the “policy and planning fit¹” of the proposed development therefore constitutes a key aspect of the Social Impact Assessment (SIA). In this regard, assessment of “planning fit” conforms to international best practice for conducting SIAs.

Section 2 provides an overview of the policy and planning environment affecting the proposed project. For the purposes of meeting the objectives of the SIA the following policy and planning documents were reviewed:

- The National Energy Act (2008).
- The National Development Plan (2011).
- The White Paper on Energy Policy (1998).
- The White Paper on Renewable Energy (2003).
- National Infrastructure Plan (2012 /2021)
- Integrated Resource Plan (IRP) for South Africa (2010-2030).
- Climate Change Bill (2018 / 2021).
- Just Energy Transition Investment Plan (2023-2027).
- Free State Provincial Growth and Development Strategy 2030 Vision.
- Free State Provincial Spatial Development Framework (PSDF).
- Free State Green Economy Strategy (2014).
- Free State Investment Prospectus (2019).
- Letsemeng Local Municipality Integrated Development Plan (2023/24 Review).
- Letsemeng Local Municipality Spatial Development Framework (2021).

The section also provides a review of the renewable energy sector in South Africa.

2.2 NATIONAL POLICY ENVIRONMENT

2.2.1 National Energy Act (Act No 34 of 2008)

The National Energy Act (Act No. 34 of 2008) provides the legal framework for South Africa’s energy policy, ensuring supply security, energy efficiency, and sustainability. The Act promotes the diversification of energy sources, including the integration of renewable energy, and ensures energy security with an uninterrupted and affordable supply. It also facilitates investment in infrastructure for the expansion and modernisation of the national grid and encourages renewable energy generation through independent power producers (IPPs). Additionally, the Act supports research and development in clean energy innovation. The Act underpins policies such as the IRP and REIPPPP, which are key to increasing renewable energy capacity.

¹ Planning fit” can simply be described as the extent to which any relevant development satisfies the core criteria of appropriateness, need, and desirability, as defined or circumscribed by the relevant applicable legislation and policy documents at a given time.

2.2.2 National Development Plan

The National Development Plan (NDP) contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

2.2.3 White Paper on Energy Policy

Investment in renewable energy initiatives, such as the proposed Wind Farm, is supported by the White Paper on Energy Policy for South Africa (December 1998). In this regard, the document notes:

- Government policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential.
- Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future”.

The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

Government policy on renewable energy is thus concerned with meeting the following challenges:

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

The White Paper also acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country’s renewable energy resource base is extensive, and many appropriate applications exist.

2.2.4 White Paper on Renewable Energy

The White Paper on Renewable Energy (November 2003) (further referred to as the White Paper) supplements the *White Paper on Energy Policy*, which recognizes that the medium and long-term potential of renewable energy is significant. This Paper sets out Government’s vision, policy principles, strategic goals, and objectives for promoting and implementing renewable energy in South Africa.

The White Paper notes that while South Africa is well endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. As signatory to the Kyoto Protocol²,

² The Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change (UNFCCC), aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The

Government is determined to make good the country's commitment to reducing greenhouse gas emissions. To this purpose, Government has committed itself to the development of a framework in which a national renewable energy framework can be established and operate.

South Africa is also a signatory of the Copenhagen Accord, a document that delegates at the 15th session of the Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change agreed to "take note of" at the final plenary on 18 December 2009. The accord endorses the continuation of the Kyoto Protocol and confirms that climate change is one of the greatest challenges facing the world. In terms of the accord South Africa committed itself to a reduction target of 34% compared to business as usual. In this regard, the Integrated Resource Plan (IRP) 2010 aims to allocate 43% of new energy generation facilities in South Africa to renewables.

2.2.5 Integrated Resource Plan (2019)

South Africa's National Development Plan (NDP) 2030 offers a long-term plan for the country. It defines a desired destination where inequality and unemployment are reduced, and poverty is eliminated so that all South Africans can attain a decent standard of living. Electricity is one of the core elements of a decent standard of living. In formulating its vision for the energy sector, the NDP took as a point of departure the Integrated Resource Plan (IRP) 2010–2030 promulgated in March 2011. The IRP is an electricity infrastructure development plan based on least-cost electricity supply and demand balance, taking into account security of supply and the environment (minimise negative emissions and water usage).

On 27 August 2018, the then Minister of Energy published a draft IRP which was issued for public comment (Draft IRP). Following a lengthy public participation and consultation process the Integrated Resource Plan 2019 (IRP 2019) was gazetted by the Minister of Mineral Resources and Energy, Gwede Mantashe, on 18 October 2019, updating the energy forecast for South Africa from the current period to the year 2030. The IRP is an electricity capacity plan which aims to provide an indication of the country's electricity demand, how this demand will be supplied and what it will cost.

The IRP notes that South Africa is a signatory to the Paris Agreement on Climate Change and has ratified the agreement. The energy sector contributes close to 80% towards the country's total Green House Gas (GHG) emissions of which 50% are from electricity generation and liquid fuel production alone. A transition from a fossil fuel-based energy sources is therefore critical to reducing GHG emissions. In September 2021 South Africa released its latest emission targets, indicating that it intended to limit Green House Gas (GHG) emissions to 398-510 MrCo_{2e} by 2025, and 350-420 MrCo_{2e} by 2030. These emissions are significantly lower than 2016 emission targets and will see South Africa's emissions decline in absolute terms from 2025, a decade earlier than planned (World Resource Institute, 2021).

The IRP 2019 highlighted the need for 39,730 MW of new generation capacity by 2030. Of this, about 18,000 MW had been committed by 2019, comprising:

- 6,422 MW under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), with 3,876 MW operational.

Protocol was initially adopted on 11 December 1997 in Kyoto, Japan and entered into force on 16 February 2005. As of November 2009, 187 states have signed and ratified the protocol (Wikipedia).

- 1,332 MW from Ingula Pumped Storage, 1,588 MW from Medupi, 800 MW from Kusile, and 100 MW from Sere Wind Farm under Eskom's build programme.
- 1,005 MW from Independent Power Producers' Open Cycle Gas Turbine (OCGT) plants.

The capacity provisions listed on the IRP 2019 are:

- 1 500MW of coal.
- 2 500MW of hydro.
- 6 000MW of solar PV.
- 14 400MW of wind.
- 1 860MW of nuclear.
- 2 088MW for storage.
- 3 000MW of gas/diesel.
- 4 000MW from other distributed generation, co-generation, biomass and landfill technologies.

As indicated above, the changes from the Draft IRP capacity allocations see an increase in solar PV and wind, and a significant decrease in gas and diesel; and new inclusions include nuclear and storage.

In terms of renewable energy seven bidding rounds have been completed for renewable energy projects under the RE IPP Procurement Programme. The most dominant technology in the IRP2019 was renewable energy from wind and solar PV technologies, with wind being identified as the stronger of the two technologies.

Following the release of the 2019 IRP, it was updated in 2023 and 2024. In December 2023, the South African Cabinet approved the Draft IRP 2023. Covering two-time horizons (to 2030 and 2050), the plan proposed 29.3 GW of new capacity by 2030, including:

- 7 GW of gas projects.
- 4.5 GW of wind.
- 3.6 GW of solar PV.
- 6.3 GW of distributed generation.

However, IRP 2023 acknowledged that energy security challenges might persist until the decade's end.

Released in November 2024 following stakeholder consultations, IRP 2024 marked significant revisions, particularly a substantial increase in onshore wind energy allocations, reaching up to 76.4 GW across scenarios. Key highlights include:

- Enhanced Renewable Energy Focus: Scaling up wind and solar PV to align with energy security and climate commitments.
- Improved Energy Availability: Adjusting assumptions about Eskom's energy availability factor to reflect operational improvements.
- Stakeholder Engagement: Ensuring diverse perspectives informed the updated plan.

The IRP 2024 reflects a forward-looking strategy, with finalisation anticipated in early 2025. This update underscores South Africa's commitment to a balanced and sustainable energy transition, addressing both immediate challenges and long-term goals.

2.2.6 National Infrastructure Plan

Government adopted a National Infrastructure Plan (NIP) in 2012. The aim of the plan is to transform the economic landscape while simultaneously creating significant numbers of new jobs and strengthening the delivery of basic services. The aim of the NIP is to support investments and improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. The plan also notes that investment in the construction of ports, roads, railway systems, **electricity plants**, hospitals, schools, and dams will contribute to improved economic growth.

As part of the National Infrastructure Plan, Cabinet established the Presidential Infrastructure Coordinating Committee (PICC). The Committee identified and developed 18 strategic integrated projects (SIPs). The SIPs cover social and economic infrastructure across all nine provinces (with an emphasis on lagging regions) and included three energy SIPs, namely SIP 8, 9 and 10.

- SIP 8: Green energy in support of the South African economy.
- SIP 9: Electricity generation to support socio-economic development.
- SIP 10: Electricity transmission and distribution for all.
- SIP 28: Integrated Resource Efficiency and Renewable Energy Programme

The NIP 2050 was gazetted for public comment on 10 August 2021³. The first phase of the NIP 2050 focuses on four critical network sectors that provide a platform, namely, energy, freight transport, water, and digital infrastructure. In line with the NDP, the vision for the energy sector is to promote:

- Economic growth and development through adequate investment in energy infrastructure" (generation, transmission, and distribution) and reliable and efficient energy service at competitive rates, while supporting economic growth through job creation by stimulating supply chains.
- Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.
- Environmental sustainability through efforts to reduce pollution, reduce water usage and mitigate the effects of climate change.

The NIP 2050 notes that by 2030, the NDP set a target that more than 90% of the population should enjoy access to grid connected or off-grid electricity by 2030. To realise this vision, South Africa's energy system will be supported by effective policies, institutions, governance systems, regulation and, where appropriate, competitive markets. In terms of energy mix, NIP 2050 notes that coal will contribute significantly less to primary-energy needs in the future, while gas will have an important enabling role, energy supply will be **increasingly dominated by renewable energy resources– especially wind and solar which are least cost and where South Africa has a comparative advantage.**

NIP 2050 also notes that South Africa is signatory of the Paris Agreement which aims to achieve Net Zero greenhouse gas emissions by 2050. To achieve this will require a shift to a least cost energy path that is increasingly reliant on renewables.

2.2.7 Climate Change Bill (2018 and 2021)

The Climate Change Bill provides a framework for climate change regulation in South Africa aimed at governing South Africa's sustainable transition to a climate resilient, low

³ Gazette No. 44951

carbon economy and society. The Bill provides a procedural outline that will be developed through the creation of frameworks and plans. The following objectives are set within the Bill:

- Provide for the coordinated and integrated response to climate change and its impacts by all spheres of government in accordance with the principles of cooperative governance.
- Provide for the effective management of inevitable climate change impacts through enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to building social, economic, and environmental resilience and an adequate national adaptation response in the context of the global climate change response.
- Make a fair contribution to the global effort to stabilise greenhouse gas concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe and in a manner that enables economic, employment, social and environmental development to proceed in a sustainable manner.

An updated Climate Change Bill was published in 2021 for comment. The Bill notes that climate change represents an urgent threat to human societies and the planet, and requires an effective, progressive and incremental response from both government and citizens. The updated Bill recognises that South Africa has a global responsibility to reduce greenhouse gasses and that the anticipated impacts arising as a result of climate change have the potential to undermine achieving of the country's developmental goals. The main objective of the Bill is to enable the development of an effective climate change response and the long-term, just transition to a climate-resilient and lower-carbon economy and society.

2.2.8 Just Energy Transition Investment Plan (2023-2027)

Following consultation amongst government, business, organised labour, and civil society, the Presidential Climate Commission (PCC) concluded the Just Transition Framework which was adopted by Cabinet in August 2022 to guide South Africa's overall approach to the climate transition. The Political Declaration was signed between the Government of South Africa and the Governments of France, Germany, United Kingdom (UK), United States (US), and the European Union (EU) (collectively, the International Partners Group [IPG]) at COP26, gave rise to the establishment of the Just Energy Transition Partnership (JETP). The JETP undertakes to

"Establish an ambitious long-term partnership to support South Africa's pathway to low emissions and climate resilient development, to accelerate the just transition and the decarbonisation of the electricity system, and to develop new economic opportunities such as green hydrogen and electric vehicles amongst other interventions to support South Africa's shift towards a low carbon future."

South Africa's Just Energy Transition Investment Plan (JET IP) for the five-year period, 2023–2027, sets out the scale of need and the investments required to support the decarbonisation commitments made by the Government of South Africa. The JET IP is premised on South Africa's National Development Plan (NDP) 2030 with its focus on tackling the country's systemic challenges of poverty, inequality, and unemployment. The document notes that South Africa's energy transition represents an opportunity for the country to drive industrial development, innovation, and economic diversification.

The JET IP defines a just *energy* transition as:

"A just energy transition in South Africa builds resilient economies and people to meet the NDC targets. It does so by (i) accelerating affordable, decentralised, diversely owned renewable energy systems; (ii) restoring previous and future ecosystems and natural resources impacted by coal mining and energy production; (iii) reskilling present workforces and educating future ones in green and other new and viable development pathways; (iv) building new productive models for comprehensive economic transitions; and (v) supporting various impacted constituencies to play an active role in decisions and implementation of energy transition programs (be it government or non-government actors)."

The JET IP notes that South Africa faces considerable climate and energy-related risks. These include shortages of electricity supply, under-investment in the electricity system, as well as physical, social, and transition risks. High carbon-intensity of production and economic dependency on fossil fuel value chains require specific interventions to manage and mitigate the consequences of transition, particularly for impacted workers, communities, small business, and exporters' exposure to carbon trade barriers. At the same time, embracing new economic opportunities in green technologies can drive industrial development, innovation, and economic diversification, leading to a sustainable and economically resilient future, characterised by decent work, social inclusion, and lower levels of poverty.

To support the goals of energy security, just transition, and economic growth, the JET IP identifies the priority investment requirements over the next five years in the electricity, NEVs, and GH2 sectors.

In terms of the electricity sector, the infrastructure investment priorities are:

- To manage the decommissioning of the retiring coal generation fleet, in line with a revised Integrated Resource Plan (IRP), and in tandem with the development of renewable energy generation at scale and pace.
- To timeously strengthen the transmission grid infrastructure to accommodate the shift to renewable energy.
- To modernise the electricity distribution system.

Section 4.2.2.2 of the IP covers the requirements for investment in new energy generation capacity. The section notes that the retirement of coal plants, the existing supply deficit, as well as growth in electricity demand, will necessitate considerable investment in new generation capacity by the country – which will include Eskom, local authorities who own and operate electricity distribution systems, by the private sector, and others. Rapid investment in new capacity will also address the current electricity supply crisis. The JET IP notes that in addition to relieving the current pressure on the existing coal plants, the short lead times for wind and solar PV plants imply considerable flexibility in capacity additions.

The IP notes that both the current supply crisis and the need to meet climate change mitigation objectives and compliance challenges, in relation to air pollution regulations, necessitates the addition to the electricity system of around 50 GW of new renewable electricity capacity to the grid, plus the associated gas/battery/storage capacity to ensure security of supply and grid stability. Therefore, over the 2023-2027 period, to resolve the electricity supply crisis and to keep pace with investment requirements to meet South Africa's NDC targets and long-term decarbonisation objectives, it will be necessary to add around 6 GW of new renewable electricity capacity to the grid each year, as well as the required gas/storage capacity.

2.3 PROVINCIAL AND LOCAL LEVEL POLICY AND PLANNING

2.3.1 The Free State Growth and Development Strategy

The Free State Provincial Growth and Development Strategy (PGDS) Free State Vision 2030 is the key policy framework for the Free State Provincial Government. The PGDS identifies six priority areas (pillars), namely:

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

Pillars 1, 2, 4 and 4 are relevant to the development. There are also Drivers associated with each Pillar. The relevant Drivers are listed below.

Pillar 1: Inclusive economic growth and sustainable job creation.

- Driver 2: Minimise the impact of the declining mining sector and ensure that existing mining potential is harnessed.
- Driver 3: Expand and diversify manufacturing opportunities

Pillar 2: Education, innovation and skills development

- **Driver 6:** Ensure an appropriate skills base for growth and development and refocus and reskilling as per new opportunities to avoid exclusion

Pillar 3: Improved quality of life

- Driver 12: Integrate environmental concerns into growth and development planning

Pillar 4: Sustainable rural development

- Driver 13: Mainstream rural development into growth and development planning and inclusive economic growth

2.3.2 Free State Green Economy Strategy

The Green Economy Strategy for Free State Province (2014) was developed in alignment with the national green economy strategy elaborated in the National Green Economy Framework and Green Economy Accord, as well the Free State Provincial Growth and Development Strategy. The development process was spearheaded by the Department of Economic Development, Tourism and Environmental Affairs (DETEA).

The objective was to develop a green economy strategy to assist the province to, amongst others, improve environmental quality and economic growth, and to develop green industries and energy efficiency within the province. The proposed development will contribute to the aim of energy efficiency and green industry whilst promoting economic growth and is therefore consistent with this strategy and Climate Change Response Plan.

2.3.3 Free State Investment Prospectus

The Free State Investment Prospectus (2019) identifies the development of renewable energy as a key sector. 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 PV energy facilities has already been undertaken in the province. Considering the future opportunities available for the development of renewable energy facilities (including solar PV facilities) the development of the proposed development is considered to be in-line with the Investment Prospectus of the Province.

2.3.4 Letsemeng Local Municipality Integrated Development Plan

The vision of the LM is “maximized quality service to local communities”. To achieve this vision the IDP notes that the LM strives to:

- Enhance service delivery
- Enable a safe, healthy community and environment
- Promote local economic development and tourism
- Adopt clean technology.
- Build strong partnerships, and
- Be a people-centred, compassionate institution.

Promotion of local economic development and tourism, and adopting clean technologies are relevant to the proposed development. The mission statement of the LM is “providing the best resource management capability at our disposal”.

The IDP notes that the Strategic Objectives (Sos) of the LM are informed by the SOs National Government (Key Performance/Priority Areas), Provincial Priorities, National Development Plan, and the Free State Growth and Development Plan and they are aimed at:

- Accelerated and improved basic service delivery to communities.
- Financial viability and sustainability.
- Good governance.
- Facilitating economic development and job creation.
- Improving municipal infrastructure.
- Fighting poverty and building safe, secure, and sustainable communities.
- Improving skills development to raise productivity.

