FINAL BASIC ASSESSMENT REPORT

Basic Assessment for the proposed development of the up to 150 MW Padloper Solar PV Facility 5 (i.e., Padloper PV 5), the proposed development of 132 kV Electrical Grid Infrastructure between the proposed Padloper PV 4 and the proposed Padloper PV 5 (i.e., Padloper EGI 5), and their associated infrastructure, near Murraysburg in the Western Cape Province

APPENDIX D.7:
Socio-Economic



SOCIO-ECONOMIC SPECIALIST IMPACT ASSESSMENT:

Basic Assessment for the proposed development of the Padloper 5–7 Solar Photovoltaic (PV) Facilities and associated Infrastructure, near Murraysburg in the Western Cape Province

Final Report

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Executive Summary

This report presents the socio-economic specialist input to the Environmental Impact Assessment of the Padloper Solar Photovoltaic (PV) Facilities 5-7, near Murraysburg in the Western Cape. The proposed projects are intended to address the current energy shortages in South Africa and assist in meeting the need for additional renewable energy generation capacity, as required by the Integrated Resource Plan of 2019. These projects are being developed by Padloper PV (Pty) Ltd (Padloper PV) as part of a cluster of seven solar photovoltaic (PV) facilities with a capacity of between 100 and 250 MW each and the associated infrastructure, as well as seven dedicated 132 kV overhead power lines (OHPL) / to support the proposed solar PV facilities, near Murraysburg in the Western Cape and Northern Cape provinces. The cluster of renewable projects and their associated Electrical Grid Infrastructure (EGI) is known as the Padloper Solar PV Cluster.

The projects (i.e., Padloper Solar PV Facilities 5-7) are not free of commercial risk nor would it be realistic to expect this. However, the balance between financial benefits and costs are likely to be positive for the applicant and landowner partners barring unforeseen risks. In term of wider positive impacts, the project would be largely supportive of local and regional socio-economic development and energy supply planning imperatives including the diversification of the economy and energy sources. Impacts associated with expenditure on the construction and operation of each individual project forming part of the Padloper Solar PV Cluster would result in significant benefits as follows[1]:

	Padloper Solar PV Facilities 5 and 7 (150 MW)	**Padloper Solar PV Facilities 6 (100 MW)**
Construction expenditure	R2.5–3 billion	R1.7–2 billion
Construction jobs	350–429 (16-24 months duration)	290–379 (10-18 months duration)
Operational expenditure/yr.	R28–35 million	R20–24 million
Operational jobs	67–94	55–81

Negative impacts would primarily arise at a local scale. It is anticipated that, with mitigation, the risks posed to the community by the influx of people, including job seekers, would be manageable and of a low significance with mitigation. This rating comes with the caveat that the impact on individually affected community members has the potential to be high. Tourism facilities and attractions in the areas surrounding the project site are relatively limited and sparsely distributed. The tourism context combined with likely visual and associated heritage impacts in a landscape with scenic qualities should limit tourism impacts to a low significance during both construction and operations with mitigation. Impacts on surrounding landowners and communities, including to their sense of place, are expected to be low negative with mitigation during construction and operations.

Overall impacts significant ratings with mitigation for each phase of the projects are summarised in the Table below (these ratings would apply to each of Padloper Solar PV Facilities 5 to 7 – hereafter referred to as Padloper 5 to 7 in this report). Summary cumulative impact ratings are also provided.

Impact category	**Construct. Phase**	**Operation Phase**	**Decomm. Phase**	**Cumulative - Construct. Phase**	**Cumulative - Operation Phase**	**Cumulative - Decomm. Phase**
Impacts linked to expenditure on the project	Moderate positive	High positive	Moderate positive	High positive	Very high positive	High positive
Impacts associated with local socio-economic development contributions	N / A	Moderate positive	N / A	N / A	High positive	N / A

[1] associated EGI or overhead powerlines were not included in this assessment or report

Impacts associated with the influx of people	Low negative	Low negative	Low negative	Moderate negative	Moderate negative	Moderate negative
Impacts on tourism	Low negative	Low negative	Low negative	Moderate negative	Moderate negative	Moderate negative
Impacts on surrounding landowners and communities	Low negative	Low negative	Low negative	Moderate negative	Moderate negative	Moderate negative

It is considered most likely that the combined positive impacts of each project (i.e., Padloper PV 5, 6 and 7) would exceed its negative impacts resulting in an overall net benefit with mitigation. The projects are therefore all deemed acceptable in terms of socio-economic impacts and should be allowed to proceed.

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List of Abbreviations

Abbreviation	Description
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
BA	Basic Assessment
BBBEE	Broad Based Black Economic Empowerment
BESS	Battery Energy Storage System
BWLM	Beaufort West Local Municipality
CA	Competent Authority
CDC	Community Day Centre
CEQ	Council on Environmental Quality
CKDM	Central Karoo District Municipality
CSI	Corporate Social Investment
CSIR	Council for Scientific and Industrial Research
DCGHSTA	Department of Cooperative Governance, Human Settlements and Traditional Affairs
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	Department of Forestry, Fisheries and the Environment
DoE	Department of Energy (now incorporated into the DMRE)
DMRE	Department of Mineral Resources and Energy
DRDLR	Department of Rural Development and Land Reform
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EGI	Electrical Grid Infrastructure
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GN	Guide Number
HIA	Heritage Impact Assessment
HIV	Human Immunodeficiency Virus
HST	Health Systems Trust
IDC	Industrial Development Corporation
IPPs	Independent Power Producers
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IRP	Integrated Resource Plan
KPA	Key Performance Area
kV	Kilovolt
LED	Local Economic Development
MW	Megawatt
NDP	National Development Plan
NEMA	National Environmental Management Act
NPV	Net Present Value
PHC	Primary Healthcare Centre
PkSDM	Pixley ka Seme District Municipality
PPP	Public Procurement Process
PV	Photovoltaic
REDZ	Renewable Energy Development Zone
REFIT	Renewable Energy Feed-In Tariff
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
S&EIA	Social and Environmental Impact Assessment
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEF	Solar Energy Facility
SMME	Small, Medium and Micro-sized Enterprises
SSVR	Site Sensitivity Verification Report

STD	Sexually Transmitted Disease
ToR	Terms of Reference
TIA	Traffic Impact Assessment
VIA	Visual Impact Assessment
TB	Tuberculosis
ULM	Ubuntu Local Municipality
WEF	Wind Energy Facility

SOCIO-ECONOMIC SPECIALIST ASSESSMENT

This report serves as the Socio-Economic Specialist Assessment that was prepared as part of the Basic Assessment for the proposed development of the Padloper Solar Photovoltaic (PV) Facilities 5 - 7 near Murraysburg in the Western Cape Province.

1. Introduction

Padloper PV (Pty) Ltd (hereinafter referred to as "Padloper PV" or "the Applicant"), is proposing to develop seven solar PV facilities (PV Facility Projects 1-7) with a capacity between 100 and 250 MW each and associated infrastructure, seven associated 132 kV overhead power lines, and the associated infrastructure (i.e., Electrical Grid Infrastructure – EGI), near Murraysburg in the Western Cape and Northern Cape provinces. The EGI projects are collectively referred to as "Padloper EGI 1-7".

Padloper PV Facility 1 and Padloper EGI 1 will be located in the Ubuntu Local Municipality and Pixley Ka Seme District Municipality in the Northern Cape province, whilst Padloper PV Facilities 2-7 and Padloper EGI 2-7 will be located in the Beaufort West Local Municipality and the Central Karoo District Municipality in the Western Cape province. The proposed projects are intended to address the current energy shortages in South Africa and assist in meeting the need for additional renewable energy generation capacity, as required by the Integrated Resource Plan (IRP) of 2019.

The following 14 projects are proposed:

- **PROJECTS 1 TO 7**: The proposed development of seven Solar PV Facilities with a capacity ranging between 100 – 250 MW each and associated infrastructure (i.e, Padloper PV Facilities 1 – 7); and

- **PROJECTS 8 TO 14**: The proposed development of seven 132 kV overhead power lines and associated EGI from the Padloper PV Facilities to the Ishwati Emoyeni Collector Station(i.e, Padloper EGI –1-7).

The affected farm portions for the proposed Padloper PV Facilities and associated Padloper EGI projects are included below.

Table 1.1 Padloper PV facilities and associated EGI projects and affected farm portions

Affected Farm Portion	Padloper (Pl) PV 1	Pl PV 2	Pl PV 3	Pl PV 4	Pl PV 5	Pl PV 6	Pl PV 7	Overhead Powerline Route
Portion 7 of Farm Klipplaat No. 109	✓							✓
Remainder of Farm Riet Poort No.9		✓						✓
Portion 1 of Farm Klipplaat No. 109			✓					✓
Portion 4 of Farm Klipplaat No. 109								✓
Portion 6 of Farm Klipplaat No. 109								✓
Portion 3 of Farm Driefontein No. 26				✓				✓
Portion 2 of Farm Driefontein No. 26					✓			✓
Portion 4 of Farm Driefontein No. 26								✓
Portion 7 of Farm Driefontein No. 26						✓	✓	✓

Remainder of Farm No.8								✓
Remainder of Farm No.6								✓
Portion 2 of Farm No.6								✓
Portion 4 of Farm No.7								✓
Remainder of Farm No.7								✓
Portion 2 of Farm No.7								✓
Portion 5 of Farm Klein Los Kop No. 5								✓
Remainder of Farm Schietkuil No. 3								✓

1.1. Scope, Purpose and Objectives of this Specialist Report

This report presents the socio-economic specialist input to the Basic Assessment (BA) Process for the proposed Padloper Solar PV Facility 5–7 projects in the Western Cape. The socio-economic specialist inputs to the assessment of Padloper Solar PV Facility 1 - 4 projects are provided in a separate report. Socio-economic assessments of the EGI projects associated with Padloper Solar PV 1–7 were not required. The objective of the report is to assess the degree to which the projects will affect the socio-economic environment, with the aim of informing the environmental authorisation process.

1.2. Details of Specialist

This specialist assessment has been undertaken by Dr. Hugo van Zyl of Independent Economic Researchers and James Kinghorn, who conducts research on a freelance basis. A curriculum vitae is included for both specialists in Appendix A.

In addition, a signed specialist statement of independence is included in Appendix B of this specialist assessment.

1.3. Terms of Reference

The terms of reference (ToR) for the work presented in this report are as follows:

- Comply with the Assessment Protocols that were published on 20 March 2020, in Government Gazette 43110, GN 320. This specifically includes Part A, which provides the Site Sensitivity Verification Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed. As at May 2021, there are no sensitivity layers on the Screening Tool for Socio-Economic features, and as such the site verification process must document this and provide any additional feedback as necessary.

- Compile a Socio-Economic Assessment in compliance with Appendix 6 of the 2014 NEMA EIA Regulations, as amended. The Specialist Assessment must also be in adherence to any additional relevant legislation and guidelines that may be deemed necessary. It must also comply with the report templates provided by the Council for Scientific and Industrial Research (CSIR).

- Provide inputs to the Draft BA Report to include a description of the affected environment and environmental sensitivities, key legislation, key issues and detailed assessment of impacts. A template for such inputs will be provided by the CSIR.

- Undertake a site inspection to identify the site-specific sensitivities from a socio-economic perspective and include interviews with key Informants to inform the studies.

- Undertake the collection of both primary and secondary data. The former involves a site visit and interviews with the local government authorities and affected landowners and similar sensitive receptors. The latter encompasses the collection and review of relevant policies, local and provincial strategic documents, and statistics presented by Stats South Africa and others.

- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.

- Describe the socio-economic context of the study area, focusing on aspects that are potentially affected by a solar PV project, and taking into consideration the current situation as well as the trends, the local planning (Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs)), other developments in the area. The study should look more broadly than the individual land parcels on which the proposed projects will developed, as most, if not all, of the anticipated social impacts may be experienced in the urban areas nearest to the proposed project.

- Apply a variety of appropriate options for sourcing information, such as review of analogous studies, available databases and social indicators, and use of interviews with key affected parties such as local communities, local landowners and government officials (local and regional) etc.

- Consider social issues such as potential in-migration of job seekers, opportunities offered by training and skills development, phasing of employment over the duration of the project, cumulative effects with other renewable energy projects in the local area, implications for local planning and resource use.

- Evaluate the implications of the social investment programme associated with REIPPPP projects on the local socio-economic context.

- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a socio-economic perspective. For example, identify and assess potential social benefits and costs as a result of the proposed development, and including the estimated direct employment opportunities. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the project. The Impact Assessment Methodology must follow that contained in Section B of this ToR, as provided by the CSIR.

- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.

- Provide recommendations with regards to potential monitoring programmes.

- Determine mitigation and/or management measures which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.

- Identify best practice management actions, monitoring requirements, and rehabilitation guidelines for all identified impacts. This must be included in the Environmental Management Programme Report (EMPr).

- Incorporate and address all review comments made by the Project Team (CSIR and Project Applicant) during the various revisions of the specialist report.

- Incorporate and address all issues and concerns raised by Stakeholders, Competent Authority, I&APs and the public during the Public Participation Process (where relevant and applicable).

2. Approach and Methodology

The approach adopted involved the following steps in line with accepted EIA practice:

1. Investigate the existing context within which the project would be established.
2. Identify impacts.
3. Assess impacts without mitigation measures.
4. Recommend mitigation measures.
5. Re-assess impacts assuming mitigation measures are implemented.

6. Provide a reasoned opinion regarding the impacts and acceptability of the project.

Guidance on the approach was taken primarily from the Department of Environmental Affairs and Development Planning (Western Cape) guidelines on economic specialist input to Environmental Impact Assessment (EIA) processes (van Zyl *et al*., 2005) augmented by the guidelines on social specialist input to EIA processes (Barbour, 2007). This included guidance on the appropriate level of detail required for the assessment in order that it be adequate for informing decision-making without going into superfluous detail (i.e., superfluous detail in this report as well as superfluous detail when the briefs of other specialist studies forming part of the BA Process are taken into account).

Appendix C clarifies requirements in terms of a sensitivity verification report (SSVR).

CSIR provided the impact assessment methodology employed in this assessment and a copy of the methodology can be found in Appendix D.

2.1. Information Sources

Key information sources used in the assessment include:

- Census data and other socio-economic baseline data.
- Policy document focused on renewable energy, economic development planning, spatial planning.
- Local and international literature on the impacts of other existing projects of a similar nature.
- The requirements of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) and available information from operational SEFs.
- Inputs from the other specialists making contributions to the BA Process.
- Comments received during the public participation process (PPP).
- Interviews with stakeholders (see Section 2.3).

Commentary on the credibility and age of these data sources is provided throughout the report whenever they are presented to provide context for interpretation of figures and findings.

2.2. Assumptions, Knowledge Gaps and Limitations

The following assumptions, knowledge gaps and limitations apply to the study:

- All information provided by the Environmental Assessment Practitioner (EAP), the Applicant, the Applicant's project team, other official sources and other specialists involved in the EIA is assumed to be correct unless there is a clear reason to suspect incorrect information.

- The quantification of economic impacts in order to inform the assessment of the significance of impacts was not possible, nor considered necessary, for all impacts. Where possible, quantification focused on impacts considered to be most important in the overall assessment. Assessments of impact significance made without quantification (and based on a consideration of the likely magnitudes of impacts and/or expert judgements) are, however, considered adequate unless otherwise specified.

- All impacts are assessed individually and then as a whole to the degree possible and appropriate. An overall assessment and discussion of net impacts (i.e., whether overall benefits exceed costs) was undertaken to the degree thought appropriate and justifiable combining quantifiable and unquantifiable impacts. Given uncertainties and the potentially subjective nature of comparisons between impact categories, the emphasis in the report is on presenting assessments of impact categories with less emphasis on trying to reconcile them in an overall assessment of net effects. To a large degree this role of comparing and weighing up different (and hard to reconcile) impacts is the ambit of the relevant decision-making authorities.

- The findings of the assessment reflect the best professional assessment of the author drawing on relevant and available information within the constraints of time and resources thought appropriate and made available for the assessment. See Appendix G for the disclaimer associated with this report.

- The assessment only considers the impacts of the proposed projects and the no-go alternative. It does not make comparisons with other energy projects which may or may not be more desirable.

2.3. Consultation Processes Undertaken

Interviews were conducted with the stakeholders listed in the table below (consultation notes and issues raised are provided in Appendix F).

Table 2.1 List of interviewed stakeholders and informants

Person	Affiliation
Percy Reynolds	Participating landowner and tourism establishment owner
Kobus van Heerden	Participating landowner
Fanus van der Merwe	Participating landowner
Izak van der Merwe	Neighbouring landowner
Barbara Koopman	Strategic Support Services Manager, Central Karoo District Municipality
Sascha Klemm	Manager for Beaufort West Tourism Organisation

3. Description of Project Aspects relevant to the socio-economic specialist study

The proposed Padloper PV and EGI projects will consist of the components listed below. It is important to note that the exact specifications of the proposed project components will only be determined during the detailed engineering phase prior to construction (subsequent to the issuing of an Environmental Authorisation (EA)), should such an authorisation be granted for the proposed projects, but that the information provided below is seen as the worst-case scenario for the projects.

The key components of the proposed Padloper PV Facilities (i.e, Projects 5-7) are described below:

- Solar Field, comprising Solar Arrays with a maximum height of 4.5 m.
- The developable area (i.e., project footprint) for each PV Facility and associated infrastructure will range from approximately 175 to 700 hectares (ha).
- The generation capacity of each PV Facility will range from approximately 100 MWac to up to 250 MWac.
- Building infrastructure at each proposed Padloper PV Facility (e.g., on-site substation complexes; offices; operational and maintenance control centres; warehouse/workshops; ablution facilities; inverter-transformer stations and guard houses).
- An on-site substation complex (~ 2 ha and up to 18 m high, with a capacity of 22/33 kV stepping up to 132 kV) at each Padloper PV Facility including the following:
    - On-site Independent Power Producer (IPP) or Facility Substation (~1 ha). This will include the relevant section that will be maintained by the IPP.
    - Lithium-Ion Battery Energy Storage System (BESS). Each BESS will have an area of ~ 5 ha, height up to 10 m, and capacity of between ~ 100 MW/600 MWh to 250 MW/ 1500 MWh.
    - Switching Station and Collector Station (~1 ha).

- Associated infrastructure at each PV Facility (e.g., temporary construction laydown areas; internal roads up to 5 m wide; upgrading of existing access roads; fencing; storm water channels; panel maintenance and cleaning area; underground low voltage cables or cable trays; and 22 or 33 kV internal underground power lines).

The MW capacities per project are as follows[2]:

PV site	PV Sizes
Padloper 1	250 MW
Padloper 2	150 MW
Padloper 3	150 MW
Padloper 4	150 MW
Padloper 5	**150 MW**
Padloper 6	**100 MW**
Padloper 7	**150 MW**
Total	1 100 MW

Refer to Figure 3.1 for a locality map of the proposed Padloper PV and EGI projects.

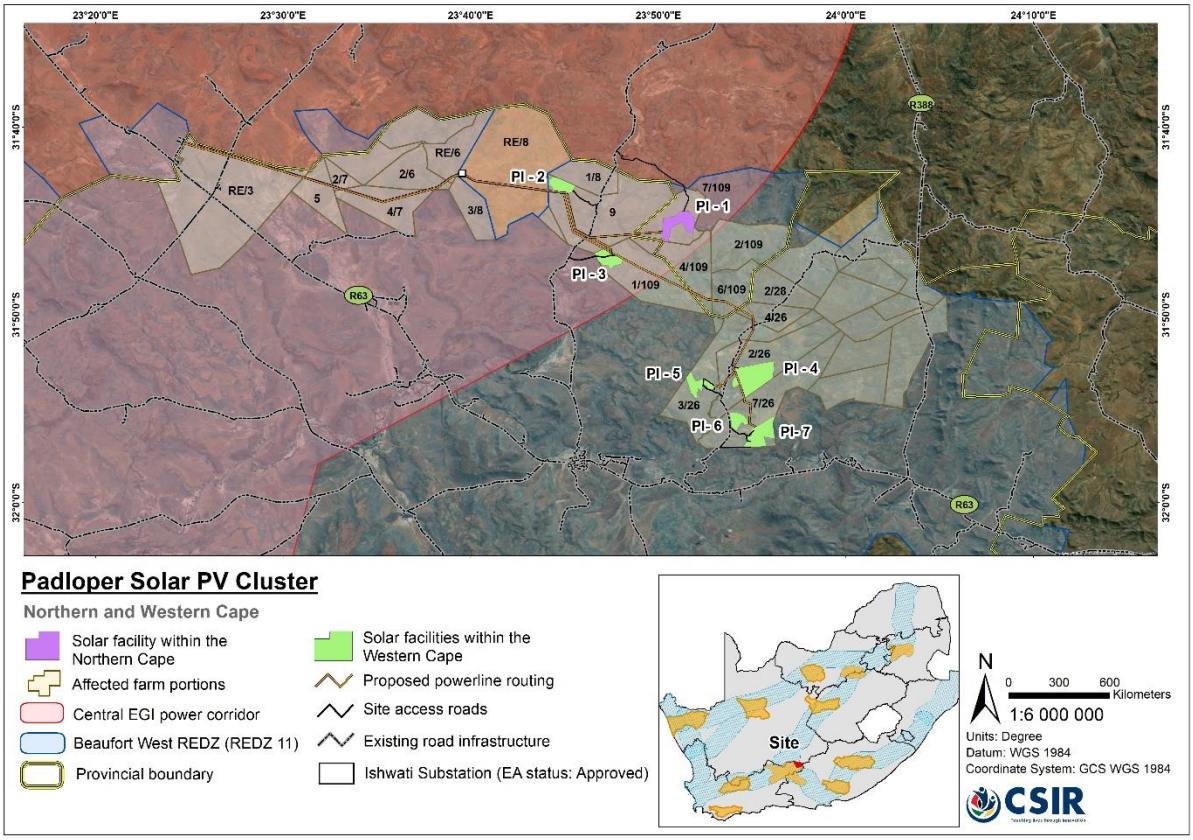


Figure 3.1 Locality of the proposed Padloper PV Facilities and Padloper EGI Projects

[2] PV facilities indicated in bold are being assessment in this report

4. Baseline Environmental Description

The significance of impacts is often highly dependent on the socio-economic environment or context within which they occur. For example, job creation or losses in a small local community with a stagnating economy and high unemployment will be more significant than it would be in a larger community with a healthy economy. In order to offer such baseline information to the impact assessment this section describes the socio-economic environment.

