
Tony Barbour

ENVIRONMENTAL CONSULTING

10 Firs Avenue, Claremont, 7708, South Africa

(Cell) 082 600 8266

(E-Mail) tony@tonybarbour.co.za, www.tonybarbour.co.za

SOCIAL STATEMENT

PART 1 EA AMENDMENT APPLICATION FOR THE EXTENSION OF THE VALIDITY PERIOD FOR ENVIRONMENTAL AUTHORISATION (12/12/20/2321/2/2)

132KV GRID ALIGNMENT AND 132KV ESKOM PORTION OF THE SHARED ON-SITE SUBSTATION FOR THE 100 MW LOERIESFONTEIN 3 PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITY (SEF)

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By

Tony Barbour and Schalk van der Merwe

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1. INTRODUCTION AND BACKGROUND

South Africa Mainstream Renewable Power Loeriesfontein 3 (Pty) Ltd received the original Environmental Authorisation (EA) for the 100MW Loeriesfontein 3 Photovoltaic (PV) Solar Energy Facility (SEF) and Grid Connection infrastructure on the 29 October 2012 (DFFE Ref: 12/12/20/2321/2). Further to this, the original EA was amended on 10 July 2014 (DFFE Ref: 12/12/20/2321/2/A1), 27 October 2015 (DFFE Ref: 12/12/20/2321/2/AM2), 04 October 2017 (DFFE Ref: 12/12/20/2321/2/AM3) and 24 September 2019 (DFFE Ref: 12/12/20/2321/2/AM4). In addition, following the 2019 amendment, the EA was subsequently split into two separate EAs (1 for the 100MW PV SEF and 1 for the grid connection infrastructure), both dated 21 May 2021, as follows:

1) EA for the 100MW Loeriesfontein 3 PV SEF, 33/132kV Independent Power Producer (IPP) portion of the shared on-site substation (including Transformer) and associated infrastructure DFFE Ref: 12/12/20/2321/2/1); and 2) EA for the 132kV Grid Alignment and 132kV Eskom Portion of the shared on-site substation to service the 100MW Loeriesfontein 3 PV SEF (DFFE Ref: 12/12/20/2321/2/2).

It should be noted that the split EAs for the Loeriesfontein 3 PV SEF (DFFE Ref: 12/12/20/2321/2/1) and Grid Connection infrastructure (DFFE Ref: 12/12/20/2321/2/2) dated 21 May 2021 respectively replaced the original EA dated 29 October 2012, as well as the subsequent amendments.

The validity of the split EA for the 132kV Powerline and Eskom portion of the on-site substation to service the 100MW Loeriesfontein 3 PV SEF lapsed on 29 October 2022, however, a Part 1 EA Amendment Application was submitted to the Department of Forestry, Fisheries and the Environment (DFFE) on 26 October 2022 to extend the validity of the EA by 5 years (i.e., EA lapses on 29 October 2027). It is important to note that according to Regulation 28(1B) of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations of 2014 (as amended), "*an environmental authorisation which is the subject of an amendment application contemplated in this Chapter remains valid pending the finalisation of such amendment application.*" The Part 1 Amendment Application was acknowledged by the DFFE on 09 November 2022 and additional information was requested to be submitted to the DFFE for consideration. Following this, comparative assessments are to be undertaken to motivate why the Department should extend the validity period of the EA for a further 5 years.

As part of the Part 1 EA Amendment Application, separate comparative assessments are required for:

- 100 MW Loeriesfontein 3 Photovoltaic (PV) Solar Energy Facility (SEF), 33/132kV IPP Portion of the Shared On-site Substation (including the Transformer) and associated infrastructure, near Loeriesfontein, Hantam Local Municipality, Northern Cape Province – DFFE Reference Number: 12/12/20/2321/2/1.
- 132kV Grid Alignment (i.e., Overhead Power Line) and 132kV Eskom Portion of the Shared On-site Substation for the 100 MW Loeriesfontein 3 Photovoltaic (PV) Solar Energy Facility (SEF) near Loeriesfontein, Hantam Local Municipality, Northern Cape Province – DFFE Reference Number: 12/12/20/2321/2/2.

This Social Statement is for the EA extension application for the 132kV Grid Alignment (i.e., Overhead Power Line) and 132kV Eskom Portion of the Shared On-site Substation for the 100 MW Loeriesfontein 3 PV SEF (DFFE Ref No. 12/12/20/2321/2/2). The EA extension application for the Loeriesfontein 3 PV SEF has been assessed and reported on as part of a separate standalone report.

2. PROJECT DESCRIPTION AND LOCATION

The grid connection infrastructure (as authorised as part of split EA dated 21 May 2021 with reference: 12/12/20/2321/2/2) consists of the following:

- A 132kV overhead powerline and an on-site 132kV substation (Eskom’s portion of the shared on-site substation) that will connect the Solar PV to the Grid.
- Loeriesfontein 3 Grid Connection Powerline Corridor:

Centre Line Coordinates	Latitude	Longitude
Start Point	S30° 22'30.979"	E29° 34'48.082"
Middle Point	S30°26'20.771"	E19° 33'30.243"
End Point	S30°29'58.002"	E19°33'37.699"

The project site is located to the north of the town of Loeriesfontein (approx. 60km), in the Hantam Local Municipality, Northern Cape Province (Figure 1).

The grid connection is approximately 14km in length and runs in a southerly direction from the on-site Substation for the 100 MW Loeriesfontein 3 Photovoltaic (PV) Solar Energy Facility (SEF) and links up with the Helios Sub-Station. The alignment essentially follows the alignment of the Granaatboskolk Road (to the east of the road) (Figure 2).