The proposed development will contribute towards economic development and job creation, fighting poverty and supporting skills development. In terms of local economic development, the IDP, key challenges include poverty, and low education and skills levels.

The IDP notes that the mining sector was the single largest contributor to the LM’s Gross Value Added (GVA)⁴ in 2016, accounting for R 798 million or 47.1% of the total GVA. The Community Services was the second largest contributor (15.3%), followed by the Agriculture Sector with 10.7%. The Construction Sector was the smallest sector with a contribution of 1.76% of to GVA.

In terms of key economic sectors, mining and agricultural were the most important contributors to the primary sector. The secondary sector was made up of the manufacturing, electricity and the construction sectors. The tertiary sector consists of the trade, transport, finance and the community services sector. The community services sector largely consists of government services.

⁴ Gross Value Added (GVA) represents the value that producers add to the goods and services they have bought.

In summarising the local economy, the IDP notes that the mining and agricultural sectors are the largest contributor to the local economy. However, the decline in the agricultural sector over the recent years has had an adverse effect on the employment potential of the rural areas. Of specific relevance to the proposed development, the IDP notes that the town of Luckhoff has the highest unemployment rate in the LM. Luckhoff and the study area fall within Ward 1 of the LM.

The IDP refers to the Karoo Small Town Regeneration Program (KSTRI) which was launched by the South African Local Government Association (SALGA) in 2013. The aim of the programme is to regenerate, restore and fulfil the economic potential of underperforming small towns. The working problem statement for the Initiative lists a number of points that are relevant to the proposed development, including:

- The Karoo is a water stressed biologically diverse and sensitive bioregion requiring a careful weighing up of development options.
- Individual municipalities have limited resources (human, financial, technical) to deal with factors that affect the entire region, such as, shale gas and uranium mining, **renewable energy investment**, climate change and adaptation, poverty and unemployment.

2.3.5 Letsemeng Local Municipality Spatial Development Framework

The LM Spatial Development Framework (SDF) identifies Koffiefontein as the LM's administrative centre, while Luckhoff and Jacobsdal are identified as heritage and agricultural centres respectively. The SDF notes that these centres have the potential to attract tourists and investors due to their unique features, historic value, economic value and special characteristics.

The SDF identifies development nodes and centres in the LM. The development nodes are localities where development (facilities, services and economic opportunities) tends to concentrate and contain commercial, business and residential activities. In terms of development, Koffiefontein is identified as the most important economic growth node within the LM, as it is the municipality's administrative centre and a mining town. The SDF notes that Koffiefontein as well as Jacobsdal and Petrusburg offer development potential and need to be stimulated to stimulate growth. The SDF notes that Luckhoff has limited growth potential, and, as such, is not identified in the SDF as an economic growth node but will continue to exist as a service centre. The development of the proposed solar facility will create an opportunity for Luckhoff to become a growth node.

The SDF indicates that due to the area's special characteristics, Luckhoff has the potential to attract visitors, and is identified as a tourism node. Koffiefontein and Jacobsdal are also identified as tourism nodes. The SDF notes that the tourism development potential of these areas should be enhanced to improve their attractiveness to tourists. With regard to Jacobsdal, there are limited accommodation options available, and this will need to be addressed in order to attract visitors. The proposed development has the potential to act as a catalyst for visitors to the area and the development of tourism accommodation to accommodate project staff.

The SDF also identifies Nature Reserves and Conservancies nodes that are protected by legislation for their environmental quality and sustainability. These areas should be conserved and protected. Based on a review of the available information the proposed development does not impact on any proclaimed nature reserves or conservation areas. Linked to the tourism nodes, the SDF identifies tourism routes that link tourist destinations of unique cultural and natural value. The R48 that provides access to Luckhoff is identified as a tourism route. The R48 is also identified as a transport corridor.

Transport corridors provide links between areas of significance. The SDF notes that the development potential of transport corridors should be investigated and promoted. The R 48 represents a key link to the Northern Cape. The R 48 is also identified as a potential development corridor. of the corridor.

The SDF identifies a set of Spatial Planning Categories (SPCs) that provide a framework to guide decision-making regarding land-use planning (Figure 2.1). The SPCs include statutory conservation areas (Core A) and agricultural areas (C), including Ca, Extensive Agriculture Areas, and Cb, Intensive Agriculture Areas, and surface infrastructure and buildings (F), including Fg, power lines and Fj, renewable energy. The study area falls within an Ca, Extensive Agriculture Area, that is traversed by an Eskom power line corridor (Fg).







	A CORE	A.a Statutory Protected Areas
	B BUFFER	B.a Non-Statutory Conservation Areas B.b Ecological Corridors B.c Urban Green Areas
	C AGRICULTURAL AREAS	C.a Extensive agricultural areas C.b Intensive agricultural areas
	D URBAN RELATED	D.a Main Towns D.b Local Towns D.c Rural Settlements D.d Tribal Authority Settlements D.e Communal Settlements D.f Institutional Areas D.g Authority Areas D.h Residential Areas D.i Business Areas D.j Service Related Business D.k Special Business D.l SMME Incubators D.m Mixed Use Development Areas D.n Cemeteries D.o Sports fields & Infrastructure D.p Airport and Infrastructure D.q Resorts & Tourism Related Areas D.r Farmsteads & Outbuildings
	E INDUSTRIAL AREAS	E.a Agricultural industry E.b Industrial Development Zone E.c Light industry E.d Heavy industry E.e Extractive industry
	F SURFACE INFRASTRUCTURE & BUILDINGS	F.a National roads F.b Main roads F.c Minor roads F.d Public Streets F.e Heavy Vehicle Overnight Facilities F.f Railway lines F.g Power lines F.h Telecommunication Infrastructure F.i Renewable Energy Structures F.j Dams & Reservoirs F.k Canals F.l Sewerage Plants and Refuse Areas

Figure 2.1: Spatial Planning Categories (SPCs)

In terms of Agricultural Areas, the SDF notes that the land along the R48, R 705 and S1181 are potential agricultural development areas that can be developed for stock, game farming and eco-tourism. The SDF also notes that sheep and cattle farming, together with game farming should be promoted in the Luckhoff area. Opportunities for emerging farmers should also be provided to the north of Luckhoff. Of relevance to the proposed development, the SDF notes that the LM is ideally located for the development of Solar Farms.

In terms of urban areas (D), the SDF identifies the main towns (Da) as Koffiefontein, which serves as the administration centre of the LM, and Jacobsdal and Petrusburg. Luckhoff is identified as a local town (Db). The SDF notes that Luckhoff serves as a general heritage service centre within the LM and should be maintained as the alternative general Agricultural Service Centre to surrounding farming areas with social functions such as residence, education and medical services. The SDF also notes that the tourism opportunities in and around the town should be developed. The SDF does not however provide details on the tourism opportunities.

Section 4.2, of the SDF lists specific proposals for each town in the LM. The section notes that Luckhoff has a unique built form which should be cherished, preserved and maintained. Furthermore, the town must retain a clear compact form. Promoting activity along main streets and nodes will strengthen Luckhoff's spatial form and consequently enhance the town image. The section also notes that the R48 has the potential to be a tourism corridor as it connects Vanderkloof nature reserves with R704 and R705 to Koffiefontein and Jacobsdal respectively.

2.4 BENEFITS OF THE RENEWABLE ENERGY SECTOR IN SOUTH AFRICA

The generation of electricity from renewable energy resources offers a range of potential socio-economic and environmental benefits for South Africa. These benefits include:

Socio-economic benefits for local communities

A study undertaken by the DMRE⁵, National Treasury and the Development Bank of Southern Africa (DBSA) in June 2017 found that employment opportunities created during the construction phase of renewable energy projects implemented to date had created 40% more jobs for South African citizens than anticipated. The study also found that significantly more people from local communities were employed during construction than was initially planned, confirming the potential benefits for local communities associated with the implementation of renewable energy projects.

Research by Tait⁶ found that the distributed nature of renewable energy generation can induce a more geographically dispersed pattern of development. As a result, renewable energy sites can be highly suited to rural locations with otherwise poor potential to attract local inward investment therefore enabling to target particularly vulnerable areas. In her conclusion, Tait notes that the thesis has found positive evidence for the establishment of community benefit schemes in the wind sector in South Africa. These benefits would also apply to solar projects.

Increased energy security

Given that renewables can often be deployed in a short timeframe and in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality in the short-term, while reducing expensive distribution losses. According to CSIR's power sector statistics⁷, South Africa experienced load shedding for 1 169 hours in 2021 (~13% of the time) wherein 2 521GWh of estimated energy was shed (mostly stage 2 load shedding). This is a 40% increase on the total load shedding

⁵ Now the DoEE

⁶ The potential for local community benefits from wind farms in South Africa, Louise Tait (2012), Master's Thesis, Energy Research Centre University of Cape Town.

⁷ CSIR Energy Centre. Statistics of utility-scale power generation in South Africa in 2021. April 2022,

experienced during 2020. It is important to note that although extensive load shedding continued during 2021, record relative variable renewable energy contributions were recorded, with solar PV contributing 5.1 TWh.

Economic viability

Due to South Africa's wind and solar resources, coupled with a competitive procurement process, both wind power and solar PV power are cheaper forms of energy generation than coal power. Wind and solar therefore offer excellent value for money to the economy and citizens of South Africa while benefitting society through the development of clean energy.

According to the IPP Procurement Programme overview report (March 2023), the following has been achieved by the IPP programme in terms of investment and economics:

- R274.3 billion⁸ investment attracted into South Africa's economy for energy infrastructure from projects.
- Total Procurement Spend of R99.4 billion.
- Socio-economic development contributions of R2.3 billion.
- Enterprise development contributions of R0.7 billion.

Resource saving

It is estimated that meeting the targets in the Renewable Energy White Paper will result in water savings of approximately 16.5 million kilolitres per annum. As a water-stressed country water conservation represents a key priority, specifically within the context of climate change. Renewable energy also translates into revenue savings, as fuel for renewable energy facilities is free, while compared to the continual purchase of fuel for conventional power stations. According to the IPP Procurement Programme overview report dated 31 March 2023, water savings of 109.9 million kilolitres has been realised by the programme from inception to the date of the 2023 publication.

Availability of renewable energy resources

Renewable energy creates an opportunity to diversify South Africa's energy portfolio and improve energy security and efficiency. According to the IPP Procurement Programme overview report, as of 31 March 2023, the REIPPPP has successfully procured 7 090 MW from 97 IPPs (that reached financial close) in BW1 to BW5, which are at various stages of construction or have commenced with commercial operation. By end March 2023, 6 131MW of the procured capacity started operations and delivered 6 105 MW of actual capacity (i.e. 89 IPPs delivering 26 MW short of procured capacity). Five (5) preferred bidders (860 MW) were announced for BW6 on 8 December 2022. An additional preferred bidder (identified as an eligible bidder on 8 December 2022) was announced on 23 March 2023 to increase the procured MW to the maximum 1 000 MW from solar PV. Since the amendment of Schedule 2 of the Electricity Regulation Act in December 2022, 430 energy generation projects (with a capacity of ~4 550MW in total) has been registered with NERSA⁹.

Pollution reduction

The release of by-products through the burning of fossil fuels for electricity generation impacts on climate change and human health and contributes to ecosystem degradation. Renewable energy creates an opportunity to address energy needs in an environmentally

⁸ From 123 projects in BW1-6

⁹ Source: [https://www.nersa.org.za/electricity-overview/electricity-registration/\(RegisteredGenFACDatabase_January-2024\)](https://www.nersa.org.za/electricity-overview/electricity-registration/(RegisteredGenFACDatabase_January-2024))

responsible manner, thereby allowing South Africa to contribute towards mitigating climate change through the reduction of GHG emissions. According to the Climate Transparency Report (2020), total GHG emissions in South Africa (excluding land use) have increased by 41% since 1990, but emissions in recent years have been almost constant, owing largely to low economic growth and a sharp rise in electricity prices. South Africa is ranked 12th worldwide in terms of per capita carbon dioxide emissions as of 2021. The overview of the Independent Power Producers Procurement Report (March 2023) indicates that electricity generated by 89 operational IPP projects are offsetting 93.0 Mton CO₂. The

Support for international agreements

The development of the renewable energy enables South Africa to demonstrate its commitment to its international agreements under the Kyoto Protocol and the Paris Agreement and its commitment to a Just Energy Transition.

SECTION 3: OVERVIEW OF STUDY AREA

3.1 INTRODUCTION

Section 3 provides a baseline description of the study area with regard to:

- The administrative context.
- Overview of local and district municipalities.
- Overview of the site and surrounding land uses.

3.2 ADMINISTRATIVE CONTEXT

The study area is located within the Letsemeng Municipality (LM), which is one of four local municipalities that make up the Xhariep District Municipality (XDM). The other three local municipalities are the Kopanong, Mohokare and Naledi Local Municipality (Figure 3.1). The town of Koffiefontein serves as the administrative seat of the LM.

The XDM constitutes the southern part of the Free State Province and covers an area of approximately 34,249 km² and is bordered by the Lejweleputswa district and the Mangaung Metropolitan Municipality in the North. The southern border is also the provincial border with the neighbouring provinces of the Northern and Eastern Cape provinces.



Figure 3.1: Location of the Letsemeng Local Municipality within the Xhariep District Municipality

3.3 MUNICIPAL OVERVIEW

Population

The population of the LM in 2022 was 43 101, which represents an 11.58% increase from the 2011 population of 38 628. The LM made up 32.68% of the population of the XDM in 2022. Of this total, 28.5% fell within the 0-14 age group, 65% fell in the 15-64 economically active group and the remaining 6.5% were 65 and older. The LM therefore has a relatively large young population. This creates challenges in terms of creating employment opportunities. The figures for the XDM were similar with 28% of the population being under 14, 64% were between 15 and 64, and 8% 65 and older. Based on the 2022 Census, the dependency ratio for the LM was 54.6% which was slightly lower than the District figure of 55.5%. The higher the dependency ratio the larger the percentage of the population dependent on the economically active age group. This in turn translates reduced revenue for local authorities to meet the growing demand for services.

In terms of race groups in 2022, Black Africans made up 67% of the LM, followed by Coloureds (23%), and Whites (10%). For the XDM, Black Africans made up 75%, followed by Coloureds (15%) and Whites (10%). The main home language spoken in the LM was Afrikaans (68%), followed by Sesotho (11%), and Setswana (9%). The main language spoken in the XDM was Sesotho (38.5%), followed by Afrikaans (37%), and IsiXhosa (14%).

Households and house types

Based on the 2022 Census, there were a total of 10 940 households in LM with an average household size of 3.9 persons. The total number of households decreased from its 2011 figure of 11 242, while the average household size increased from 3.4. Around 84.82% of the households in 2022 resided in formal dwellings, while 14.5% reside in informal dwellings. The relatively high number of informal dwellings highlights the poor socio-economic conditions in the LM and the limited employment opportunities. The XDM also saw a decrease in the number of households and an increase in household size since 2011. Around 91% of households in the XDM reside in formal dwellings and 8.15% reside in informal dwellings (Table 3.1).

Table 3.1: Distribution of Dwelling Types in Letsemeng and Xhariep (2022)

Dwelling Type	Letsemeng Local Municipality (%)	Xhariep (%)
Formal Dwelling	84.82	90.99
Traditional Dwelling	0.30	0.34
Informal Dwelling within Backyard	4.86	3.08
Informal Dwelling not within Backyard	9.64	5.07
Other	0.39	0.53

In terms of head of household, 43.13% of households in the LM were headed by females, compared to 48.65% in the XDM. The high number of female-headed households at the local municipal reflects the lack on formal employment and economic opportunities in the LM. As a result, job seekers from the LM need to leave the areas to seek work in the larger centres. Most of the job seekers are likely to be males. This is due to traditional rural patriarchal societies where the role of the women is usually linked to maintaining

the house and raising the children, while the men tend to be the ones that migrate to other areas in search of employment.

Household income¹⁰

Based on the data from the 2011 Census, 10.2% of the population of the LM had no formal income, 4.2% earned less than R 4 800, 7.5% earned between R 5 000 and R 10 000 per annum, 23.9% between R 10 000 and R 20 000 per annum and 24.5% between R 20 000 and 40 000 per annum (2011). The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average sized household (~ 40 000 per annum). Based on this measure, in the region of 70.3% of the households in the LM live close to or below the poverty line. The figure for the XDM and Free State Province was 72.5% and 68% respectively. The low-income levels reflect the limited employment opportunities in the area and dependence on the agricultural sector. This is also reflected in the high unemployment rates.

The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the LM. This in turn impacts on the ability of the LM to maintain and provide services.

Employment¹¹

The official unemployment figure in 2011 for the LM was 10.5%. The figures also indicate that the majority of the population are not economically active, namely 46%. The level is lower than the figure for the XDM (13.4%). However, the COVID-19 pandemic is likely to have resulted in an increase in unemployment rates in the LM. It is also worth noting that South Africa's unemployment rate was 32.1% in Q4 of 2023, while the youth unemployment rate was 43.4% in Q3 2023, the highest recorded youth employment rate in the world. The 2011 figures are therefore likely to be incorrect.

Education

In terms of education levels, the percentage of the population over 20 years of age in the LM with no schooling was 10.78% in 2022, similar to the figure for the XDM (10.37%). The percentage of the population over the age of 20 with matric was 29%, marginally lower than the XDM figure of 30%. In terms of higher education qualifications, 5.08% and 6.94% of the population over the age of 20 in the LM and XDM had achieved higher education qualifications respectively (Table 3.2).

¹⁰ No data on household income from Census 2022 at municipal level was available at the time of preparing the report.

¹¹ No data on employment from Census 2022 at municipal level was available at the time of preparing the report.