The main information sources used were municipal socio-economic profiles generated by the provincial government, the latest Municipal Economic Review and Outlook, as well as Census 2011 and Community Survey 2016 data. Given that the Community Survey was not carried out at smaller spatial scales and considering that the Census 2011 is ten years old, these two sources of data were relied upon to a lesser extent.

Padloper PV 5–7 are all located within in Ward 1 of the Beaufort West Local Municipality (BWLM), in the Central Karoo District Municipality (CKDM) of the Western Cape Province. The facilities are also in close proximity to Ubuntu Local Municipality (ULM), in the Pixley ka Seme District Municipality (PkSDM) of the Northern Cape Province. The nearest major towns include Murraysburg immediately to the south and south-west of the proposed project sites, Richmond roughly 50km to the north, Nelspoort roughly 70km to the south-west and Victoria West roughly 70km to the north-west.

With this locational context in mind, socio-economic context data is focused on the Central Karoo, Pixley ka Seme and Namakwa District Municipalities, as well as the Beaufort West and Ubuntu Local Municipalities, along with towns of Loxton, Beaufort West, Fraserburg and Nelspoort within these local municipalities. Note that due to a greater availability of data, more detail is provided on the Central Karoo District Municipality and the Beaufort West Local Municipality relative to the municipalities located in the Northern Cape.

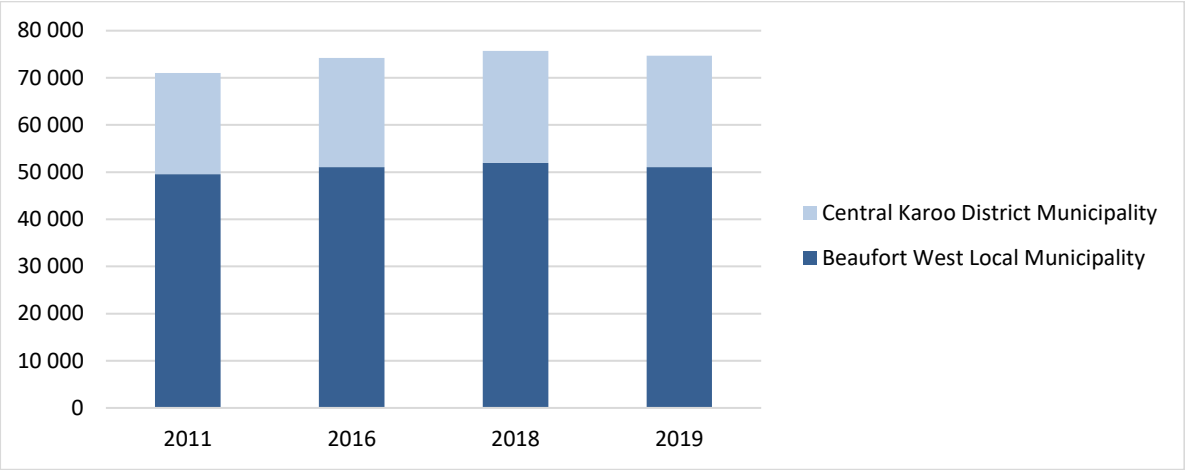
4.1. Current land uses

Current land uses in the wider rural area, where the solar facilities would be located, are focused on extensive agriculture with small stock primarily in the form of sheep, game farming, some tourism and conservation primarily in the form of private reserves. The farms are large and homesteads are few and far between to maintain economically viable farm units. Small communities are housed on the farms and work as farm labourers or in associated tourism ventures. Away from the towns there are few other sources of enterprise or employment. For more details on agricultural land uses, see the Agricultural Specialist Study.

Drought has been experienced to varying degrees in different parts of the study area, with many of the farms surrounding Loxton having received little to no rain over the past ten years. The financial sustainability of farming in this area has been severely compromised, and many farmers have removed all livestock from their farms, or have resorted to other coping strategies given the persistently low forage levels available to livestock in the area. Some farm labourers have been retrenched as a result of the drought and have been forced to relocate to urban centres in search of employment.

4.2. Demographics

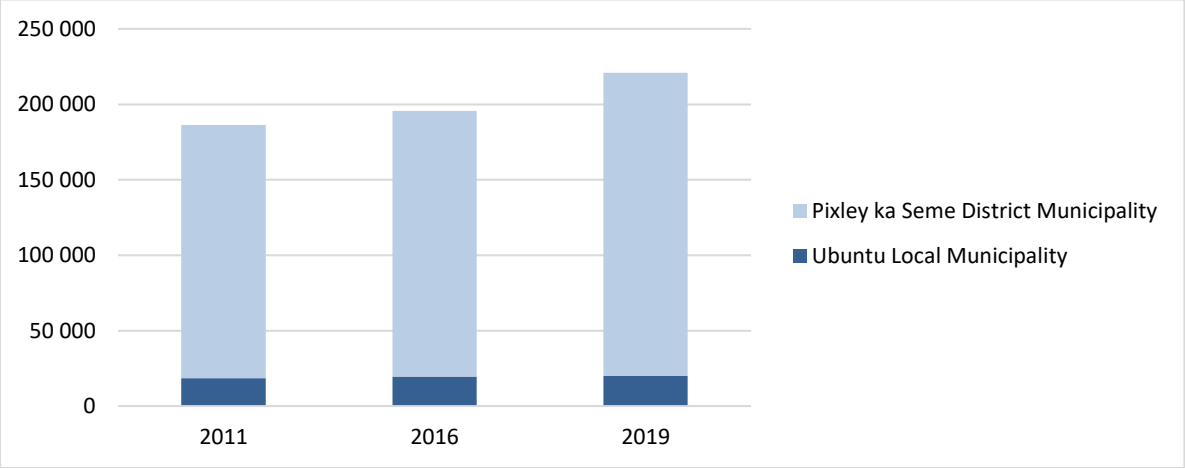
Beaufort West Local Municipality (BWLM) had a population of 51 074 in 2019, up from 49 586 in 2011, which translates to a population growth rate of around 0.4% per annum over the eight-year period (see figure below). This is lower than the annual growth rate for the Central Karoo District Municipality (CKDM), which was 1.2% over the same period. BWLM had an average household size of 3.8 in 2019.



Source: WCPG, 2018a; 2018b; 2020a; 2020b

Figure 4.1 Population trends in the CKDM and the BWLM

Up-to-date statistics are not available for Ubuntu Local Municipality (ULM). But based on the population growth rate between 2011 and 2016 (average of 0.92% per annum), the 2019 population was estimated to be 20,007 (see Figure 4.2 below). The average growth rate for Pixley ka Seme District Municipality (PkSDM) was estimated to be 0.98% per year over the 2011–2019 period, based on available statistics for these years, which indicate that the PkSDM had a population size of 200,835 in 2019.



Source: StatsSA, 2011; 2016; NCPG, 2021

Figure 4.2 Population trends in the PkSDM and the ULM

Around 53% of BWLM's population are female. According to statistics published by the Western Cape Government, this proportion is exactly the same as that of the CKDM population. In the case of the ULM, around 50.4% of the population are female (based on 2016 figures), which is also roughly in line with the PkSDM's 50.59% (also 2016 figures).

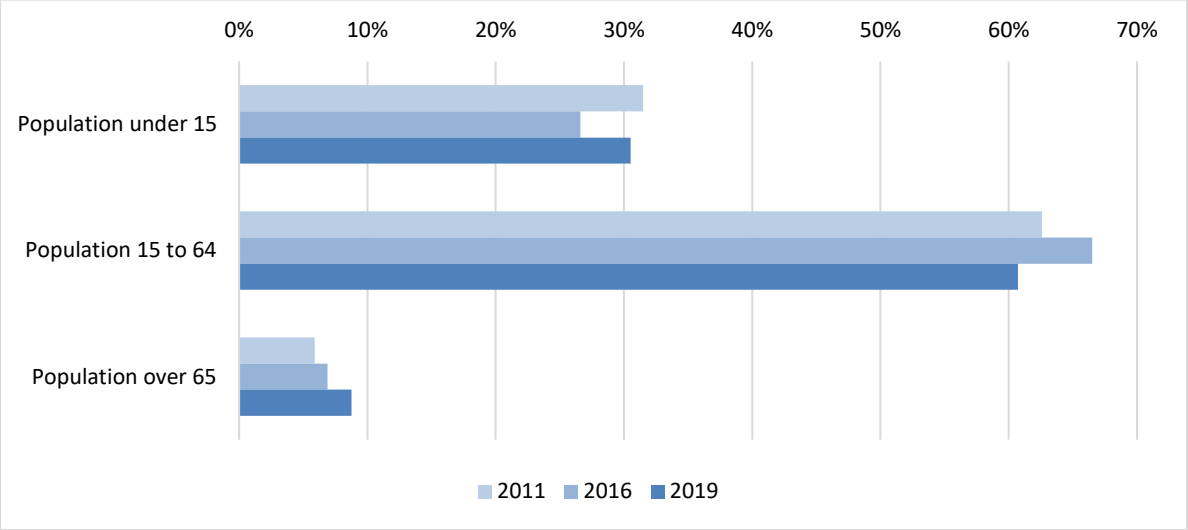
Recent population estimates are not available at the settlement level, but the 2011 census gives some indication of the towns nearby the study site, as outlined in Table 4.1. Murraysburg had a population of 167, while Richmond had a population of 3,794, Nelspoort 1,699 and Victoria West 8,254.

Table 4.1 Population groups in the towns surrounding the study site, 2011

Population Group	Murraysburg	Richmond	Nelspoort	Victoria West
Black African	16	460	289	1 956
Coloured	134	3 111	1 374	5 720
Indian or Asian	1	28	14	33
White	16	151	15	462
Other	-	44	7	74
Total	**167**	**3 794**	**1 699**	**8 254**

Source: StatsSA, 2012

Between 2011 and 2016, BWLM's dependency ratio[3] showed a decreasing trend over time as an ever-larger proportion of the population was falling into the working age group (see figure below). The dependency ratio decreased from 59.7 in 2011 to 56.7 in 2019. The Western Cape Provincial Government had previously projected that it would continue to reduce to 55.1 by 2024. However, more recent information suggests that this trend reversed between 2016 and 2019, with an increase in the dependency ratio to a high in recent years of 65. Interviews with municipal representatives indicate that this could be due to higher than anticipated rates of in-migration over the period.

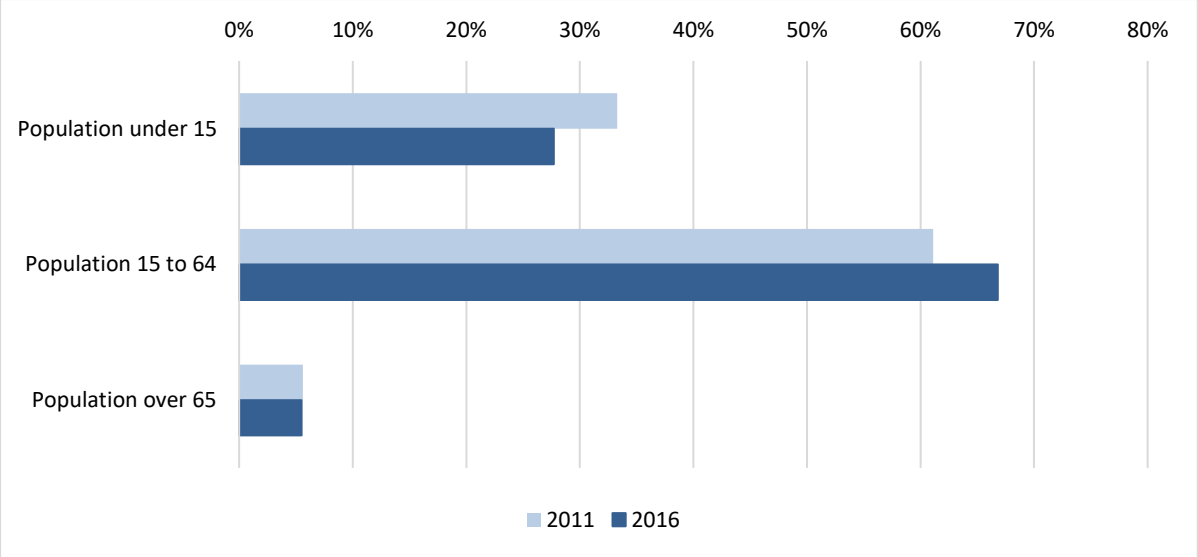


Source: WCPG, 2018a; 2018b; 2020a

Figure 4.3 Age cohorts over time in the Beaufort West Local Municipality

Between 2011 and 2016, the population of the ULM appeared to be following a similar trajectory to that of the BWLM. Post-2016 data are not available to confirm whether this trend has continued or, as in the case of BWLM, reversed. As in BWLM, the dependency ratio in the ULM fell from 64 in 2011 to 50 in 2016, with an increasingly large portion of the younger population falling into the working age category.

[3] The dependency ratio expresses the ratio of those typically not in the labour force (being lower than the age of 15 and higher than the age of 64) to those typically in the labour force (people of ages 15 to 64).

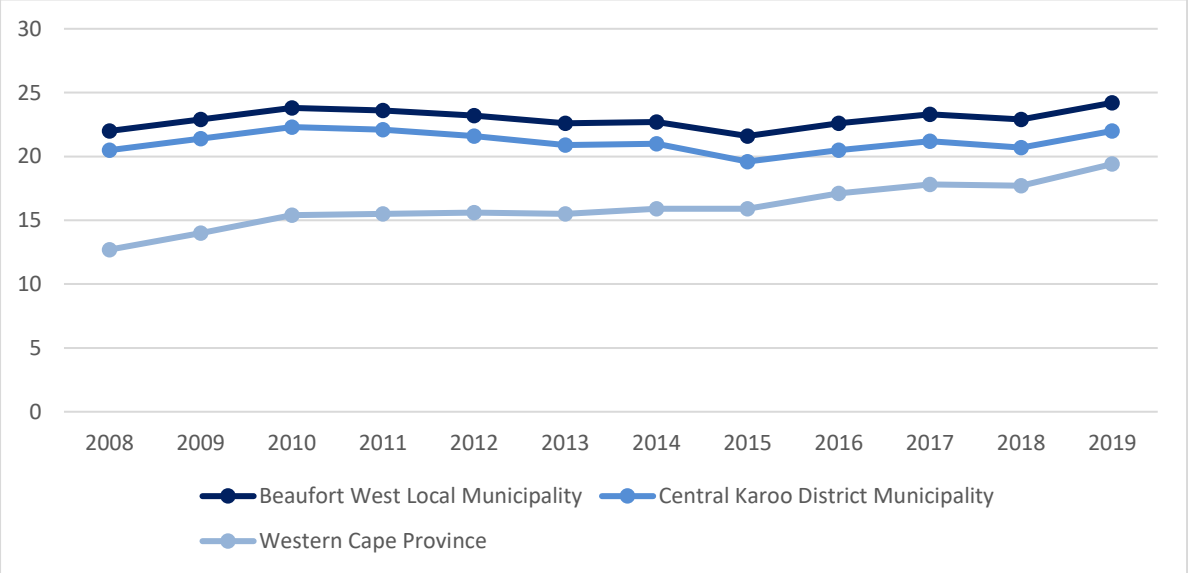


Source: StatsSA, 2011; 2016

Figure 4.4 Age cohorts over time in the Ubuntu Local Municipality

4.3. Employment and sectors

BWLM's unemployment rate was around 24.2% in 2019, which is the highest unemployment rate in the CKD. The local municipality's trend has for the most part been consistent with that of the district municipality as well as that of the province at least since 2008 (see Figure 4.5).



Source: WCPG, 2019; 2020a

Figure 4.5 The unemployment rate in BWLM and CKDM over time

Recent employment data are not available for ULM, PkSDM or KHLM. The 2011 census revealed that in that year the unemployment rate in ULM was 29.1% and in PkSDM, 28.3%. The youth unemployment rate in 2011 was 34.8% in ULM and 35.4% in PkSDM.

The sector which contributes most to employment in BWLM is wholesale and retail trade, catering and accommodation. This sector contributed 3,126 of the total of the area's 12,515 jobs in 2018. The second

highest number of jobs was in agriculture, forestry and fisheries which employed 2,421 people in that year. Table 4.2 outlines each sector's employment numbers in 2018 and shows the change in job numbers between 2014 and 2018.

Table 4.2 Sectoral contribution to employment and net employment growth per sector in Beaufort West Local Municipality

	SECTOR	GDPR			Employment		
		R million value 2018	Trend 2014 - 2018	Real GDPR growth 2019e	Number of jobs 2018	Average annual change 2014 - 2018	Net change 2019e
PS	**Primary Sector**	**254.9**	**0.1**	**-8.7**	**2 421**	**47**	**13**
	Agriculture. forestry & fishing	253.5	0.1	-8.7	2 419	47	13
	Mining & quarrying	1.5	2.3	-2.3	2	0	0
SS	**Secondary sector**	**269.1**	**0.4**	**-3.2**	**850**	**8**	**-65**
	Manufacturing	64.6	0.7	-3.1	258	-1	-9
	Electricity. gas & water	114.2	0.4	-2.3	67	1	-2
	Construction	90.2	0.2	-4.3	525	7	-54
TS	**Tertiary sector**	**1 651.2**	**0.8**	**0.6**	**9 244**	**79**	**36**
	Wholesale & retail trade, catering & accommodation	329.3	-0.1	-1.2	3 126	32	35
	Transport, storage & communication	369.8	-0.6	-1.7	640	-9	7
	Finance, insurance, real estate & business services	276.4	2.3	2.8	1 283	4	-29
	General government	475.5	1.3	1.8	2 387	32	51
	Community, social & personal services	200.3	0.8	0.3	1 808	19	-28
	Beaufort West	**2 175.2**	**0.6**	**-1.1**	**12 515**	**133**	**-16**

e denotes estimate
Source: WCPG, 2020a

Most jobs in BWLM fall into the semi-skilled (43.1%) and low-skilled (36.4%) categories with skilled jobs making up only 20.5% of jobs in the area (see Table 4.3**Error! Reference source not found.**).

Table 4.3 Sectoral contribution to employment and net employment growth per sector in Beaufort West Local Municipality

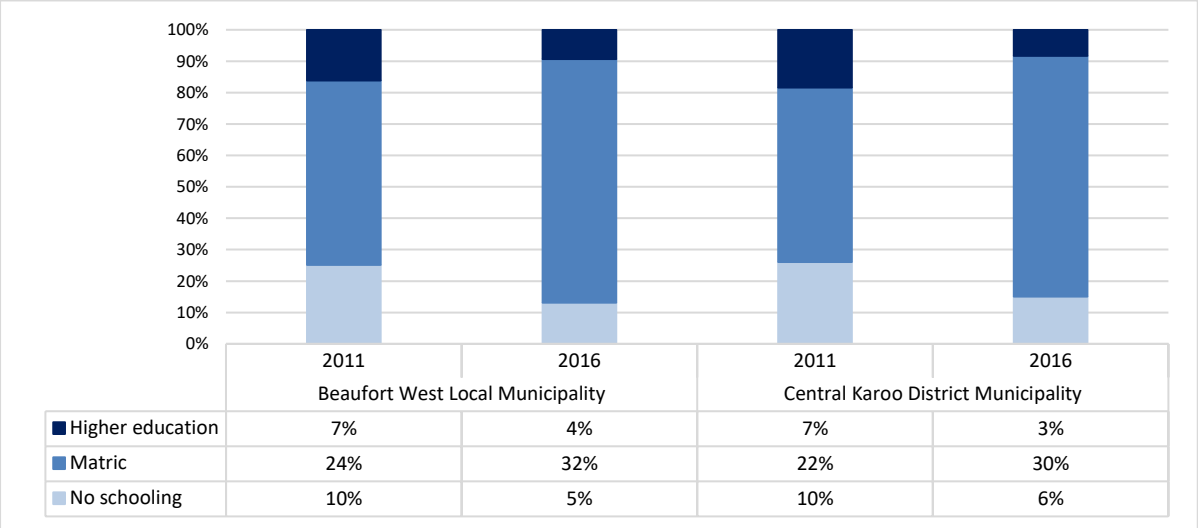
Skill Levels Formal employment	Skill Level Contribution 2019 (%)	Average growth (%) 2015 - 2019	Number of jobs	
			2018	2019
Skilled	20.5	1.7	1 909	1 933
Semi-skilled	43.1	1.2	4 026	4 073
Low-skilled	36.4	0.3	3 414	3 442
TOTAL	**100.0**	**0.9**	**9 349**	**9 448**

Source: WCPG, 2020a

4.4. Education levels

The proportion of people over the age of 20 years who have obtained a matric certificate increased in the 2011 to 2016 period at both the local and district municipality scales (See Figure 4.6). This indicates that basic education levels have improved in the study area during this time. The proportion of people who have

obtained some form of higher education has however decreased over the same period, at both the local and district municipality scales. This metric, previously published by StatsSA, is not available for either BWLM or CKDM in recent years.