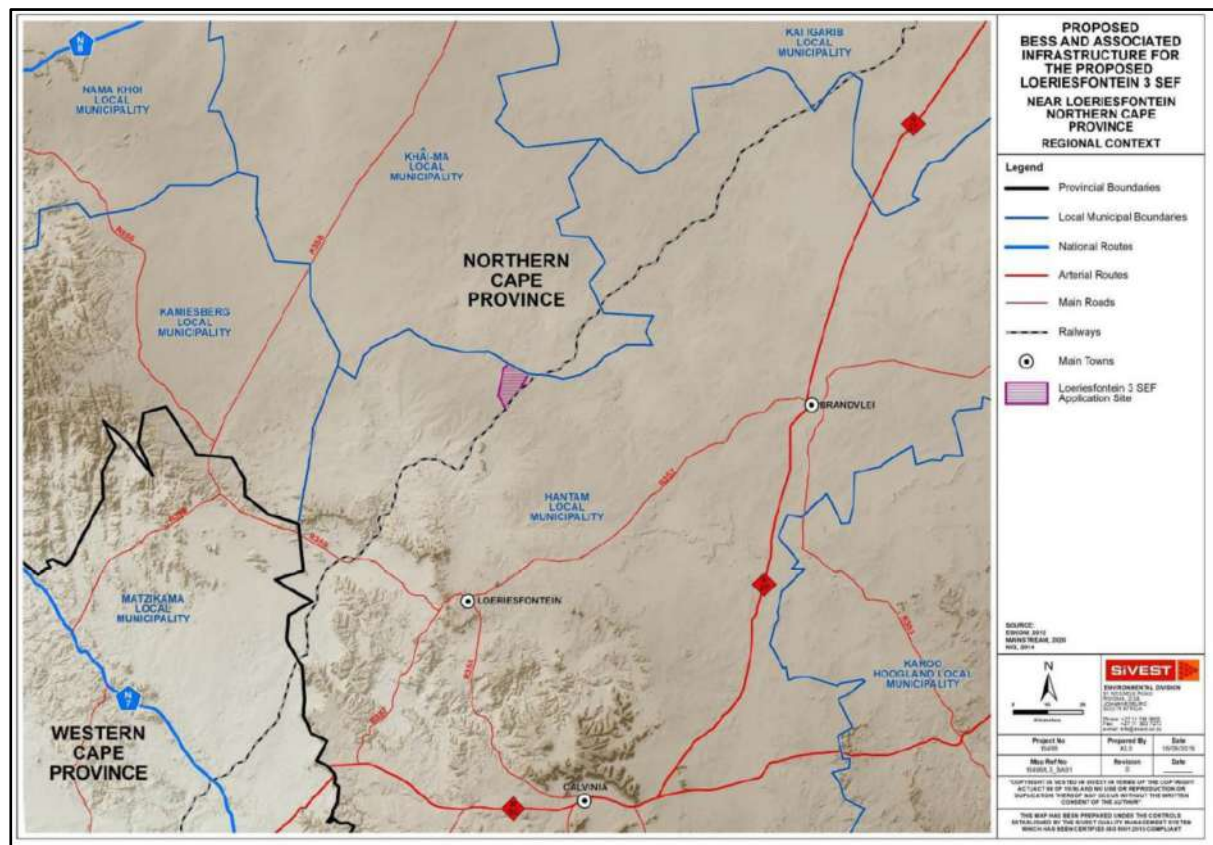


Figure 1: Location of 100 MW Loeriesfontein 3 PV SEF

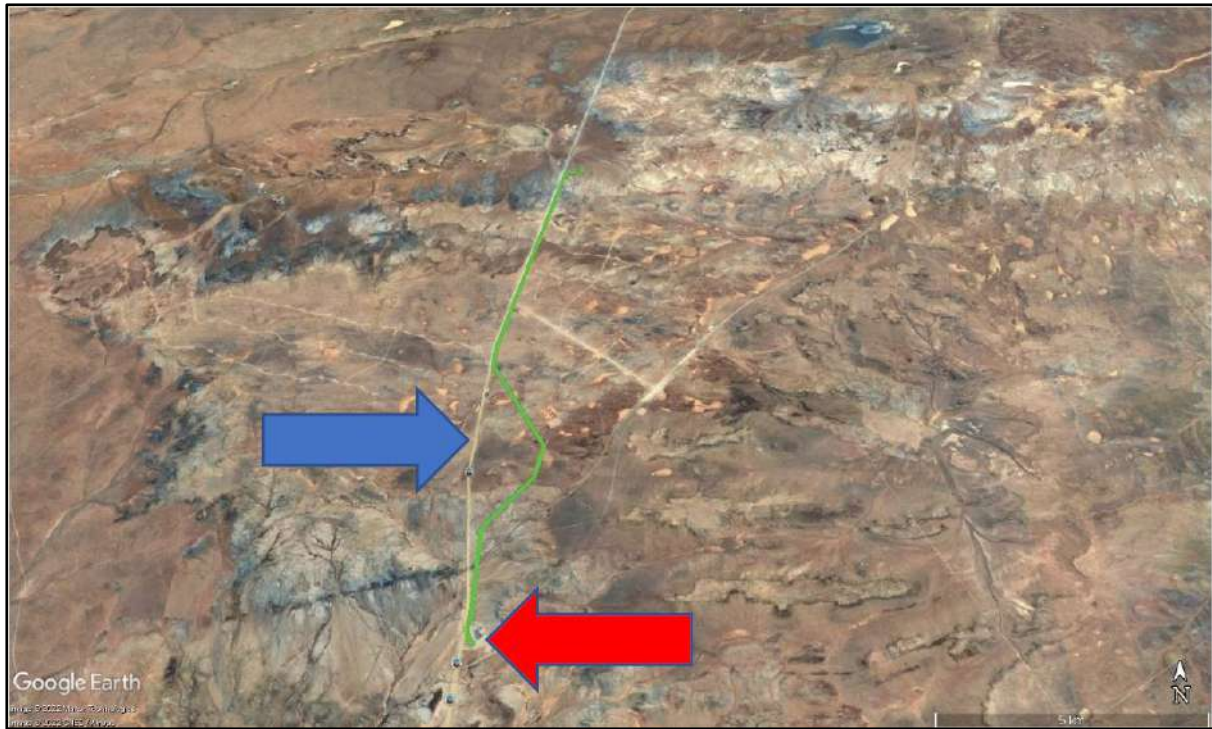


Figure 2: Alignment of 132kV overhead powerline (green line) and location of Granaatboskolk Road (blue arrow) and Helios Sub-Station (red arrow)

3. TERMS OF REFERENCE

The Terms of Reference (ToR) for the specialist inputs into the provision of a specialist statement for the Application for Amendment of the EA to extend the validity period require:

- Description of the status (baseline) of the environment that was assessed during the initial assessment.
- Confirmation of the current status of the assessed environment.
- Description and assessment of any changes to the environment that has occurred since the initial EA was issued, if any.
- Indication if the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA/EMPr, should the request to extend the commencement period, and other proposed amendments, be granted by the Department.
- Indication if there are any new assessments and/or guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration, and addressed in the specialist statement/ report.
- Description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
 - Similar developments within a 30km radius.
 - Identified cumulative impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.
 - Detailed process flow and proof must be provided, to indicate how the specialist's recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of

cumulative impacts and when the conclusion and mitigation measures were drafted for this project.