Table 3.2: Highest Level of Education in Letsemeng and hariep (2022)

Education Level (Aged 20+)	Letsemeng Local Municipality (%)	Xhariep District Municipality
No Schooling	10.78	10.37
Some Primary	14.44	12.56
Completed Primary	5.74	5.50
Some Secondary	34.05	33.04
Grade 12	29.00	30.88
Higher Education	5.08	6.94
Other	0.91	0.69

3.4 MUNICIPAL SERVICES

Access to Electricity

In 2022, 79.45% of households in the LM used electricity from mains for cooking, 0.43% used other sources of electricity (such as generators), and 0.35% had no access to energy for cooking in the LM. Additionally, 89.57% of households used electricity from mains for lighting, while 0.36% used other sources of electricity, and 0.23% of households had no access to energy for lighting. The figures for XDM for using electricity for cooking were 78.92%, 0.30%, 0.29% respectively while the figures for using electricity for lighting were 93.49%, 0.26%, and 0.15% respectively. The majority of households in the LM and XDM therefore have access to electricity.

Access to Water

Based on the 2022 Census, 53.19% of households had access to piped water inside their dwellings in the LLM, and 37.37% had access to piped water inside their yards. Additionally, 5.48% of households had access to piped water from a community stand and 3.96% had no access to piped water in the Municipality. In the District, 46.43% of households had piped water inside their dwellings, 45.14% had access inside their yards, 4.96% had access from a community stand, and 3.47% had no access (Table 3.3).

Table 3.3: Piped Water Access for Letsemeng and Xhariep (2022)

Piped Water Access	Letsemeng Local Municipality (%)	Xhariep (%)
Inside Dwelling	53.19	46.43
Inside Yard	37.37	45.14
Community Stand <200m from Dwelling	2.83	2.83
Community Stand >200m from Dwelling	2.65	2.13
No Access	3.96	3.47

Sanitation

In 2022, 82.55% of households in the LLM had access to flush toilets, while 4.17% of households had no access to any toilet facilities. In XDM, 89.14% of households had access to flush toilets, while 2.87% had no access to any toilet facilities (Table 3.4).

Table 3.4: Toilet Facilities for Letsemeng and Xhariep (2022)

Toilet Facilities	Letsemeng Local Municipality (%)	Xhariep (%)
Flush toilet connected to public sewerage system	81.06	87.11
Flush toilet connected to septic tank	1.49	2.03
Chemical toilet	0.74	0.61
Pit Latrine/Toilet	8.00	4.12
None	4.17	2.87
Other	4.54	3.26

Refuse Collection

According to the 2022 Census, 71.41% of households had their refuse collected by a local authority or private company in the LLM. Additionally, 5.30% of households used a communal refuse dump or collection point, 12.61% used their own refuse dump, and 10.19% had no refuse disposal. In the District, 71.53% of households had their refuse collected by a local authority or private company, 4.32% used a communal refuse dump or collection point, 18.37% used their own refuse dump, and 5.34% has no refuse disposal (Table 3.5).

Table 3.5: Refuse Disposal for Letsemeng and Xhariep (2022)

Refuse Disposal	Letsemeng Local Municipality (%)	Xhariep (%)
Removed by Local Authority/Private Company	71.41	71.53
Communal Refuse Dump/Collection Point	5.30	4.32
Own Refuse Dump	12.61	18.37
No Refuse Disposal	10.19	5.34
Other	0.49	0.43

3.5 OVERVIEW OF STUDY AREA

The LM consists of the towns of Koffiefontein, Jacobsdal, Petrusburg, Luckhoff and Oppermansgronde. Koffiefontein serves as the municipal administrative seat for the LM and is located ~ 146 km west of Bloemfontein. The small town of Luckhoff serves as an agricultural service centre and is located approximately 45 km south of Koffiefontein. Access to the town is via the R48, which runs to the west of the town. The project area for the proposed Vanderkloof Solar PV and BESS project (PV 1-5 & BESS 1-5) is located to the south and southeast of Luckhoff (Figure 3.1, red arrow). In terms of the proposed development, the Vanderkloof solar PV & BESS PV site can be divided into two main sections, a north-western and a south-eastern section. North-western portion is located ~ 1.6km to the south of Luckhoff at its closest point. At its furthest point the south-eastern portion is located ~ 14km to the southeast of Luckhoff. The Vanderkloof Dam on the Gariep (Orange River) is located ~ 30 km south of the Luckhoff (Photograph 3.1).

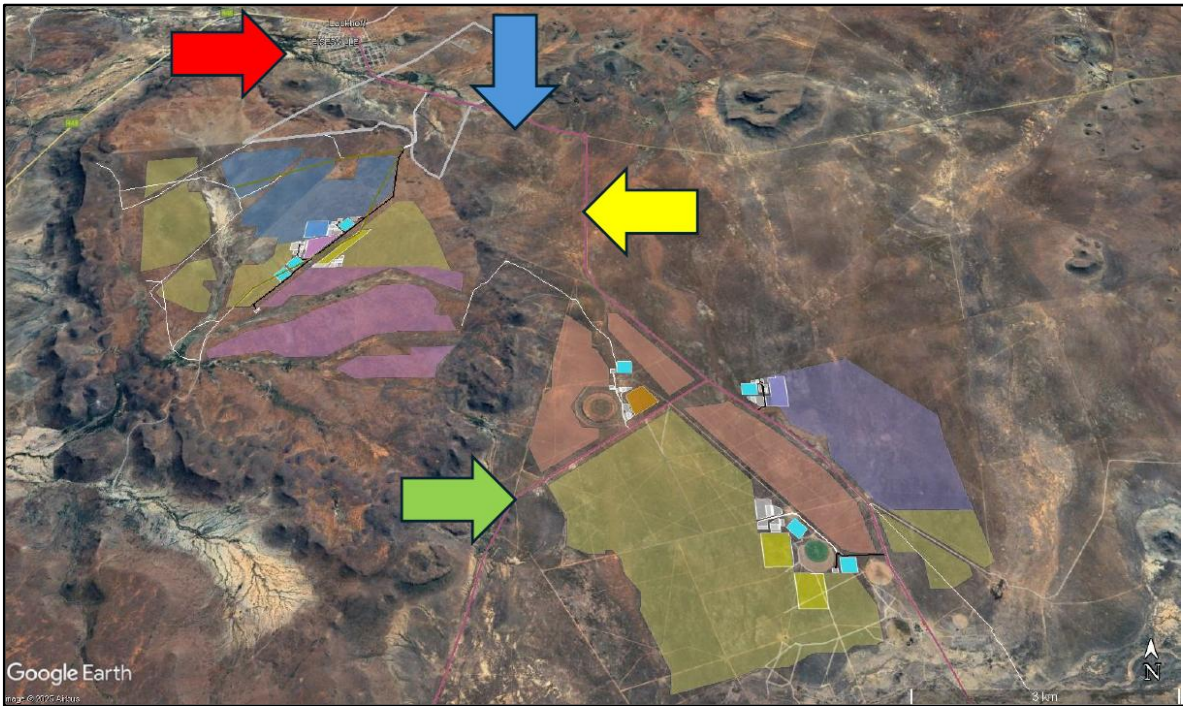


Figure 3.2: Location of Vanderkloof Solar PV & BESS Project



Photograph 3.1: Vanderkloof Dam

Access to the study area is via the S129 (blue arrow) and S132 (yellow arrow). The S129 forms an extension of the main road and connects Luckhoff with Fauresmith and the R 704 to the east. Fauresmith is located ~ 51km east of Luckhoff. The intersection with

the S132 is approximately 4.5km east of Luckhoff. The S132 is located to the south of the S129 and runs in a southerly direction for ~ 3.4km before swinging southeast. The S560 (green arrow) intersects with the S132 approximately 6km to the south of the intersection between the S129 and S132 (Figure 3.1). The S560 runs in a southerly direction and provides access to the Eco-Karoo Lodge.

The town of Luckhoff and surrounding farming areas are serviced by an agricultural cooperative (GWK Pty LTD) and an OK Mini Mark located in the main street of the town (Photograph 3.2 and 3.3). As indicated above, Luckhoff has the highest unemployment rate in the LM and the town is in a state of disrepair and lacks key services, such as a pharmacy and resident doctor and dentist. The nearest services are in Koffiefontein and Vanderkloof. The town has two primary schools and one secondary school. The key challenges identified by municipal official facing the town include unemployment, poverty and lack of investment. The municipality indicated that the proposed Vanderkloof Solar PV & BESS development represented an opportunity to address the key challenges facing the town.



Photograph 3.2: GWK Pty LTD and OK Mini Mark complex



Photograph 3.3: Main street in Luckhoff

The north-western section is located to the south of Luckhoff, the northern boundary is located ~ 1.6km south of the town. The north-westerly section includes Vanderkloof PV 1 (light blue), Vanderkloof PV 2 (light pink) and portions of Vanderkloof PV 5 (light yellow). Access to the north-western section is via a gravel road off the S129 located ~ 1.4 km east of Luckhoff (Figure 3.3). The road provides access to the properties in the area. Two small-scale goat and sheep farming operations are located adjacent to the access road just to the south of the S129 (Photogrpah 3.4). The Vanderkloof Solar PV and BESS project will link into the Eskom substation located to the north of the S129 (Photograph 3.5).



Figure 3.3: North-western section. Vanderkloof PV 1 (light blue), Vanderkloof PV 2 (light pink) and portions of Vanderkloof PV 5 (light yellow)



Photograph 3.4: Small goat/sheep farming operations



Photograph 3.5: Eskom substation north of S129

The north-western section of the site is located on a plateau area formed by a dolerite sill that is typical of the Karoo landscape. The northern, western, eastern and southern edge of the study area consist of steep slopes associated with the plateau area. These slopes visually shield the site from Luckhoff and the surrounding area. A drainage system splits the area and runs in a southerly direction. The topography of the of the study area is flat, and slopes towards the south (Photograph 3.6 and 3.7). As indicated in Figure 3.3, the Vanderkloof 1 and 2 development areas are located to the northeast and east of the drainage system.



Photograph 3.6: North-western portion of site looking west



Photograph 3.7: North-western portion of site looking south

Portions of the Vanderkloof PV 5 development area are located to the west and east of the drainage system. The BESS's for PV 1 (light blue square) and 2 (light purple triangle to the south of PV 1 BESS) and substation sites (three small lighter blue squares) are located to the east of the drainage system. The farmstead on Farm 634 (Remaining Extent of Annex Goemmansberg 634) is located ~ 1km to the north of the BESSs and substations (Photograph 3.8). The owner of Farm 634 indicated that he had no concerns with the location of the BESS's and substation sites.

The land uses north-western section of the site include livestock and to a lesser extent sheep farming. Stock theft is a key concern due to the proximity of the area to Luckhoff. The owners of the properties associated with Vanderkloof PV 1, 2 and portions of 5 located in the north-western section of the development site all support the proposed development and had no problems with the layout.



Photograph 3.8: Farmstead on Remaining Extent of Annex Goemmansberg 634

The south-eastern section is located to the south-east Luckhoff, the closest northern boundary of the site is located ~ 7km southeast of the town, and at its furthest point, 13km from the town. The south-easterly section includes Vanderkloof PV 3 (light brown), Vanderkloof PV 4 (light purple) and eastern portions of Vanderkloof PV 5 (light yellow) (Figure 3.4). Access to the south-eastern section is via the S132 off the S129. As indicated in Figure 3.4, PV 3 (light brown) and the most of PV 5 (light yellow) are located to the south of the S132 (Photograph 3.9 and 3.10).

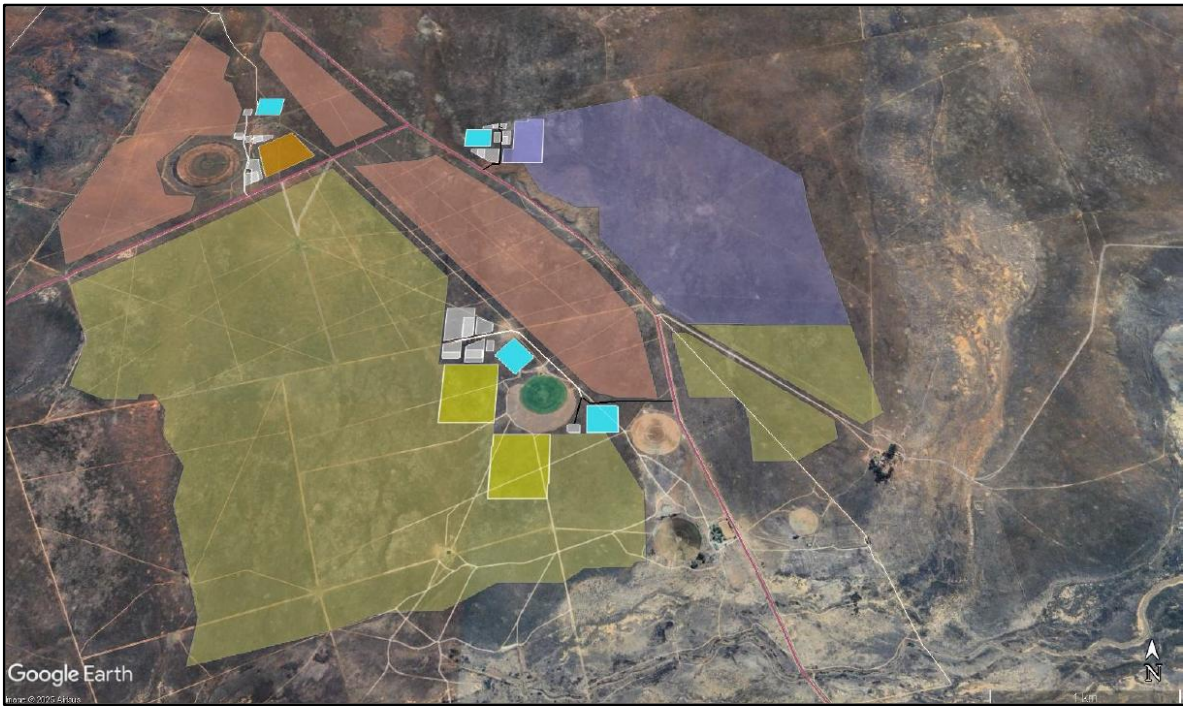


Figure 3.4: South-easterly section includes Vanderkloof PV 3 (light brown), Vanderkloof PV 4 (light purple) and eastern portions of Vanderkloof PV 5 (light yellow)



Photograph 3.9: View looking north from S560 over PV 3 site



Photograph 3.10: View along S132 looking east with PV 5 site to right

PV 4 (light purple) and a small portion of the PV 5 (light yellow) are located to the north of S132 (Photograph 3.11 and 3.12). The BESS's for PV 3 (light brown square) and PV 5 (two light green/yellow squares) and substation sites (small light blue squares) are located to the south of the S132. The BESS (light purple square) and substation (light blue square) for PV 4 are located to the north of the S132. The S560 that provides access to the Eco Karoo Lodge separates the north-western portion of PV 3 from the portion of PV 5 located to the south of the S132. An abandoned farmhouse complex is located on the portion of the Vanderkloof PV 3 located to the north of the S560 (Photograph 3.13). The farmhouse complex on Bergrivier Farm is located to the south of the S132 on the southeastern end of the project site (Photograph 3.14).



Photograph 3.11: View along S132 looking east with PV 4 site to left



Photograph 3.12: View along S132 looking northwest with PV 4 site to right and PV 3 to left



Photograph 3.13: abandoned dwellings on PV 3 site



Photograph 3.14: Farmhouse complex on Bergrivier Farm

The natural topography of the study area consists of a flat plain that is dotted with a few prominent dolerite hills that slopes towards the south and the Gariep (Orange River). The western edge of the valley is dominated by the plateau area (Photograph 3.15).



Photograph 3.15: View over study area looking south with plateau area to right

The land uses south-eastern section of the site include livestock and to a lesser extent sheep farming. Stock theft is less of a concern given the distance of the area to Luckhoff. However, stock theft remains a risk to farming operations. The Eco Karoo Lodge is located to the south-west of the site (Photograph 3.16). The western boundary of eastern portions of PV 5 located to the south of S132 are located ~ 4km northeast of the Eco Karoo Lodge. The BESS's and substations associated with eastern portions of PV 5 are located ~ 5.8km to the northeast of the lodge facilities. Based on observations during the site visit the BESS's and substations are likely to be screened from the lodge by a hill located 2km to the northeast of the lodge, between the lodge and the PV 5 site (Photograph 3.17). The owners of the Eco Karoo Lodge indicated that they did not have any problems with the proposed Vanderkloof Solar PV & BESS development.

The owners of the properties associated with Vanderkloof PV 3, 4 and portions of 5 located in the south-eastern section of the development site all support the proposed development and had no problems with the layout.



Photograph 3.16: Entrance to Eco Karoo Lodge off S560



Photograph 3.17: View from S560 looking northeast with hill in middle ground

SECTION 4: ASSESSMENT OF SOCIAL ISSUES

4.1 INTRODUCTION

Section 4 provides an assessment of the key social issues identified during the study. The identification of key issues was based on:

- Review of project related information.
- Review of key policy and planning documents.
- Site visit and interviews with key stakeholders.
- Experience with similar projects.

The assessment section is divided into the following sections:

- Assessment of compatibility with relevant policy and planning context (“planning fit”).
- Assessment of social issues associated with the construction phase.
- Assessment of social issues associated with the operation phase.
- Assessment of decommissioning phase.
- Assessment of the “no development” alternative.
- Assessment of cumulative impacts.

Based on the findings of the SIA the social impacts associated with the construction and operation of the BESSs and on on-site substations do not have a bearing on the significance ratings for the Vanderkloof Solar PV & BESS Projects (PV 1-5 & BESS 1-5). The assessment ratings for the construction and operational phase therefore include the construction and operation of the BESSs and on-site substations.

4.2 ASSESSMENT OF POLICY AND PLANNING FIT

The development of and investment in renewable energy is supported by the National Development Plan (NDP), National Infrastructure Plan and Free State Green Economy Strategy which refer to and support renewable energy. The LM IDP also supports the development of renewable energy. The development of the proposed PV project is therefore supported by key policy and planning documents.

4.3 CONSTRUCTION PHASE SOCIAL IMPACTS

Based on the findings of the SIA the social impacts associated with the construction phase for each of the five Vanderkloof PV projects (Vanderkloof PV 1-5) and 5 BESS Projects (Vanderkloof BESS 1-5) were similar. Likewise, the significance ratings were also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments are provided where this is the case.

Potential positive impacts

- Creation of employment and business opportunities, and opportunity for skills development and on-site training.

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities.

- Impacts related to the potential influx of job-seekers.
- Increased risks to livestock and farming infrastructure associated with the construction related activities and presence of construction workers on the site.
- Increased risk of grass fires associated with construction related activities.
- Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.
- Impact on productive farmland.