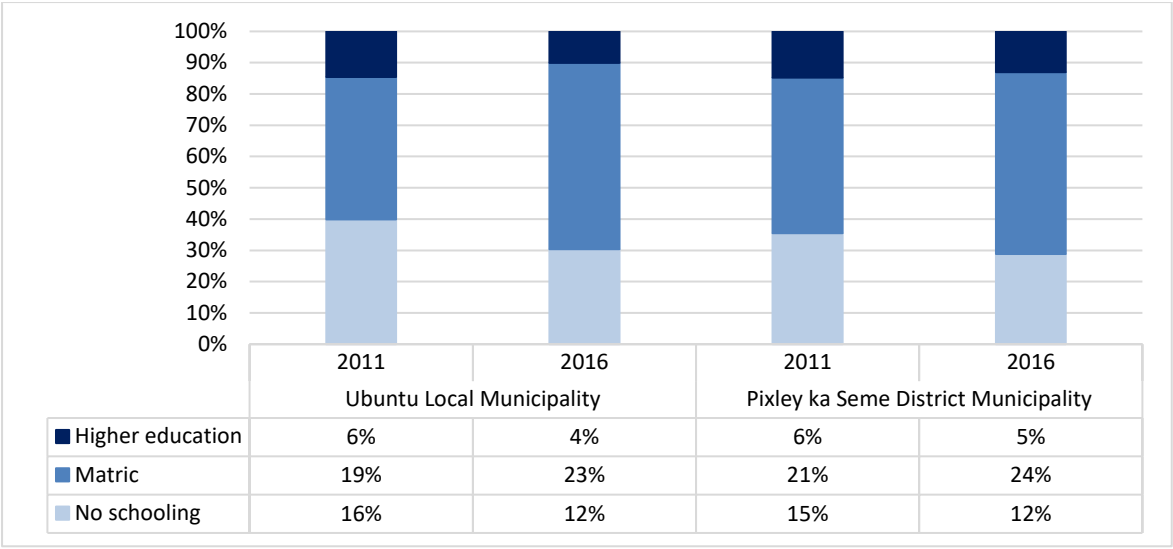
	2011	2016	2011	2016
	Beaufort West Local Municipality		Central Karoo District Municipality	
Higher education	7%	4%	7%	3%
Matric	24%	32%	22%	30%
No schooling	10%	5%	10%	6%

Source: Stats SA, 2012; Stats SA, 2017

Figure 4.6 Education levels in those over 20 years old in BWLM and CKDM, 2011 and 2016

Statistics published by the Western Cape Government indicate that learner enrolment has been increasing gradually in recent years (WCPG, 2020a). This is a promising trend. However, while the demand for education has risen, supply has decreased according to the measure of the number of public ordinary schools, which has fallen by one per year over the 2018–2019 period. This combination of trends has resulted in higher learner-teacher ratios in the municipality, at 1:33.2 in 2019 (higher than the provincial average of 1:30.5 and the national average of 29.3).

According to StatsSA the proportion of people in ULM over the age of 20 years with no schooling fell from 16% to 12% over the 2011–2016 period. For the PkSDM this figure decreased similarly from 15% to 12%. At the same time, the proportion of people who have attained a matric certificate had increased for both ULM and PkSDM during these years. The proportion of people who had attained some form of higher education had meanwhile fallen (See Figure 4.7). More recent data has not been published on the above-reported metrics at either the district or local municipality-level in the Northern Cape.



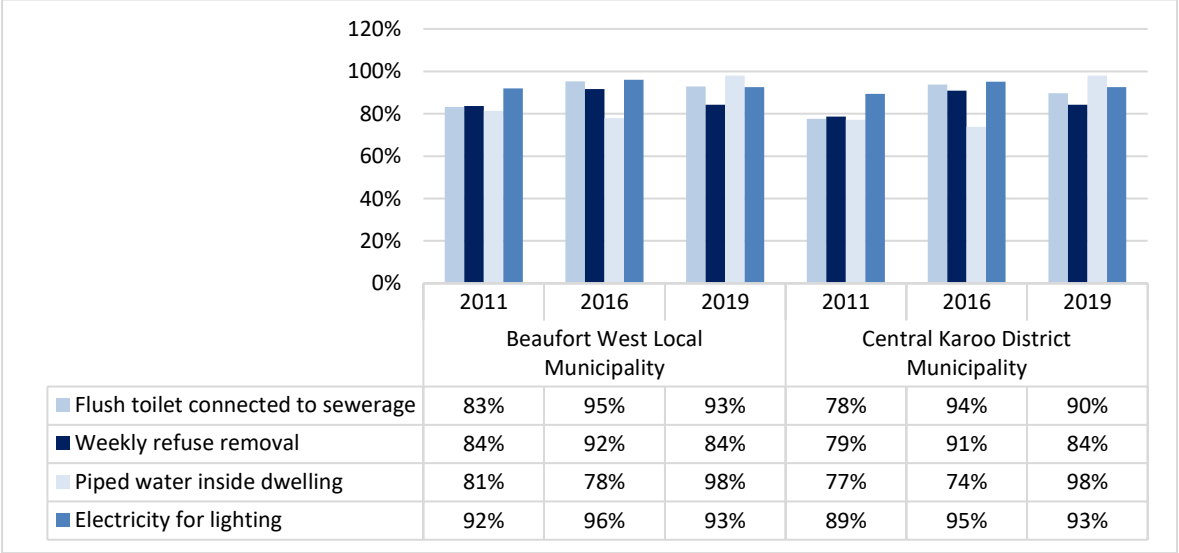
	2011	2016	2011	2016
	Ubuntu Local Municipality		Pixley ka Seme District Municipality	
Higher education	6%	4%	6%	5%
Matric	19%	23%	21%	24%
No schooling	16%	12%	15%	12%

Source: Stats SA, 2012; Stats SA, 2017

Figure 4.7 Education levels in those over 20 years old in ULM and PkSDM, 2011 and 2016

4.5. Availability of municipal services

Access to basic services has improved over time both at the local and district municipality levels, except in the case of water. Figure 4.8 was assembled based on statistics generated by StatsSA for 2011 and 2016, as well as 2019 statistics generated by Quantec and reported in the Western Cape Treasury's 2020 socio-economic profile for Beaufort West. According to this data, a greater proportion of households had access to a flush toilet connected to sewerage, weekly refuse removal and electricity and lighting in 2016 as compared to 2011 throughout the local and district municipalities. This progression was somewhat reversed in the 2016–2019 period, with relatively more households not having access to electricity for lighting in recent years. The greatest relative improvement over the 2011–2016 period was in the proportion of households with a flush toilet connected to sewerage, which increased from 83% to 95% in the BWLM and from 78% to 94% in the CKDM over the period. This trend, too, was reversed in more recent years. However, the proportion of households with piped water inside their dwelling fell from 81% to 78% in BWLM and from 77% to 74% in CKDM between 2011 and 2016, but apparently increased to 98% in 2019 for both BWLM and CKDM. Interviews with municipal representatives suggest that in-migration of poor families has led to the expansion of informal settlements where the provision of service delivery remains relatively low.



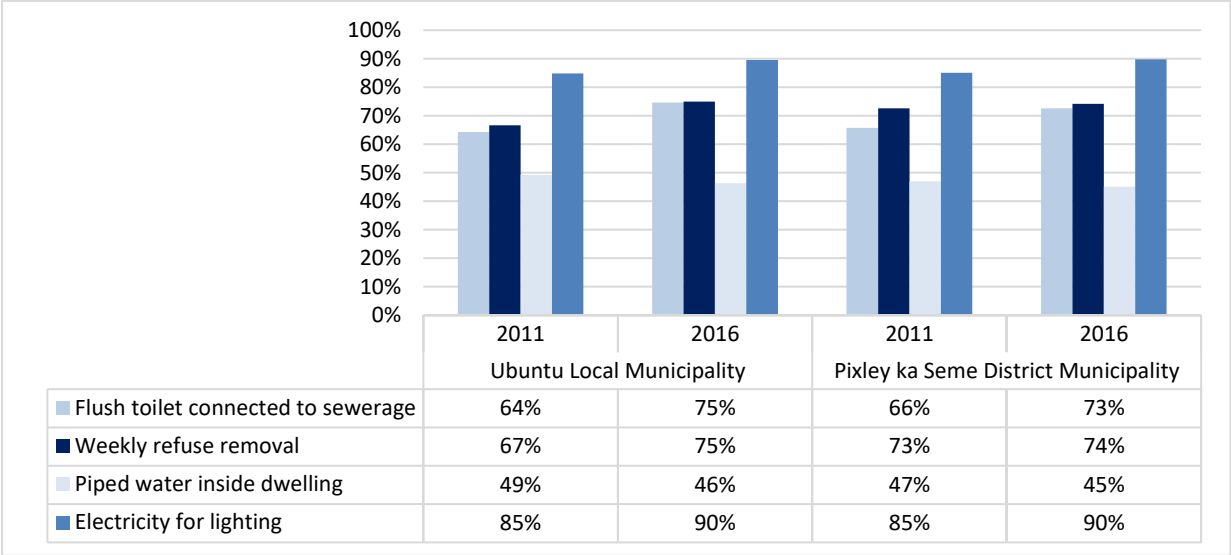
	2011	2016	2019	2011	2016	2019
	Beaufort West Local Municipality			Central Karoo District Municipality		
Flush toilet connected to sewerage	83%	95%	93%	78%	94%	90%
Weekly refuse removal	84%	92%	84%	79%	91%	84%
Piped water inside dwelling	81%	78%	98%	77%	74%	98%
Electricity for lighting	92%	96%	93%	89%	95%	93%

Source: Stats SA, 2012; Stats SA, 2017; WCPG, 2020a

Figure 4.8 Access to key municipal services in BWLM and CKDM, 2011, 2016 and 2019

According to the Western Cape Government, there are relatively few informal houses in either the BWLM or in the CKDM. In the BWLM, 99.6% of households live in formal dwellings, which is a slightly higher proportion of households than the CKDM with 97.8%.

For the 2011–2016 period, service delivery in the ULM and PkSDM shows a similar trend to that seen in BWLM and CKDM. During this period, Figure 4.9 shows that service delivery in ULM and PkSDM had improved in all areas except in terms of the number of households who have access to piped water inside their dwellings. This was likely the result of water provision not keeping pace with the growing number of households in the local as well as the district municipality. More recent figures are not available.



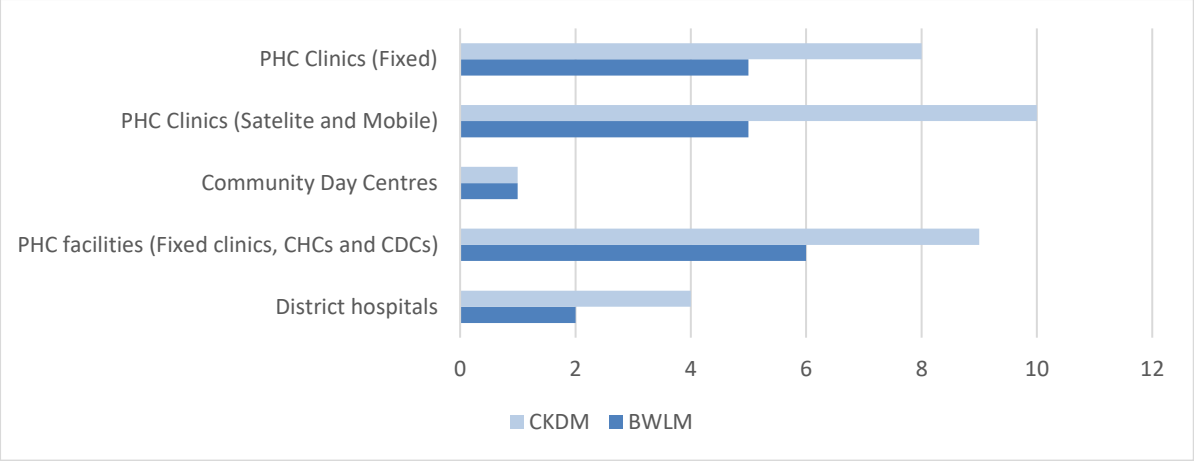
	2011	2016	2011	2016
	Ubuntu Local Municipality		Pixley ka Seme District Municipality	
Flush toilet connected to sewerage	64%	75%	66%	73%
Weekly refuse removal	67%	75%	73%	74%
Piped water inside dwelling	49%	46%	47%	45%
Electricity for lighting	85%	90%	85%	90%

Source: Stats SA, 2012; Stats SA, 2017

Figure 4.9 Access to key municipal services in ULM and PkSDM, 2011 and 2016

4.6. Health

Assessing access to health services is key to understanding well-being and poverty. According to StatsSA, 75% of South Africans rely on public health services, while the remaining 25% make use of private facilities. The number and types of public healthcare facilities available in BWLM and CKDM are outlined in the figure below.



Source: WCPG, 2020a

Figure 4.10 Public healthcare facilities in the study area

The following healthcare facilities provide treatment in the BWLM:

- Murraysburg Primary Healthcare Centre (PHC)
- Nelspoort PHC
- Nieuveldpark PHC
- Kwa Mandlenkosi PHC
- Hillside Clinic PHC (constructed in 2016/17)
- Merweville Satellite Clinic
- Beaufort West District Clinic
- Murraysburg Mobile Clinic
- Nelspoort Mobile Clinic
- Beaufort West Mobile Clinic
- Merweville Mobile Clinic
- Beaufort West District Hospital
- Murraysburg District Hospital
- Nelspoort Specialised Hospital

Direct provision of public health services is complemented by service provision more broadly. This is noted in the PkSDM Health Profile, with inadequate provision of basic services such as water and wastewater treatment being stressed as having dire implications for the health status of communities.

Another major concern in the study area is HIV/AIDS and Tuberculosis (TB) treatment and care. BWLM's latest IDP revision (4th Annual Review 2021/2022) notes the importance of providing preventative care to vulnerable communities. This preventative care is provided by government and consists primarily of condom distributions and campaigns to encourage the practice of safe sex. In terms of providing treatment, government provides antiretroviral therapy (ART) to people living with HIV. There were a total of 1,524 people receiving ART in BWLM in 2019, up from 1,499 in 2018. The total number in the CKDM was 2,050 in 2019. The CKDM socio-economic profile, published by the Western Cape Treasury, notes that the number of newly registered ART patients declined from 207 in 2018 to 164 in 2019. The report suggests that this may indicate a declining level of prevalence, although specific data on prevalence rates are not available to verify this.

Similar to the BWLM, communities living in the ULM also face challenges with respect to HIV/AIDS and TB. According to the latest available information, the ULM currently has 3 clinics and 2 Community Health Centres, no district hospital (for Pikley ka Seme District these are located in the Emthanjeni, Siyancuma

and Siyathemba Local Municipalities), no Mobile Clinics and no Satellite Clinics (HST, no date). The ULM IDP identifies the following issues in the local health sector:

- "Inadequate health facilities
- Limited medical staff (Doctors and Nurses)
- Limited equipment's
- Underutilized facility
- Shortage of ambulances
- Arrogance" (ULM, 2021)

Municipalities continue to address health issues facing communities through the provision of health services and through the continued training of Community Health Workers. In addition to treating HIV/AIDS, facilities provide immunisation for children (CKDM's immunisation rate was 74.9% in 2016). Other challenges faced by communities include a higher than anticipated neo-natal mortality rate – 13.4 neonatal deaths per 1000 live births for CKDM in 2019, up from 14 in 2016 (the target had been set at 6 or less). The neonatal death rate for BWLM is lower, at 8.4 deaths per live birth.

4.7. Local and regional socio-economic growth and development plans/priorities

In terms of future economic development goals, the 2021-2022 review of the 2017-2022 Integrated Development Plan (IDP) of the BWLM is most instructive. According to this plan, the Municipal Strategic Programme is aligned to 5 Key Performance Areas (KPAs):

- "KPA 1: Basic service delivery and infrastructure development
- KPA 2: Economic development
- KPA 3: Institutional development and municipal transformation
- KPA 4: Financial viability and management
- KPA 5: Good governance and community participation"

KPA 2 above (economic development) is linked to the following strategies:

- "To use municipal and government funded projects as means to create jobs and reduce poverty
- To facilitate development and growth of SMME's
- To establish and strengthen Local Economic Development (LED) Structures
- To facilitate Education and Skills Development for Cooperatives & Small and medium-sized enterprises (SMMEs)
- To provide SMME Support and Capacity building
- To manage and enhance the performance of the municipality"

At the district level, the Central Karoo District Municipality IDP 2017-2022, 2nd Review 2021–2022, highlights the following projects, identified in the District LED Strategy:

- "Infrastructure development to increase access for businesses and households;
- Business support programmes to retain existing businesses and encourage start-up or relocating businesses to enter the area;
- Spatial planning to promote land acquisition and property development for businesses and households;
- Skills programmes to respond to business and government for greater productivity and efficiency; and
- Social development programmes to increase participation in the local economy and build better lifestyles for the community."

The CKDM IDP goes on to mention the importance of establishing an LED unit to coordinate activities, as well as the Economic Recovery Plan being drafted to respond to the economic impact of the COVID-19 pandemic.

The Ubuntu Local Municipality 2017-2022 & 2020/21 Draft IDP outlines the following strategic objectives associated with National Key Performance Area 2: Local Economic Development:

"a. Private Sector Investment Upliftment & Acceleration
b. Public Sector Investment Upliftment & Acceleration
c. Tourism Upliftment & Acceleration
d. Agriculture & Agri-processing Upliftment & Acceleration
e. Industry Upliftment & Acceleration
f. Commerce Upliftment & Acceleration
g. SMME Upliftment & Acceleration
h. Industrial & Commercial Economic Zone Establishment" (ULM, 2021: 44)

4.8. The tourism context

Information on current tourism use and potential was gathered using planning documents for the district and local municipalities, interviews with the local tourism organisation and other stakeholders, own observation and accommodation search websites including SafariNow, AirBnB, Lekkeslaap and Google.

The area surrounding the project site is picturesque and offers hiking, mountain biking, some game viewing and birdwatching. Tourism is an important source of income for guesthouse operators. Some of the landowners in the area have signed up to the Mountain Zebra-Cambedoo Protected Environment, which is a privately owned corridor "proclaimed in 2016 for the purpose of maintaining the landscape in terms of its scenic, biodiversity and landscape value through collective action by the private landowners and to protect the area from detrimental developments" (SANParks, 2023). This organisation is not necessarily against development, but seeks to support only forms of development which do not threaten the area's natural heritage and agricultural resources.

The Figure below shows the project sites in relation to selected known surrounding tourism establishments and facilities. Table 4.4 provides key information on tourism establishments located in the vicinity of the proposed project.

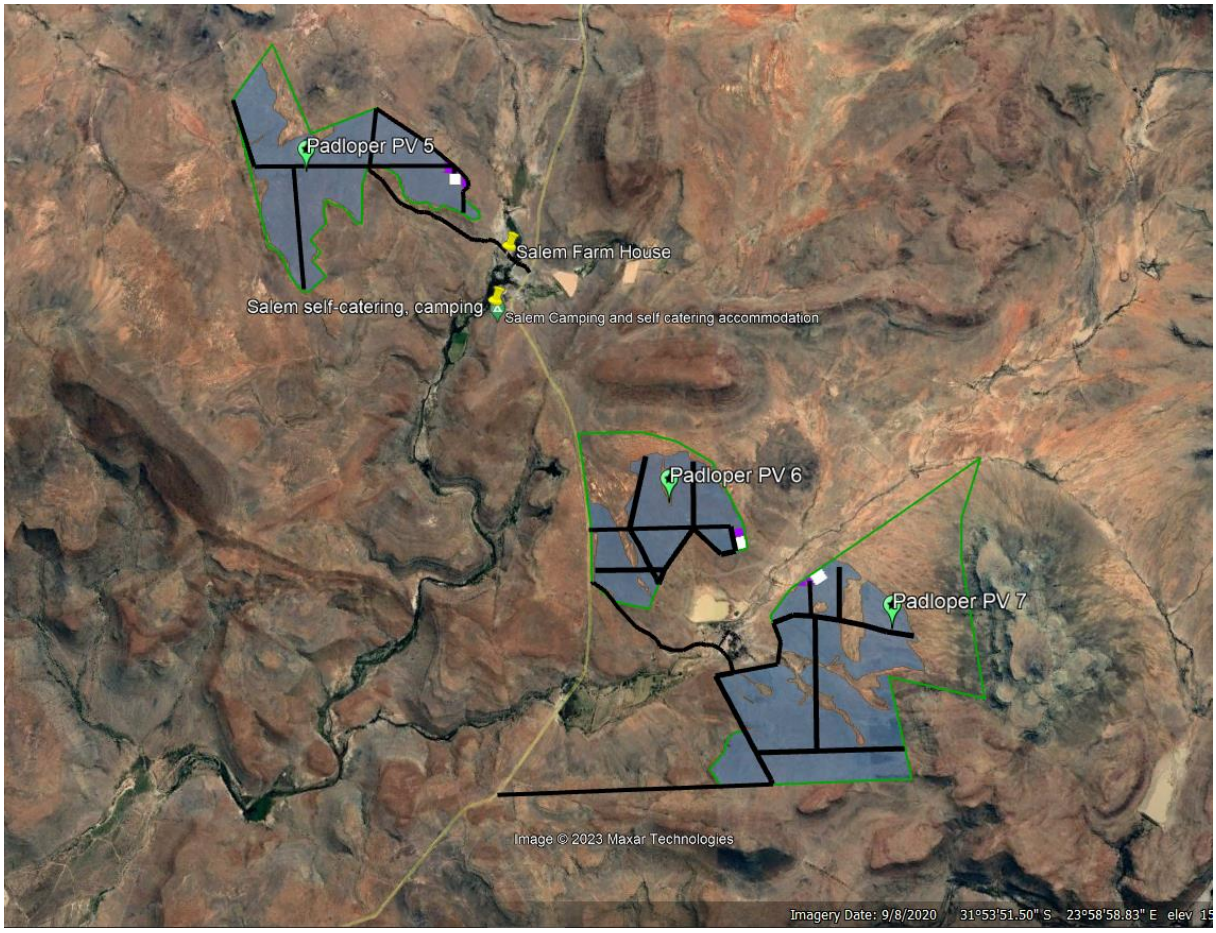


Figure 4.11 Map showing the study site and identified prominent tourism establishments.