- The cumulative impacts significance rating must also inform the need and desirability of the proposed development.
- A cumulative impact environmental statement on whether the proposed development must proceed.

The study must conclude the following:

- Has the baseline status of the receiving environment changed significantly since the original Socio-Economic Assessment in 2012?
- Is the initial impact rating undertaken during the initial assessment still valid?
- Are the mitigation measures provided in the initial assessment (or subsequent updated assessments) still applicable?
- Are there any new mitigation measures that should be added to the EA/EMPr, should the DFFE approve the amendments?
- Describe any update/new mitigations (or refer to them in the EMPr update report), where relevant.
- Are the proposed amendments, including proposed extension of the validity period, acceptable (relative to your area of expertise)?

4. APPROACH TO PREPARING SOCIAL STATEMENT

The approach to preparing the Social Statement for the Part 1 EA Amendment Application for the extension of the validity period is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (DEADP, 2007). These guidelines are based on international best practice. The approach to preparing the Social Statement included:

- A review of the findings of the Socio-Economic Assessment undertaken by MasterQ Research in 2012 as part of the original EIA undertaken by SIVEST (March 2012).
- Review of key national policy and planning documents that are relevant to the renewable energy sector.
- Review of the latest policy and planning documents for the study area.
- Review of the baseline socio-economic data for the study area.
- Interviews with local landowners.

Interviews were conducted with the following affected landowners in November/December 2022, as part of the Social Statement¹.

- Lindveld, Mr Sakkie (telephonic 2022-12-09). Lindveld Trust - Aan de Karee Doorn Pan 213/1; 213/2.
- Lombard, Mr Frans (telephonic 2022-12-09). Aan de Karee Doorn Pan 213/RE; Karee Doorn Pan 214/1.
- Strauss, Mr Wynand (telephonic 2022-12-12). Bitterputs 187/RE.
- Van der Merwe, Mr Francois (telephonic 2022-12-12). Rona Rupert Trust – Sous 226/RE.
- Versfeld, Mr Charles (telephonic 2022-12-12). Buchu Fontein 184.
- Versfeld, Mr Fred (telephonic 2022-12-14). Buchu Fontein 184.

¹ The site- and site adjacent land owners were all notified of the current application and purpose of the Social Study by e-mail. Maps were attached indicating the proposed infrastructure in relation to the properties of each. All owners were telephonically contacted, with one requesting additional technical information from Mainstream (Mr van der Merwe), while another (Mr Lombard) requested a call-back, but then could not be contacted on 3 successive days (messages were left).

5. SPECIALIST DETAILS

Tony Barbour is an independent specialist with 30 years' experience in the field of environmental management. In terms of SIA experience Tony Barbour has undertaken in the region of 300 SIAs, including ~ 140 SIAs for renewable energy facilities, and is the author of the Guidelines for Social Impact Assessments for EIA's adopted by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007. Annexure A contains a copy of Mr Barbour's CV.

6. DECLARATION OF INDEPENDENCE

This confirms that Tony Barbour, the specialist consultant responsible for undertaking the study and preparing the Social Statement, is independent and does not have any vested or financial interests in the proposed grid connection for the Loeriesfontein 3 PV SEF being either approved or rejected. A signed declaration is contained in Annexure B.

7. OVERVIEW OF BASELINE CONDITIONS

The overview of socio-economic and social baseline conditions can be divided into two sections, firstly an overview of key policy and planning documents that are relevant to the renewable energy sector and the relevant study area, and secondly an overview of municipal level demographic data for the study area.

7.1 Policy and planning documents

Section 1.6, Legislative Context (p12) of the Socio-Economic Assessment (MasterQ Research 2012) provides an overview of the legislative context reviewed as part of the study. The following policies are discussed.

- Constitution of the Republic of South Africa (Act No. 108 of 1996).
- The Occupational Health and Safety Act (Act No. 85 of 1993).
- Extension of Security of Tenure Act (Act 62 of 1997) (ESTA).
- National Environmental Management Act (NEMA), No. 107 of 1998, as amended and Environment Conservation Act, No. 73 of 1989, as amended.
- The Environmental Impact Regulations of 21 April 2006.
- Relevant Labour Relations legislation.

The Socio-Economic Assessment did not undertake a review of policies and legislation that was relevant to renewable energy at the time. The Socio-Economic Assessment also did not undertake a review of relevant local planning documents, such as the Hantam and Namakwa Municipality Integrated Development Plans.

Given that the Socio-Economic Assessment was undertaken in 2012, there have been changes to some key national policy documents, specifically the Integrated Resource Plan (2010), and local planning documents, including relevant Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDF).

As part of the amendment process, the latest local policy documents have been reviewed, including:

- National Development Plan (2011).
- New Growth Path Framework (2010).
- National Infrastructure Plan (NIP) (2012 and 2021).
- Strategic Environmental Assessment (SEA) for wind and solar PV energy in South Africa (CSIR, 2015).
- Northern Cape Provincial Growth and Development Plan (NCPGDP) (2014)

- Northern Cape Provincial Spatial Development Framework (NCSDF) (2012)
- Namakwa District Municipality Integrated Development Framework (2019/2020 Revision).
- Namakwa District Climate Change Response Plan (2017-2022).
- Hantam Local Municipality Integrated Development Plan (2022-2023).