4.3.1 Creation of local employment, training, and business opportunities

The construction phase for each of the 250 MW Vanderkloof PV 1-4 projects will extend over a period of approximately 18 months. In the region of 250 employment opportunities will be created by each of the four PV projects. The construction phase for the 1 000 MW Vanderkloof PV 5 project will extend over a period of approximately 24-30 months and create in the region of 400-450 employment opportunities. In terms of skills requirements, approximately 55% of the jobs will benefit low-skilled workers, 30% semi-skilled and 15% high skilled. Members from the local communities in the area, including Luckhoff and Koffiefontein, may qualify for a percentage of the low skilled and semi-skilled employment opportunities. Most of these employment opportunities will accrue to Historically Disadvantaged (HD) members of the community. The LM IDP notes that Luckhoff has the highest unemployment levels in the LM. The creation of employment opportunities will therefore represent a significant, if localised, social benefit. However, the low education and skills levels in the area may limit the opportunities for local employment.

The wage bill for each Vanderkloof PV 1-4 project will be in the region of R 60 million (2025 Rand values). The wage bill for the Vanderkloof PV 5 project will be in the region of R 100 million (2025 Rand values). A percentage of the wage bill will be spent in the local economy which will also create opportunities for local businesses in the local towns in the area. This will benefit the local economy, specifically shops such as the OK Mini Mark in Luckhoff.

The capital expenditure for each of 250 MW Vanderkloof PV 1-4 projects will be approximately R 4 billion (2025 Rand value). The capital expenditure for the 1 000 MW Vanderkloof PV 5 project will be in the region of R 12 billion (2025 Rand values). Due the lack of diversification in the local economy the potential for local companies in the LM is likely to be limited. Most benefits are therefore likely to accrue to contractors and engineering companies based outside the LM. However, the GWK Pty Ltd cooperative in Luckhoff is likely to benefit from providing services and materials for the project.

The local service sector will also benefit from the construction phase. The potential opportunities would be linked to accommodation, catering, cleaning, transport, and security, etc. associated with the construction workers on the site. The hospitality industry in the area will also benefit from the provision of accommodation and meals for professionals (engineers, quantity surveyors, project managers, product representatives etc.) and other (non-construction) personnel involved on the project. Experience from other construction projects indicates that the potential opportunities are not limited to on-site construction workers but also to consultants and product representatives associated with the project. Based on the findings of the SIA the accommodation facilities in Luckhoff are limited. The Vanderkloof project may therefore create an opportunity to expand the accommodation sector in the town.

The potential benefits for local communities are confirmed by the findings of the Overview of the IPPPP undertaken by the Department of Energy, National Treasury and

DBSA (December 2021). The study found that to date, a total of 63 291 job years¹² have been created for South African citizens, of which 48 110 job years were in construction and 15 182 in operations. By the end of December 2021, 85 projects had successfully completed construction and moved into operation. These projects created 44 172 job years of employment, compared to the anticipated 30 488. This was 45% more than planned.

In terms of benefits for local communities, significantly more people from local communities were employed during construction than was initially planned. For active projects, the expectation for local community participation was 13 284 job years. To date 25 272 job years have been realised (i.e. 90% more than initially planned), with 23 projects still in, or entering, construction. The number of black SA citizens employed during construction also exceeded the planned numbers by 74%.

Black South African citizens, youths and rural or local communities have been the major beneficiaries during the construction phases, as they respectively represent 81%, 44% and 48% of total job opportunities created by IPPs to date. However, woman and disabled people could still be significantly empowered as they represent a mere 10% and 0.4% of total jobs created to date, respectively. Nonetheless, the fact that the REIPPPP has raised employment opportunities for black South African citizens and local communities beyond planned targets, indicates the importance of the programme to employment equity and the drive towards more equal societies.

The proposed Vanderkloof Solar PV & BESS project development is strongly supported by the LM and councillor for Ward 1.

Table 4.1: Assessment of employment and business creation opportunities during the construction phase of single 250 MW PV facility (PV 1-4)

Nature: Creation of employment and business opportunities during the construction phase of 250 MW PV facility		
	Without Enhancement	With Enhancement
Extent	Local – Regional (2)	Local – Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Highly probable (4)
Significance	Medium (30)	Medium (44)
Status	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impact be enhanced?	Yes	
Enhancement Measures:		
Employment		
<ul style="list-style-type: none"> Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase. 		

¹² The equivalent of a full-time employment opportunity for one person for one year.

- Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.
- Where feasible, efforts should be made to employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.
- Before the construction phase commences the proponent should meet with representatives from the LM to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase.
- The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.
- Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.
- The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.

Business

- The proponent should liaise with the LM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work.

Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.

Residual impacts: Improved pool of skills and experience in the local area.

Table 4.2: Assessment of employment and business creation opportunities during the construction phase of single 1 000 MW PV facility (PV 5)

Nature: Creation of employment and business opportunities during the construction phase 1 000 MW PV facility		
	Without Enhancement	With Enhancement
Extent	Local – Regional (2)	Local – Regional (3)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	High (8)
Probability	Probable (3)	Highly probable (4)
Significance	Medium (30)	High (60)
Status	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impact be enhanced?	Yes	
Enhancement Measures:		
Employment		
<ul style="list-style-type: none"> • Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase. • Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, 		

due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.

- Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.
- Before the construction phase commences the proponent should meet with representatives from the DBNLM to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase.
- The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.
- Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.
- The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.

Business

- The proponent should liaise with the LM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work.

Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.

Residual impacts: Improved pool of skills and experience in the local area.

Assessment of No-Go option

There is no impact, as the current status quo will be maintained.

4.3.2 Impact of construction workers on local communities

The presence of construction workers poses a potential risk to family structures and social networks. While the presence of construction workers does not in itself constitute a social impact, the way construction workers conduct themselves can impact on local communities. The most significant negative impact is associated with the disruption of existing family structures and social networks. This risk is linked to potentially risky behaviour, mainly of male construction workers, including:

- An increase in alcohol and drug use.
- An increase in crime levels.
- The loss of girlfriends and/or wives to construction workers.
- An increase in teenage and unwanted pregnancies.
- An increase in prostitution.
- An increase in sexually transmitted diseases (STDs), including HIV.

The objective will be to source as many of the low and semi-skilled workers locally. These workers will be from the local community and form part of the local family and social networks. This will reduce the risk and mitigate the potential impacts on the local community. However, based on experience with renewable energy projects in the area the potential for local employment, specifically for semi- and skilled workers, is likely to be limited. Most of the semi and skilled workers will therefore need to be sourced from outside and will need to be provided with accommodation. Due to the limited accommodation options in Luckhoff the option of establishing an on-site construction

camp is being investigated by the developer. Skilled workers may also be accommodated in the nearby town of Vanderkloof. In the event of a construction camp being established the developer should ensure that the facility is designed and managed to international standards. Annexure E contains a summary of Guidance Note for Worker Accommodation by the IFC and European Bank for Reconstruction and Development (EBRD) (August 2009) ¹³.

The impact of construction workers on the communities of small rural towns, such as Luckhoff, can be significant unless effective management measures are put in place, including strict management measures, including no visitors and operating hours. These measures should be contained in a Construction Camp Management Plan. While the risks associated with construction workers at a community level will be low, at an individual and family level they may be significant, especially in the case of contracting a sexually transmitted disease or an unplanned pregnancy. However, given the nature of construction projects, it is not possible to totally avoid these potential impacts at an individual or family level.

Based on the findings of the SIA the significance of the impact of construction workers on the local community in Luckhoff will be similar for each of the five Vanderkloof Solar PV & BESS projects (PV 1-5 & BESS 1-5). The significance rating therefore applies to Vanderkloof PV 1-5 & Vanderkloof BESS 1-5. Separate assessments have therefore not been undertaken.

Table 4.3: Assessment of impact of the presence of construction workers in the area on local communities¹⁴

Nature: Potential impacts on family structures and social networks associated with the presence of construction workers		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (1)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (30)	Low (21)
Status	Negative	Negative
Reversibility	No in case of HIV and AIDS	No in case of HIV and AIDS
Irreplaceable loss of resources?	Yes, if people contract HIV/AIDS. Human capital plays a critical role in communities that rely on farming for their livelihoods	
Can impact be mitigated?	Yes, to some degree. However, the risk cannot be eliminated	
Recommended enhancement measures:		

¹³ Guidance Note for Worker Accommodation. IFC and EBRD (August 2009).

¹⁴ The assessment is for the construction of a single PV facility. The potential impact associated with the construction of two or more PV facilities at the same time is assessed under cumulative impacts.

- The construction camp should conform to Guidance Note for Worker Accommodation by the IFC and European Bank for Reconstruction and Development (EBRD) (August 2009).
- Prepare a Construction Camp Management Plan.
- Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase.
- Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP) prior to and during the construction phase.
- The SEP and CHSSP should include a Grievance Mechanism that enables stakeholders to report resolve incidents.
- Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.
- The proponent should consider the option of establishing a Monitoring Committee (MC) for the construction phase that representatives from local landowners, farming associations, and the local municipality. This MC should be established prior to commencement of the construction phase and form part of the SEP.
- The proponent and contractor should develop a Code of Conduct (CoC) for construction workers. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation. The CoC should be signed by the proponent and the contractors before the contractors move onto site. The CoC should form part of the CHSSP.
- The proponent and the contractor should implement an HIV/AIDS, COVID-19 and Tuberculosis (TB) awareness programme for all construction workers at the outset of the construction phase. The programmes should form part of the CHSSP.
- The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.
- The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.

Residual impacts: Impacts on family and community relations that may, in some cases, persist for a long period of time. Also, in cases where unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS, the impacts may be permanent and have long term to permanent cumulative impacts on the affected individuals and/or their families and the community.

Assessment of No-Go option

There is no impact as the current status quo would be maintained.

4.3.3 Influx of job seekers

Large construction projects tend to attract people to the area in the hope that they will secure a job, even if it is a temporary job. These job seekers can in turn become "economically stranded" in the area or decide to stay on irrespective of finding a job or not. While the proposed project on its own does not constitute a large construction project, the establishment of a number of renewable energy projects in the area may attract job seekers to the area. As in the case of construction workers employed on the project, the actual presence of job seekers in the area does not in itself constitute a social impact. However, the way in which they conduct themselves can impact on the local community. The main areas of concern associated with the influx of job seekers include:

- Pressure on local services, including accommodation and health services.
- Impacts on existing social networks and community structures.
- Competition for scarce jobs.
- Increase in incidences of crime.

These issues are similar to the concerns associated with the presence of construction workers and are discussed in Section 4.3.2. The potential risks associated with the influx of job seekers on small, rural towns, such as Luckhoff, are typically higher than for larger towns that can absorb more people. The proposed Vanderkloof Solar PV and BESS development represents one of the largest renewable projects in South Africa. The comments submitted during the comment period reflect the high interest in the project, specifically the potential for the creating employment. The proposed development therefore has the potential to attract job seekers to the area, specifically Luckhoff. Given the current poor service levels in Luckhoff and influx of job seekers has the potential to place pressure on local services and impact on the local community.

While the potential risk associated with a single component of the Vanderkloof Solar PV & BESS project may be limited, the project in its totality is likely to result in an influx of job seekers to the area. The influx will also be linked to the phasing of the construction phase of the development and other renewable energy projects in the area. This issue is discussed under cumulative impacts.

Based on the findings of the SIA the significance of the impact of job seekers on the local community in Luckhoff and services will be similar for each of the five Vanderkloof Solar PV & BESS projects (PV 1-5 & BESS 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.4: Assessment of impact of job seekers on local communities¹⁵

Nature: Potential impacts on family structures, social networks and community services associated with the influx of job seekers		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (1)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (30)	Low (21)
Status	Negative	Negative
Reversibility	No in case of HIV and AIDS	No in case of HIV and AIDS
Irreplaceable loss of resources?	Yes, if people contract HIV/AIDS. Human capital plays a critical role in communities that rely on farming for their livelihoods	
Can impact be mitigated?	Yes, to some degree. However, the risk cannot be eliminated	
Recommended mitigation measures: It is impossible to stop people from coming to the area in search of employment. However, as indicated above, the proponent should ensure that the employment criteria favour residents from the area. In addition:		

¹⁵ The assessment is for the construction of a single PV facility. The potential impact associated with the construction of two or more PV facilities at the same time is assessed under cumulative impacts.

- Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase.
- Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP) prior to and during the construction phase.
- The proponent, in consultation with the LM should investigate the option of establishing a MC to monitor and identify potential problems that may arise due to the influx of job seekers to the area.
- The proponent should implement a "locals first" policy, specifically with regard to unskilled and low skilled opportunities.
- The proponent should implement a policy that no employment will be available at the gate.
- The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.

Residual impacts: Impacts on family and community relations that may, in some cases, persist for a long period of time. Also, in cases where unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS, the impacts may be permanent and have long term to permanent cumulative impacts on the affected individuals and/or their families and the community.

4.3.4 Risk to safety, security and farming operations

The presence on and movement of construction workers on and off the site poses a potential safety threat to project landowners and local farmers in the area. Farm infrastructure, such as fences and gates, may be damaged and stock losses may result from gates being left open and/or fences being damaged. Based on feedback from the project landowners the risk to safety and security and farming operations was not raised as concern. Farming operations on the project properties will be scaled back to accommodate construction related activities and, if required, livestock will either be sold and or relocated.

Given the limited accommodation in Luckhoff the option of establishing a construction camp on one of the project properties is being investigated by the developer. The project landowners indicated that they supported the establishment of a construction camp.

Stock theft was identified as a concern, specifically by the landowners on project farms located near Luckhoff. The affected landowners indicated that the proposed PV projects also created an opportunity to improve security during both the construction and operational phase. The project landowners indicated that the security fencing and monitoring measures would improve security on the project properties. The project landowners indicated that where feasible the option of fencing in the entire property should be investigated.

The potential risks (safety, livestock, and farm infrastructure) can therefore be effectively mitigated by careful planning and managing the movement of construction on and off the site workers during the construction phase. Mitigation measures to address these risks are outlined below.

Based on the findings of the SIA, the significance of the risk to safety, security and farming operations will be similar for each of the five Vanderkloof Solar PV & BESS projects (PV 1-5 & BESS 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.5: Assessment of risk to safety, livestock and farming operations

Nature: Potential risk to safety and security of farmers and risk to farming operations associated with the presence and movement of construction workers on site		
	Without Mitigation	With Mitigation
Extent	Local (3)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	Medium (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (33)	Low (24)
Status	Negative	Negative
Reversibility	Yes, compensation paid for stock losses and damage to farm infrastructure etc.	Yes, compensation paid for stock losses and damage to farm infrastructure etc.
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	Yes
<p>Recommended mitigation measures:</p> <ul style="list-style-type: none"> • Install CCTV cameras at key intersection points and access roads to the PV sites. • Fence off the PV sites prior to the start of the construction phase. Where feasible the option of fencing in the entire property should be investigated. • The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences. • All farm gates must be closed after passing through. • Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers that are not accommodated in the construction camp to and from the site. • The proponent should consider the option of establishing a MF (see above) that includes local farmers and develop a Code of Conduct for construction workers. This committee should be established prior to commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before construction activities commence. • Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. • The Environmental Management Programme (EMPr) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested. • Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation. 		
Residual impacts No, provided losses are compensated.		

Assessment of No-Go option

There is no impact as the current status quo would be maintained.

4.3.5 Increased risk of grass fires

The presence of construction workers and construction-related activities on the site poses an increased risk of grass fires that could, in turn pose, a threat to livestock,

wildlife and farm infrastructure. The potential risk of grass fires will be higher during the dry, windy winter months from May to October. The risk of grass fires was not raised as a key concern by the project landowners. However, fires started on project property during the construction phase may pose a potential risk to adjacent landowners and their farming operations.

Based on the findings of the SIA the significance of the risk of grass fires will be similar for each of the five Vanderkloof Solar PV & BESS projects (PV 1-5 & BESS 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.6: Assessment of impact of increased risk of grass fires

Nature: Potential loss of livestock, crops and damage to farm infrastructure and threat to human life associated with increased incidence of grass fires		
	Without Mitigation	With Mitigation
Extent	Local (4)	Local (2)
Duration	Short term (2)	short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (24)
Status	Negative	Negative
Reversibility	Yes, compensation paid for stock and infrastructure losses etc.	
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Recommended mitigation measures <ul style="list-style-type: none"> • The proponent should become a member of the local Fire Protection Association. • Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas. • Smoking on site should be confined to designated areas. • Contractor should ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high-risk dry, windy winter months. • Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle. • Contractor should provide fire-fighting training to selected construction staff. • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities. 		
Residual impacts No, provided losses are compensated for.		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.3.6 Nuisance impacts associated with construction related activities

Construction related activities, including the movement of heavy construction vehicles on and off the site, has the potential to create dust, noise and safety impacts and damage local roads. Access to project areas will be via the S132 and S129. Construction traffic has the potential to damage these unsurfaced public roads. Movement of construction traffic also has the potential to damage the S560. Experience from other projects also indicates that dust from construction traffic may impact negatively on the veld which in turn can impact on grazing for livestock.

While the dust related impacts will be largely local and the number of potentially sensitive social receptors, such as farmsteads, are limited due to the sparse settlement patterns and small number of farmsteads in the area, the impact on road surfaces will affect other road users. Given the scale of the project, the impact on road surfaces and repair thereof should be discussed with the Free State Provincial Roads Department.

Based on the findings of the SIA, the nuisance impacts associated with the construction phase will be similar for each of the five Vanderkloof Solar PV & BESS projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5 and Vanderkloof BESS 1-5. Separate assessments have therefore not been undertaken.

Table 4.7: Assessment of nuisance impacts associated with construction related activities

Nature: Potential noise, dust and safety impacts associated with construction related activities		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (1)
Duration	Short Term (2)	Short Term (2)
Magnitude	Medium (6)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Medium (30)	Low (15)
Status	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
<p>Recommended mitigation measures The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include:</p> <ul style="list-style-type: none"> • The impact on road surfaces and repair thereof should be discussed with the Free State Provincial Roads Department. • Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads. • The movement of heavy vehicles associated with the construction phase should be timed to avoid times and days of the week, such as weekends, when the volume of traffic travelling along the access roads may be higher. • Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads. 		