Participating landowners Percy and Karin Reynolds are signatories to the Mountain Zebra-Camdeboo Protected Environment. They have previously hosted music festivals on their property and continue to operate a campsite and two guesthouses just over 20km from Murraysburg, to the north-east. Padloper Solar PV Facility 4 and Padloper Solar PV Facility 5 have been planned on parts of their land. Mr and Mrs Reynolds do not plan to continue hosting festivals, and have closed the larger of their two campsites, but will continue to offer the two guest houses. Photographs of Salem Guest Farm are shown below.

Charlton House and Mulberry Cottage are both situated further from the proposed project and are unlikely to be affected to the same degree as the other facilities mentioned above.

Table 4.4 Tourism facilities profile and distance from project components

Name of tourism facility	Number of units / rooms	Capacity (nr guests)	Distance from Solar PV Facility site (km)		
			PI-5	PI-6	PI-7
Accommodation					
Salem self-catering and camping (AKA Salem Kliphuis)	2 houses and camp sites	11 in houses, small camp site	1.7	1.5	4.3

Salem Farm House	1 farm house	7	1.3	1.9	4
Charlton House	1 farm house	7			6.8
Mulberry Cottage	1 cottage	4			6.5



Photograph 4. View towards the planned site for Padloper 5 from Salem Guest Farm

5. Identification of issues, risks and impacts

Aside from a review of the compatibility of the project with local, regional and national socio-economic development plans and the financial viability/risks associated with it (broad level review), the following impacts have been identified as relevant for assessment based on the guidelines for socio-economic specialist inputs, the nature of the project, stakeholder inputs and the receiving environment:

Construction phase impacts:

- Impacts on regional employment and household income associated with project activities and expenditure.
- Impacts associated primarily with the influx of people including job seekers.
- Impacts on surrounding landowners and communities.
- Impacts on tourism.

Operations phase impacts:

- Impacts on regional employment and household income associated with project activities and expenditure.
- Impacts associated with the funding of local socio-economic development, enterprise development and shareholding.
- Impacts associated primarily with the influx of people including job seekers.
- Impacts on surrounding landowners and communities.
- Impacts on tourism.

Decommissioning phase impacts

- Impacts on regional employment and household income associated with project activities and expenditure.
- Impacts associated primarily with the influx of people including job seekers.
- Impacts on surrounding landowners and communities.
- Impacts on tourism.

Cumulative impacts

- Impacts on regional employment and household income associated with project activities and expenditure.
- Impacts on local socio-economic development, enterprise development and shareholding.
- Impacts associated primarily with the influx of people including job seekers.
- Impacts on surrounding landowners and communities.
- Impacts on tourism.

Note that the above choice of impact categories aims to limit overlap with other specialist studies and is therefore partially informed by the nature and scope of the work conducted by other specialists contributing to the BA Process. In particular, impacts on agriculture and those associated with traffic are not a focus of this report as they are dealt with by other relevant specialists in their studies.

Appendix F provides notes from stakeholders interviewed as part of the assessment including issues and impacts identified.

5.1. Identification of Environmental Sensitivities

There are no socio-economic themes on the Department of Forestry, Fisheries and the Environment (DFFE) National Web-based Environmental Screening Tool (Screening Tool) (as at July 2022), therefore the environmental sensitivity of the proposed project area as identified by the Screening Tool is not applicable (i.e. a preliminary sensitivity rating was not provided that could then be confirmed or altered based on further assessment). Consequently, no site sensitivity verification report for socio-economic sensitivity is required. Nevertheless, this assessment report contains a detailed assessment of the socio-economic impacts of the proposed project. As such, it provides all the necessary information and assessment data regarding socio-economic sensitivities.

6. Impact Assessment

This section provides an assessment of the identified impacts and suggests suitable management and mitigation actions aimed to avoid or reduce negative impacts or to enhance positive benefits. Summary impact rating tables are provided in this section based on the methodology for assessment of impact significance provided by the EAP outlined in Appendix D.

The purpose of this study is to identify potential impacts that may occur during the construction, operational and decommissioning phases of development. The decommissioning phase of the project at the end of its design life would be of similar duration to the construction phase. Note that operational phase impacts were assessed under the assumption that they would cease after 20 years and that the assessment of decommissioning consequently does not include a consideration of impacts associated with the cessation of operations.

It should be noted that decommissioning may not necessarily occur after the 20-year minimum life cycle of the project. Instead, the facility may undergo a regeneration/refurbishment in which Solar field components other project elements are upgraded or replaced. This would result in temporary positive impacts including those from additional expenditure and temporary employment, as well as risks. Following the regeneration, operational impacts similar to those experienced during the first 20 years of operations would continue to occur. Aside from this discussion, assessing the impacts from a potential regeneration phase are beyond the scope of this assessment and the probability of this phase occurring is unknown.

6.1. Compatibility with policy and planning guidance

The proposed project's key strategic objectives can be summarised as providing additional electricity generation capacity whilst meeting national renewable energy and climate change targets. This section contextualises the project with respect to these objectives along with a wider consideration of the project's fit or compatibility with socio-economic and associated spatial development planning objectives and guidance.

6.1.1. Energy policy imperatives and the environment

Historically, South Africa has relied heavily on non-renewable fossils fuels (primarily coal) for energy generation purposes. This reliance remains a key feature of the current energy mix with over 80% of our electricity generation needs met by non-renewables. It is expected that coal will remain dominant at least in the short and medium term. However, substantial improvements in cost-effectiveness, imperatives with regard to global warming, other environmental impacts associated with fossil fuels and energy security have elevated renewable energy solutions.

In recent years the cost of renewables has fallen drastically. Figure 6.1 shows that between bid windows 4 and 5, the average price of electricity purchased through REIPPPP fell by 54% (Magoro, 2021). The result is that the levelized cost of renewables is now lower than any other form of electricity generation. For the first time in history, the argument in favour of renewables can now be made on purely on grounds of financial feasibility.

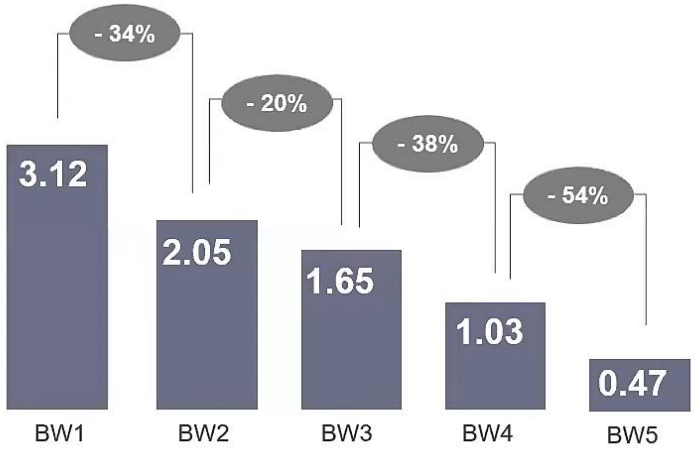


Figure 6.1 REIPPP average bid prices in April 2021 terms

In addition to the financial argument, most governments in the global community now recognise that the roll-out of renewable energy will be needed among a number of other actions to curb global warming. Furthermore, the South African renewable energy industry is now a major economic sector contributing to socio-economic development goals in a sustainable manner.

With the above in mind, South African longer-term energy policy has rapidly changed from one that did very little to encourage renewable energy to one that actively encourages it. The first draft version of the national Integrated Resource Plan (IRP) released in 2010 set a target for 30% of new generation to come from renewables by 2030. This was subsequently increased to a target of 42% from renewables in the final IRP approved by cabinet in 2011. The 2019 IRP proposes that renewable energy will play an increasingly significant role in South Africa's energy mix. By 2030, wind energy should contribute 17.8% of total energy (from an installed capacity of 17,742 MW), solar should contribute 7% while coal contributes 59%. Reaching these targets will require substantial investment in new renewable projects.

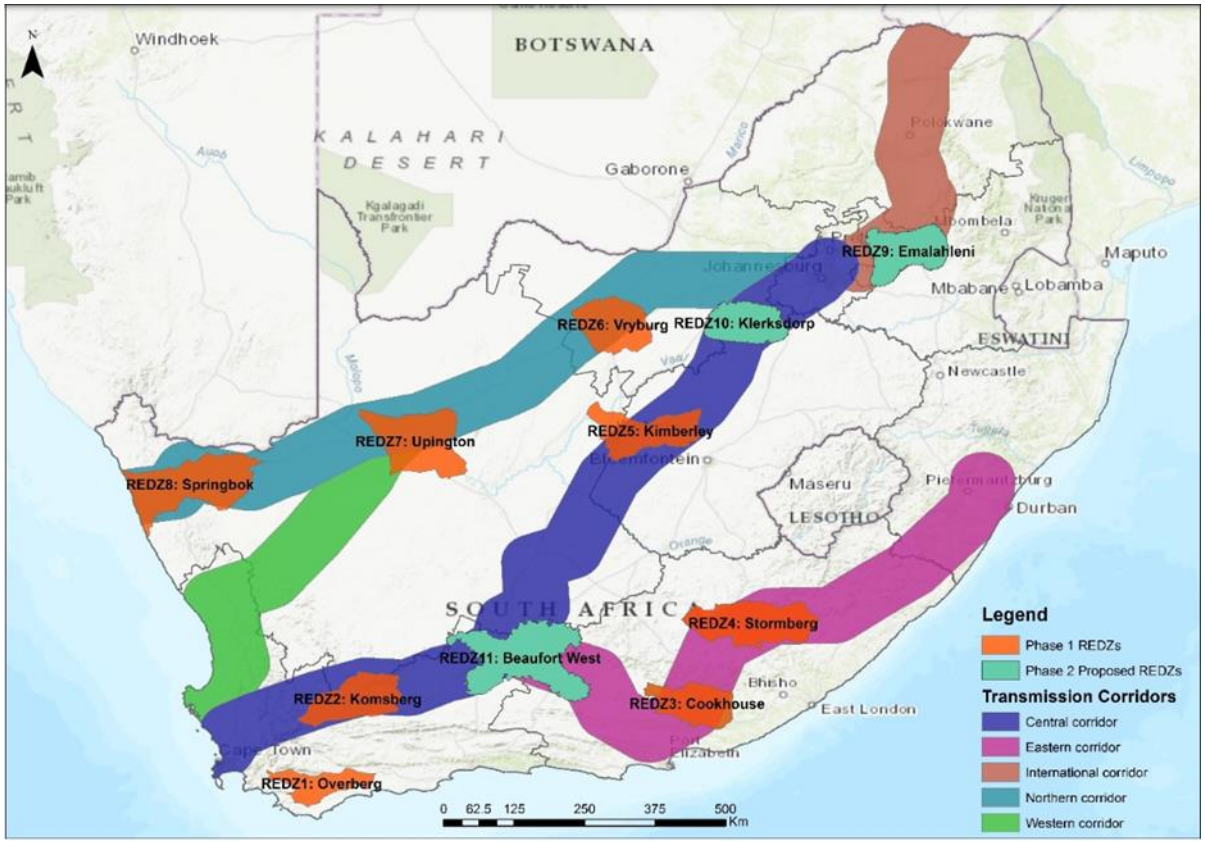
In order to facilitate the roll-out of renewable energy and meet ambitious targets, the REIPPPP was launched in 2011. Through the REIPPPP, aspirant renewable energy developers bid for contracts in terms of which government commits to purchase power from them in keeping with national targets. The fifth Bid Window of the REIPPPP was concluded in 2021 for the generation of 2 600 MW of capacity, including 1 600 MW from onshore wind energy and 1 000 MW from Solar PV. The sixth round of the REIPPPP was launched in 2022.

In addition to the REIPPPP, private entities such as IPPs are now also allowed to generate up to 100 MW through embedded power generation without a generation licence. They will also be allowed to wheel electricity through the transmission grid, subject to wheeling charges and connection permits and agreements with Eskom and relevant municipalities. This has resulted in significant interest in independent power generation particularly from mining, large industry and municipalities with significant assured power needs.

In summary, the extensive and rapid roll-out of renewable energy in South Africa is key economic policy imperative in line with international policy trends, the National Development Plan and IRP. The project would be closely aligned with this policy imperative at a national level and has the potential to contribute to greater energy supply stability and security to the benefit of local and regional electricity consumers.

6.1.2. Strategic spatial planning for solar and wind areas in South Africa

A Strategic Environmental Assessment (SEA) commissioned by the then Department of Environmental Affairs (DEA, 2016) identified Renewable Energy Development Zones (REDZs) for the roll-out of wind and solar energy in South Africa (see
Figure 6.2). The identification of these zones is aimed at enabling the development of large-scale wind and solar energy facilities in a manner that avoids or minimises significant negative impact on the environment while being commercially attractive and maximizing socio-economic benefit to the country. The project falls 100% within the Beaufort West REDZ (REDZ 11) and therefore achieves relatively close alignment with national renewable energy spatial planning.



Source: DEA 2019

Figure 6.2 Renewable Energy Development Zones identified in the Strategic Environmental Assessment for the wind and solar energy and Transmission Corridors

6.1.3. Socio-economic development and spatial planning

Socio-economic development imperatives inform spatial planning imperatives. A critical aspect of socio-economic desirability is thus whether the proposed development complements economic planning as reflected in spatial development planning. Integrated Development Plans (IDPs) and their accompanying Spatial Development Frameworks (SDFs) are particularly important in this regard. SDFs are central to economic development planning and serve to guide overall development in a direction that local and provincial authorities see as desirable. Indeed, the basic purpose of an SDF is to specify the spatial implications of IDPs, with a focus on optimising economic opportunities and other strategic objectives.

Alignment with SDFs, structure plans and other planning documents is a robust way of ensuring economic and social feasibility. Projects that do achieve close alignment are more likely to ensure that positive impacts are optimised, reducing the likelihood of externalities on other stakeholders and productive sectors. Where projects do not achieve alignment with existing planning, there should be clear and compelling reasons why a deviation from planning should be considered.

The following provincial and regional planning documents were found to be of most relevance and were consequently reviewed:

- Western Cape SDF 2014
- Northern Cape SDF 2012, updated in 2018
- Central Karoo District Municipality IDP 2022

- Central Karoo District Municipality SDF 2014 and draft SDF 2019
- Beaufort West Local Municipality IDP 2022
- Beaufort West Local Municipality SDF 2013
- Ubuntu Local Municipality IDP 2022

Provincial planning

Provincial planning is generally support of renewable energy development. The Western Cape SDF recognises the importance of the province's cultural and scenic landscapes as assets that underpin the tourism economy. As part of the SDF, a spatial mapping exercise was carried out to identify landscapes and routes of particular importance, considering their rural, archaeological, agricultural and natural significance (DEAD&P, 2014). In terms of scenic routes, the R63 passing through Murraysburg, and connecting Graaff Reinet to Victoria West, was identified in the Provincial SDF as a 'Secondary scenic route'. This raises the issue of the potential for some impact on sense of place and tourism which is assessed further in the section on tourism impacts.

The Northern Cape SDF was based on a comprehensive analysis of the province and its regions. It recognises the importance of the province's diverse human, natural and built capital and develops a spatial vision to guide development at a high level. The SDF was first drafted at the beginning of the development of renewable energy projects in South Africa. It recognises the potential for renewables development in large parts of the province balanced with conservation and tourism.

District and local planning

The 2019 Central Karoo District SDF acknowledges that "there are several on-shore wind and solar energy projects which are currently being planned for the District" (pg. 53), and further states that "opportunities exist for expanding renewable energy projects related to solar and wind power in the Central Karoo." (pg. 55)

The Karoo Readiness Action Plan for Large-scale Development (DEA&DP, 2021) does not provide spatial planning guidance useful for assessing the project's fit with policy. It is, however, useful in terms of impact mitigation measures for municipalities. It evaluates government's readiness to respond to the foreseen increase in service delivery associated with large-scale, or regional, development proposals such as shale gas development (SGD), uranium-molybdenum mining and renewable energy developments in the Central Karoo. It then aims to identify interventions/actions to be implemented within the short to medium term (i.e., the next 5 to 10 years), as well as the roles and responsibilities of municipalities, provincial and national government in readiness for these potential large-scale developments.

The Beaufort West Municipality Spatial Development Framework (SDF) was found to be most relevant with respect to spatial planning at the local level. It was completed in 2013 and builds on the 2011 Urban Restructuring Framework. The SDF acknowledges the need for the development of renewable energy. However, similar to the provincial SDF, it also highlights the need to minimise impacts on biodiversity and tourism with the R63 identified as a secondary scenic route (CNdV Africa, 2013).

The 2020/21 Ubuntu Municipality IDP Review provides some context around socio-economic development but is not spatially explicit. It sets the following strategic objectives for the municipality in the area of local economic development:

"a. Private Sector Investment Upliftment & Acceleration
b. Public Sector Investment Upliftment & Acceleration
c. Tourism Upliftment & Acceleration

d. Agriculture & Agri-processing Upliftment & Acceleration
e. Industry Upliftment & Acceleration
f. Commerce Upliftment & Acceleration
g. SMME Upliftment & Acceleration
h. Industrial & Commercial Economic Zone Establishment"

The Ubuntu Municipality has therefore prioritised upliftment and acceleration in the tourism and agriculture sectors, but also in SMME upliftment, industry and commerce more broadly.

6.1.4. Discussion

Considered as a whole, the planning documents reviewed recognise the importance of integrated and diversified economic development that makes optimal use of each area's comparative advantages and creates economic opportunities. The concept of a renewable energy project is therefore broadly supported provided environmental impacts and impacts on other land uses and potentials are acceptable including for tourism.

6.2. Financial viability and risks

Long-term positive economic impacts can only flow from a project that is financially sustainable (i.e. financially viable in the long term with enough income to cover costs). The applicant has yet to decide whether the project will be submitted as a competitive bid in the REIPPPP process or whether it will sell electricity directly to private customers. Much will depend on how these markets develop.

The REIPPPP essentially ensures that once a renewable project is operational there is relatively low levels of financial risks to encourage these types of projects. The Project is thus highly likely to prove financially viable assuming it is able to secure a long-term contract through the REIPPPP and then proceed to control its costs and meet revenue and other expectations. Under the REIPPPP competitive bidding process, the relevant authorities will only be offering limited producers long term power purchase contracts. The Project will therefore have to compete with other projects. At this stage it is not possible to determine whether the Project will be one of those chosen - the adjudication process will determine this. The existence of several alternative energy developers and sites, from around the country, looking to access REIPPPP contracts means that the state can be selective in allocating contracts to those projects and project alternatives that meet stringent qualification criteria and offer the cheapest electricity and highest socio-economic development commitments.

Selling directly to private customers may have a relatively higher financial risk than the REIPPPP but these risks can be controlled, for example, through contracting enough longer-term customers before proceeding with the project. The project is therefore not free of commercial risk nor would it be realistic to expect this. However, the balance between financial benefits and costs are likely to be positive for the applicant and landowner partners barring unforeseen risks. The remainder of this report focuses on the socio-economic impacts that would accrue to wider society.

6.3. Potential Impacts during the Construction Phase

6.3.1. Impacts from expenditure on the construction of the project

The construction phase of the project would result in positive spending injections into the area that would lead to increased economic activity best measured in terms of impacts on employment and associated incomes. Bear in mind that at this stage of project planning estimates of expenditure and employee needs are generally tentative and not detailed resulting in a broad level of assessment but underpinned by experience obtained from work done on other renewable energy and powerline developments.

All new expenditures will lead to linked direct, indirect and induced impacts. Taking employment as an example, impacts would be direct where people are employed directly on the project in question (e.g. jobs such as construction workers), indirect - where the direct expenditure associated with a project can lead to jobs and incomes in other sectors (e.g. purchasing building materials maintains jobs in that sector) and induced where jobs are created due to the expenditure of employees and other consumers that gained from the project. Direct impacts are the most important of these three categories as they are the largest and most likely create change in the local area. Their estimation also involves the lowest level of uncertainty. The quantification of indirect and induced impacts is a far less certain exercise due to uncertainty surrounding accurate multipliers particularly at a local and regional level (as each area and community has its own nuances). This uncertainty makes it inadvisable to quantify indirect employment unless an in-depth analysis is required. Potential direct employment impacts are consequently quantified here and likely indirect impacts are considered in a qualitative sense when providing overall impact ratings.

Construction expenditure would not displace other investment and would constitute a positive injection of new investment. During the construction phase the civil and other construction, specialised industrial machinery and building construction sectors would benefit substantially. The development would provide a major injection for contractors and workers in the area that would in all likelihood purchase goods and services in the local area and the wider region.

Preliminary estimates indicate that a total of between R1.7 billion and R2 billion would be spent on the entire construction phase including infrastructure and building construction as well as other specialised machinery installation for Padloper 6, as well as a further R2.5–3 billion each on construction and installation of Padloper 5 and Padloper 7 (see Table 6.1). Therefore, for all three solar facilities it is expected that between R6.8 billion and R8 billion would be spent. The local area would benefit primarily from expenditure on civils, roads and buildings. The majority of the more technical components of the facility would need to be imported as these items are not currently available in South Arica. During the sixth round of the IPP bidding process, the Department of Mineral Resources and Energy (DMRE) set a minimum threshold for South African content at 40%. We assume for the purposes of this assessment that the remaining 60% will be spent on imports. Development of domestic industry around inputs to renewable energy projects has been slow, largely due to policy uncertainty. Notwithstanding the need for imports, the construction of the project represents a significant investment spread over roughly 18 to 24 months. Note that estimates are only meant to give an approximate indication of potential expenditure and are subject to revision.