7.2 Overview of local socio-economic conditions

Section 4, Current Status Quo, of the Socio-Economic Assessment (MasterQ Research 2012) provides an overview of the socio-economic baseline conditions in the study area. The section notes that the baseline profile mostly focused on the local municipal area, but reference was made to the district and the province, where deemed necessary. The section is structured according to the following social change processes:

- Geographical processes: land use patterns.
- Demographical processes: the composition of the local community.
- Economic processes: the way in which the local people make a living and the economic activities in the society.
- Institutional and Legal processes: the role and efficiency of the local authority and other service providers in the area in terms of their capacity to deliver services to the local area.
- Socio-cultural processes: How the local population behave, interact, and relate to each other, their environment, and the belief and value systems that guide these interactions.

The Socio-Economic Assessment was undertaken in 2012. The baseline socio-economic conditions are therefore outdated. Annexure D contains a summary of the baseline socio-economic conditions for the Hantam Local Municipality based on the latest available information from the 2016 Community Household Survey and other sources. Annexure D also contains an overview of the current land uses in the study area.

As indicated in Annexure D, the study area settlement pattern remains sparse, with permanent inhabitation limited. No new dwellings have been constructed on the site- or adjacent properties since 2012. Apart from a dwelling on the Loeriesfontein 3 PV site property (Aan die Doorn Pan 213/2), located approximately 1.5 km from the proposed grid connection, all dwellings are located >4 km. The study properties continue to be used for extensive grazing, mainly seasonal (summer) grazing. Very few dedicated permanent employment opportunities are associated with the study properties. Still no tourism receptors are located within any significant proximity to the site.

The only significant changes since 2012 are associated with renewable energy projects. These relate to actual and potential changes in land use (additional), visual changes (turbines and other infrastructure), and increased use of the Granaatboskolk public gravel road (which links the study area properties to Loeriesfontein), especially of heavy vehicle traffic during construction. With the exception of Bitterputs 187/RE located directly to the north of the site, all study properties are associated with REF projects (See Table 6, Annexure D).

8. ASSESSMENT OF SOCIO-ECONOMIC AND SOCIAL ISSUES

The focus of the Socio-Economic Assessment undertaken as part of the original EIA process (MasterQ Research 2012) is on the PV SEF component of the 100 MW Loeriesfontein 3 PV SEF. The assessment does not discuss and/or assess the social impacts associated with the 132kV overhead power line. This Social Statement therefore provides an assessment of the social impacts associated with the 132kV Grid Alignment (i.e., Overhead Power Line) and 132kV Eskom Portion of the Shared On-site Substation for the 100 MW Loeriesfontein 3 PV SEF. The assessment is based on:

- The authors experience with undertaking SIAs for grid connections associated with renewable energy projects throughout South Africa.
- The authors knowledge of the study area based on site visits and SIAs undertaken for other renewable projects.
- Interviews with affected landowners.

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

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

8.1 Fit with policy and planning

The development of renewable energy and the associated energy infrastructure (such as powerlines and substations) is strongly supported at a national, provincial, and local level. The development of and investment in renewable energy and associated energy distribution infrastructure is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all highlight the importance of energy security and investment in energy infrastructure. The proposed powerline and substation development to service the Loeriesfontein 3 PV SEF is also located within the Western Transmission Corridor. The development of the proposed powerline and substation to service the Loeriesfontein 3 PV SEF is therefore supported by key policy and planning documents.

8.2 Construction Phase

The key social issues associated with the construction phase include:

Potential positive impacts

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

The construction phase associated with a 132kV overhead line will extend over a period of approximately 3-6 months and create in the region of 20-30 employment opportunities. The total wage bill will be in the region of R 2 million (2021 Rand values). A percentage of employment opportunities will benefit community members from the HM. A percentage of the wage bill will also be spent in the local economy which will also create opportunities for local businesses in HM, specifically Loeriesfontein.

The capital expenditure associated with the construction of powerline would be in the region of ~20 million (2022 Rand values) and will create opportunities for the local and regional and local economy. The sector of the local economy most likely to benefit from the proposed development is the local service industry. The potential opportunities for the local service sector would be linked to accommodation, catering, cleaning, transport, and security, etc. associated with the construction workers on the site. However, given the relatively small scale of the development and short construction period the benefits will be limited.

Potential negative impacts

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

- Noise, dust, and safety impacts of construction related activities and vehicles.
- Risks posed to farming activities by construction workers.

Given the relatively small workforce and short duration of the construction phase, the significance of the potential negative impacts is likely to be negligible. With mitigation they are rated as **Low Negative**. The potential negative impacts associated with the proposed construction of the power line can therefore be effectively mitigated if the recommended mitigation measures are implemented.

A key issue raised by local landowners was the impact of construction traffic on the Granaatboskolk Road during the construction of Mainstream's Loeriesfontein and Khobab WEFs, and the current construction of Solar Capital Orange PV. The road will also be impacted by the construction of the Dwarsrug WEF in 2023. The Kokerboom 1-4 WEFs and other proposed REFs would also use the road. The cumulative impacts on the road are therefore an issue that should be addressed. Local farmers in the area indicated that the option of surfacing the road should be considered by the renewable energy companies operating in the area.

Table 1 summarises the significance of the impacts associated with the construction phase.

Table 1: Summary of social impacts during construction phase

Impact	Significance No Mitigation / Enhancement	Significance With Mitigation / Enhancement
Creation of employment and business opportunities	Low (Positive)	Low (Positive)
Presence of construction workers and potential impacts on family structures and social networks	Low (Negative)	Low (Negative)
Impact of construction activities and vehicles	Low (Negative)	Low (Negative)
Safety risk, stock theft and damage to farm infrastructure associated with presence of construction workers	Medium (Negative)	Low (Negative)

Enhancement and Mitigation Measures

The following enhancement and mitigation measures for the construction phase should be included in the EMPr (if not already included).