- Dust suppression measures should be implemented, such as wetting on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.
- All vehicles must be road worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.

Residual impacts If damage to local farm roads is not repaired then this will affect the farming activities in the area and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage.

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.3.7 Impacts associated with loss of farmland

The activities associated with the construction phase and establishment of the proposed project and associated infrastructure will result in the disturbance and loss of land available for grazing. Based on feedback from the project landowners the loss of farmland was not raised as concern. Farming operations on the project properties will be scaled back to accommodate construction related activities and, if required, livestock will either be sold and or relocated. The impact on farming operations will also be compensated for in terms of the agreements between the developer and the project landowners.

Based on the findings of the SIA, the significance of the impacts associated with the loss of farmland will be similar each of the five Vanderkloof PV projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.8: Assessment of impact on farmland due to construction related activities

Nature: The activities associated with the construction phase, such as establishment of access roads and the construction camp, movement of heavy vehicles and preparation of foundations for the project etc. will damage farmlands and result in a loss of farmlands for grazing.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long term (4)	Short term if damaged areas are rehabilitated (2)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Highly Probable (4)
Significance	Low (27)	Low (20)
Status	Negative	Negative
Reversibility	Yes, disturbed areas can be rehabilitated	Yes, disturbed areas can be rehabilitated
Irreplaceable loss of resources?	Yes, loss of farmland. However, disturbed areas can be rehabilitated	Yes, loss of farmland. However, disturbed areas can be rehabilitated
Can impact be mitigated?	Yes, however, loss of farmland cannot be avoided	Yes, however, loss of farmland cannot be avoided
Recommended mitigation measures		

- An Environmental Control Officer (ECO) must be appointed to monitor the construction phase.
- Existing internal roads should be used where possible. In the event that new roads are required, these roads should be rehabilitated on completion of the construction phase.
- The footprint associated with the construction related activities (access roads, construction camps, workshop etc.) should be minimised.
- All areas disturbed by construction related activities, such as access roads on the site, construction camps etc., should be rehabilitated at the end of the construction phase.
- The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. The specifications for the rehabilitation programme should be included in the EMPr.
- The implementation of the Rehabilitation Programme should be monitored by the ECO.

Residual impacts: The overall loss of farmland could affect the livelihoods of the affected farmers, their families, and the workers on the farms and their families. However, disturbed areas can be rehabilitated.

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.4 OPERATIONAL PHASE SOCIAL IMPACTS

Based on the findings of the SIA the social impacts associated with the operational phase for each of the five Vanderkloof PV projects (Vanderkloof PV 1-5) were similar. Likewise, the significance ratings were also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments are provided where this is the case.

Potential positive impacts

- The establishment of infrastructure to improve energy security and support renewable sector.
- Creation of employment opportunities.
- Benefits to the affected landowners.
- Benefits associated with the socio-economic contributions to community development.

Potential negative impacts

- Visual impacts and associated impacts on sense of place.
- Impact on property values.
- Impact on tourism.

4.4.1 Improve energy security and support the renewable energy sector

The As indicated in Section 2.4, the generation of electricity from renewable energy resources creates a range of potential socio-economic and environmental benefits for South Africa. These benefits include:

Socio-economic benefits for local communities

A study undertaken by the DMRE¹⁶, National Treasury and the Development Bank of Southern Africa (DBSA) in June 2017 found that employment opportunities created during the construction phase of renewable energy projects implemented to date had created 40% more jobs for South African citizens than anticipated. The study also found that significantly more people from local communities were employed during

¹⁶ Now the DoEE

construction than was initially planned, confirming the potential benefits for local communities associated with the implementation of renewable energy projects.

Increased energy security

South Africa's energy crisis, which started in 2007 and is ongoing, has resulted in widespread rolling blackouts (referred to as load shedding) due to supply shortfalls. The load shedding has had a significant impact on all sectors of the economy and on investor confidence. The mining and manufacturing sector have been severely impacted and will continue to be impacted until such time as there is a reliable supply to energy. The Minister of Mineral Resources and Energy, Gwede Mantashe, indicated in February 2023 that the cost of load shedding was estimated at R1 billion a day¹⁷. The South African Reserve Bank indicated in February 2023 that stage 3 and stage 6 loadshedding cost the South African economy between R204 million and R899 million a day¹⁸.

Renewables can often be deployed in a short timeframe and in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality in the short-term, while reducing expensive distribution losses.

Economic viability

Due to South Africa's wind and solar resources, coupled with a competitive procurement process, both wind power and solar PV power are cheaper forms of energy generation than coal power. Wind and solar therefore offer excellent value for money to the economy and citizens of South Africa while benefitting society through the development of clean energy.

Resource saving

As a water-stressed country water conservation represents a key priority, specifically within the context of climate change. According to the IPP Procurement Programme overview report dated 31 March 2023, water savings of 109.9 million kilolitres has been realised by the programme from inception to the date of the 2023 publication.

Pollution reduction

South Africa is ranked 12th worldwide in terms of per capita carbon dioxide emissions as of 2021. The overview of the Independent Power Producers Procurement Report (March 2023) indicates that electricity generated by 89 operational IPP projects are offsetting 93.0 Mton CO₂.

Support for international agreements

The development of the renewable energy enables South Africa to demonstrate its commitment to its international agreements under the Kyoto Protocol and the Paris Agreement and its commitment to a Just Energy Transition.

Based on the findings of the SIA the significance of the contribution to improving energy security and supporting the renewable energy sector will be similar for each of the five Vanderkloof PV projects (PV 1-5). Although the Vanderkloof PV 5 project is significantly larger than the PV 1-4 projects, the significance rating with enhancement of High Positive is the same. The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

¹⁷ <https://www.citizen.co.za/news/load-shedding-cost-economy-billion/>

¹⁸ <https://businesstech.co.za/news/energy/662515/stage-6-load-shedding-costs-south-africa-r900-million-a-day-sarb/>

Table 4.9: Improve energy security and support renewable sector

Nature: Development of infrastructure to improve energy security and support the renewable sector		
	Without Enhancement	With Enhancement
Extent	Local, Regional and National (4)	Local, Regional and National (4)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Highly Probable (4)	Definite (5)
Significance	Medium (56)	High (70)
Status	Positive	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	Yes, impact of climate change on ecosystems	Reduced CO ₂ emissions and impact on climate change
Can impact be mitigated?	Yes	
Recommended mitigation measures		
The proponent should:		
<ul style="list-style-type: none"> • Implement a skills development and training programme aimed at maximizing the number of employment opportunities for local community members. • Maximise opportunities for local content, procurement, and community shareholding. 		
Residual impacts: Overall reduction in CO ₂ emission, reduction in water consumption for energy generation, contribution to establishing an economically viable commercial renewables generation sector in the Northern Cape and South Africa.		

Assessment of No-Go option

The No-Development option would represent a lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy.

4.4.2 Creation of employment opportunities

Each of the 250 MW Vanderkloof PV 1-4 projects will create in the region of 30 full time employment opportunities during the operational phase, of which 60% will be low-skilled, 35% semi-skilled, and 5% skilled. The annual operating budget for each 250 MW facility is estimated to be in the region of R 50 million (2025 Rand values), including wages. The 1 000 MW Vanderkloof PV 5 project will create in the region of 100 full time employment opportunities during the operational phase, of which 60% will be low-skilled, 35% semi-skilled, and 5% skilled. The annual operating budget is estimated to be in the region of R 150 million (2025 Rand values), including wages. A percentage of the annual operating budget, including wage income, will be spent in the local economy, which will benefit local businesses, such as the OK Mini Mark in Luckhoff. Non-local employees are also likely to reside in Luckhoff or nearby towns, such as Vanderkloof. This will benefit the local property and hospitality market. The operational phase will initially extend over a period of 20-25 years. The benefits will therefore be sustained over the long term and create an opportunity to revitalize Luckhoff.

Table 4.10: Assessment of employment and business creation opportunities during operational phase of single 250 MW PV facility (PV 1-4)

Nature: Creation of employment and business opportunities associated with the operational phase		
	Without Enhancement	With Enhancement
Extent	Local and Regional (2)	Local and Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Medium (40)	Medium (52)
Status	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impact be enhanced?	Yes	
<p>Enhancement Measures:</p> <p>Employment</p> <ul style="list-style-type: none"> • Where reasonable and practical, the proponent should appoint local service providers and implement a 'locals first' policy, especially for semi and low-skilled job categories. • Where feasible, efforts should be made to employ local service providers that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. • Before the operational phase commences the proponent should meet with representatives from the LM to establish the existence of a skills database for the area and list of service providers. • Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the operational phase. • The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. <p>Business</p> <ul style="list-style-type: none"> • The proponent should liaise with the LM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers. Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the operational phase. <p>Residual impacts: Creation of permanent employment and skills development opportunities for members from the local community and creation of additional business and economic opportunities in the area</p>		

Table 4.11: Assessment of employment and business creation opportunities during operational phase of a 1 000 MW PV facility (PV 5)

Nature: Creation of employment and business opportunities associated with the operational phase		
	Without Enhancement	With Enhancement
Extent	Local and Regional (2)	Local and Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (4)	High (8)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Medium (48)	High (60)
Status	Positive	Positive
Reversibility	N/A	
Irreplaceable loss of resources?	No	
Can impact be enhanced?	Yes	
<p>Enhancement Measures:</p> <p>Employment</p> <ul style="list-style-type: none"> • Where reasonable and practical, the proponent should appoint local service providers and implement a 'locals first' policy, especially for semi and low-skilled job categories. • Where feasible, efforts should be made to employ local service providers that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. • Before the operational phase commences the proponent should meet with representatives from the LM to establish the existence of a skills database for the area and list of service providers. • Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the operational phase. • The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. <p>Business</p> <ul style="list-style-type: none"> • The proponent should liaise with the LM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers. Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the operational phase. <p>Residual impacts: Creation of permanent employment and skills development opportunities for members from the local community and creation of additional business and economic opportunities in the area</p>		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.4.3 Generate income for project landowners

The proponent will enter into rental agreements with the affected landowner/s for the use of the land for the establishment of the proposed PV SF. In terms of the rental agreement, the affected landowner will be paid an annual amount linked to the energy generated. The development has been designed to spread the benefits across each of the project landowners. Based on the feedback from the project landowners the

proposed development creates a unique economic opportunity. The additional income will reduce the risk to their livelihoods posed by droughts and fluctuating market prices for farming inputs, such as fuel, feed etc. Given the low carrying capacity of the veld, the additional income represents a significant benefit for the project landowners.

The project also creates opportunities for the project landowners to provide services linked to the operation of PV project, including maintenance, security etc.

In addition to additional income, the establishment of the proposed WF will also create an opportunity to improve local security in the study area associated with the security measures implemented by the operators of the PV facility, such as security cameras etc. This will also benefit other landowners in the area.

Based on the findings of the SIA, the benefits associated with the generation of additional income for the project landowners will be similar for each of the five Vanderkloof PV projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.12: Assessment of benefits associated with income generated for the project landowners

Nature: The generation of additional income represents a significant benefit for the local project landowners and reduces the risks to their livelihoods posed by droughts and fluctuating market prices for farming inputs, such as feed, fuel etc.		
	Without Enhancement	With Enhancement
Extent	Local (1)	Local (3)
Duration	Long term (4)	Long term (4)
Intensity	Moderate (6)	Moderate (6)
Likelihood	Probable (3)	Definite (5)
Significance	Medium (33)	High (65)
Status	Positive	Positive
Reversibility	Yes	Yes
Can impact be enhanced?	Yes	
Recommended enhancement measures Implement agreements with affected landowners.		
Residual impacts: Support for local agricultural sector and farming		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.4.4 Benefits associated with the socio-economic development contributions

The REIPPPP has been designed not only to procure energy but has also been structured to contribute to the broader national development objectives of job creation, social upliftment and broadening of economic ownership. Socio-economic development (SED) contributions are an important focus of the REIPPPP and are aimed at ensuring that local communities benefit directly from the investments attracted into the area. These contributions create an opportunity to generate a steady revenue stream over an extended period. This revenue can be used to fund development initiatives in the area and support the local community. The long-term duration of the revenue stream also

allows local municipalities and communities to undertake long term planning for the area. The revenue from the proposed SEF can be used to support a number of social and economic initiatives in the area, including:

- Creation of jobs.
- Education.
- Support for and provision of basic services.
- School feeding schemes.
- Training and skills development.
- Support for SMME's.

The minimum compliance threshold for SED contributions is 1% of the revenue with 1.5% the targeted level over the 20–25-year project operational life. For the current portfolio of projects, the average commitment level is 2%, which is 101% higher than the minimum threshold level. To date (across BW1-4) a total contribution of R22.8 billion has been committed to SED initiatives. Assuming an even, annual revenue spread, the average contribution per year would be R1.1 billion. Of the total commitment, R18.5 billion is specifically allocated for local communities where the IPPs operate. With every new IPP on the grid, revenues and the respective SED contributions will increase.

As a percentage of revenue, SED obligations become effective only when operations commence, and revenue is generated. Of the 91 IPPs that have reached financial close (BW1–BW4), 85 are operational. The SED contributions associated with these 85 projects has amounted to R 1.8 billion to date.

In terms of ED and SED spend, education, social welfare, and health care initiatives have a SED focus. SED spend on education has been almost double the expenditure on enterprise development. In this regard IPPs have supported 1 388 education institutions with a total of R437 million in contributions, from 2015 to the end of June 2021. A total of 1 276 bursaries, amounting to R210.8 million, have been awarded by 67 IPPs from 2015 until the end of June 2021. The largest portion of the bursaries were awarded to African and Coloured students (97.4%), with women and girls receiving 56.3% of total bursaries. The Northern Cape province benefitted most from the bursaries awarded, with 57.2%, followed by the Eastern Cape (20.2%) and Western Cape (14.1%). Enterprise development and social welfare are the focus areas that have received the second highest share of the contributions to date.

Research by Tait¹⁹ also found that the distributed nature of renewable energy generation can induce a more geographically dispersed pattern of development. As a result, renewable energy sites can be highly suited to rural locations with otherwise poor potential to attract local inward investment therefore enabling to target particularly vulnerable areas. In her conclusion, Tait notes that the thesis has found positive evidence for the establishment of community benefit schemes in the wind sector in South Africa. These benefits would also apply to solar projects.

Based on the findings of the SIA the significance of the benefits associated with socio-economic development contributions will be similar for each of the five Vanderkloof PV projects (PV 1-5). Although the Vanderkloof PV 5 project is significantly larger than the PV 1-4 projects, the significance rating of High Positive is the same. The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

¹⁹ The potential for local community benefits from wind farms in South Africa, Louise Tait (2012), Master's Thesis, Energy Research Centre University of Cape Town.

Table 4.13: Assessment of benefits associated with socio-economic development contributions

Nature: Benefits associated with support for local community's form SED contributions		
	Without Enhancement	With Enhancement²⁰
Extent	Local and Regional (2)	Local and Regional (3)
Duration	Long term (4)	Long term (4)
Intensity	Low (4)	Moderate (6)
Likelihood	Probable (3)	Definite (5)
Significance	Medium (30)	High (65)
Status	Positive	Positive
Reversibility	Yes	Yes
Can impact be enhanced?	Yes	
<p>Recommended enhancement measures To maximise the benefits and minimise the potential for corruption and misappropriation of funds the following measures should be implemented:</p> <ul style="list-style-type: none"> • The proponents should liaise with the LM to identify projects that can be supported by SED contributions. • Clear criteria for identifying and funding community projects and initiatives in the area should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community. • Strict financial management controls, including annual audits, should be instituted to manage the SED contributions. 		
<p>Residual impacts: Promotion of social and economic development and improvement in the overall well-being of the community</p>		

Assessment of No-Go option

There is no impact as it maintains the current status quo. However, the potential opportunity costs in terms of the supporting the social and economic development in the area would be lost. This would also represent a negative impact.

4.4.5 Visual impact and impact on sense of place

The proposed PV SEF has the potential to impact on the areas existing rural sense of place. Based on the findings of the Visual Impact Assessment (VIA) (VRM Africa, 2025) the significance of the visual impacts associated with the PV components of the Vanderkloof PV project were rated as Low-Medium Negative with mitigation. The significance of the visual impacts associated with the BESS's were rated as Low Negative with mitigation.

The VIA identified a number of potentially sensitive visual receptors, specifically the Eco-Karoo Lodge and Joostenberg Eco-Tourism and hunting operation. With regards to the Eco-Karoo Lodge Eco the VIA notes that only the southern portion of the PV5 area will be visible, with the bulk of the other PV areas topographically screened. Due to similar height of the lodge to the PV5 site, the PV structures would appear two-dimensional at the 3.9km distance with some atmospheric reduction in view clarity taking place. Due to the distance, form changes will not be visible.

²⁰ Enhancement assumes effective management of the SED contributions.

With regard to the Joostenberg Eco-Tourism and hunting operation the VIA notes that the views will take place in the northern portion of the property on elevated terrain only, with the larger southern portion of the site having topographic screening. Due to the location of the property on a flatter hill area, the PV development area would only be partially visible from the hill except for the northern and northwestern edges of the hill where the receptors would look over the PV clusters and have clear views of the total development area. The views are temporal in that there are no permanent structures or residential areas on the hill, and the PV is located on average 4.5km from where hunting is taking place where atmospheric influence will result in some lack of clarity. Due to the distance, form changes will not be visible, and the PV will appear mainly two dimensional at the distance and fragmented due to the local topographic influences.

Based on the findings, the conclusion of the VIA (VRM Africa, 2024) recommends that the proposed PV and BESS projects should be authorised with mitigation. With mitigation, the benefits of the PV / BESS related landscape change are likely to outweigh the landscape status quo, where Medium site scenic resources are seen by limited receptors. The following key reasons provide the motivation:

- The site visual resources are limited with a Medium rating for Scenic Quality and Medium rating for Receptor Sensitivity to landscape change due to lower Visual Exposure to the two eco-tourism areas.
- Regionally, the viewshed is contained to some degree from topographic screening, with the western cluster of PV/ BESS developments topographically contained and no intervisibility to the eastern cluster as seen from ground level receptors.
- National energy objectives for renewable energy will be met and local job creation will be facilitated.
- Medium rating for Visual Impact Significance with mitigation.