Table 6.1: Construction expenditure estimates

	Spend in 2023 Rands spread over construction phase			Duration of construction phase
For the up to 100 MW solar facility				
PV Modules, Tracking Systems and Mounting Structures	R 1 100 000 000	-	R 1 265 000 000	<18 months
Civils, roads and buildings	R 180 000 000	-	R 207 000 000	
Machinery and equipment	R 60 000 000	-	R 75 000 000	
Inverter, MV Transformers and Cabling	R 360 000 000	-	R 450 000 000	
Total	**R 1 700 000 000**	**-**	**R 1 997 000 000**	
For each up to 150 MW solar facility				
PV Modules, Tracking Systems and Mounting Structures	R 1 650 000 000	-	R 1 897 500 000	<24 months
Civils, roads and buildings	R 270 000 000	-	R 310 500 000	
Machinery and equipment	R 90 000 000		R 112 500 000	
Inverter, MV Transformers and Cabling	R 540 000 000	-	R 675 000 000	
Total	**R 2 550 000 000**	**-**	**R 2 995 500 000**	

Standard construction industry estimates for labour required were used to estimate direct temporary employment during construction. Table 6.2 outlines employment that would be associated with the main components of the construction phase over 18 months in the case of the 100MW facility and 24 months in the case of the 150MW facility. Roughly 290 to 379 jobs of between 10 to 18-month duration would be associated with the entire construction period for the 100MW facility, and a further 350 to 429 jobs of between 16 to 24-month duration associated with each of the two 150 MW facilities. The total number of temporary jobs (between 10–24 months) associated with Padloper 5, Padloper 6 and Padloper 7 would be in the region of 990 to 1,200. As with expenditure, the estimates are not to be regarded as highly accurate and are meant to give an indication of potential impacts. Once the final tenders are received, construction plans will be finalised and the exact figures will become clearer.

In keeping with the overall goals set out in the DMRE scorecard for potential REIPPPP bidders, the applicant intends sourcing as high a possible portion of construction employees from the local area followed by the region and then the province, with the aim of ensuring local communities derive the greatest benefit.

Table 6.2: Estimated direct temporary employment during construction

Employment categories	Number of workers				Duration of employment	
	Highly skilled	Medium skilled	Low skilled	Total	Highly and Medium skilled	Low skilled
For the 100 MW solar facility						
Civils, roads and buildings	2 - 3	2 - 4	180 - 220	184 - 227	18 months	10 months
Machinery and equipment	1 - 2	2 - 4	40 - 60	43 - 66	18 months	10 months
Other	1 2	2 4	60 - 80	63 - 86	18 months	10 months
Total	**4 - 7**	**6 - 12**	**280 - 360**	**290 - 379**		
For each 150 MW solar facility						
Civils, roads and buildings	2 - 3	2 - 4	220 - 250	224 - 257	24 months	16 months
Machinery and equipment	1 - 2	2 - 4	50 - 70	53 - 76	24 months	16 months
Other	1 2	2 4	70 - 90	73 - 96	24 months	16 months
Total	**4 - 7**	**6 - 12**	**340 - 410**	**350 - 429**		

Direct household income impacts would flow from all wages paid during construction. These were estimated by multiplying the projected number of direct jobs associated with the project above by assumed average monthly salaries for each skill category (i.e. R8,000 for low skilled, R35,000 for medium skilled and R80,000 for highly skilled employees). Again, these estimates are to be treated as indicators. The results of this exercise in Table 6.3 below indicate that incomes flowing to workers would be between R32 million and R46 million for Padloper 6 and between R56 million and R76 million each for Padloper 5 and Padloper 7. Padloper facilities 5,6 and 7 would therefore generate combined total incomes of between R144 million and R198 million.

Table 6.3: Monthly household incomes during construction (2023 rands)

	Total incomes during construction			
	For each 100 MW solar facility	% of total	For each 150 MW solar facility	% of total
Low skilled	R 22 400 000 - R 28 800 000	62%	R 43 520 000 - R 52 480 000	69%
Medium skilled	R 3 780 000 - R 7 560 000	16%	R 5 040 000 - R 10 080 000	13%
High skilled	R 5 760 000 - R 10 080 000	22%	R 7 680 000 - R 13 440 000	18%
Total	**R 31 940 000 - R 46 440 000**	**100%**	**R 56 240 000 - R 76 000 000**	**100%**

In addition to the above direct employment and associated income opportunities, a significant number of temporary indirect opportunities would also likely arise from the project. These would result primarily from expenditure by the project in the local area and region as well as expenditure by workers hired for the construction phase.

Impacts during construction with the mitigation proposed would be of a moderate significance pre-mitigation and a moderate significance post-mitigation given the size of the expenditure injection, construction period and the number of potential employment and income generation opportunities involved.

Table 6.4: Impacts from expenditure on the construction of the project (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE					
Impacts from expenditure on the construction of the project	*Status*	*Positive*	*Moderate*	*High*	*High*
	Spatial Extent	*National*			
	Duration	*Medium term*			
	Consequence	*Substantial*			
	Probability	*Very likely*			
	Reversibility	*Moderate*			
	Irreplaceability	*Replaceable*			
Potential mitigation measures	• *Setting targets for how much local labour should be used based on the needs of the Applicant and the availability of existing skills and people that are willing to undergo training. Opportunities for the training of unskilled and skilled workers from local communities should be maximized.* • *Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.* • *Exploring ways to enhance local community benefits with a focus on broad-based black economic empowerment (BBBEE) and preferential procurement.* • *Setting up a skills and services database in partnership with the local municipality and civil society for the local area before any hiring or contracting decisions are made. This can help to ensure fairness and limit potential interference in hiring processes.* • *An effective employee induction programme is essential to ensuring that new employees, some of whom will be unfamiliar with the responsibilities of maintaining employment, are adequately prepared and motivated to adjust to the lifestyle required of them. This programme should incorporate life skills training as well as basic financial literacy training.* • *Counselling services should be made available to employees to ensure that they have adequate guidance.* • *Assisting smaller enterprises where possible in tendering for contracts and in accessing finance which are common constraints to their participation in projects.* • *Avoiding potential service provider decisions that may lead to abuse or local dissatisfaction. For example, only appointing one accommodating rental agent or one catering supplier may lead to local dissatisfaction regarding the spreading of project benefits.* • *As far as possible, avoid significant variation in salaries between various contractors for the same types of jobs. When variations are too high, the likelihood of dissatisfaction increases.*				

6.3.1. Impacts associated primarily with the influx of people

Potential impacts of the influx of people have been assessed in detail as part of the social specialist studies for other renewable energy projects in small communities the findings of which are drawn on here (see Barbour and van der Merwe, 2012 and van Zyl and Barbour, 2014 in particular). Barbour and van der Merwe note that while the presence of construction and other workers does not in itself constitute an impact, the manner in which workers conduct themselves can affect the local community and lead to increased social ills. They also make the observation that likely impacts are related to the

number of employment opportunities that would go to non-locals and how the recruitment process is managed.

Note that there is some potential for overlap between this section and Section 6.3.3 which deals with impacts on landowners and communities. In order to limit overlap, this section focuses on impacts associated with increased risk of social ills in the wider community and potential strain on services (municipal and accommodation) stemming from 'new' people coming to the area including those who have already secured employment as well as job-seekers hoping to find work at the project or in other businesses which may grow as a result of it.

Community concerns are common, especially in smaller communities, regarding the negative impacts associated with an influx of outside workers particularly during the construction of large projects. These concerns include those associated with negative impacts on social structures and increased 'social ills' such as increased crime levels, increased alcohol and drug use, increased teenage and unwanted pregnancies, increased prostitution and increases in sexually transmitted diseases (STDs such as HIV). In the context of the high levels of poverty seen in Murraysburg, some of the stakeholders interviewed indicated that an influx of construction workers could be detrimental to the social fabric of communities, especially in the event that these construction workers abuse their position of relative power to take advantage of marginalised people in the community.

As previously mentioned, the Applicant has indicated that they are committed to implementing a 'locals first' employment policy where possible. It is likely that a significant proportion of workers would be sourced locally especially low and medium skilled workers. These workers would already be part of the local community and its social structures thereby reducing the risk posed by influx. However, given the small number of people living in nearby Murraysburg, there are limits to the number of workers who could be sourced from local communities. Maximising local employment therefore has limited potential to mitigate this impact during construction.

The potential for strain on municipal services is also relevant for the construction phase but is a relatively greater risk during operations and is therefore discussed in the following section.

It is anticipated that, with mitigation, the threat posed to the community by influx would be manageable. This comes with the caveat that the impact on individually affected community members has the potential to be high (for example, for an individual being affected by crime) whereas the assessed impacts are averaged for the whole community. The significance of impacts is assessed as moderate negative during construction with the effective implementation of mitigation measures.

Table 6.5: Impacts associated primarily with the influx of people – construction phase (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE					
Impacts associated primarily with the influx of people	*Status*	*Negative*	*Moderate*	*Moderate*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Substantial*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *A 'locals first' policy with regards to construction labour needs.* • *The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.*				

	• *A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction process.* • *The Applicant and the contractors should, develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. For example, access on land that is not part of the development will not be allowed.* • *The Applicant and the contractor should implement a TBand HIV/AIDS awareness programme for all workers at the outset of the construction phase.* • *Arrangements must be made to enable workers from outside the area to return home at reasonably regular intervals. This would reduce the risk posed by non-local construction workers to local family structures and social networks.* • *Condoms should be freely available to employees and all contractor workers.* • *The contractor should make the necessary arrangements for ensuring that all non-local construction workers are transported back to their place of residence once the construction phase is completed.* • *Close coordination with the municipality is required, including regular meetings.*

6.3.2. Impacts on tourism

Tourism is a key sector and has the potential to play an increasingly prominent role as a driver of economic development. It is thus important to consider the potential impacts of the project on this sector. The assessment of impacts on tourism was based on the following:

- Information on current tourism use and potential focusing on the area surrounding the site.
- Pertinent information from other specialist studies - the Visual Impact Assessment (VIA) and Heritage Impact Assessment (HIA) were most relevant in this regard.
- Comments from Interested and Affected Parties received during the PPP.
- Own observations, experience in assessing other similar projects and inputs from stakeholders including the local tourism organisation.

The focus of assessment was on gauging overall tourism impacts. This overall assessment was, however, partially informed by a consideration of risks to selected known and more prominent individual tourism establishments or facilities. Although the primary focus was on tourism risks, the project's potential to result in positive impacts on tourism was also assessed.

Aside from impacts driven primarily by visual and heritage changes, construction phase impacts would be driven by temporary changes and disruptions. These include the following which are discussed in Section 6.3.3 given their greater relevance to impacts on surrounding landowners and communities:

- Deterioration of local roads
- Increased traffic on roads that are ordinarily quiet
- Greater risk of increased dust levels
- Increased risk of crime such as stock theft and poaching
- Increased littering
- Increased potential for veld fires

These would essentially reduce the appeal of the local area as a tourist destination, particularly in a place ordinarily characterised by tranquillity. These impacts would be experienced to a varying degree over the 18–24-month construction period for each facility, noting that they may or may not be constructed at the same time.

The TIA found that "the highest traffic impact of the proposed development would occur during the construction phases, which are temporary in nature and whose impacts can be effectively mitigated. In terms of TMH 16, developments that generate less than 50 peak hour trips are not required to undertake

a detailed TIA. Each of the three proposed facilities are estimated to generate less than 50 peak hour trips. The traffic impact during this phase is hence seen as nominal." (Hlanguza, 2023: 23).

The VIA found that visual impacts could be reduced to a Low impact with effective mitigation, including measures to minimise vegetation clearing, vehicle numbers and other forms of disturbance to the site. Dust suppression methods are also recommended (SLR, 2023: 49).

The tourism context, other specialist findings and key considerations discussed above indicate that the project should have a low negative impact on tourism with mitigation in the construction phase.

Table 6.6: Impacts on tourism during construction (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE					
Impacts on tourism	*Status*	*Negative*	*Low*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Moderate*			
	Probability	*Unlikely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	*Impacts on tourism are dependent on how the site is developed and managed to minimise negative biophysical impacts. The measures recommended in other specialist reports to these impacts (primarily the minimisation of visual, heritage, traffic and ecological impacts) would thus also minimise tourism impacts.*				

6.3.3. Impacts on surrounding landowners and communities

As is often the case with large projects, concerns are usually raised by surrounding landowners and communities that relate to potential negative impacts associated mainly with greater activity nearby and the presence of workers on the site particularly during construction.

During the construction phase, impacts on surrounding landowners and communities would largely result from:

- Increased risk of crime such as stock theft and poaching
- Damage to farm infrastructure such as fences
- Increased littering
- Increased potential for veld fires
- Greater risk of increased dust and noise levels
- Safety concerns associated mostly with presence of large trucks and machinery
- Deterioration of local roads

Some of the surrounding landowners are particularly wary of the risks that come with the introduction of a significant labour force into the area. More people in farming areas are seen as a risk factor for trespassing, theft, damages to farm infrastructure and equipment, littering along with veld fires. Some of these potential impacts can also lead to changes in the sense of place.

All of the risks discussed above are considered relatively manageable and impacts on surrounding landowners and communities have been rated as low negative for the construction phase with mitigation.

Table 6.7: Impacts on surrounding landowners and communities during construction (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE					
Impacts on surrounding landowners and communities	*Status*	*Negative*	*Moderate*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Substantial*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *No construction workers, except for security personnel, should be allowed to stay on the site overnight.* • *The community should be able to contact the site manager to report any issues which they may have. The site manager should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.* • *A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.* • *The Applicant should develop a Code of Conduct for the project. The Code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers.* • *The movement of workers on and off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis.* • *The Applicant should implement measures to assist and, if needed, fairly compensate potentially affected surrounding landowners whereby damages to farm property, stock theft or significant disruptions to farming activities can be minimized or reduced. Measures should be agreed on before construction commences.* • *The EMPr must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.* • *Mitigation measures proposed by other specialists, in particular those prescribed in the TIA, need to be adhered to.*				

6.4. Potential Impacts during the Operational Phase

6.4.1. Impacts from expenditure on the operation of the project

Similar to the construction phase, the operational phases of the project would result in positive spending injections into the area that would lead to increased economic activity best measured in terms of impacts on employment and associated incomes.

Once established, the operation of the facility would result in direct and indirect economic opportunities over a 20-year period. These would result from expenditure on operations, including expenditure on employees that would not otherwise have occurred, particularly in the local area. It is anticipated by the applicant that between R20 million and R24 million would be spent annually on operations for Padloper 6, and a further R28–35 million per annum on Padloper 5 and Padloper 7. Combined annual spending on the three facilities is therefore estimated at between R76 million and R94 million (see Table 6.8). This expenditure would escalate in line with inflation.

Table 6.8: Preliminary estimate of annual operational expenditure (2023 Rands)

Operational cost categories	Annual costs once plant is fully operational in 2023 Rands
For the up to 100 MW solar facility	
Salaries and wages	R 10 000 000 - R 12 000 000
Other	R 10 000 000 - R 12 000 000
Total costs once fully operational	**R 20 000 000 - R 24 000 000**
For each up to 150 MW solar facility	
Salaries and wages	R 13 000 000 - R 15 000 000
Other	R 15 000 000 - R 20 000 000
Total costs once fully operational	**R 28 000 000 - R 35 000 000**

The extent to which the local area would benefit from expenditure during operations is not unknown at this stage (see Table 6.9), although the applicant has committed to spending 40% of operational expenditure within South Africa and has also expressed a commitment to source as many employees as possible from the local and regional labour pools. Payments for municipal services would also, by definition, accrue to the local municipalities. Suppliers in the region could also potentially benefit from payments for outsourced engineering services and sundry supplies.

Table 6.9: Expenditure by area during operations

Operational cost categories	% of total costs that would go to local suppliers within 50km	% of total costs that would go to suppliers in the rest of the Western Cape or Northern Cape	% of total costs that would go to suppliers in the rest of South Africa	% of total costs for imports
For the up to 100 MW solar facility				
Salaries and wages Other **Total costs once fully operational**	Not known at this stage		40%	60%
For each up to 150 MW solar facility				
Salaries and wages Other **Total costs once fully operational**	Not known at this stage		40%	60%

With regard to direct employment during the operation phase, Table 6.10 outlines what should be expected. It is anticipated that between 55 and 81 direct employment opportunities would be generated by Padloper Solar PV Facility 6 and a further 67–94 opportunities by each of the Padloper Solar PV Facility 5 and Padloper Solar PV Facility 7 facilities. The combined totals for these three facilities would be between 189 and 269 permanent employment opportunities, with the majority of positions concentrated in the low skilled category.

Table 6.10: Employment associated with operations

Employment categories	Number of employees			
	Highly skilled	Medium skilled	Low skilled	Total
For the up to 100 MW solar facility				
Site manager	1 - 2			1 - 2
Maintenance engineers	1 - 2		1 - 1	2 - 3
Maintenance workers	1 - 1	1 - 2	3 - 4	5 - 7
Security		1 - 1	6 - 8	7 - 9
Cleaning		-	40 - 60	40 - 60
Total	**3 - 5**	**2 - 3**	**50 - 73**	**55 - 81**
For each up to 150 MW solar facility				
Site manager	1 - 2			1 - 2
Maintenance engineers	1 - 2		1 - 1	2 - 3
Maintenance workers	1 - 1	1 - 2	3 - 4	5 - 7
Security		1 - 2	8 - 10	9 - 12
Cleaning		-	50 - 70	50 - 70
Total	**3 - 5**	**2 - 4**	**62 - 85**	**67 - 94**

A graphical representation of the employment breakdown is provided in Figure 6.3.

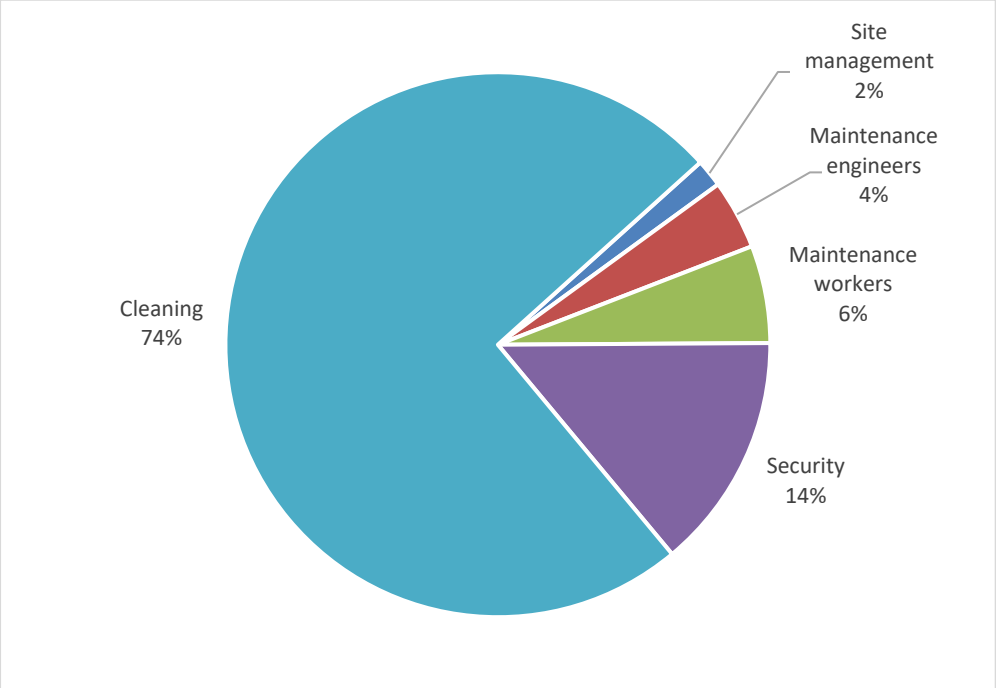


Figure 6.3 Proportion of total employees in each employment category

Aside from these direct employment opportunities, the operational expenditure on the project (detailed above) and the spending of those employed directly would result in positive indirect impacts on the local and regional economy. Essentially those that secure jobs on the project would spend some portion of their increased income on local goods and services generally purchased by households. This would benefit those businesses where the money is spent.

In terms of agricultural incomes on the site, interviews with landowners and land managers revealed that they expect the negative impact of the project on agricultural productivity should be negligible.

While a small area of grazing land would be lost, this area is relatively inconsequential in terms of productivity, given the extensive nature of farming in the area, with each small livestock unit requiring in the region of 10 ha grazing land. Farmers would also gain significant additional income from the project particularly when compared to the quantum and reliability of income from farming.

The potential for the project and other future renewable energy projects to result in greater impacts on local economies and the South African economy as a whole is primarily dependent on economies of scale. Currently, import content is necessarily high. However, as the renewable energy programme grows in size (aided by the project) it should provide opportunities for manufacturing and servicing at scale and the additional benefit that would flow from it.

Impacts during operations would be positive with a high significance with mitigation at a regional scale. With time local impacts should become more pronounced as the sourcing of goods and services becomes easier.

Table 6.11: Impacts from expenditure on the operation of the project (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE					
Impacts from expenditure on the operation of the project	*Status*	*Positive*	*Moderate*	*High*	*High*
	Spatial Extent	*Regional*			
	Duration	*Long term*			
	Consequence	*Severe*			
	Probability	*Very likely*			
	Reversibility	*Moderate*			
	Irreplaceability	*Replaceable*			
Potential mitigation measures	• *Setting targets for how much local labour should be used based on the needs of the Applicant and the availability of existing skills and people that are willing to undergo training. Opportunities for the training of unskilled and skilled workers from local communities should be maximized.* • *Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.* • *Exploring ways to enhance local community benefits with a focus on BBBEE and preferential procurement.* • *Setting up a skills and services database in partnership with the local municipality and civil society for the local area before any hiring or contracting decisions are made. This can help to ensure fairness and limit potential interference in hiring processes.* • *An effective employee induction programme is essential to ensuring that new employees, some of whom will be unfamiliar with the responsibilities of maintaining employment, are adequately prepared and motivated to adjust to the lifestyle required of them. This programme should incorporate life skills training as well as basic financial literacy training.* • *Counselling services should be made available to employees to ensure that they have adequate guidance.* • *Assisting smaller enterprises where possible in tendering for contracts and in accessing finance which are common constraints to their participation in projects.* • *Avoiding potential service provider decisions that may lead to abuse or local dissatisfaction. For example, only appointing one accommodating rental agent or one catering supplier may lead to local dissatisfaction regarding the spreading of project benefits.*				

6.4.2. Impacts associated with the funding of local socio-economic development, enterprise development and shareholding during operations

The applicant has yet to decide whether (1) the project will be submitted as a competitive bid in the REIPPPP process or (2) it will sell electricity directly to private customers. In either case, the applicant intends ensuring that as large a portion of the proceeds as feasible from the project contributes to local socio-economic development particularly during operations.