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

Employment

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

Business

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

Impacts associated with the presence of construction workers on local communities

- Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories.
- The proponent and the contractor(s) should develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation.
- The proponent and the contractor should implement an HIV/AIDS and COVID-19 awareness programme for all construction workers at the outset of the construction phase.
- The contractor should provide transport for workers to and from the site daily. This will enable the contractor to effectively manage and monitor the movement of construction workers on and off the site.
- The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.
- No construction workers, except for security personnel, should be permitted to stay over-night on the site.

Noise, dust, and safety impacts of construction related activities and vehicles

- Ensure ongoing communication with landowners and road users during construction period.
- Establishment of a Grievance Mechanism that provides local farmers and other road users with an effective and efficient mechanism to address issues related to construction related impacts, including damage to local gravel farm roads.
- Implementation of a road maintenance programme throughout the construction phase to ensure that the affected roads maintained in a good condition. As indicated above, a key issue raised by local landowners was the impact of construction traffic on the Granaatboskolk Road. The option of surfacing the road was also raised.
- Repair of all affected road portions at the end of construction period where required.
- Dust suppression measures must be implemented on un-surfaced roads, such as wetting on a regular basis and ensuring that vehicles used to transport building materials are fitted with tarpaulins or covers.
- All vehicles must be roadworthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.

Risks posed to farming activities by construction workers.

- The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences.
- All farm gates must be closed after passing through.
- Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site.
- The proponent should hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors, and neighbouring landowners. The agreement should also cover losses and costs associated with fires caused by construction workers or construction related activities (see below).

- The Environmental Management Plan (EMP) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.
- Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.
- Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation.
- It is recommended that no construction workers, except for security personnel, should be permitted to stay over-night on the site.

8.3 Operational phase

The benefits associated with the Loeriesfontein 3 PV SEF are dependent upon being able to connect to the national grid. The key social issues associated with the operational phase include:

Potential positive impacts

- Improve energy security and establishment of energy infrastructure.
- Creation of employment opportunities.

Improve energy security

The proposed powerline and substation is essential to enable the development and operation of Loeriesfontein 3 PV SEF. The primary goal of the proposed Loeriesfontein 3 PV SEF is to improve energy security in South Africa by generating renewable energy. The proposed powerline and substation should therefore be viewed within the context of the South Africa's current power supply constraints and the reliance on coal powered energy to meet most of its energy needs.

South Africa's energy crisis, which started in 2007 and is ongoing, has resulted in widespread rolling blackouts (referred to as load shedding) due to supply shortfalls. The load shedding has had a significant impact on all sectors of the economy and on investor confidence. The mining and manufacturing sector have been severely impacted and will continue to be impacted until such time as there is a reliable supply to energy. Load shedding in the first six months of 2015 was estimated to have cost South African businesses R13.72 billion in lost revenue with an additional R716 million was spent by businesses on backup generators². A survey of 3 984 small business owners found that 44% said that they had been severely affected by load shedding with 85% stating that it had reduced their revenue, with 40% of small businesses losing 20% or more of revenue during due to load shedding period³.

Improving energy security therefore represents a significant social and socio-economic benefit.

Create employment opportunities

The employment opportunities during the operational phase will be limited to maintenance of the overhead powerline and substation. The significance will therefore be low.

² Goldberg, Ariel (9 November 2015). ["The economic impact of load shedding: The case of South African retailers"](#) (PDF). Gordon Institute of Business Science. p. 109

³ ["How does load shedding affect small business in SA?"](#). *The Yoco Small Business Pulse (3: Q1 2019): 3*

Potential negative impacts

- The visual impacts and associated impact on sense of place.
- Risks posed to farming activities by maintenance workers.

Visual impact on sense of place

The areas sense of place has been impacted by existing powerlines and substation infrastructure associated with the Helios Sub-Station and existing renewable energy facilities located in the area. The impact on sense of place will therefore be limited.

Risks posed to farmers and farming activities by maintenance workers

Given the relatively small workforce and short duration associated with maintenance related work the significance is likely to be negligible.

Based on the findings of the study all of the potential negative impacts with mitigation are rated as **Low Negative**. The potential negative impacts associated with the proposed powerline and substation infrastructure can therefore be effectively mitigated if the recommended mitigation measures are implemented.

The significance of the impacts associated with the operational phase are summarised in Table 2.

Table 2: Summary of social impacts during operational phase

Impact	Significance No Mitigation / Enhancement	Significance With Mitigation / Enhancement
Improve energy security and establishment of energy infrastructure	Medium (Negative) ⁴	High (Positive) ⁵
Creation of employment and business opportunities during maintenance	Low (Positive)	Low (Positive)
Visual impact and impact on sense of place	Low (Negative)	Low (Negative)
Safety risk, stock theft and damage to farm infrastructure associated with presence of maintenance workers	Medium (Negative)	Low (Negative)

Enhancement and Mitigation Measures

The following enhancement and mitigation measures for the operational phase should be included in the EMPr.

Employment and business opportunities

- Maximise the number of employment opportunities for local community members.
- Maximise opportunities for local content and procurement.

Visual impact on sense of place

- Implement VIA recommendations

⁴ Assumes powerline and substation is not developed

⁵ Assumes powerline and substation is developed

Risk to farming operations

- Affected property owners should be notified in advance of the timing and duration of maintenance activities.
- Maintenance teams must ensure that all farm gates must be closed after passing through.
- Property owners should be compensated for damage to farm property and or loss of livestock or game associated maintenance related activities.
- Movement of traffic and maintenance related activities should be strictly contained within designated areas associated with transmission lines and substations.
- Strict traffic speed limits must be enforced on the farm.
- No maintenance workers should be allowed to stay over-night on the affected properties.

8.4 Cumulative impact on sense of place

The Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts associated with wind farms on landscapes. These issues raised in these guidelines as to what defines a cumulative impact are also regarded as pertinent to transmission lines and/or substation infrastructure. The relevant issues identified by Scottish Natural Heritage study include:

- Combined visibility (whether two or more transmission lines) will be visible from one location).
- Sequential visibility (e.g. the effect of seeing two or more two or more transmission lines) along a single journey, e.g. road or walking trail.
- The visual compatibility of different two or more transmission lines in the same vicinity.
- Perceived or actual change in land use across a character type or region.
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type.