Based on the findings of the SIA none of the project landowners raised concerns about the potential impact on the areas sense of place as a key concern. The owners of the Eco-Karoo Lodge also indicated that they supported the proposed Vanderkloof PV project. The owner of the Joostenberg Eco-Tourism and hunting operation has raised concerns regarding the potential visual impact of the proposed Vanderkloof PV project on the hunting activities on the property. However, the findings of the VIA indicate that the potential visual impacts from most of the site would be limited.

Based on the findings of the VIA (VRM Africa, 2024) the significance of the potential visual impact on the areas sense of place will be similar for each of the five Vanderkloof PV projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.14: Visual impact and impact on sense of place (based on VIA)

Nature: Visual impact associated with the proposed facility and associated infrastructure and the potential impact on the area’s rural sense of place.		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Low-Moderate (4-6)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (27)-Medium (36)
Status	Negative	Negative
Reversibility	Yes, PV components and other infrastructure can be removed.	
Irreplaceable loss of resources?	No	
Can impact be mitigated?	Yes	
Mitigation The recommendations contained in the VIA should be implemented.		
Residual impacts: Potential impact on current rural sense of place.		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.4.6 Potential impact on property values

The potential visual impacts associated with the proposed PV SEF have the potential to impact on property values. Based on the results of a literature review undertaken for wind farms, the potential impact on property values in rural areas is likely to be limited. In this regard a study undertaken in Australia in 2016 (Urbis Pty Ltd) found that:

- Appropriately located wind farms (WFs) within rural areas, removed from higher density residential areas, are unlikely to have a measurable negative impact on surrounding land values.
- There is limited available sales data to make a conclusive finding relating to value impacts on residential or lifestyle properties located close to wind farm turbines, noting that wind farms in NSW have been constructed in predominantly rural areas.

The impact of PVs on property values is likely to be lower than the impact of WFs due to the reduced visual impact. The Impact of the proposed Vanderkloof PV project on adjacent property values is therefore likely to be low. In addition, none of the project landowners interviewed raised concerns about potential impact on property values. The owners of Eco Karoo Lodge also indicated that the proposed Vanderkloof PV project would not impact on their operations.

The owner of the Joostenberg Eco-Tourism and hunting operation has raised concerns regarding the potential visual impact of the proposed Vanderkloof PV project on the hunting activities on the property. However, the findings of the VIA (VRM Africa, 2025) indicate that the potential visual impacts from most of the site would be limited. The impact on property values is therefore likely to be limited.

Based on the findings of the SIA the significance of the potential impact on property values will be limited for each of the five Vanderkloof PV projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.15: Assessment of potential impact on property values and operations

Nature: Potential impact of the PV on property values		
	Without Mitigation	With Enhancement / Mitigation
Extent	Local (2)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Low (24)	Low (21)
Status	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No
Can impact be enhanced?	Yes	
Mitigation The recommendations contained in the VIA should be implemented.		
Residual impacts: Linked to visual impact on sense of place.		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.4.7 Potential impact on tourism

The potential impact on tourism is linked to potential visual impact associated with the Vanderkloof PV project on tourism facilities in the area. Based on the findings of the SIA there are two tourism / eco-tourism facilities in the area that would be visually exposed to Vanderkloof PV project, namely the Eco-Karoo Lodge and Joostenberg Eco-Tourism and hunting operation. The Eco-Karoo Lodge is located ~ 4km southwest of the eastern portion of the PV 5 site respectively. The Joostenberg Eco-Tourism and hunting operation is located on the plateau of the Joostenberg, which is located ~ 3.5 km south of the northwestern portion of the Vanderkloof PV project site.

As indicated above, the VIA (VRM Africa, 2025) identified a number of potentially sensitive visual receptors, specifically the Eco-Karoo Lodge and Joostenberg Eco-Tourism and hunting operation. With regards to the Eco-Karoo Lodge Eco the VIA notes that only the southern portion of the PV5 area will be visible, with the bulk of the other PV areas topographically screened. Due to similar height of the lodge to the PV5 site, the PV structures would appear two-dimensional at the 3.9km distance with some atmospheric reduction in view clarity taking place. Due to the distance, form changes will not be visible. With regard to the Joostenberg Eco-Tourism and hunting operation the VIA notes that the views will take place in the northern portion of the property on elevated terrain only, with the larger southern portion of the site having topographic screening. Due to the location of the property on a flatter hill area, the PV development area would only

be partially visible from the hill except for the northern and northwestern edges of the hill where the receptors would look over the PV clusters and have clear views of the total development area.

Based on the findings of the VIA there is limited evidence to suggest that the proposed Vanderkloof PV facility will impact on the tourism in the LM at a local and regional level. The owners of the Eco Karoo Lodge also indicated that the proposed Vanderkloof PV project would not impact on their operations. The Eco Karoo Lodge may also benefit from providing accommodation to senior staff during both the construction and operational phase.

Based on the findings of the SIA the significance of the potential impact on tourism will be similar for each of the five Vanderkloof PV projects (PV 1-5). The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.16: Impact on tourism in the region

Nature: Potential impact of the PV on local tourism		
	Without Mitigation	With Mitigation
Extent	Local (2)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	Low (24)	Low (21)
Status	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources?	No	No
Can impact be enhanced?	Yes	
Mitigation The recommendations contained in the VIA should be implemented.		
Residual impacts: Linked to visual impact on sense of place.		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.5 CUMULATIVE IMPACT ON SENSE OF PLACE

The potential cumulative impacts on the area’s sense of place will be largely linked to potential visual impacts. In this regard the Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts associated with wind farms on landscapes. These issues are also likely to be relevant to solar facilities and associated infrastructure. The relevant issues identified by Scottish Natural Heritage study include:

- Combined visibility (whether two or more wind or solar farms will be visible from one location).

- Sequential visibility (e.g. the effect of seeing two or more wind or solar farms along a single journey, e.g. road or walking trail).
- The visual compatibility of different wind or solar farms in the same vicinity.
- Perceived or actual change in land use across a character type or region.
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type.

The guidelines also note that cumulative impacts need to be considered in relation to dynamic as well as static viewpoints. The experience of driving along a tourist road, for example, needs to be considered as a dynamic sequence of views and visual impacts, not just as the cumulative impact of several developments on one location. The viewer may only see one renewable energy facility and the associated infrastructure at a time, but if each successive stretch of the road is dominated by views of renewable energy facilities, then that can be argued to be a cumulative visual impact (National Wind Farm Development Guidelines, DRAFT - July 2010).

While the impact of a single PV and associated infrastructure on the areas sense of place is likely to be limited, the establishment of five PVs has the potential to have a cumulative impact on the areas sense of place. The findings of the VIA (VRM Africa 2025) note that while individual PV/ BESS projects visual impacts can be contained to some degree, some intervisibility will occur, increasing the potential for cumulative effects. Based on the findings of the VIA the cumulative visual risk to scenic resources was rated Medium Negative with mitigation. Mitigation includes no usage of overhead flood lighting. Based on the findings, the conclusion of the VIA (VRM Africa, 2024) recommends that the proposed PV and BESS projects should be authorised with mitigation.

As indicated above, none of the project landowners raised concerns about the potential impact on the area’s sense of place. In this regard the perception of what constitutes a visual impact is subjective and varies from person to person.

Table 4.17: Cumulative impacts on sense of place and the landscape

Nature: Visual impacts associated with the establishment of more than one PV and the potential impact on the area’s rural sense of place and character of the landscape.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (2)	Local (2)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Highly Probable (4)
Significance	Medium (36)	Medium (48)
Status (positive/negative)	Negative	Negative
Reversibility	Yes. SEF components and other infrastructure can be removed.	
Loss of resources?	No	No
Can impacts be mitigated?	Yes	
Confidence in findings: High.		
Mitigation: The recommendations of the VIA should be implemented.		

Assessment of No-Go option

There is no impact as it maintains the current status quo.

4.6 CUMULATIVE IMPACT OF CONSTRUCTION WORKERS ON SERVICES AND ACCOMMODATION

The establishment of the five PV facilities associated with the Vanderkloof Solar PV and BESS project and other renewable energy projects in the area will place pressure on local services and accommodation in the town of Luckhoff, specifically during the construction phase. While the objective will be to source as many low and semi-skilled workers for the construction phase from Luckhoff and the LM, the potential opportunities may be limited by the low education and skills levels.

The cumulative impact on the local services and accommodation will depend on the phasing and timing of the construction phase. The construction of two or more projects at the same time will require accommodation to be provided for between 500 and 700 construction workers. Based on the findings of the SIA there is not sufficient accommodation available in Luckhoff or the nearby towns of Vanderkloof and Koffiefontein to accommodate this number of construction workers. The developer has therefore indicated that a construction camp will be established on the site to accommodate construction workers. This will effectively address the potential cumulative impact on accommodation. The development and design of an on-site construction camp including the provision of services, such as water and sanitation, will need to be addressed in the planning of the construction phase.

The presence of between 500 and 700 construction workers in the area also has the potential to place pressure on local services, specifically medical services. Based on the findings of the SIA there is no doctor or dentist in Luckhoff and the clinic is understaffed.

However, the potential impact should also be viewed within the context of the potential positive cumulative impacts for the local economy associated with the establishment of the proposed facility and associated renewable energy projects in the LM. These benefits will create opportunities for investment in Luckhoff and LM, including the opportunity to up-grade and expand existing services and the construction of new houses. Socio-economic development (SED) contributions also represent an important focus of the REIPPPP and is aimed at ensuring that the build programme secures sustainable value for the country and enables local communities to benefit directly from the investments attracted into the area. The SED contributions will extend over a period of 20-25 years and provide revenue that can be used by the LM to invest in up-grading local services where required. It should also be noted that it is the function of national, provincial, and local government to address the needs created by development and provide the required services. The additional demand for services and accommodation created by the establishment of development renewable energy projects should therefore be addressed in the Integrated Development Planning process undertaken by the LM.

Table 4.18: Cumulative impacts on local services

Nature: The establishment of a number of renewable energy facilities and associated projects, such as the proposed Vanderkloof PV, in the LM has the potential to place pressure on local accommodation and services (medical, etc).		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local and regional (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Medium (30) ²¹
Status (positive/negative)	Negative	Negative
Reversibility	Yes. SEF components and other infrastructure can be removed.	
Loss of resources?	No	No
Can impacts be mitigated?	Yes	
Confidence in findings: High.		
Mitigation: The proponent should liaise with the LM to address potential impacts on local services.		

Assessment on No-Go option

There is no impact as it maintains the current status quo.

4.7 CUMULATIVE IMPACT OF CONSTRUCTION WORKERS ON LOCAL COMMUNITIES

The establishment of the five PV facilities associated with the Vanderkloof Solar PV and BESS project and other renewable energy projects in the area and the presence of construction workers associated with the projects has the potential to have a cumulative impact on local communities. While the objective will be to source as many low and semi-skilled workers for the construction phase from Luckhoff and the LM, the potential opportunities may be limited by the low education and skills levels.

The cumulative impact on the local community will depend on the phasing and timing of the construction phase. The construction of two or more projects at the same time will result in the presence of between 500 and 700 construction workers. While the intention is to establish a construction camp on the site to accommodate construction workers, they will come into Luckhoff when they are not working.

The presence of construction workers poses a potential risk to family structures and social networks. The most significant negative impacts are associated with the disruption of existing family structures and social networks. This risk is linked to potentially risky behaviour, mainly of male construction workers, including:

- An increase in alcohol and drug use.
- An increase in crime levels.
- The loss of girlfriends and/or wives to construction workers.

²¹ With effective mitigation and planning, the significance will be Low Negative.

- An increase in teenage and unwanted pregnancies.
- An increase in prostitution.
- An increase in sexually transmitted diseases (STDs), including HIV.

The impact of construction workers on the communities of small rural towns, such as Luckhoff, can be significant unless effective management measures are put in place, including strict management measures, including no visitors and operating hours. These measures should be contained in a Construction Camp Management Plan. The developer should ensure that the facility is designed and managed to international standards. Annexure E contains a summary of Guidance Note for Worker Accommodation by the IFC and European Bank for Reconstruction and Development (EBRD) (August 2009) ²².

Table 4.19: Cumulative impact of construction workers on local communities

Nature: The construction workers associated with the establishment of a number of renewable energy facilities, including the Vanderkloof PV Project, have the potential to impact negatively on local community in Luckhoff.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local and regional (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Medium (36) ²³
Status (positive/negative)	Negative	Negative
Reversibility	Yes. PV components and other infrastructure can be removed.	
Loss of resources?	No	No
Can impacts be mitigated?	Yes	
Confidence in findings: High.		
Recommended enhancement measures:		
<ul style="list-style-type: none"> • The construction camp should conform to Guidance Note for Worker Accommodation by the IFC and European Bank for Reconstruction and Development (EBRD) (August 2009). • Prepare a Construction Camp Management Plan. • Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase. • Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP) prior to and during the construction phase. • The SEP and CHSSP should include a Grievance Mechanism that enables stakeholders to report resolve incidents. • Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories. • The proponent should consider the option of establishing a Monitoring Committee (MC) for the construction phase that representatives from local landowners, farming associations, and the local municipality. This MC should be established prior to commencement of the construction phase and form part of the SEP. • The proponent and contractor should develop a Code of Conduct (CoC) for construction workers. The code should identify which types of behaviour and activities are not 		

²² Guidance Note for Worker Accommodation. IFC and EBRD (August 2009).

²³ With effective management of the construction camp the significance can be reduced to Low Negative.

acceptable. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation. The CoC should be signed by the proponent and the contractors before the contractors move onto site. The CoC should form part of the CHSSP.

- The proponent and the contractor should implement an HIV/AIDS, COVID-19 and Tuberculosis (TB) awareness programme for all construction workers at the outset of the construction phase. The programmes should form part of the CHSSP.
- The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.
- The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.

Assessment on No-Go option

There is no impact as it maintains the current status quo.

4.8 CUMULATIVE IMPACT OF JOB SEEKERS ON LOCAL COMMUNITIES AND SERVICES

The establishment of the five PV facilities associated with the Vanderkloof PV project and other renewable energy projects in the area has the potential to attract job seekers to Luckhoff and the LM. The proposed Luckhoff PV development represents one of the largest renewable projects in South Africa. As indicated above, based on the comments submitted during the comment period there is high interest in the project, specifically the potential for the creating employment. The proposed development therefore has the potential to attract job seekers to the area, specifically Luckhoff. Given the current poor service levels in Luckhoff and influx of job seekers has the potential to place pressure on local services and impact on the local community. The potential risks associated with the influx of job seekers on small, rural towns, such as Luckhoff, are typically higher than for larger towns that can absorb more people.

As in the case of construction workers employed on the project, the actual presence of job seekers in the area does not in itself constitute a social impact. However, the way in which they conduct themselves can impact on the local community. The main areas of concern associated with the influx of job seekers include:

- Pressure on local services, including accommodation and health services.
- Impacts on existing social networks and community structures.
- Competition for scarce jobs.
- Increase in incidences of crime.

Table 4.20: Cumulative impact of job seekers on local communities and services

Nature: The influx of job seekers to the area has the potential to impact negatively on local community in Luckhoff and place pressure on services.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local and regional (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Medium (36)
Status (positive/negative)	Negative	Negative
Reversibility	Yes. PV components and other infrastructure can be removed.	
Loss of resources?	No	No
Can impacts be mitigated?	Yes	
Confidence in findings: High.		
Recommended mitigation measures: It is impossible to stop people from coming to the area in search of employment. However, as indicated above, the proponent should ensure that the employment criteria favour residents from the area. In addition:		
<ul style="list-style-type: none"> • Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to and during the construction phase. • Preparation and implementation of a Community Health, Safety and Security Plan (CHSSP) prior to and during the construction phase. • The proponent, in consultation with the LM should investigate the option of establishing a MC to monitor and identify potential problems that may arise due to the influx of job seekers to the area. • The proponent should implement a "locals first" policy, specifically with regard to unskilled and low skilled opportunities. • The proponent should implement a policy that no employment will be available at the gate. 		

Assessment on No-Go option

There is no impact as it maintains the current status quo.

4.9 CUMULATIVE IMPACT ON LOCAL ECONOMY

In addition to the potential negative impacts, the establishment of the Vanderkloof Solar PV and BESS project and other renewable energy facilities and associated infrastructure in the area will also create several socio-economic opportunities for Luckhoff and LM. The positive cumulative opportunities include creation of employment, skills development and training opportunities, and downstream business opportunities.

The total expenditure associated with the full development of the Vanderkloof Solar PV Project (PV 1-5) would be in the region of R 20-24 billion (2025 Rand values). The total number of employment opportunities would be in the region of 250 for each of the 250 MW PV projects (PV 1-4) and 400-450 for PV 5. The number of full-time employment opportunities created during the operational phase would be in the region of 220. These employment opportunities would extend over a period of 20-25 years. Given the high unemployment levels in Luckhoff and the LM, this would represent a unique significant

socio-economic benefit and opportunity. The Vanderkloof Solar PV projects will also contribute to SED through annual contributions.

The review of the REIPPPP (December 2021) indicates that to date (across BW1-4) a total contribution of R22.8 billion has been committed to SED initiatives. Assuming an even, annual revenue spread, the average contribution per year would be R1.1 billion. Of the total commitment, R18.5 billion is specifically allocated for local communities where the IPPs operate. With every new IPP on the grid, revenues and the respective SED contributions will increase.

The potential cumulative benefits for the local and regional economy are therefore associated with both the construction and operational phase of the Vanderkloof PV Project and other renewable energy projects and extend over a period of 20-25 years. However, steps must be taken to maximise employment opportunities for members from the local communities in the area and support skills development and training programmes.

Table 4.21: Cumulative impacts on local economy

Nature: The establishment of renewable energy facilities and associated projects, such as the Vanderkloof PV Project, in the LM will create employment, skills development and training opportunities, creation of downstream business opportunities.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local and regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	High (8)
Probability	Highly Probable (4)	Definite (5)
Significance	Medium (36)	High (75)
Status (positive/negative)	Positive	Positive
Reversibility	Yes. PV components and other infrastructure can be removed.	
Loss of resources?	No	No
Can impacts be mitigated?	Yes	
Confidence in findings: High.		
Mitigation: The proposed establishment of suitably sited renewable energy facilities and associated projects, such as the proposed PV, within the LM should be supported.		