If the project is part of the REIPPPP then it will need to meet the requirements of the REIPPPP bidding process. Significant contributions to economic development would be mandatory and a bid would be evaluated with a 90% weighting for price competitiveness and 10% for the achievement of socio-economic development criteria. Socio-economic development criteria are subject to 'thresholds' (i.e. minimum requirements that must be met and are often exceeded to increase the likelihood of being a preferred bidder) including the following:

- Local Content Spend during construction and operations: at least 40% (note that in this context "local" refers to South African)
- Ownership of Project Company:
    - at least 2.5% shareholding by Local Communities
    - at least 30% shareholding by Black People
    - at least 5% shareholding by Black Women
- Skills development contributions: 1.05% of project revenue during operations
- Enterprise Development (ED) contributions: 0.6% of project revenue during operations
- Socio-Economic Development (SED) contributions: 1.1% of Revenue
- In terms of job creation:
    - At least 65% must be SA citizens
    - At least 40% must be Black people (20% of Skilled Employees must be Black)"

At this stage it is not possible to quantify the amounts that are likely to be associated with meeting these thresholds. However, the large size of the project investment and the minimum threshold requirements indicate that they will be at least of a moderate significance. This overall significance of impact is also considered likely if the project is not part of the REIPPPP due to the need for substantial BBBEE and corporate social responsibility commitments to the benefit of local socio-economic development.

Table 6.12: Impacts associated with the funding of local socio-economic development, enterprise development and shareholding (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE					
Impacts associated with the funding of local socio-economic development, enterprise development and shareholding	*Status*	*Positive*	*Moderate*	*Moderate*	*Medium*
	Spatial Extent	*Regional*			
	Duration	*Long term*			
	Consequence	*Substantial*			
	Probability	*Very likely*			
	Reversibility	*Moderate*			
	Irreplaceability	*Replaceable*			
Potential mitigation measures	• *The project must comply with the requirements of the REIPPPP and/or Broad-based Black Economic Empowerment (BBBEE) requirements.* • *The applicant must establish a communications committee early on in the project to ensure inclusive planning and regular feedback from stakeholders.* • *Community development should be guided by a community needs analysis, drawn up by a third party and based on local socio-economic conditions, a review of planning*				

	documents such as the IDP, and discussions with local and district-level government and community representatives. Interventions should be planned in collaboration with other energy developers in the area where relevant. • *Close liaison with local and district-level municipal managers, local councillors and other stakeholders involved in socio-economic development is required to ensure that any projects are integrated into wider socio-economic development strategies and plans*

6.4.1. Impacts associated primarily with the influx of people

One of the ways in which an influx of people can impact a municipality is through the additional strain they place on the provision of municipal services. This is especially true of job seekers who do not end up finding work, as they will be less likely to contribute to municipal finances through payments for services. Those who do find work, or who relocate to the area because they have been offered a job, are more likely to have a net positive impact on municipal finances, thus allowing the municipality to scale-up services provision as demand increases.

In addition to the above, there is some concern that the influx of workers during operations would create tension in local communities. While the applicant has indicated that they will source as many employees as possible from local communities, they are unlikely to be able to fill all positions this way given a potential mismatch of skills, especially in the short to medium-term.

It is anticipated that, with mitigation, the threat posed to the community by influx would be manageable. This comes with the caveat that the impact on individually affected community members has the potential to be high (for example, for an individual being affected by crime) whereas the assessed impacts are averaged for the whole community. The significance of impacts has been assessed as low negative during operations with the effective implementation of mitigation measures.

Table 6.13: Impacts associated primarily with the influx of people – operational phase (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE					
Impacts associated primarily with the influx of people	*Status*	*Negative*	*Low*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Long term*			
	Consequence	*Moderate*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *A 'locals first' policy with regards to construction and operational labour needs.* • *The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.* • *A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.* • *The Applicant and the contractors should, develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. For example, access on land that is not part of the development will not be allowed.* • *Condoms should be freely available to employees and all contractor workers.* • *Close coordination with the district and local municipalities is encouraged.*				

6.4.1. Impacts on tourism

The tourism context in Section 4.8 highlights the role of the area's unique sense of place in stimulating tourism demand. Impacts on tourism are dependent on the extent to which the project changes in the area's sense of place. This can be limited to some extent through the careful siting of infrastructure, but there is some degree of change which cannot be avoided, for example with the need to have professionals servicing and cleaning the solar panels, there will be increased traffic. There will also be a need for increased lighting for security, which constitutes light pollution in an area renowned for its stargazing. Participating landowner Mr Percy Reynolds pointed out that the potential for the proposed development to affect the tourism facilities on his farm is somewhat limited, since they are situated in a valley, while the siting of the PV facilities has been planned on top of plateau-like features.

Aside from the nature of the projects, impacts on tourism are to some degree limited by the relatively undeveloped nature of the sector in the local area. The tourism context (Section 4.8) lists the establishments identified as part of this study. Interviews with the owners of these establishments revealed mixed perceptions as to the degree to which the proposed development will likely affect tourism demand. Mr Percy Reynolds did not feel that there would be much of an impact on tourism given the siting of the solar farms relative to popular tourist areas closer to his guesthouses. It should also be noted that Mr Reynolds is participating in the project and therefore has an incentive to support it despite any perceived negative repercussions.

The VIA describes the topography of the broader project area in the following way: "The area surrounding the proposed Padloper SEF and EGI projects is largely characterised by a mix of flat to undulating and hilly terrain with distinctive koppies and hills. The terrain drops relatively steeply towards the valleys associated with the Snyderkraal and Buffels Rivers in the west and south respectively. Steep slopes also mark the divide between the central sector of the site and the higher lying, more mountainous areas that dominate the north-east." (SLR, 2023: 19).

In terms of more site-specific observations, the VIA states that "Much of the site being assessed for Padloper Solar Facility 5 is characterised by a mix of undulating and hilly terrain with distinctive koppies and hills in evidence. Steeper slopes (>= 1:5) are evident in the northern and southern sectors of the site. The PV arrays will be located on relatively flat terrain in the south-western sector of the assessment area and as such, it is anticipated that there will only be limited impact on the skyline. In addition, topographic variations in the surrounding area are sufficient to limit views of the PV arrays from significant parts of the study area." (SLR, 2023: 29)

In describing the broader landscape in which the suite of solar facilities would be situated, the HIA notes that it "is largely natural, but with enclaves of rural/agricultural character at all the farmsteads where human interventions are evident. The land is largely used for livestock rearing with agriculture only practiced along the rivers where wider floodplains occur. The farmsteads tend to also be close to these areas. Elsewhere, the only signs of human activity in the landscape are occasional farm tracks, farm fences, wind pumps, small reservoirs and, along the rivers, flood irrigation infrastructure." (Orton, 2023: 61)

The construction of the facilities has generally been proposed on plateaus, which has limited the visibility of the planned infrastructure. For this reason, the VIA states that "the PV arrays would not be visible from most parts of the study area, including the R63 Main Road, and only partially visible from one sensitive receptor and two potentially sensitive receptor locations in the study area." (SLR, 2023: 29).

The HIA notes that "despite being on relatively high ground, the facility will not be highly prominent in the landscape because views of it would be side-on rather than top-down. The facility would thus appear in a manner that effectively raises the horizon line slightly and it would therefore not result in significant

visible change to the cultural landscape and would not dramatically alter the sense of place." (Orton, 2023: 61–62).

The VIA resulted in a post-significance impact rating of Low with mitigation focused on limiting the number of maintenance vehicles allowed to access the site, limiting security and operational lighting, and otherwise minimising the prominence of the proposed infrastructure in the landscape.

The only significant impact on heritage resources noted by the HIA is in respect to the historical leiwater furrow found on the proposed site for Padloper Solar Facility 7, which would need to be altered when the road crossing it is upgraded (this applies to access Option 1 only). The HIA finds that this impact is deemed within acceptable limits. The HIA recommends that specific parts of the site for Padloper Solar Facility 5 and 7 are flagged as no-go areas, and further specifies that Access Option 2 is preferred for Padloper Solar Facility 7. Some more general mitigation measures are also recommended to ensure that impacts on heritage resources are minimised and that "if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted" (Orton, 2023: vii). The HIA concludes that "there are no significant concerns for any of the six three applications assessed in this report. Impacts to the cultural landscape will occur but are unavoidable. Impacts to the landscape are well within acceptable limits and, given the location of the wider study area within a REDZ, EGI corridors and approved Wind Energy Facility (WEF) sites, the impacts to the landscape are of no further concern." The HIA goes on to provide some site-specific guidance for each of the PV development sites.

The TIA estimates that the project will result in a maximum of an additional 12 vehicles on the roads in the vicinity of the project sites during morning and afternoon peak periods. Mitigation measures have been proposed, including group transportation of facility staff and off-peak scheduling of maintenance-related traffic. The TIA concludes that "no fatal flaws were identified in the proposed Padloper Solar PV Facilities 5-7 in respect of transportation and traffic aspects." (Hlanguza, 2023: 36)

Note that the project has the potential to result in a boost in tourism to the project area through its facilitation of increased business tourism. The positive impacts resulting from this will mostly have been covered in Section 6.3, as they will have been included in the estimates of the expenditure which will result from the proposed project, some of which will go towards accommodation and other expenses incurred by the company for contractors and employees visiting the project site. Other positive impacts would be more indirect as trips for work purposes can lead to an extended stay or lead to return visits for leisure when project personnel are exposed to the attractions of the area and the wider country. Personnel may also recommend the area to others as a tourist destination.

The tourism context, literature review, other specialist findings and key considerations discussed above indicate that the project should have a low negative impact on tourism without and with mitigation in the operational phase.

Table 6.14: Impacts on tourism during operations (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE					
Impacts on tourism	*Status*	*Negative*	*Low*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Moderate*			
	Probability	*Unlikely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			

Potential mitigation measures	*Impacts on tourism are dependent on how the site is developed and managed to minimise negative biophysical impacts. The measures recommended in other specialist reports to these impacts (primarily the minimisation of visual, heritage, traffic and ecological impacts) would thus also minimise tourism impacts.*

6.4.1. Impacts on surrounding landowners and communities

The operations phase would also be associated with relatively similar issues to those assessed for the construction phase albeit over a longer time-period and of a lower intensity.

One of the most substantial changes will be to the sense of place. One of the surrounding landowners interviewed, Mr Izak van der Merwe, indicated that the project would likely have a negative effect on the area's visual quality as well as on its general sense of place. This was discussed above in Section 6.4.1 to the extent that it would affect tourism demand, but it would similarly affect those living in the vicinity of the proposed project.

The presence of more people in the local area during the operations phase was raised as a concern by some landowners in the area as for the construction phase. These included increased risk of crime such as stock theft and poaching, damage to farm infrastructure such as fences, increased littering, increased potential for veld fires, greater risk of increased dust and noise levels, increased light pollution at night, safety concerns and deterioration of local roads. Impacts associated with these concerns are likely to be of a similar but less intense in nature than for construction.

The increased volume of project-related traffic in the area could affect surrounding communities. This will potentially occur through increased levels of noise, dust as well as through the threat to the safety of other road users, including drivers, pedestrians and cyclists. The TIA estimates that "an additional 12 vehicles on the roads in the vicinity of the project sites during morning and afternoon peak periods" (Hlanguza, 2023: 24).

As with the construction phase, impacts are largely considered manageable with focused mitigation, and have been assessed to have a low post-mitigation significance. Bear in mind that confidence in assessment is medium especially as perceptions with respect to sense of place impacts are likely to be variable.

Table 6.15: Impacts on surrounding landowners and communities during operation (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE					
Impacts on surrounding landowners and communities	*Status*	*Negative*	*Moderate*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Long term*			
	Consequence	*Moderate*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *A 'locals first' policy with regards to labour needs.* • *The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.* • *A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.* • *The Applicant and the contractors should, develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not*				

	permitted in agreement with surrounding landowners and land managers. For example, access on land that is not part of the development will not be allowed. • *Condoms should be freely available to employees and all contractor workers.* • *Close coordination with the district and local municipalities is encouraged.*

6.5. Potential Impacts during the Decommissioning Phase

6.5.1. Impacts from expenditure on the decommissioning of the project

Activities associated with the decommissioning of the project at the end of its design life would create somewhat less, but essentially similar, opportunities as the construction phase in terms of temporary local employment and other income opportunities. However, national and regional expenditure levels would be substantially lower as the dismantling process would not involve the ordering of new equipment and other inputs, etc. Note that operational phase impacts were assessed under the assumption that they would cease after 20 years and that the impacts of decommissioning consequently do not include a consideration of the withdrawal of the project's operational phase benefits from the economy.

Impacts during decommissioning would be positive with a moderate significance with mitigation at a regional scale.

Table 6.16: Impacts from expenditure on the decommissioning of the project (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
DECOMMISSIONING PHASE					
Impacts from expenditure on the construction of the project	*Status*	*Positive*	*Moderate*	*High*	*High*
	Spatial Extent	*National*			
	Duration	*Medium term*			
	Consequence	*Substantial*			
	Probability	*Very likely*			
	Reversibility	*Moderate*			
	Irreplaceability	*Replaceable*			
Potential mitigation measures	• *Setting targets for how much local labour should be used based on the needs of the applicant and the availability of existing skills and people that are willing to undergo training. Opportunities for the training of unskilled and skilled workers from local communities should be maximized.* • *Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.* • *Exploring ways to enhance local community benefits with a focus on BBBEE and preferential procurement.* • *Setting up a skills and services database in partnership with the local municipality and civil society for the local area before any hiring or contracting decisions are made. This can help to ensure fairness and limit potential interference in hiring processes.* • *An effective employee induction programme is essential to ensuring that new employees, some of whom will be unfamiliar with the responsibilities of maintaining employment, are adequately prepared and motivated to adjust to the lifestyle required of them. This programme should incorporate life skills training as well as basic financial literacy training.* • *Counselling services should be made available to employees to ensure that they have adequate guidance.* • *Assisting smaller enterprises where possible in tendering for contracts and in accessing finance which are common constraints to their participation in projects.* • *Avoiding potential service provider decisions that may lead to abuse or local dissatisfaction. For example, only appointing one accommodating rental agent or one catering supplier may lead to local dissatisfaction regarding the spreading of project benefits.*			

	• *As far as possible, avoid significant variation in salaries between various contractors for the same types of jobs. When variations are too high, the likelihood of dissatisfaction increases.*

6.5.1. Impacts associated primarily with the influx of people

Decommissioning would be very similar to construction phase impacts, although it may use slightly less labour and be of a shorter timeframe. Impacts resulting from workers who are employed as part of the decommissioning phase would thus be largely similar to those experienced during construction. Note that it stands to reason that the two phases would differ in terms of the number of job seekers who would likely be attracted to the area on the prospect of finding work. Newly proposed projects attract people seeking to benefit from them in terms of finding employment in either the construction or operations phases. Since the decommissioning phase would signal no further longer-term opportunities, the appeal of perceived opportunities would be lower than for the construction phase.

The significance of impacts is assessed as moderate negative during decommissioning with the effective implementation of mitigation measures.

Table 6.17: Impacts associated primarily with the influx of people – decommissioning phase (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
DECOMMISSIONING PHASE					
Impacts associated primarily with the influx of people	*Status*	*Negative*	*Moderate*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Moderate*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *A 'locals first' policy with regards to decommissioning labour needs.* • *The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.* • *A complaints register should be available on site to any individual who may have a particular complaint with regards to the decommissioning process.* • *The applicant and the contractors should, develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. For example, access on land that is not part of the development will not be allowed.* • *The Applicant and the contractor should implement a Tuberculosis and HIV/AIDS awareness programme for all workers at the outset of the construction phase.* • *Arrangements must be made to enable workers from outside the area to return home at reasonably regular intervals. This would reduce the risk posed by non-local decommissioning workers to local family structures and social networks.* • *Condoms should be freely available to employees and all contractor workers.* • *The contractor should make the necessary arrangements for ensuring that all non-local construction workers are transported back to their place of residence once the construction phase is completed.* • *Close coordination with the municipality is required, including regular meetings.*				

6.5.1. Impacts on tourism

Decommissioning would be similar to construction phase impacts, although it may use slightly less labour and be of a shorter timeframe and relative intensity. Impacts of the phase would thus be similar but less than those experienced during construction from disruption and other nuisance factors such as increase dust levels etc.

The tourism context, other specialist findings and key considerations discussed above indicate that the project should have a low impact on tourism with mitigation in the decommissioning phase.

Table 6.18: Impacts on tourism during decommissioning (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
DECOMMISSIONING PHASE					
Impacts on tourism	*Status*	*Negative*	*Low*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Medium term*			
	Consequence	*Moderate*			
	Probability	*Unlikely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	*Impacts on tourism are dependent on how the site is developed and managed to minimise negative biophysical impacts. The measures recommended in other specialist reports to these impacts (primarily the minimisation of visual, heritage, traffic and ecological impacts) would thus also minimise tourism impacts.*				

6.5.1. Impacts on surrounding landowners and communities

Decommissioning would be similar to construction phase impacts, although it may use slightly less labour and be of a shorter timeframe and relative intensity. Impacts of the phase would thus be similar to those experienced during construction from disruption and other nuisance factors such as increase dust levels, increased risk of crime, etc. As with construction, impacts on surrounding landowners and communities during decommissioning have been assessed as having a low significance with mitigation.

Table 6.19: Impacts on surrounding landowners and communities during decommissioning (PV 5-7)

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
DECOMMISSIONING PHASE					
Impacts on surrounding landowners and communities	*Status*	*Negative*	*Moderate*	*Low*	*Medium*
	Spatial Extent	*Local*			
	Duration	*Long term*			
	Consequence	*Moderate*			
	Probability	*Likely*			
	Reversibility	*Low*			
	Irreplaceability	*Moderate*			
Potential mitigation measures	• *A 'locals first' policy with regard to labour needs.* • *The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.* • *A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.* • *The Applicant and the contractors should, develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not*				

	permitted in agreement with surrounding landowners and land managers. For example, access on land that is not part of the development will not be allowed. • *Condoms should be freely available to employees and all contractor workers.* • *Close coordination with the district and local municipalities is encouraged.*

6.6. Cumulative Impacts

The list of projects included for cumulative assessment supplied by the EAP is provided in Table 6.20. These include various phases of the Umsinde Emoyeni Wind Energy Facility, The Ishwati Emoyeni Wind Facility and associated grid infrastructure, as well as the proposed Mainstream Wind and Solar Energy Facility at Victoria West.

Table 6.20 Projects included in assessment of cumulative impacts

Project Title	Technology	MW
Proposed Umsinde Emoyeni Wind Energy Facility phase 2 and its associated electrical grid connection phase 2, Western and Northern Cape Provinces	Onshore Wind	147
Proposed Umsinde Emoyeni Wind Energy Facility phase 1 and its associated electrical grid connection phase 1, Western and Northern Cape Provinces	Onshore Wind	147
Proposed Ishwati Emoyeni Wind Energy Facility and supporting Eskom Transmission and Distribution Grid Connection Infrastructure near Murraysburg, Western Cape Province.	Onshore Wind	115
Proposed Ishwati Emoyeni Wind Energy Facility and supporting Eskom Transmission and Distribution Grid Connection Infrastructure near Murraysburg, Western Cape Province.	Onshore Wind	N/A
Proposed Ishwati Emoyeni Wind Energy Facility And Supporting Eskom Transmission And Distribution Grid Connection Infrastructure Near Murraysburg, Western Cape Province.	Onshore Wind	280
The construction of the 140MW Ishwati Emoyeni Wind Energy Facility and its associated infrastructure located North West of the town of Murraysburg, Beaufort west, Western Cape Province	Onshore Wind	N/A
The Proposed Development of the Mainstream Wind and Solar Energy Facility at Victoria West, Northern Cape Province	Onshore Wind and Solar PV	
Proposed Development of the Mainstream Wind and Solar Energy Facility at Victoria West, Northern Cape Province	Onshore Wind and Solar PV	700
Proposed new 132kV grid connection and associated infrastructure for the authorised Emoyeni Wind Energy facilities, near Murraysburg, Beaufort West and Ubuntu Local Municipalities and Central Karoo and Pixely Ka Seme District Municipalities	Power line	N/A

6.6.1. Expenditure-related impacts

Cumulative impacts would be associated with greater expenditure on all seven proposed solar facilities associated grid connection projects, as well as on the projects listed in the table above. For the Padloper Solar Facilities 1-7 alone, combined expenditure during construction would be in the region of R18–22 billion over a 36-month period. Temporary employment during the construction period would total 2,400–3,000 jobs of between 10 to 36-month durations for all Padloper Solar Facilities. Between R196–249 million would be spent annually during operations, with 480–672 permanent positions created, 94% of which would be in the low skilled category.

Positive cumulative impacts are also likely to stem from the fact that the proposed Padloper PV Cluster Project should set a positive precedent for further investment in the area. By committing to investment

in large developments, the applicants would be casting a strong 'vote of confidence' in the local economy. This has the potential to influence other investors (including locals) to also act with similar confidence thereby resulting in cumulative impacts on overall investment levels.

Overall cumulative impacts could have a high positive impact for construction and operations given the size of the investments involved relative to the size of the local economy. In a sense the projects have the potential to lead to the 'crowding in' of further investment. As has been noted, if the renewable energy industry grows in size (aided by the proposed project) it should provide opportunities for manufacturing and servicing at scale and the additional, cumulative benefit that would flow from it.

6.6.1. Impacts associated with the funding of socio-economic development, enterprise development and shareholding

Similar to the case of project expenditure, the total cumulative funding of local socio-economic and enterprise development associated with all of the projects listed above would generate a substantial amount of economic activity. Cumulative impacts are therefore rated as high positive without mitigation and very high positive with mitigation.