There are several existing powerlines and substation infrastructure in the study area associated with the Helios Substation and other renewable energy projects. The potential for cumulative impacts associated with combined visibility (whether two or more powerlines and substation will be visible from one location) and sequential visibility (e.g., the effect of seeing two or more powerlines and substation along a single journey, e.g., road or walking trail) does therefore exist. However, the cumulative impact on the areas sense of place is therefore likely to be **Moderate to Low Negative**. None of the affected property owners interviewed identified visual impacts as a concern. The area also falls within the Western Transmission Corridor. The area has therefore been identified as suitable for the establishment of the grid infrastructure.

Table 3: Cumulative impacts on sense of place and the landscape

Nature: Visual impacts associated with the establishment of associated grid infrastructure and the potential impact on the area's rural sense of place and character of the landscape.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (2)	Regional (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (2)	Low (2)
Reversibility	Reversible (1)	Reversible (1)
Probability	Probable (3)	Probable (3)
Significance	Low (27)	Moderate (27)
Status	Negative	Negative
Can impacts be mitigated?	Limited	
Confidence in findings: High.		

The following mitigation measure for the operational phase should be included in the EMPr.

- Implement VIA recommendations.

8.5 Cumulative impact on local services and accommodation

The establishment of the proposed Loeriesfontein 3 PV SEF and the other renewable energy facilities in the HLM and associated grid infrastructure, including the 132kV overhead powerline and substation infrastructure, has the potential to place pressure on local services in nearby towns, specifically in the town of Loeriesfontein. Services affected include medical, education and accommodation. This pressure will be associated with the influx of workers to the area associated with the construction phases, and to a lesser extent, the operational phases. Due to the lack of accommodation in Loeriesfontein, the construction of existing wind farms (including associated grid connection infrastructure) in the area have involved the establishment of on-site construction camps. The potential impact on local services can be mitigated by employing local community members.

However, this impact should also be viewed within the context of the potential positive cumulative impacts for the local economy associated with the establishment of renewable projects (including associated grid connection infrastructure) in the area. These benefits will create opportunities for investment in the HLM, including the opportunity to up-grade and expand existing services.

Based on SIAs undertaken by the author for other renewable energy projects located in the vicinity of Loeriesfontein, the significance of the cumulative impact on local services and accommodation is rated as **Low Negative** with mitigation (Table 5).

As indicated above, the cumulative impact on the Granaatboskolk Road associated with construction traffic involved in the construction of renewable energy facilities and associated grid infrastructure in the area has been raised as a key concern. The option of surfacing the road or implementing an effective maintenance and repair program should be investigated.

Table 4: Cumulative impacts on local services

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

The following mitigation measures for the operational phase should be included in the EMPr.

The Northern Cape Provincial Government, in consultation with the HLM and the proponents involved in the development of renewable energy projects and associated grid infrastructure in the HLM, should consider establishing a Development Forum to coordinate and manage the development and operation of renewable energy projects in the area with the specific aim of mitigating potential negative impacts and enhancing opportunities. This would include identifying key needs, including capacity of existing services, accommodation and housing and the implementation of an accredited training and skills development programmes aimed at maximising the opportunities for local workers to be employed during the construction and operational phases of the various proposed projects. These issues should be addressed in the Integrated Development Planning process undertaken by the HLM.

The option of surfacing the Granaatboskolk Road or implementing an effective maintenance and repair program should be investigated.

8.6 Assessment of no-development option

The proposed powerline and substation infrastructure is essential to enable the proposed Loeriesfontein 3 PV SEF to connect to the national electricity grid to address the current energy supply constraints and reduce South Africa's reliance on coal generated energy. As indicated above, energy supply constraints and associated load shedding have had a significant impact on the economic development of the South African economy. South Africa also relies on coal-powered energy to meet more than 90% of its energy needs. South Africa is therefore one of the highest per capita producers of carbon emissions in the world and Eskom, as an energy utility, has been identified as the world's second largest producer of carbon emissions.

The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with renewable energy. Given South Africa's current energy security challenges and its position as one of the highest per

capita producers of carbon emissions in the world, this would represent a negative social cost.

Table 5: Assessment of no-development option

Nature: The no-development option would result in the lost opportunity for South Africa to improve energy security and reduce reliance on coal power.		
	Without Mitigation⁶	With Mitigation⁷
Extent	Local-National (3)	Local-National (3)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Reversibility	Reversible (1)	Reversible (1)
Probability	Highly Probable (4)	Highly Probable (4)
Significance	Moderate (56)	Moderate (56)
Status	Negative	Positive
Can impact be mitigated?	Yes	
Enhancement: See below		
Residual impacts: Improved energy security and benefit for economic development and investment, reduction in CO ₂ emission and reduction in water consumption for energy generation.		

Enhancement measures

The proposed grid infrastructure should be developed, and the mitigation and enhancement measures identified in the SIA and other specialist studies should be implemented.

9. SUMMARY OF FINDINGS

9.1 Status of baseline

Land uses

There has been negligible change in the land uses and farming activities on the affected farm properties. The baseline has therefore not changed significantly as a site-specific level.

Socio-economic environment

The socio-economic baseline conditions in Loeriesfontein and the HLM have changed since 2012, when the Socio-Economic Assessment and EIA were undertaken. These changes include increase in population, changes in economic activities, specifically the impact on COVID-19 on the local economy (2019-2020/22). These changes do not however have a material bearing on the findings of the Socio-Economic Assessment undertaken in 2012. Annexure B contains an up-dated summary of the socio-economic baseline conditions in the HLM.

Policy and planning documents

A number of the policy and planning documents referred to in the 2012 Socio-Economic Assessment (MasterQ Research, 2012) are outdated. The Socio-Economic Assessment also did not include a review of the local planning and policy documents, specifically the IDP

⁶ Assumes powerline and substation is not developed

⁷ Assumes powerline and substation is developed

and SDF. This has been undertaken as part of this assessment. Annexure A contains a summary of the latest key policy and planning documents.