Assessment of No-Go option

There is no impact as it maintains the current status quo. This would represent a lost socio-economic opportunity for the LM.

4.10 ASSESSMENT OF DECOMMISSIONING PHASE

Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. Given the number of people employed during the operational phase (~ 30 for PV 1-4 and 100 for PV 5), the social impacts at a community level associated with

decommissioning can be managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative). However, in the case of the proposed facility the decommissioning phase is likely to involve the disassembly and replacement of the existing components with more modern technology. This is likely to take place in the 20 - 25 years post commissioning. The decommissioning phase is therefore likely to create additional post construction type jobs, as opposed to the jobs losses typically associated with decommissioning.

Based on the findings of the SIA the significance of the benefits associated with socio-economic development contributions will be similar for each of the five Vanderkloof PV projects (PV 1-5). Although the Vanderkloof PV 5 project employs more workers than the PV 1-4 projects, the significance rating of Low Negative with mitigation is the same. The significance rating therefore applies to Vanderkloof PV 1-5. Separate assessments have therefore not been undertaken.

Table 4.22: Social impacts associated with decommissioning

Nature Social impacts associated with retrenchment including loss of jobs, and source of income.		
	Without Mitigation	With Mitigation
Extent	Local (4)	Local (2)
Duration	Short term (2)	short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (24)
Status	Negative	Negative
Reversibility	N/A	
Irreplaceable loss of resources?	No	No
Can impact be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> The proponent should ensure that retrenchment packages are provided for all staff retrenched when the plant is decommissioned. All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning. 		
Residual impacts No, provided effective retrenchment package.		

Assessment on No-Go option

There is no impact as it maintains the current status quo.

4.11 ASSESSMENT OF NO-DEVELOPMENT OPTION

The primary goal of the project is to assist in providing additional capacity to Eskom to assist in addressing the current energy supply constraints. The project also aims to reduce the carbon footprint associated with energy generation. As indicated above, energy supply constraints and the associated load shedding have had a significant impact on the economic development of the South African economy. South Africa also relies on

coal-powered energy to meet more than 90% of its energy needs. South Africa is therefore one of the highest per capita producers of carbon emissions in the world and Eskom, as an energy utility, has been identified as the world’s second largest producer carbon emissions.

The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with clean, renewable energy. Given South Africa’s current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant negative social cost.

Table 4.23: Assessment of no-development option

Nature: The no-development option would result in the lost opportunity for South Africa to improve energy security and assist to support with the development of clean, renewable energy		
	Without Enhancement ²⁴	With Enhancement ²⁵
Extent	Local-International (4)	Local-International (4)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Moderate (56)	Moderate (56)
Status	Negative	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	Yes, impact of climate change on ecosystems	
Can impact be mitigated?	Yes	
Enhancement: The proposed PV should be developed, and the mitigation and enhancement measures identified in the SIA and other specialist studies should be implemented.		
Residual impacts: Reduce carbon emissions via the use of renewable energy and associated benefits in terms of global warming and climate change.		

²⁴ Assumes project is not developed.

²⁵ Assumes project is developed.

SECTION 5: KEY FINDINGS AND RECOMMENDATIONS

5.1 INTRODUCTION

Section 5 lists the key findings of the study and recommendations. These findings are based on:

- A review of key planning and policy documents pertaining to the area.
- A review of social and economic issues associated with similar developments.
- Site visit and interviews with key stakeholders.
- A review of relevant literature on social and economic impacts.
- The experience of the authors with other renewable energy projects in the Free State Province

5.2 SUMMARY OF KEY FINDINGS

The key findings of the study are summarised under the following sections:

- Fit with policy and planning.
- Construction phase impacts.
- Operational phase impacts.
- Cumulative impacts.
- Decommissioning phase impacts.
- No-development option.

Based on the findings of the SIA the social impacts associated with the construction and operation of the BESSs and on on-site substations do not have a bearing on the significance ratings for the Vanderkloof PV Projects (PV 1-5). The assessment ratings for the construction and operational phase therefore include the construction and operation of the BESSs and on-site substations.

5.2.1 Policy and planning issues

The development of and investment in renewable energy is supported by the National Development Plan (NDP), National Infrastructure Plan and Free State Green Economy Strategy which refer to and support renewable energy. The LM IDP also supports the development of renewable energy. The development of the proposed PV project is therefore supported by key policy and planning documents.

5.2.2 Construction phase impacts

Based on the findings of the SIA the social impacts associated with the construction phase for each of the five Vanderkloof Solar PV & BESS projects (Vanderkloof PV 1-5 and Vanderkloof BESS 1-5) are similar. Likewise, the significance ratings are also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments were undertaken where this was the case.

Potential positive impacts

- Creation of employment and business opportunities, and the opportunity for skills development and on-site training.

The construction phase for each of the 250 MW Vanderkloof PV 1-4 projects will extend over a period of approximately 18 months and create in region of 250 employment opportunities for each of the four PV projects. The construction phase for the 1 000 MW Vanderkloof PV 5 project will extend over a period of approximately 24-30 months and create in the region of 400-450 employment opportunities. Members from the local communities in Luckhoff and other towns in the LM may potentially qualify for low skilled and semi-skilled and some skilled employment opportunities. The LM IDP notes that Luckhoff has the highest unemployment levels in the LM. The creation of employment opportunities will therefore represent a significant, if localised, social benefit. However, the low education and skills levels in the area may limit the opportunities for local employment.

The wage bill for each Vanderkloof PV 1-4 project will be in the region of R 60 million (2025 Rand values). The wage bill for the Vanderkloof PV 5 project will be in the region of R 100 million (2025 Rand values). A percentage of the wage bill will be spent in the local economy which will also create opportunities for local businesses in the local towns in the area. This will benefit the local economy, specifically shops such as the OK Mini Mark in Luckhoff.

The capital expenditure for each of 250 MW Vanderkloof PV 1-4 projects will be approximately R 4 billion (2025 Rand value). The capital expenditure for the 1 000 MW Vanderkloof PV 5 project will be in the region of R 12 billion (2025 Rand values). Due the lack of diversification in the local economy the potential for local companies in the LM is likely to be limited. Most benefits are therefore likely to accrue to contractors and engineering companies based outside the LM. However, the GWK Pty Ltd cooperative in Luckhoff is likely to benefit from providing services and materials for the project.

The local service sector will also benefit from the construction phase. The potential opportunities would be linked to accommodation, catering, cleaning, transport, and security, etc. associated with the construction workers on the site.

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities.
- Impacts related to the potential influx of jobseekers.
- Increased safety and security risks to landowners and farming operations associated with presence of construction workers on the site.
- Increased risk of grass fires associated with construction related activities.
- Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.
- Impact on productive farmland.

The findings of the SIA indicate that the significance of all the potential negative impacts with mitigation are likely to be **Low Negative**. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. Table 5.1 summarises the significance of the impacts associated with the construction phase.

Table 5.1: Summary of social impacts during construction phase

Impact	Significance No Mitigation/Enhancement	Significance With Mitigation/Enhancement
Creation of employment and business opportunities (PV 1-4)	Medium (+)	Medium (+)
Creation of employment and business opportunities (PV 5)	Medium (+)	High (+)
Presence of construction workers and potential impacts on family structures and social networks (PV 1-5)	Medium (-)	Low (-)
Influx of job seekers (PV 1-5)	Medium (-)	Low (-)
Safety and security risk, to landowners and farming associated with presence of construction workers (PV 1-5)	Medium (-)	Low (-)
Increased risk of grass fires (PV 1-5)	Medium (-)	Low (-)
Nuisance impacts associated with construction activities (PV 1-5)	Medium (-)	Low (-)
Loss of farmland (PV 1-5)	Low (-)	Low (-)

5.2.3 Operational phase impacts

Based on the findings of the SIA the social impacts associated with the operational phase for each of the five Vanderkloof Solar PV & BESS projects (Vanderkloof PV 1-5 and Vanderkloof BESS 1-5) are similar. Likewise, the significance ratings are also similar. Separate assessments were therefore not undertaken for each project. However, in some instances the significance ratings associated with the Vanderkloof PV 5 do differ. This is due to the larger size of the project. Separate assessments were undertaken where this was the case.

Potential positive impacts

- Establishment of infrastructure to improve energy security and support renewable sector.
- Creation of employment and business opportunities.
- Benefits for project landowners.
- Benefits associated with socio-economic contributions to community development.

The proposed project will supplement South Africa's energy and assist to improve energy security. In addition, it will also reduce the country's reliance on coal as an energy source. This represents a positive social benefit.

Potential negative impacts

- Visual impacts and associated impacts on sense of place.
- Potential impact on property values.
- Potential impact on tourism.

The findings of the SIA indicate that the significance of all the potential negative impacts with the exception of visual impacts will be **Low Negative** with mitigation. The majority of potential negative impacts can therefore be effectively mitigated. The significance of the impacts associated with the operational phase are summarised in Table 5.2.

Table 5.2: Summary of social impacts during operational phase

Impact	Significance No Mitigation/Enhancement	Significance With Mitigation/Enhancement
Establishment of infrastructure to improve energy security and support renewable sector (PV 1-5)	High (+)	High (+)
Creation of employment and business opportunities (PV 1-4)	Medium (+)	Medium (+)
Creation of employment and business opportunities (PV 5)	Medium (+)	High (+)
Benefits associated with socio-economic contributions to community development (PV 1-5)	Medium (+)	High (+)
Benefits for landowners	Low (+)	High (+)
Visual impact and impact on sense of place (PV 1-5)	Medium (-)	Low-Medium (-)
Impact on property values (PV 1-5)	Low (-)	Low (-)
Impact on tourism (PV 1-5)	Low (-)	Low (-)

5.2.4 Assessment of cumulative impacts

- **Cumulative impact on sense of place:** The establishment of the proposed Vanderkloof Solar PV and BESS project and other renewable energy facilities in the area will create the potential for combined and sequential visibility impacts. This impact is rated as **Medium Negative**.
- **Cumulative impact of construction workers local services and accommodation:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact of construction workers on local communities:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact of job seekers on local communities and services:** The significance of this impact with effective mitigation was rated as **Medium Negative**.
- **Cumulative impact on local economy:** The significance of this impact with enhancement was rated as **High Positive**.

5.2.5 Decommissioning phase

Given the number of people employed during the operational phase (~ 30 for PV 1-4 and 100 for PV 5), the social impacts at a community level associated with decommissioning can be managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low

(negative). However, in the case of the proposed facility the decommissioning phase is likely to involve the disassembly and replacement of the existing components with more modern technology.

5.2.6 Assessment of no-development option

The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with clean, renewable energy. Given South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant negative social cost. The No-Development option is not supported by the findings of the SIA.

5.3 CONCLUSIONS

The findings of the SIA indicate that the proposed Vanderkloof Solar PV and BESS Projects (PV 1-5 and BESS 1-5) and associated infrastructure will create several significant social and socio-economic benefits, including creation of employment and business opportunities during both the construction and operational phases. As the largest single PV project in South Africa the Vanderkloof Solar PV and BESS Project (PV 1-5 and BESS 1-5) will create a unique opportunity for the upliftment of the town of Luckhoff and investment in the LM.

The project will also create economic development opportunities for the local community. The significance of this impact is rated as **High Positive**. The proposed development also represents an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts associated a coal-based energy economy and the challenges created by climate change, represents a significant positive social benefit for society as a whole. The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) has resulted in significant socio-economic benefits, both at a national level and at a local, community level. These benefits are linked to foreign Direct Investment, local employment and procurement and investment in local community initiatives.

The findings also indicate that the potential negative impacts associated with both the construction and operational phase are likely to be **Low Negative** with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented.

Statement and reasoned opinion

The establishment of the proposed Vanderkloof Solar PV and BESS Project (PV 1-5 and BESS 1-5) and associated infrastructure is therefore supported by the findings of the SIA.

ANNEXURE A

INTERVIEWS

- Derik Coetsee, Portion 1 of Farm 113 (20/2/2025)
- Fanie Botha, Remainder of Farm 39, Remainder of Farm 253 (20/2/2025)
- Herci van Huffel, Remainder of Farm 634 (20/2/2025)
- Jacobus van Huffel, Remainder of Farm 634 (20/2/2025)
- Philip Piek, Remainder of Farm 654 (19/02/2025)
- Nicolaas van Oudschoorn, Remainder of Farm 1132, Portion 1 of Farm 1132 (22/02.2025)
- Bertie Viljoen, Eco-Karoo Lodge (19/02/2025).
- Bonolo Mocwaledi, Mayor LM (19/02/2025).
- Sindiswa Maneli, Municipal Manager LM (19/02/2025)
- Itumeleng Ramohlabi, Ward 1, LM (19/02/2025)
- Daleen van Staden Terblanche, LM (19/02/2025)
- Thabo Ndiopo, LM (19/02/2025)
- Vuyani Stuurman, LM (19/02/2025)
- Molus Kgomotso, LM (19/02/2025)
- Thato Kumalo, LM (19/02/2025)
- Abram Lebeka, LM (19/02/2025)

EMAIL CORRESPONDENCE

- Juan Valencia, owner Joostenberg Eco-Tourism and hunting Operation, 18/02/2025

REFERENCES

- The National Energy Act (2008).
- The National Development Plan (2011).
- The White Paper on Energy Policy (1998).
- The White Paper on Renewable Energy (2003).
- National Infrastructure Plan (2012 /2021)
- Integrated Resource Plan (IRP) for South Africa (2010-2030).
- Climate Change Bill (2018 / 2021).
- Just Energy Transition Investment Plan (2023-2027).
- Free State Provincial Growth and Development Strategy 2030 Vision.
- Free State Provincial Spatial Development Framework (PSDF).
- Free State Green Economy Strategy (2014).
- Free State Investment Prospectus (2019).
- Letsemeng Local Municipality Integrated Development Plan (2023/24 Review).
- Letsemeng Local Municipality Spatial Development Framework (2021).

ANNEXURE B

METHODOLOGY FOR THE ASSESSMENT OF POTENTIAL IMPACTS

Direct, indirect and cumulative impacts of the above issues, as well as all other issues identified will be assessed in terms of the following criteria:

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

The **significance** is determined by combining the criteria in the following formula:

$S=(E+D+M)P$; where

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

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

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

ANNEXURE C

Tony Barbour

ENVIRONMENTAL CONSULTING

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Tony Barbour's has 30 years' experience in the field of environmental consulting and management. His experience includes working for ten years as a consultant in the private sector followed by four years at the University of Cape Town's Environmental Evaluation Unit. He has worked as an independent consultant since 2004, with a key focus on Social Impact Assessment. His other areas of interest include Strategic Environmental Assessment and review work.

EDUCATION

- BSc (Geology and Economics) Rhodes (1984).
- B Economics (Honours) Rhodes (1985).
- MSc (Environmental Science), University of Cape Town (1992).

EMPLOYMENT RECORD

- Independent Consultant: November 2004 – current;
- University of Cape Town: August 1996-October 2004: Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher;
- Private sector: 1991-August 2000: 1991-1996: Ninham Shand Consulting (Now Aurecon, Cape Town). Senior Environmental Scientist; 1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Cape Town.

LECTURING

- University of Cape Town: Resource Economics; SEA and EIA (1991-2004);
- University of Cape Town: Social Impact Assessment (2004-current);
- Cape Technikon: Resource Economics and Waste Management (1994-1998);
- Peninsula Technikon: Resource Economics and Waste Management (1996-1998).

RELEVANT EXPERIENCE AND EXPERTISE

Tony Barbour has undertaken in the region of 260 SIA's, including SIA's for infrastructure projects, dams, pipelines, and roads. All of the SIAs include interacting with and liaising with affected communities. In addition, he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa.

Tony was also the project manager for a study commissioned in 2005 by the then South African Department of Water Affairs and Forestry for the development of a Social Assessment and Development Framework. The aim of the framework was to enable the Department of Water Affairs and Forestry to identify, assess and manage social impacts associated with large infrastructure projects, such as dams. The study also included the development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation.

Countries with work experience include South Africa, Namibia, Angola, Botswana, Zambia, Lesotho, Swaziland, Ghana, Senegal, Nigeria, Mozambique, Mauritius, Kenya, Ethiopia, Oman, South Sudan, Sudan, Rwanda and Armenia.

ANNEXURE D

The specialist declaration of independence in terms of the Regulations_

I, Tony Barbour , declare that --

General declaration:

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;

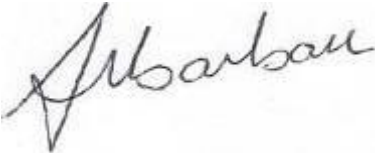
I will comply with the Act, Regulations and all other applicable legislation;

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:

Tony Barbour Environmental Consulting and Research

Name of company (if applicable):

17 March 2025

Date:

ANNEXURE E

IFC PS SUMMARYWORKER ACCOMMODATION: PROCESSES AND STANDARDS²⁶

The section below provides a summary of the relevant sections of the guidance note for worker accommodation prepared by the by IFC and European Bank for reconstruction and development (EBRD). The guidance note is divided into two parts, namely:

- Part I: Planning and Assessing requirements for Workers' Accommodation.
- Part II: Standards for and Management of Workers' Accommodation.

PART I: PLANNING AND ASSESSING REQUIREMENTS FOR WORKERS' ACCOMMODATION

Part 1 notes that it is generally not desirable for employers to provide housing for their workers directly and employers should use alternatives where possible. If there are no alternatives, specific attention should be paid to renting arrangements, workers' rights and housing standards.

Part 1-Section I: Assessing the need for workers' accommodation

The guideline notes that before establishing worker accommodation it is important to gain an understanding of the local housing and labour markets and the potential effects the building of new facilities may have on the surrounding communities. This includes assessing the following aspects:

- Availability of workers from the local area
- Availability of existing housing

Availability of local workers

The guidelines notes that it is preferable to source labour from the local communities as this has many advantages; not only in terms of reducing the need for workers' accommodation, but also as it will increase the direct and indirect benefits to the community arising from the project. This approach is strongly supported by the EBRD and IFC.

The availability should be informed by:

- Assessment of the skills and competencies of the local workforce and how those skills and competencies fit the project needs.
- Assessment of opportunities to train the local workforce to fulfil the project's needs.