6.6.1. Impacts associated primarily with the influx of people

The cumulative impact associated with all of the projects listed above going ahead would be an increase in the likelihood of a larger influx of people to the area whether they have jobs secured or are job seekers. This would result in a higher risk of social problems associated with influx particularly during construction. It is worth keeping in mind, however, that the projects would be unlikely to go ahead simultaneously.

In terms of the social impacts resulting from multiple developments, some of the stakeholders interviewed expressed concern that smaller towns in the area would experience a substantive change in their sense of place if there were multiple projects being developed in their vicinities. These perceptions were validated by interviews with municipal representatives, who confirmed that communication between project managers and other stakeholders in the area would need to be strong, and who asserted that local government, civil society and communities would need to anticipate and prepare for expected strain on the social fabric of local communities. If the mitigation prescribed for each of the projects are adhered to the potential impacts due to an influx of people should be adequately managed and the overall cumulative impact in this regard would be of Moderate negative significance both prior to and after mitigation.

6.6.1. *Impacts on tourism*

The VIA found that cumulative visual impacts would be of a moderate significance (SLR, 2023). The HIA rates cumulative impacts on archaeological resources as very low negative after mitigation, and impacts on the cultural landscape as Moderate significance "due to the proximity of the project to a public road." (Orton, 2023: 86).

The cumulative impact associated with all of the above projects going ahead would be an increase in tourism risk but also tourism opportunities from business tourism, particularly during construction. However, it is highly unlikely that all of these developments would go ahead at the same time, particularly as the Emoyeni and Mainstream projects are significantly more advanced than the Padloper development. Cumulative impacts have therefore been rated moderate negative both with and without mitigation bearing in mind the relatively higher levels of uncertainty in making cumulative assessments of this nature. The same ratings would apply to the operational phase given differences in severity and timeframe, as well as to the decommissioning phase as it would be of a similar nature to the construction phase.

6.6.1. Impacts on surrounding landowners and communities

Cumulative impacts associated with all of the projects listed above are expected to be moderate negative with mitigation during construction and operations. This partially draws on the findings of other specialist studies including the TIA, VIA and HIA (Hlanguza, 2023; SLR, 2023; Orton, 2023), as mentioned in the tourism section above.

6.6.2. Impact Summary Tables: Cumulative Impacts

Table 6.21 Cumulative impacts from expenditure on the construction, operation and decommissioning of the project

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE						
	Status	*Positive*	*Moderate*	*See Section 6.3*	*High*	*High*
	Spatial Extent	*Regional*				
	Duration	*Medium term*				
	Consequence	*Substantial*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
OPERATIONAL PHASE						
	Status	*Positive*	*Moderate*	*See Section 6.4*	*High*	*Very high*
	Spatial Extent	*Regional*				
	Duration	*Long term*				
	Consequence	*Substantial*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
DECOMMISSIONING PHASE						
	Status	*Positive*	*Moderate*	*See Section 6.5*	*High*	*High*
	Spatial Extent	*Regional*				
	Duration	*Medium term*				
	Consequence	*Substantial*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

Table 6.22 Cumulative impacts associated with the funding of local socio-economic development, enterprise development and shareholding during operations

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
OPERATIONAL PHASE						
	Status	*Positive*	*Moderate*	*See Section 6.4*	*High*	*High*
	Spatial Extent	*Regional*				
	Duration	*Long term*				
	Consequence	*Substantial*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

Table 6.23 Cumulative impacts associated primarily with the influx of people

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.3*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
OPERATIONAL PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.4*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
DECOMMISSIONING PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.5*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

Table 6.24 Cumulative impacts on tourism

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.3*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
OPERATIONAL PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.4*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
DECOMMISSIONING PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.5*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				

	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

Table 6.25 Cumulative impacts on surrounding landowners

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.3*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
OPERATIONAL PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.4*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				
DECOMMISSIONING PHASE						
	Status	*Negative*	*Moderate*	*See Section 6.5*	*Moderate*	*Medium*
	Spatial Extent	*Local*				
	Duration	*Medium term*				
	Consequence	*Moderate*				
	Probability	*Likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

6.7. Impacts of the No-go alternative

The no-go alternative is, by definition, the continuation of the status quo the impacts of which can best be described as neutral. In particular, it can be noted that the no-go alternative would result in:

- Neutral impacts linked to project expenditure as this expenditure would not occur.
- Neutral impacts linked to funding of socio-economic development as this funding would not occur.
- Neutral social impacts associated primarily with the influx of people as there would be no influx.
- Neutral impacts on surrounding landowners and communities as the risk factors associated with the project would be absent.
- Neutral impacts on tourism as the risk factors associated with the project would be absent.

7. Legislative and Permit Requirements

There are no legislative and permitting requirements with specific relevance to socio-economic impact assessment. Section 6.1 assesses the compatibility of the project with socio-economic development

policy and planning. In addition, Appendix E shows compliance with Appendix 6 of the NEMA EIA Regulations (as amended).

8. Impact Assessment Summary

The project is not free of commercial risk nor would it be realistic to expect this. However, the balance between financial benefits and costs are likely to be positive for the applicant and landowner partners barring unforeseen risks. In term of wider positive impacts, the project would be largely supportive of local and regional socio-economic development and energy supply planning imperatives including the diversification of the economy and energy sources. Impacts associated with expenditure on the construction and operation of each individual project forming part of the Padloper Solar PV Cluster would result in significant benefits as follows:

	Padloper Solar PV Facility 5 and 7 (150 MW)	**Padloper Solar PV Facility 6 (100 MW)**
Construction expenditure	R2.5–3 billion	R1.7–2 billion
Construction jobs	350–429 (16-24 months duration)	290–379 (10-18 months duration)
Operational expenditure/ yr	R28–35 million	R20–24 million
Operational jobs	67–94	55–81

Negative impacts would primarily arise at a local scale. It is anticipated that, with mitigation, the risks posed to the community by the influx of people, including job seekers, would be manageable and of a low significance with mitigation. Tourism facilities and attractions in the areas surrounding the project site are relatively limited and sparsely distributed. The tourism context combined with likely visual and associated heritage impacts in a landscape with scenic qualities should limit tourism impacts to a low significance during both construction and operations with mitigation. Impacts on surrounding landowners and communities, including to their sense of place, are expected to be low negative with mitigation during construction and operations.

Overall impacts significant ratings with mitigation for each phase of the project are summarised in the Table below (these ratings would apply to each of Padloper Solar PV Facilities 5 to 7). Summary cumulative impact ratings are also provided.

Table 8.1: Summary table of impact significance ratings per phase and cumulatively with mitigation

Impact category	**Construct. Phase**	**Operation Phase**	**Decomm. Phase**	**Cumulative - Construct. Phase**	**Cumulative - Operation Phase**	**Cumulative - Decomm. Phase**
Impacts linked to expenditure on the project	Moderate positive	High positive	Moderate positive	High positive	Very high positive	High positive
Impacts associated with local socio-economic development contributions	N / A	Moderate positive	N / A	N / A	High positive	N / A
Impacts associated with the influx of people	Moderate negative	Low negative	Moderate negative	Moderate negative	Moderate negative	Moderate negative
Impacts on tourism	Low negative	Low negative	Low negative	Moderate negative	Moderate negative	Moderate negative
Impacts on surrounding landowners and communities	Low negative	Low negative	Low negative	Moderate negative	Moderate negative	Moderate negative

It is considered most likely that the combined positive impacts of each projects (i.e. Padloper Solar PV Facilities 5, 6 and 7) would exceed its negative impacts resulting in an overall net benefit with mitigation. The projects are therefore all deemed acceptable in terms of socio-economic impacts and should be allowed to proceed.

9. Environmental Management Programme Inputs

9.1. Impacts from expenditure on the project

The Applicant is encouraged to engage collaboratively with the local community and its representatives. The applicant should ensure that adequate time and resources are devoted to public and key stakeholder engagements. Particular attention should be paid to the following objectives:

- Setting targets for how much local labour should be used based on the needs of the Applicant and the availability of existing skills and people that are willing to undergo training. Opportunities for the training of unskilled and skilled workers from local communities should be maximized.
- Using local sub-contractors where possible and requiring that contractors from outside the local area that tender also meet targets for how many locals are given employment.
- Exploring ways to enhance local community benefits with a focus on BBBEE and preferential procurement.
- Setting up a skills and services database in partnership with the local municipality and civil society for the local area before any hiring or contracting decisions are made. This can help to ensure fairness and limit potential interference in hiring processes.
- An effective employee induction programme is essential to ensuring that new employees, some of whom will be unfamiliar with the responsibilities of maintaining employment, are adequately prepared and motivated to adjust to the lifestyle required of them. This programme should incorporate life skills training as well as basic financial literacy training.
- Counselling services should be made available to employees to ensure that they have adequate guidance.
- Assisting smaller enterprises where possible in tendering for contracts and in accessing finance which are common constraints to their participation in projects.
- Avoiding potential service provider decisions that may lead to abuse or local dissatisfaction. For example, only appointing one accommodating rental agent or one catering supplier may lead to local dissatisfaction regarding the spreading of project benefits.
- As far as possible, avoid significant variation in salaries between various contractors for the same types of jobs. When variations are too high, the likelihood of dissatisfaction increases.

It is also important to anticipate that there are likely to be people whose (potentially unrealistic) expectations will not be met leading to dissatisfaction. This is difficult to avoid and can affect community relations. However, its impacts can be lessened by ensuring that all local benefits are carefully monitored and also communicated to local communities. Interviews with the Central Karoo District Municipality representatives revealed that the district is available and willing to assist with local communications and stakeholder engagement.

9.2. Funding of local socio-economic development, enterprise development and shareholding

If the project is part of the REIPPPP, required mitigation will be determined to a large extent by the Department of Mineral Resources and Energy's (DMRE) future bidding round requirements. The DMRE monitors the compliance of Independent Power Producers with the commitments that they make to

local socio-economic development as part of the bidding process. The environmental authorities should therefore liaise with the DMRE in order to gather information regarding compliance with the applicant's commitments.

Mitigation measures should include:

- The project must comply with the requirements of the REIPPPP bidding process and/or BBBEE requirements.
- The applicant must establish a communications committee early on in the project to ensure inclusive planning and regular feedback from stakeholders.
- Community development should be guided by a community needs analysis, drawn up by a third party and based on local socio-economic conditions, a review of planning documents such as the IDP, and discussions with local government and community representatives. Interventions should be planned in collaboration with other energy developers in the area where relevant.
- Close liaison with local municipal managers, local councillors and other stakeholders involved in socio-economic development is required to ensure that any projects are integrated into wider socio-economic development strategies and plans.

9.3. Impacts associated primarily with the influx of people

Mitigation measures should include:

- A 'locals first' policy with regard to construction and operational labour needs.
- The community should be able to contact the site manager or his/her representative to report any issues which they may have. The site manager and his/her representative should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.
- A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.
- The Applicant and the contractors should develop a Code of Conduct for the project. The code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers. For example, access to land that is not part of the development will not be allowed.
- The Applicant and the contractor should implement a Tuberculosis and HIV/AIDS awareness programme for all construction workers at the outset of the construction phase.
- Arrangements must be made to enable workers from outside the area to return home over the weekends or at regular intervals. This would reduce the risk posed by non-local construction workers to local family structures and social networks.
- Condoms should be freely available to employees and all contractor workers.
- Introduce alcohol testing on a weekly basis for construction workers.
- The contractor should make the necessary arrangements for ensuring that all non-local construction workers are transported back to their place of residence once the construction phase is completed.
- Close coordination with the Municipality is required, including regular meetings. The local community hold local government accountable for impacts resulting from the influx of people. Thus, as an existing focal point, it is important that local government plays a part in addressing these issues and efforts should be made by the Applicant to involve the Municipality in developing mitigation measures as needed and sharing information (including information about procedures surrounding employment and supplier involvement) with members of the public.

9.4. Impacts on tourism

Impacts on tourism are dependent on how the site is developed and managed to minimise negative biophysical impacts. The measures recommended in other specialist reports to these impacts (primarily the minimisation of visual, heritage, traffic and ecological impacts) would thus also minimise tourism impacts.

9.5. Impacts on surrounding landowners and communities

Mitigation measures should include:

- No construction workers, except for security personnel, should be allowed to stay on the site overnight.
- The community should be able to contact the site manager to report any issues which they may have. The site manager should be stationed within the area and should therefore be available on hand to deal with and address any concerns which may be raised.
- A complaints register should be available on site to any individual who may have a particular complaint with regards to the construction or operations processes.
- The Applicant should develop a Code of Conduct for the project. The Code should identify what types of behaviour and activities by workers are not permitted in agreement with surrounding landowners and land managers.
- The movement of workers on and off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis.
- The Applicant should implement measures to assist and, if needed, fairly compensate potentially affected surrounding landowners whereby damages to farm property, stock theft or significant disruptions to farming activities can be minimized or reduced. Measures should be agreed on before construction commences.
- The EMPr must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.
- The Applicant should consult community representatives, including relevant people within the local municipality as well as ward councillors, regarding planning for the use of the N1 temporary bypass to ensure that all stakeholders are kept informed as to the timing of project-traffic and potential ways of ensuring the safety of community members in the area.

10. Final Specialist Statement and Authorisation Recommendation

10.1. Statement and Reasoned Opinion

An Impact Assessment Summary is provided in Section 8. above and not repeated here.

It is considered most likely that the combined positive impacts of each project (i.e. Padloper Solar PV Facilities 5, 6 and 7) would exceed its negative impacts resulting in an overall net benefit with mitigation. The projects are therefore all deemed acceptable in terms of socio-economic impacts and should be allowed to proceed.

10.2. EA Condition Recommendations

Mitigation measures for inclusion in the EMPr have been provided above. Additional specific conditions for environmental authorisation are not required.

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Western Cape Provincial Government. 2018b. Socio-economic profile: Central Karoo District Municipality. WCPG, Cape Town.

Western Cape Provincial Government. 2020a. Socio-economic profile: Beaufort West Municipality. WCPG, Cape Town.

Western Cape Provincial Government. 2020b. Socio-economic profile: Central Karoo District Municipality. WCPG, Cape Town.

Western Cape Provincial Government. 2021a. Socio-economic profile: Beaufort West Municipality. WCPG, Cape Town.

Western Cape Provincial Government. 2021b. Socio-economic profile: Central Karoo District Municipality. WCPG, Cape Town.

12. Appendices

Appendix A - Specialist Expertise

CV - Dr Hugo van Zyl

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Date of birth:	03-03-1972
Citizenship:	South African / Canadian

Profile and Key Expertise

Hugo Van Zyl holds a PhD in economics and has over twenty years' experience in environmental resource economics, biodiversity conservation finance and socio-economic impact assessment. He has conducted over 70 economic and socio-economic appraisals of complex infrastructure, industrial, residential, mixed use, mining, energy, tourism and conservation projects in order to inform decision-making. In the process, he has built deep experience in techniques such as cost-benefit analysis and economic modelling whilst having to engage with diverse stakeholders. He has conducted, co-ordinated and published research in ecosystem services assessment and valuation, biodiversity finance and offsets, payments for ecosystem services, environmental policy reform, strategic assessment and protected area financing. In the process, he has made significant contributions to international initiatives including TEEB (The Economics of Ecosystems and Biodiversity), BIOFIN (Biodiversity Finance Initiative) and ValuES. His contributions to policy process have been relatively wide ranging and have included economic inputs and guidance to national water tariff, air pollution, biodiversity conservation and finance, biofuels, mine closure funding and climate change policy. He has also benefited from broad exposure to options for local economic development and their successful implementation. Country experience includes: South Africa, Namibia, Ethiopia, Botswana, Mauritius, Cape Verde, Seychelles, Nigeria, Georgia, Kazakhstan, Russia and Armenia.

Tertiary Education and Other Training

PhD. (Economics). University of Cape Town, South Africa. 2005 – 2007.
MCom. (Economics). University of Cape Town, South Africa. 1996 – 1998.
BCom. Honours (Economics). University of Cape Town, South Africa. 1995.
BSc. University of Cape Town, South Africa. 1992 – 1994.
Teaching Workshop in Environmental Economics held by the Beijer International Institute of Ecological Economics (Sweden) in Cape Town (1996).
Natural resource economics course presented by the United States Bureau of Reclamation in Cape Town (2000).

Project Experience relevant to EIA

Economic and socio-economic impact assessments forming part of Environmental Impact Assessments (EIAs)

- **Renewable energy**:
  Wind – Nuweveld near Beaufort West, Western Cape (2020); Ishwati Emoyeni near Murraysburg, Western Cape (2015); SWE near Vleesbaai, Western Cape (2013); SAGIT Energy Ventures near Bot River and Wolesley, Western Cape (2012). Windcurrent Banna ba Pifhu near Jeffrey's Bay, Eastern Cape (2011); InnoWind near Mossel Bay, Western Cape (2011); Mainstream near Jeffrey's Bay, Eastern Cape (2010).
  Solar – Paulputs near Pofadder, Northern Cape (2019); Mainstream Kentani near Dealesville, Free State (2014); Mainstream near Douglas and Keimoes, Northern Cape (2012); Thupela Energy near Vaalwater, Limpopo (2011).
- ***Industrial developments***:
  Vedanta zinc smelter near Aggeneys, Northern Cape (2020); Oil and gas exploration drilling in PEL 34 off Luderitz coast, Namibia (2017); Upgrade and expansion of the Tsumeb copper smelter, Namibia (2017); Burgan Oil fuel storage and distribution facility at Cape Town Harbour,

Western Cape (2015), Frankfort Kraft Paper Mill, Free State (2015); Expansion of the PPC cement plant at Riebeek West, Western Cape (2009); Tata Steel ferrochrome smelter in Richards Bay, KZN (2003); Conversion of the Sasol Chemical Industries plant in Sasolburg from a coal based to a natural gas based plant, Free State (2002).

- ***Mining***:
  Kamiesberg mineral sands mine, Northern Cape (2015); AfriSam limestone mine and plant at Saldanha Bay, Western Cape (2012); Vedanta zinc mine near Aggeneys, Northern Cape (2013); Burnstone gold mine expansion (2009); Valencia uranium mine in Namibia (2008).
- ***Mixed-use and residential developments***:
  Malmesbury Mall, Western Cape (2020); Granger Bay extension of V&A Waterfront, Cape Town (2014); Ladysmith mixed-use development, Kwa-Zulu Natal (2014); Barinor and Richmond park developments in greater Cape Town (2011); De Plaat residential estate near Velddrif, Western Cape (2009); Langezandt leisure development in Struisbaai, Western Cape (2011); Garden Route Dam mixed use development in George, Western Cape (2008); Anandale mixed use development in Cape Town (2008); Schalkenbosch Golf Estate, Le Grand Golf Estate and Ceres Golf Estates (2006); Carpe Diem Eco Estate near Port Alfred, Eastern Cape (2006); Altona mixed use development in Worcester, Western Cape (2007).
- ***Roads***:
  N2 bypasses at Butterworth and iDutywa (2016); R44 upgrading between Stellenbosch and Somerset West (2014); Musina Ring Road, Limpopo (2011); Bloubos local road in Somerset West, Western Cape (2010); N1/N9 intersection upgrade at Colesberg, Free State (2009); tolling of the N1, N2 and R300 roads in the vicinity of Cape Town (2005); Changing road configurations on Hospital Bend in Cape Town (2001)
- ***Other infrastructure***:
  Langkloof Dam near Worcester, Western Cape (2022); Saldanha Regional Marine Outfall Project in Danger Bay near Saldanha Bay, Western Cape (2014); Desalination plant for West Coast District Municipality, Western Cape (2012); Green Point World Cup Stadium, Cape Town (2008); Petroline petrol pipeline between Maputo and Gauteng (2008); Muldersvlei water treatment plant and reservoir near Klapmuts, Western Cape (2007); Iron ore terminal expansion at Saldanha port, Western Cape (2000); Wastewater treatment plan for East London, Eastern Cape (1996); Vissershok landfill expansion, Cape Town (2002); Regional landfill to service Cape Town (2006 and 2012); Helderberg waste transfer station in Somerset West, Western Cape (2008).
- ***Agricultural expansion***:
  Farm dams and production expansion for Habata Agri in the Robertson area, Western Cape (2017); Kleinberg Dam in the Hex River Valley, Western Cape (2014).

- Lead author of the Western Cape Provincial Government guidelines on economic specialist inputs into Environmental Impact Assessments. (2005)

Inputs to Strategic Environmental Assessments (SEAs)

- Lead economic specialist making inputs to the Strategic Environmental Assessment for shale gas development (fracking) in South Africa (2016).
- Economic specialist inputs to form part of the Strategic Environmental Assessment for the roll-out of electricity transmission infrastructure throughout South Africa. (2015)
- Environmental resource economic and socio-economic specialist study to form part of the Strategic Environmental Assessment and accompanying management plan for the Port of Saldanha, Western Cape. (2013)
- Lead author of a Strategic Environmental Assessment (SEA) of the potential production of biofuels based on Jatropha in the Kavango and Caprivi regions of Namibia. (2010)
- Environmental resource economics specialist study to form part of the Strategic Environmental Assessment and accompanying Environmental Management Framework for the Pixley ka Seme municipality in Mpumalanga. (2010)
- Environmental resource economics specialist study to form part of the Strategic Environmental Assessment and accompanying Environmental Management Framework for the Albert Luthuli and Msukaligwa municipalities in Mpumalanga. (2008)

CV – James Kinghorn

Address:	175 Main Road, Muizenberg, 7945
Mobile:	+27 74 096 3207
E-mail:	jameswkinghorm@gmail.com
Date of birth:	16-03-1987
Citizenship:	South African / British

Profile and Key Expertise

James conducts applied economic research to inform development, specifically where environmental aspects are important to consider in decision-making. He has seven years' experience as an applied researcher, and a further three years working in humanitarian and disaster assistance programming. He has contributed economic and socio-economic specialist inputs to a total of 24 environmental and social impact assessments; conducted economic and financial analysis in support of eight Green Climate Fund (GCF) and Global Environment Facility (GEF) funding proposals and projects; and provided strategic research and analysis to inform policy in the areas of climate change, biodiversity finance, and natural resource management.