9.2 Impact ratings

As indicated above, the Socio-Economic Assessment (MasterQ Research 2012) does not discuss and or assess the social impacts associated with the 132kV overhead powerline. This Social Statement therefore provides an assessment of the social impacts associated with the 132kV Grid Alignment (i.e., Overhead PowerLine) and 132kV Eskom Portion of the Shared On-site Substation for the 100 MW Loeriesfontein 3 PV SEF. The key findings of the are summarised above under the following sections:

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

9.3 Mitigation and enhancement measures

The mitigation and enhancement measures are listed above.

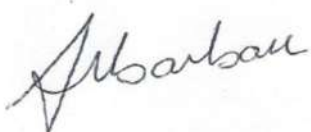
9.4 Cumulative impacts

The potential cumulative impacts associated with the 132kV overhead powerline and substation for the proposed Loeriesfontein 3 PV SEF include cumulative impact on the area's sense of place and cumulative impact on services, specifically during the construction phase. Based on the findings of SIAs undertaken by the author for other renewable energy projects located in the study area, the significance of the cumulative impact on sense of place, local services and the local economy are rated as **Medium to Low Negative, Low Negative and High Positive** respectively.

10. CONCLUDING STATEMENT

The energy security benefits associated with the proposed Loeriesfontein 3 PV SEF are dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure (i.e., powerline and substation infrastructure).

The findings of the Social Assessment for the Part 1 EA Amendment Application indicate that the significance of the potential negative social impacts for both the construction and operational phase of the proposed 132kV overhead powerline and substation infrastructure are Low Negative with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. The 132kV powerline and substation infrastructure is also located within the Western Transmission Corridor. The establishment of proposed 132kV overhead powerline and substation infrastructure for the Loeriesfontein 3 PV SEF is therefore supported by the findings of the 2012 Social Assessment (MasterQ Research, 2012), and thus the extension of the validity of the EA for the grid connection infrastructure is supported.



Tony Barbour
Tony Barbour Environmental Consulting
19 January 2023

ANNEXURE A

Tony Barbour

ENVIRONMENTAL CONSULTING AND RESEARCH

10 Firs Avenue, Claremont, 7708, South Africa
(Cell) 082 600 8266
(E-Mail) tony@tonybarbour.co.za, tbarbour@telkomsa.net

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

EDUCATION

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

EMPLOYMENT RECORD

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

LECTURING

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

RELEVANT EXPERIENCE AND EXPERTISE

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

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

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

ANNEXURE B

The specialist declaration of independence in terms of the Regulations_

I, Tony Barbour _____, declare that --

General declaration:

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



Signature of the specialist:

Tony Barbour Environmental Consulting and Research

Name of company (if applicable):

20 December 2022

Date:

ANNEXURE C

POLICY AND PLANNING UP-DATE

NATIONAL POLICY ENVIRONMENT

National Development Plan

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

New Growth Path Framework

Government released the New Economic Growth Path Framework on 23 November 2010. The aim of the framework is to enhance growth, employment creation and equity. The policy's principal target is to create five million jobs over the next 10 years and reflects government's commitment to prioritising employment creation in all economic policies. The framework identifies strategies that will enable South Africa to grow in a more equitable and inclusive manner while attaining South Africa's developmental agenda. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard the framework identifies investments in five key areas namely: **energy**, transport, communication, water and housing.

The New Growth Path also identifies five other priority areas as part of the programme to create jobs, through a series of partnerships between the State and the private sector. The Green Economy is one of the five priority areas, including expansions in construction and the production of technologies for solar, wind and biofuels. In this regard clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.

National Infrastructure Plan

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

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

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

The NIP 2050 was gazetted for public comment on 10 August 2021⁸. The first phase of the NIP 2050 focuses on four critical network sectors that provide a platform, namely, energy, freight transport, water, and digital infrastructure. In line with the NDP, the vision for the energy sector is to promote:

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

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

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

- SA cannot afford to overspend while dramatically expanding capacity
- Renewables can be built quickly and in modular form thereby avoiding many of the challenges associated with mega projects.
- Trade partners are expected to increasingly impose border carbon taxes harming SA exports.
- SA will need to commit to emission reductions as a global citizen.

PROVINCIAL AND LOCAL POLICY ENVIRONMENT

Northern Cape Province Provincial Growth and Development Strategy

The NCPGDS identifies poverty reduction as the most significant challenge facing the government and its partners. All other societal challenges that the province faces emanate predominantly from the effects of poverty. The NCPGDS notes that the only effective way to reduce poverty is through long-term sustainable economic growth and development. The sectors where economic growth and development can be promoted include:

- Agriculture and Agro-processing.
- Fishing and Mariculture.
- Mining and mineral processing.
- Transport.
- Manufacturing.
- Tourism.

However, the NCPGDS also notes that economic development in these sectors also requires:

⁸ Gazette No. 44951

- Creating opportunities for lifelong learning.
- Improving the skills of the labour force to increase productivity.
- Increasing accessibility to knowledge and information.

The achievement of these primary development objectives depends on the achievement of a number of related objectives that, at a macro-level, describe necessary conditions for growth and development. These are:

- Developing requisite levels of human and social capital.
- Improving the efficiency and effectiveness of governance and other development institutions.
- Enhancing infrastructure for economic growth and social development.

Of specific relevance to the Socio-Economic Assessment the NCPGDS make reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPGDS notes "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPGDS also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised.

The NCPGDS also highlights the importance of enterprise development, and notes that the current levels of private sector development and investment in the Northern Cape are low. In addition, the province also lags in the key policy priority areas of SMME Development and Black Economic Empowerment. The proposed SEF therefore has the potential to create opportunities to promote private sector investment and the development of SMMEs in the Northern Cape Province.

In this regard care will need to be taken to ensure that the proposed SEF and other REFs do not negatively impact on the region's natural environment. In this regard the NCPGDS notes that the sustainable utilisation of the natural resource base on which agriculture depends is critical in the Northern Cape with its fragile eco-systems and vulnerability to climatic variation. The document also indicates that due to the province's exceptional natural and cultural attributes, it has the potential to become the preferred adventure and ecotourism destination in South Africa. Care therefore needs to be taken to ensure that the development of large renewable energy projects, such as the proposed solar energy facility, do not affect the tourism potential of the province.