Availability of existing housing

The Guideline notes that if local workers are unavailable or not sufficiently skilled, the question arises of whether external workers can be accommodated within the existing local housing capacity or whether new facilities are needed.

Based on the findings of the SIA there is not sufficient accommodation in Luckhoff and the surrounding towns.

Part 1-Section II: Assessing impacts of workers' accommodation on communities

²⁶ Guidance Note for Worker Accommodation. IFC and EBRD (August 2009).

The guideline notes that where the need to provide new workers' accommodation is identified, it is important to consider how this will impact on the surrounding communities. This applies to both the construction and operational phase of the facility.

Construction and operational related impacts

The construction related impacts listed include:

- Health, safety, and disturbance related impacts arising from construction related activities, including traffic (dust, noise, and vibration).
- involuntary resettlement.
- Impact on existing infrastructure, specifically water and sanitation, electricity, and transport systems.
- Impact on local medical, social, educational, and recreational services and facilities.
- Impact on local businesses and employment.
- Community health and safety.
- Impact on community cohesion.
- Land acquisition and resettlement.

The impacts associated with dismantling (decommissioning) and reinstatement should also be considered.

Part 1-Section III: Types of workers' accommodation

Table 1 in Section III lists the types of worker accommodation. The key criteria listed include whether the facilities are temporary or permanent, their location (remote or non-remote), size, or economic sector (agriculture, mining, oil and gas, construction, manufacturing). The key issues listed for Construction Camps, include:

- Enforcement of standards and monitoring difficulties.
- Relations with the communities.
- Living standards.

PART II: STANDARDS FOR AND MANAGEMENT OF WORKERS' ACCOMMODATION.

Part II outlines the principles and standards applicable to the location and construction of workers' accommodation, including the transport systems provided, the general living facilities, rooms/dormitories facilities, sanitary facilities, canteen and cooking facilities, food safety, medical facilities, and leisure/social facilities.

Part II-Section I: Standards for workers' accommodation

The section on standards for workers' accommodation is divided into a number of subsections.

National/local standards

Relevant national and or local standard relating to building specifications and regulations and associated health and safety requirements etc. must be met.

General living facilities

The location and development of accommodation facilities should take into account risks associated with natural hazards, such as flooding and veld fires etc., and unnecessary exposure to disease vectors, such as mosquitoes and flies etc. Facilities should also be constructed from suitable material, provide workers with a comfortable, safe, and healthy environment, and be kept clean and well maintained. Importantly, the guideline

notes that workers' accommodation should not be located where it is impacted by environmental or operational impacts of the worksite (for example noise, emissions, or dust). However, it should also be sufficiently close that workers do not have to spend undue amounts of time travelling from their accommodation to the worksite.

The guideline highlights the importance of water, wastewater, and solid waste. In terms of water an adequate supply of potable water must be provided to meet drinking and ablution requirements. Drinking water must meet required drinking water standards and water quality must be monitored regularly. The guideline notes that depending on climate, weather conditions and accommodation standards, 80 to 180 litres per person per day should be provided. All tanks used for the storage of drinking water should be constructed and covered as to prevent water stored therein from becoming polluted or contaminated.

Wastewater treatment and effluent discharge as well as solid waste treatment and disposal must comply with required effluent discharge standards and be adequately designed to prevent contamination of any water body, to ensure hygiene and to avoid the spread of infections and diseases, the proliferation of mosquitoes, flies, rodents, and other pest vectors. Depending on the local context, treatment and disposal services can be either provided by dedicated or existing municipal facilities.

Dedicated containers for rubbish collection should be provided and emptied on a regular basis. The guideline notes that it is best practice to locate rubbish containers 30 metres from each shelter on a wooden, metal, or concrete stand. The containers must be emptied at regular intervals (to be determined based on temperatures and volumes generated) to avoid unpleasant odours associated with decaying organic materials. Pest and vector control measures should be implemented and carried out on a regular basis.

Room/dormitory facilities

The guideline notes that the standards of the rooms or dormitory facilities are important to allow workers to rest properly and to maintain good standards of hygiene. Overcrowding should be avoided particularly. Exposure to noise and odour should be minimised. In addition, room/dormitory design and equipment should provide workers a maximum of privacy. In this regard single or double rooms are preferred. Dormitories and rooms must be single sex.

The key requirements / benchmarks listed that are relevant to the facility include:

- Rooms/dormitories are maintained and kept in good condition.
- Rooms/dormitories are aired and cleaned at regular intervals.
- Rooms/dormitories are built with easily cleanable flooring material.
- Sanitary facilities are located within the same buildings and provided separately for men and women.
- Density standards are expressed either in terms of minimal volume per resident or of minimal floor space. Usual standards range from 10 to 12.5 cubic metres (volume) or 4 to 5.5 square metres (surface).
- A minimum ceiling height of 2.10 metres is provided.
- All doors and windows should be lockable and provided with mosquito screens where conditions warrant.
- Every resident is provided with adequate furniture such as a table, a chair, a mirror, and a bedside light.
- Separate sleeping areas are provided for men and women, except in family accommodation.

Bed arrangements and storage facilities

The provision of an adequate numbers of beds of an appropriate size is essential to provide workers with decent, safe, and hygienic conditions to rest and sleep. The key requirements / benchmarks listed that are relevant to the facility include:

- A separate bed for each worker is provided. The practice of “hot-bedding” should be avoided.
- Each worker is provided with a comfortable mattress, pillow, cover and clean bedding.
- Bed linen is washed frequently and applied with repellents and disinfectants where conditions warrant (malaria).
- Facilities for the storage of personal belongings for workers are provided. Standards vary from providing an individual cupboard for each worker to providing 475-litre big lockers and 1 metre of shelf unit.
- Separate storage for work boots and other personal protection equipment, as well as drying/airing areas may need to be provided depending on conditions.

The guideline notes that irrespective of whether workers are supposed to keep their facilities clean, it is the responsibility of the accommodation manager to ensure that rooms/dormitories and sanitary facilities are in good condition.

Sanitary and toilet facilities

Well maintained and clean sanitary and toilet facilities are essential to allow workers to maintain a good standard of personal hygiene and prevent contamination and the spread of diseases. Sanitary and toilet facilities include all the following: toilets, urinals, washbasins, and showers. The key requirements / benchmarks listed that are relevant to the facility include:

- Sanitary and toilet facilities are constructed of materials that are easily cleanable.
- Sanitary and toilet facilities are cleaned frequently and kept in working condition.
- Sanitary and toilet facilities are designed to provide workers with adequate privacy, including ceiling to floor partitions and lockable doors.
- Sanitary and toilet facilities are not shared between men and women, except in family accommodation.
- Toilet rooms should be well-lit, have good ventilation or external windows, have sufficient hand wash basins, and be conveniently located. Toilets and other sanitary facilities should be (“must be” in cold climates) in the same building as rooms and or dormitories.
- Showers/bathrooms should be conveniently located. Standards range from 30 to 60 metres from rooms/dormitories. Toilet rooms shall be located so as to be accessible without any individual passing through any sleeping room.
- Shower/bathroom flooring is made of anti-slip hard washable materials.
- Shower/bathroom facilities are provided with an adequate supply of cold and hot running water.
- An adequate number of shower/bathroom facilities is provided to workers. Standards range from 1 unit to 15 persons to 1 unit per 6 persons.
- Handwash facilities should consist of a tap and a basin, soap and hygienic means of drying hands.
- An adequate number of handwash facilities is provided to workers. Standards range from 1 unit to each 15 persons to 1 unit per 6 workers.

Canteen, cooking and laundry facilities

Adequate canteen, cooking and laundry facilities and equipment should also be provided. When caterers are contracted to manage kitchens and canteens, special attention should

be paid to ensure that contractors take into account and implement the key requirements / benchmarks listed below, and that adequate reporting and monitoring mechanisms are in place. The key requirements / benchmarks listed that are relevant to the facility include:

- Canteen, cooking, and laundry facilities are built in adequate and easy to clean materials.
- Canteen, cooking, and laundry facilities are kept in a clean and sanitary condition.
- If workers can cook their own meals, kitchen space is provided separate from sleeping areas.
- Adequate facilities for washing and drying clothes are provided. Standards range from providing sinks or tubs with hot and cold water, cleaning soap and drying lines to providing washing machines and dryers.
- When work clothes are used in contact with dangerous substance (for example, application of pesticide), special laundry facilities (washing machines) should be provided.
- Canteens have a reasonable amount of space per worker. Standards range from 1 square metre to 1.5 square metres.
- Canteens are adequately furnished. Standards range from providing tables, benches, individual drinking cups and plates to providing special drinking fountains.
- Places for food preparation are designed to permit good food hygiene practices, including protection against contamination between and during food preparation.
- Kitchens are provided with facilities to maintain adequate personal hygiene including a sufficient number of washbasins designated for cleaning hands with clean, running water and materials for hygienic drying.
- Wall surfaces adjacent to cooking areas are made of fire-resistant materials. Food preparation tables are also equipped with a smooth durable washable surface.
- In order to enable easy cleaning, it is good practice that stoves are not sealed against a wall, benches and fixtures are not built into the floor, and all cupboards and other fixtures and all walls and ceilings have a smooth durable washable surface.
- All kitchen floors, ceiling and wall surfaces adjacent to, or above food preparation and cooking areas are built using durable, non-absorbent, easily cleanable, non-toxic materials.
- Wall surfaces adjacent to cooking areas are made of fire-resistant materials. Food preparation tables are equipped with a smooth, durable, easily cleanable, non-corrosive surface made of non-toxic materials.
- In order to enable easy cleaning, it is good practice that stoves are not sealed against a wall, benches and fixtures are not built into the floor, and all cupboards and other fixtures have a smooth, durable, and washable surface.
- Adequate facilities for cleaning, disinfecting and storage of cooking utensils and equipment should be provided.
- Food waste and other refuse should be deposited in sealable containers and removed from the kitchen frequently to avoid accumulation.

The guideline notes that when workers are provided with facilities allowing them to do their laundry or cooking, it should be the responsibility of each worker to keep the facilities in a clean and sanitary condition. Nonetheless, it is the responsibility of the accommodation manager to make sure the standards are respected and to provide an adequate cleaning, disinfection, and pest/ vector control service when necessary.

Medical facilities

The availability or level of medical facilities provided in workers' accommodation depends on the number of workers living on site, the medical facilities already existing in the neighbouring communities and the availability of transport. However, first aid must

always be available on site. The key requirements / benchmarks listed that are relevant to the facility include:

- An adequate number of staff/workers should be trained to provide first aid.
- First aid kits adequate to the number of residents should be provided.
- First aid kits should be adequately stocked.
- Where possible access to a 24/7 emergency first aid service/facility should be provided.

Leisure, social and telecommunication facilities

Basic leisure and social facilities are important for workers to rest and also to socialise during their free time. Exercise and recreational facilities will increase workers' welfare and reduce the impact of the presence of workers in the surrounding communities. In addition, it is also important to provide workers with adequate means to communicate with the outside world, especially when workers' accommodation is located in a remote location or where workers live on site without their family or are migrants. Consideration of cultural attitudes is important. Provision of space for religious observance needs to be considered, taking account of the local context and potential conflicts in certain situations. The key requirements / benchmarks listed that are relevant to the facility include:

- Basic collective social/rest spaces should be provided to workers. Standards range from providing workers multi-purpose halls to providing designated areas for radio, TV, cinema.
- Recreational facilities should be provided. Standards range from providing exercise equipment to providing a library, swimming pool, tennis courts, table tennis, educational facilities.
- Provision should be made to provide workers with dedicated places for religious observance if the context warrants.
- Cell phone and internet reception should be provided.

Part II-Section II: Managing workers' accommodation

Once the living facilities have been constructed and are operational, effective ongoing management of living facilities is essential. This encompasses issues such as the physical maintenance of buildings, security and consultation with residents and neighbouring communities in order to ensure the implementation of the housing standards in the long term.

- Management and staff.
- Health and safety on site.
- Security of workers' accommodation.
- Workers' rights, rules and regulations on workers' accommodation.
- Consultation and grievance mechanisms.
- Management of community relations.

Management and staff

Worker camps and housing facilities should have a written management plan, including management policies or plans on health and safety, security, living conditions, workers' rights and representation, relationships with the communities and grievance processes. The guideline also notes that the quality of the staff managing and maintaining the accommodation facilities will have a decisive impact on the level of standards which are implemented and the well-being of workers (for instance on the food safety or overall hygiene standards). It is therefore important to ensure that managers are competent,

and other workers are adequately skilled. The key requirements / benchmarks listed that are relevant to the facility include:

- Management plans and policies especially in the field of health and safety (with emergency responses), security, workers' rights, relationships with the communities, are in place.
- An appointed person with the adequate background and experience is in charge of managing the workers' accommodation.
- Sufficient staff are employed to undertake cleaning, cooking and of general maintenance.
- Such staff are recruited from the local communities.
- Staff have received basic health and safety training.
- Persons in charge of the kitchen are trained in nutrition and food-handling and adequately supervised.

Health and safety on site

The company or body in charge of managing the workers' accommodation should have the prime responsibility for ensuring workers' physical well-being and integrity. This involves making sure that the facilities are kept in good condition (ensuring that sanitary standards or fire regulations are respected for instance) and that adequate health and safety plans and standards are designed and implemented. The key requirements / benchmarks listed that are relevant to the facility include:

- Health and safety management plans including electrical, mechanical, structural and food safety have been carefully designed and are implemented.
- The person in charge of managing the accommodation has a specific duty to report to the health authorities the outbreak of any contagious diseases, food poisoning and other important casualties.
- An adequate number of staff/workers is trained to provide first aid.
- A specific fire safety plan is prepared, including training of fire wardens, periodic testing and monitoring of fire safety equipment and periodic drills.
- Guidance on the detrimental effects of the abuse of alcohol and drugs and other potentially harmful substances and the risk and concerns relating to HIV/AIDS and of other health risk-related activities is provided to workers. It is best practice to develop a clear policy on this issue.
- Workers have access to adequate preventive measures such as contraception (condoms in particular) and mosquito nets.
- Workers have easy access to medical facilities and medical staff. Where possible, female doctors/nurses should be available for female workers.
- Emergency plans on health and fire safety are prepared. Depending on the local context, additional emergency plans are prepared as needed to handle specific occurrences (earthquakes, floods, tornadoes).

Security of workers' accommodation

The guideline notes that ensuring the security of workers and their property on the accommodation site is of key importance. To achieve this a security plan must be developed and implemented. In the event that it is necessary to contract the services of a security company reference should be made to international practices, specifically IFC PS4. Particular attention should be paid to the safety and security of women workers. The key requirements / benchmarks listed that are relevant to the facility include:

- A security plan should be development and implemented, including clear measures to protect workers against theft and attack is implemented.
- The security plan should include clear policies on the use of force.

- Security staff should be checked to ensure that they have not been implicated in any previous crimes or abuses. Where appropriate, security staff from both genders should be recruited.
- Security staff should receive clear instruction about their duties and responsibilities, in particular their duties not to harass, intimidate, discipline, or discriminate against workers.
- Security staff should have adequate training in dealing with domestic violence and the use of force.
- Security staff have a good understanding about the importance of respecting workers' rights and the rights of the communities.
- Workers and members of the surrounding communities have specific means to raise concerns about security arrangement and staff.

Workers' rights, rules, and regulations on workers' accommodation

Freedoms and human rights of workers should be recognised and respected within their living quarters just as within the working environment. House rules and regulations should be reasonable and non-discriminatory and should not prevent workers from exercising their basic rights. In particular, workers' freedom of movement needs to be preserved if they are not to become effectively "trapped". Any restriction to this freedom of movement should be limited and duly justified.

Penalties for breaking the rules should be proportional and implemented through a proper procedure allowing workers to defend themselves and to challenge the decision taken. Best practice might include a code of conduct relating to the accommodation to be signed together with the contract of employment. The key requirements / benchmarks listed that are relevant to the facility include:

- Restrictions related to the freedom of movement of workers to and from the site should be limited and where required should be clearly justified. It is good practice to provide workers 24/7 access to the accommodation site. Any restrictions based on security reasons should be balanced by the necessity to respect workers' freedom of movement.
- Freedom of association is expressly respected. Provisions restricting workers' rights on site should take into account the direct and indirect effect on workers' freedom of association. It is best practice to provide trade union representatives access to workers in the accommodation site.
- Workers' gender and religious, cultural, and social backgrounds are respected. In particular, workers should be provided with the possibility of celebrating religious holidays and observances.
- Workers should be made aware of their rights and obligations and are provided with a copy of the internal workers' accommodation rules, procedures, and sanction mechanisms in a language or through a media which they understand.
- Where possible, visitor access should be allowed.
- Decisions should be made on whether to prohibit alcohol, tobacco and third-party access or not from the camp and the relevant rules should be clearly communicated to all residents and workers.
- A fair and non-discriminatory disciplinary procedure should be in place, including the right of workers to defend themselves.

Consultation and grievance mechanisms

All residents should be made aware of the rules governing the accommodation and the consequences associated with breaking such rules. Processes that allow for consultation between site management and the resident workers will assist in the smooth running of an accommodation site. These may include a dormitory or camp committee as well as

formal processes that allow workers to lodge any grievances. The key requirements / benchmarks listed that are relevant to the facility include:

- Grievance mechanism in place. Reference is made to IFC PS 2.
- Workers subjected to disciplinary proceedings arising from behaviour in the accommodation should have access to a fair and transparent hearing with the possibility to contest decisions and refer the dispute to independent arbitration or relevant public authorities.
- In case conflicts between workers themselves or between workers and staff break out, workers have access to a fair conflict resolution mechanism.
- In cases where more serious offences occur, including serious physical or mental abuse, mechanisms are in place to ensure full cooperation with the police authority (where adequate).

Management of community relations

The guideline notes that workers' living facilities have various ongoing impacts on adjacent communities. In order to manage these, it is good practice to design a thorough community relations management plan. The key requirements / benchmarks listed that are relevant to the facility include:

- Community relation plan should be developed and implemented. The plan should include a community grievance procedure to identify and respond to any problems and maintain good working relationships.
- A manager should be appointed to manage the implementation of the community relation management plan and liaising with the community.