Tertiary Education

MEcon. (Environmental Economics). Rhodes University, South Africa. 2011–2012.
BSc. Honours (Geography and Economics). Rhodes University, South Africa. 2010.
BSc. Rhodes University, South Africa. 2007–2009.

Project experience relevant to EIA

Economic and socio-economic impact assessments forming part of Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs)

- **Renewable energy and powerlines**:
  Wind – Nuweveld, Karoo Highlands, Western and Northern Cape (2021); Bann aba Pifhu, Eastern Cape (2019)

  Solar – Paulputs PV, near Pofadder, Northern Cape (2018)

  Powerlines – Nuweveld Grid Connection, de Jager's Pass, Western Cape (2021); Impofu Grid Connection, near Gqeberha, Eastern Cape (2019); Paulputs Grid Connection, Northern Cape (2018)

- **Roads:**
  N2 bypasses at Butterworth and iDutywa (2016)

- **Infrastructure and agricultural development**:
  Farm dams and production expansion in Langkloof, near Worcester, Western Cape (2019); Assessment of economic benefits for the TAHAL Integrated Agriculture Projects, Angola (2019); Farm dams and production expansion for Habata Agri in the Robertson area, Western Cape (2017);

- **Industrial developments and mining**:
  Vedanta zinc Smelter-Refinery Complex near Aggeneys, Northern Cape (2018); Oil and gas exploration drilling in PEL 34 off Luderitz coast, Namibia (2017); Upgrade and expansion of the Tsumeb copper smelter, Namibia (2017); Contributing Author to the Strategic Environmental Assessment for shale gas development in South Africa (2016)
- **Mixed-use developments:**
  Malmesbury Shopping Mall and Private Hospital, Western Cape (2019)

Economic and financial appraisal in support of Funding Proposals

- Lead author of the economic assessment for the proposed South-Cooks Wastewater Treatment System, St. John's, Antigua and Barbuda (2020)
- Lead author in the economic and financial analysis of the following funding Green Climate Fund proposals:
  Ecosystem-based adaptation in Botswana's communal rangelands (2021); Climate resilient development in refugee camps and host communities in Kigoma region, Tanzania (2021); Peru's Natural Legacy – Amazon Climate (2021); Heritage Colombia – Protected Areas and Climate Resilience (2021); Climate Service and Multi-hazard Early Warning for Resilience in Sudan (2020); Strengthening Climate Systems in the Greater Horn of Africa through regional cooperation (2020)

Appendix B - Specialist Statement of Independence

I, Hugo van Zyl, declare that –

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

Signature of the Specialist: 

_____

Name of Company: Independent Economic Researchers

Date: 8 August 2023

I, James Kinghorn, declare that –

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

Signature of the Specialist: 

_____

Name of Company: Freelance Researcher

Date: 8 August 2023

Appendix C: Site Sensitivity Verification

There are no socio-economic themes on the National Web-based Environmental Screening Tool (Screening Tool) (as at July 2022), therefore the environmental sensitivity of the proposed project area as identified by the Screening Tool is not applicable (i.e. a preliminary sensitivity rating was not provided that could then be confirmed or altered based on further assessment). Consequently, no site sensitivity verification report for socio-economic sensitivity is required. Nevertheless, this assessment report contains a detailed assessment of the socio-economic impacts of the proposed project. As such, it provides all the necessary information and assessment data regarding socio-economic sensitivities.

Appendix D: Impact Assessment Methodology

The impact assessment includes:

- *the nature, significance and consequences of the impact and risk;*
- *the extent and duration of the impact and risk;*
- *the probability of the impact and risk occurring;*
- *the degree to which impacts and risks can be mitigated;*
- *the degree to which the impacts and risks can be reversed; and*
- *the degree to which the impacts and risks can cause loss of irreplaceable resources.*

As per the DEFFT Guideline 5: Assessment of Alternatives and Impacts, the following methodology is applied to the prediction and assessment of impacts and risks. Potential impacts and risks have been rated in terms of the direct, indirect and cumulative:

- *Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.*
- *Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.*
- *Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.*

The impact assessment methodology includes the following aspects:

- *Nature of impact/risk - The type of effect that a proposed activity will have on the environment.*

- *Status - Whether the impact/risk on the overall environment will be:*
    - *Positive - environment overall will benefit from the impact/risk;*
    - *Negative - environment overall will be adversely affected by the impact/risk; or*
    - *Neutral - environment overall not be affected.*

- *Spatial extent – The size of the area that will be affected by the impact/risk:*
    - *Site specific;*
    - *Local (<10 km from site);*
    - *Regional (<100 km of site);*
    - *National; or*
    - *International (e.g. Greenhouse Gas emissions or migrant birds).*

- *Duration – The timeframe during which the impact/risk will be experienced:*
    - *Very short term (instantaneous);*
    - *Short term (less than 1 year);*
    - *Medium term (1 to 10 years);*
    - *Long term (the impact will cease after the operational life of the activity (i.e. the impact or risk will occur for the project duration)); or*
    - *Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient (i.e. the impact will occur beyond the project decommissioning)).*

- *Consequence – The anticipated consequence of the risk/impact:*
    - *Extreme (extreme alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they permanently cease);*
    - *Severe (severe alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);*
    - *Substantial (substantial alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);*

- *Moderate (notable alteration of natural systems, patterns or processes, i.e. where the environment continues to function but in a modified manner); or*
- *Slight (negligible alteration of natural systems, patterns or processes, i.e. where no natural systems/environmental functions, patterns, or processes are affected).*

- *Reversibility of the Impacts - the extent to which the impacts/risks are reversible assuming that the project has reached the end of its life cycle (decommissioning phase):*
  - *High reversibility of impacts (impact is highly reversible at end of project life i.e. this is the most favourable assessment for the environment);*
  - *Moderate reversibility of impacts;*
  - *Low reversibility of impacts; or*
  - *Impacts are non-reversible (impact is permanent, i.e. this is the least favourable assessment for the environment).*

- *Irreplaceability of Receiving Environment/Resource Loss caused by impacts/risks – the degree to which the impact causes irreplaceable loss of resources assuming that the project has reached the end of its life cycle (decommissioning phase):*
  - *High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e. this is the least favourable assessment for the environment);*
  - *Moderate irreplaceability of resources;*
  - *Low irreplaceability of resources; or*
  - *Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e. this is the most favourable assessment for the environment).*

Using the criteria above, the impacts have been further assessed in terms of the following:

- *Probability – The probability of the impact/risk occurring:*
  - *Extremely unlikely (little to no chance of occurring);*
  - *Very unlikely (<30% chance of occurring);*
  - *Unlikely (30-50% chance of occurring)*
  - *Likely (51 – 90% chance of occurring); or*
  - *Very Likely (>90% chance of occurring regardless of prevention measures).*

To determine the significance of the identified impact/risk, the consequence is multiplied by probability (qualitatively as shown in Figure 1).

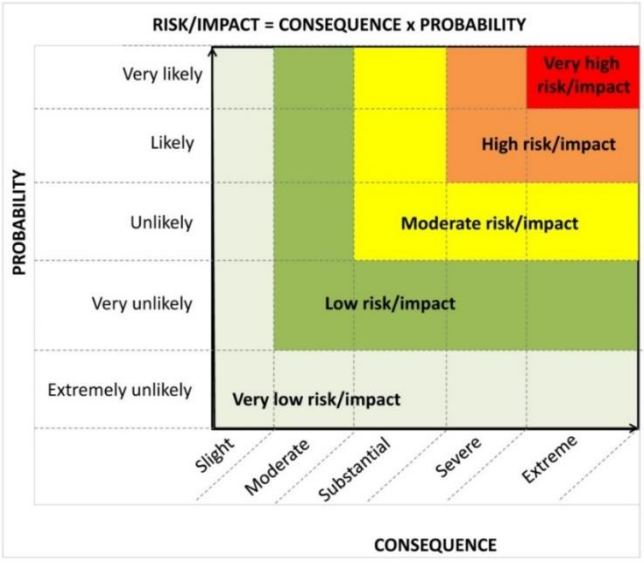


Figure 1. Guide to assessing risk/impact significance as a result of consequence and probability.

- *Significance – Will the impact cause a notable alteration of the environment?*

- *Very low (the risk/impact may result in very minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);*
- *Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);*
- *Moderate (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated);*
- *High (the risk/impact will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making); and*
- *Very high (the risk/impact will result in very major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making (i.e. the project cannot be authorised unless major changes to the engineering design are carried out to reduce the significance rating)).*

With the implementation of mitigation measures, the residual impacts/risks are ranked as follows in terms of significance:

- *Very low = 5;*
- *Low = 4;*
- *Moderate = 3;*
- *High = 2; and*
- *Very high = 1.*

Confidence – The degree of confidence in predictions based on available information and specialist knowledge:

- *Low;*
- *Medium; or*
- *High.*

Appendix E: Compliance with the Appendix 6 of the NEMA EIA Regulations, as amended

Requirements of Appendix 6 (Specialist Reports) of Government Notice R326 (Environmental Impact Assessment (EIA) Regulations of 2014, as amended)	***Section where this has been addressed in the Specialist Report***
1. (1) A specialist report prepared in terms of these Regulations must contain - *a) details of -* *i. the specialist who prepared the report; and* *ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;*	*Appendix A*
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	*Appendix B*
c) an indication of the scope of, and the purpose for which, the report was prepared;	*Section 1*
(cA) an indication of the quality and age of base data used for the specialist report;	*Section 2*
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	*Section 4, Section 6.6*
d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	*Section 2*
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	*Section 2*
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	*Section 4*
g) an identification of any areas to be avoided, including buffers;	*Section 6.4.1*
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	*N/A*
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	*Section 2*
j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	*Section 6*
k) any mitigation measures for inclusion in the EMPr;	*Section 9*
l) any conditions for inclusion in the environmental authorisation;	*Section 6*
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	*Section 9*
n) a reasoned opinion- *i. 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, and where applicable, the closure plan;*	*Section 8*
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	*Section 2*
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	*Appendix F*
q) any other information requested by the competent authority.	*N/A*

Requirements of Appendix 6 (Specialist Reports) of Government Notice R326 (Environmental Impact Assessment (EIA) Regulations of 2014, as amended)	***Section where this has been addressed in the Specialist Report***
(2) Where a government notice 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.	*There are no socio-economic themes on the National Web-based Environmental Screening Tool (Screening Tool) (as at July 2022), therefore the environmental sensitivity of the proposed project area as identified by the Screening Tool is not applicable (i.e. a preliminary sensitivity rating was not provided that could then be confirmed or altered based on further assessment). Consequently, no site sensitivity verification report for socio-economic sensitivity is required.*

Appendix F: Interview notes

Meeting with participating landowner and tourism establishment owner – Percy Reynolds	
Date:	20 October 2022
Location:	Salem Farm House, Driefontein
Attendees:	Mr Percy Reynolds – Landowner, owner of Salem Farm House, Salem Self-catering and Salem Campsite, Secretary of the Bo Buffels Boerevereneging
Notes:	

- Some info on farming activities provided (employment, impact of drought)
- Tourism info provided: Salem Farm House 8 beds, Salem Self-catering 3 beds, Camp sites with hiking and scenic drives. Previously 3 camp sites but have downscaled to just the one. Previously held Stilfees, annual music festival but no longer offering it as no longer convenient to.
- Hiking, birdwatching and fossil hunting offered. Some international tourists, some en route tourism between Johannesburg and Cape Town.
- Tourism provides seasonal income and covers maintenance and up-keep of properties.
- Tourism not seen to be at risk from development given limited visibility as a result of topography.
- Some risk of stock theft anticipated and requests good security to be ensured.
- Impact on agricultural productivity considered minimal given current productivity levels are low and can be moved around to accommodate.
- Plans will be shared with farm labourers when more certain, as currently still not sure if it will happen.
- Concerns raised over EGI – most important. Suggests not to follow road past Salem Farm House but rather to follow a more eastern course.
- Job opportunities for locals are a positive and fine if short-term affects on local labour supply, as long as communicated well. Long term impacts on supply of labour would have more of an impact and be less desirable. But overall impact on relieving unemployment in the area is a big opportunity.

Meeting with participating landowner Pl-3 – Kobus van Heerden	
Date:	20 October 2022
Location:	Weltevrede
Attendees:	Mr. Kobus van Heerden – owner Klipplaat No. 109, Portion 1
Notes:	

- Information on farming activities provided (areas, livestock numbers, drought, locusts, spending and labour relations)
- Drought had major impact on finances, some farmers forced into bankruptcy. Retirement savings used to sustain farming at low levels. Now starting to recover after 7 years but veld composition and local ecology has changed.
- Income from SEF expected to be very helpful.
- Much needed also for energy security and wider economy. Does not hear much opposition to renewable projects, as people realise that solving the national energy crisis requires development of this kind. Hopes that cost of energy will come down as currently very high.
- Some risks during construction of reduced labour supply locally, impacts from construction workers but good mitigation exists and should be implemented.
- If risks are addressed will be good for local economy. Spend is much needed.

Meeting with participating landowner Pl-1 – Fanus van der Merwe	
Date:	20 October 2022
Location:	Rooisandheuwel
Attendees:	Mr. Fanus van der Merwe – owner Klipplaat No. 109, Portion 4
Notes:	

- Information on farming activities provided (areas, livestock numbers, drought, locusts, impact of foot and mouth disease threat, spending and labour relations).

- Drought had some impact but fountain on farm ensured water was available. However, being in Northern Cape no support was provided by government while neighbours in Western Cape received subsidies and fodder.
- Some concern over labour disruptions during construction, especially if workers go away and then return looking for work again.
- Not worried about labour supply during operations. If farm workers want to change to a career in renewables, supportive of that. Can be good for farmers and farm workers.
- Income from SEF expected to be very helpful.
- Some potential to find accommodation for workers in Richmond too, about 40km from Rooisanheuwel (near PI-1)
- Prefers that construction workers find accommodation in towns, as this will mitigate impacts on farms. Likewise, during operations, provision of security will ensure any risks are mitigated.
- Once people are hired, will ensure that they close gates as movement of springbok between farms is irreversible in some cases given how hard they are to control.
- Spending impact will be very positive, indirect and induced impacts form the expenditure of employees will multiply throughout local economy.

Meeting with neighbouring landowner – Izak van der Merwe	
Date:	20 October 2022
Location:	Badsfontein
Attendees:	Mr. Izak van der Merwe – owner Badfontein Old Farmhouse and Het Buiten Huisje Lodge
Notes:	

- Information on tourism establishments provided, consisting of two guest accommodations: one accommodating as many as 10 in a hunting or other form of tourist party, the other accommodating up to four. High demand including from international tourists, 60% occupancy. Ecotourism is the brand with hiking, cycling trails.
- Concern over impact on tourism, especially visual impact for tourists hiking or otherwise experiencing unique natural sense of place.
- Solar is more appropriate form of development than wind. Emoyeni Wind Farm Project considered highly inappropriate.
- Concerns raised over siting of solar projects, Mr van der Merwe believes that better options are available that will reduce visual risk.
- Major concern is social impact of construction workers in town. Underage prostitution and drug consumption anticipated to rise along with unplanned pregnancies and social problems related to disrupted social structures. Suggested mitigation is to have workers live on farms hosting the solar facilities.
- Cumulative impact of Emoyeni and Padloper expected to be high, but particularly on residents of Murraysburg who are less resilient and will experience negative impacts on social fabric.

Meeting with the Strategic Support Services Manager for Central Karoo District Municipality	
Date:	19 October 2022
Location:	CKDM Offices
Attendees:	Ms. Barbara Koopman – Manager, CKDM Support Services James Kinghorn
Notes:	

- Information provided on the role of local and regional government in the process of development and need for more partnerships between public and private spheres.
- Migration trends discussed, including changing demographics as a result of influx of job-seekers.
- Experience of towns in the area with Uranium and shale gas exploration. Poor communication, public sector unable to support.
- Major social risks are anticipated during construction. Poor local population with high unemployment will be confronted with influx of paid construction workers. This will present

new opportunities for locals, some which can have negative outcomes for families including childhood prostitution and pregnancy, drug abuse, domestic violence and other challenges experienced when social structures are stressed with an increased presence of construction workers.
- Info shared on impact of drought and improved situation of late with regard to numbers of laid-off farm workers since rains have picked up this year.
- Info shared on socio-economic priorities for and regional local government, which are outlined in the 2019/20 CKDM District Safety Plan.
- Suggests that if project is approved, that a Project Steering Committee be formed and to include representatives of the CKDM. In addition, Action Plans can be developed to ensure that project team is prepared, and issues can be dealt with as they arise. Members of CKDM will be eager to support in terms of helping to ensure that the applicant can meet its requirements for local labour sourcing and local procurement. This can be done by providing support to SMMEs as has been done in the past, for example with the Vuk'uphile Programme Construction Skills Workshop held in Beaufort West.
- Suggested that local municipality can be involved also to monitor and ensure fair and transparent recruitment and procurement processes are followed.
- District Municipality can also support in terms of ensuring smooth communication with public to ensure that public support for the project is reflective of the extent to which local opportunities are created. All stakeholders should participate in the development from the earliest possible stage. This will ensure integrated planning between sectors.
- Trade-offs and synergies with the tourism and agriculture sectors were discussed. While renewables not without risk, seen as preferable to mineral and gas extraction-type projects, with mitigation to bring risks down substantially.

Meeting with the manager of Beaufort West Tourism Organisation (BWTO)	
Date:	18 October 2022
Location:	BWTO Offices
Attendees:	Mr. Sascha Klemm – manager, BWTO James Kinghorn
Notes:	

- Information provided on the local tourism context. Info shared about the scenic routes, festivals, natural and cultural attractions of Murraysburg and surrounds. Info provided on the continued popularity of self-drive tourism, hunting, birdwatching and stargazing attractions in the area.
- Mention that BWTO faces uncertainty over continued funding.
- Murraysburg Tourism was previously administered by Adri Smit, but she has since moved and nobody is currently managing the organisation.
- Some concern expressed over visual impacts on sense of place (and thus Tourism), given scenic routes in the area and changes in the profile of tourism demand seen to result from the COVID pandemic and since sustained – with self-drive tourism being prominent. Tourism provides landowners with much needed revenue to offset losses experienced during the drought, which has just begun to subside.
- Risks to tourism seem manageable as long as siting is done well and iconic species are not disturbed.
- Concerns were expressed over impact on ecology. The Karoo's tourism appeal is strongly tied to its unique ecological characteristics and iconic species. This natural heritage should be preserved through careful sighting and mitigation of risks during renewable energy development.

Appendix G: Disclaimer

The primary role of this study is to inform the decision-making processes being undertaken by the relevant environmental authorities with regards to the proposed project. Due care and diligence has been applied in the production of the study. However, ultimate responsibility for approving, denying or requiring changes to the proposed project application rests with the relevant environmental authorities (and other government bodies where relevant) who also

bear responsibility for interrogating and determining how assessment information from this specialist study along with other information is to be used to reach their decisions. Independent Economic Researchers and the authors of the report can therefore not be held responsibility or liable for any consequences of the decisions made by the relevant environmental authorities with regard to the proposed project. This includes any financial, reputational or other consequences that such decisions may have for the applicant, the Environmental Assessment Practitioner responsible for conducting the Environmental Impact Assessment process or for the environmental authorities themselves.

forestry, fisheries
& the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

Basic Assessment for the proposed development of the Padloper Solar PV Facility 5 (i.e., Padloper PV 5), the proposed development of 132 kV Electrical Grid Infrastructure between the proposed Padloper PV 4 and the proposed Padloper PV 5 (i.e., Padloper EGI 5), and their associated infrastructure, near Murraysburg in the Western Cape Province

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.dffe.gov.za/documents/forms.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with *'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020)'*, where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Socio-economic Assessment
Specialist Company Name	N/A
Specialist Name	James Kinghorn
Specialist Identity Number	[redacted]
Specialist Qualifications:	MEcon Environmental Economics
Professional affiliation/registration:	N/A
Physical address:	[redacted]
Postal address:	
Postal address	
Telephone	
Cell phone	
E-mail	

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, James Kinghorn, declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- 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 NEMA Act.

Signature of the Specialist

N/A

Name of Company:

09 Aug 2023

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the Specialist

N/A

Name of Company

9 August 2023

Date

Click or tap here to enter text.

Signature of the Commissioner of Oaths

Click or tap to enter a date. 14/08/2023

Date

KERRY AUGUST
Commissioner of Oaths
Master HR Professional (MHRP)
Member Number: 53544596
25 Bordeaux Close
Stellenbosch
7600

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Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

Basic Assessment for the proposed development of the Padloper Solar PV Facility 5 (i.e., Padloper PV 5), the proposed development of 132 kV Electrical Grid Infrastructure between the proposed Padloper PV 4 and the proposed Padloper PV 5 (i.e., Padloper EGI 5), and their associated infrastructure, near Murraysburg in the Western Cape Province

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.dffe.gov.za/documents/forms.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with *'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020)'*, where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Socio-economic Assessment
Specialist Company Name	Independent Economic Researchers
Specialist Name	Hugo Van Zyl
Specialist Identity Number	[redacted]
Specialist Qualifications:	PhD Economics
Professional affiliation/registration:	IAIA-SA, ESSA
Physical address:	[redacted]
Postal address:	
Postal address	
Telephone	
Cell phone	
E-mail	

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Hugo Van Zyl, declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- 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 NEMA Act.



Signature of the Specialist

Independent Economic Researchers

Name of Company:

08 Aug 2023

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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



Signature of the Specialist

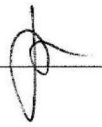
Independent Economic Researchers

Name of Company

8 August 2023

Date

Click or tap here to enter text.



Signature of the Commissioner of Oaths

08 Aug 2023

Date

Commisioner of Oaths
Jane Dearman CA (SA)
Membership number: 07673472

Suite 08SB Tannery Park
23A Belmont Road
Rondebosch
7700