Northern Cape Spatial Development Framework

Northern Cape Provincial Spatial Development Framework (NCSPDF) (2012) lists a number of sectoral strategies and plans are to be read and treated as key components of the PSDF. Of these there are a number that are relevant to the proposed STPs. These include:

- Sectoral Strategy 1: Provincial Growth and Development Strategy of the Provincial Government.
- Sectoral Strategy 2: Comprehensive Growth and Development Programme of the Department of Agriculture, Land Reform and Rural Development.
- Sectoral Strategy 5: Local Economic Development (LED) Strategy of the Department of Economic Development and Tourism.

- Sectoral Strategy 11: Small Micro Medium Enterprises (SMME) Development Strategy of the Department of Economic Development and Tourism.
- Sectoral Strategy 12: Tourism Strategy of the Department of Economic Development and Tourism.
- Sectoral Strategy 19: Provincial renewable energy strategy (to be facilitated by the Department of Economic Development and Tourism).

Under Section B 14.4, Energy Sector, the NCSDP (2012), notes the total area of high radiation in South Africa amounts to approximately 194 000 km² of which the majority falls within the Northern Cape. It is estimated that, if the electricity production per km² of mirror surface in a solar thermal power station were 30.2 MW and only 1% of the area of high radiation were available for solar power generation, then generation potential would equate to approximately 64 GW. A mere 1.25% of the area of high radiation could thus meet projected South African electricity demand in 2025 (80 GW) (NCPSDF, 2012). However, the SDF does indicate that this would require large investments in transmission lines from the areas of high radiation to the main electricity consumer centres.

Section C8.2.3, Energy Objectives, sets out the energy objectives for the Northern Cape Province. The section makes specific reference to renewable energy. The objectives are listed below:

- Promote the development of renewable energy supply schemes. Large-scale renewable energy supply schemes are strategically important for increasing the diversity of domestic energy supplies and avoiding energy imports while minimizing detrimental environmental impacts.
- Develop and institute innovative new energy technologies to improve access to reliable, sustainable, and affordable energy services with the objective to realize sustainable economic growth and development. The goals of securing supply, providing energy services, tackling climate change, avoiding air pollution, and reaching sustainable development in the province offer both opportunities and synergies which require joint planning between local and provincial government as well as the private sector.
- Develop and institute energy supply schemes with the aim to contribute to the achievement of the targets set by the White Paper on Renewable Energy (2003). This target relates to the delivery of 10 000 GWh of energy from renewable energy sources (mainly biomass, wind, solar, and small-scale hydro) by 2013.

Section C8.3.3, Energy Policy, sets out the policy guidelines for the development of the energy sector, with specific reference to the renewable energy sector.

- The construction of infrastructure must be strictly regulated in terms of the spatial plans and guidelines put forward in the PSDP. They must be carefully placed to avoid visual impacts on landscapes of significant symbolic, aesthetic, cultural or historic value and should blend in with the surrounding environment to the extent possible.
- EIAs undertaken for such construction must assess the impacts of such activities.

Namakwa District Municipality Integrated Development Plan

The Namakwa District Municipality IDP (2019/2020) notes that the vision of the Namakwa DM is: 'Namakwa District, the centre of excellence'. The Mission statement for the MD includes:

- Stimulating radical economic and social transformation.
- Fostering partnerships with relevant role-players.
- Supporting and capacitating local municipalities.
- Maintaining transparent and accountable processes.
- Providing local leadership.

Key developmental issues facing the DM include:

- The DM has a large cohort of people in the economically active age category (15-64). This highlights the need for local employment creation.
- The youthful population group (15-34) has increased by 2.4%, further emphasizing the need for local employment creation.
- Between 2004 and 2014, the urbanization rate in the DM has increased from 77.3% to 91.2% and that in the NKLM from 88.4% to 95.3%. These increases in urbanization have increased pressure on local authorities to provide municipal and social services.
- The DM's economic outlook is depressed. This is linked to limited new mining activity and the ongoing drought.

Key developmental priorities identified for the DM include:

- Economic diversification, specifically the development of local agricultural and mining manufacturing sectors.
- New mining and renewable energy projects should be supported.

The IDP notes support for the commitments made in terms of the Paris Accord on Climate Change. The IDP notes that the DM is located in an arid region, prone to droughts, and therefore very vulnerable to global warming.

Namakwa District Climate Change Response Plan

The Namakwa District Climate Change Response Plan (2017-2022) was developed through the Local Government Climate Change Support program. It includes a climate change vulnerability assessment and associated climate change responses which address these vulnerabilities. The vulnerability assessment identified 17 of the DM's socio-economic indicators which are both very exposed and highly sensitive to climate change but have very low capacity to adapt. These included the agricultural sector, tourism, water-dependent municipal services and the coastal and marine environment.

Priority responses are identified for the key sectors, including agriculture, biodiversity and habitat conservation, human health, and human settlements. These include mainstreaming climate change preparedness into all future IDPs, and implementation of a Namakwa Renewable Energy Strategy which supports the development and use of non-fossil sources of energy.

Hantam Local Municipality Integrated Development Plan

The Vision for the HM is "Hantam, a place of service excellence and equal opportunities, creating a better life for all". The Mission Statement associated with the vision is "To create an inclusive, people centred municipality through social cohesion, good governance and sustainable development where all can reach their full potential"

The IDP lists 5 Strategic Objectives (SO), namely:

- SO 1: Infrastructure Development and Basic Service Delivery.
- SO 2: Institutional Development and Municipal Transformation.
- SO 3: Economic Development.
- SO 4: Municipal financial sustainability and viability.
- SO 5: Good governance and public participation.

SO 3, Economic Development is relevant to the development.

SWOT analysis was undertaken in 2022 as part of the IDP process. The following outcomes are relevant to the development.

Strengths

- Economic opportunities available in municipal area.
- Established renewable energy facilities near Loeriesfontein.

Weaknesses

- Unemployment / Poverty – higher grant dependency; more indigent households; inability to pay municipal accounts.
- Emigration out of area and rural/urban migration.
- Load-shedding – pumping of water and sewerage is not possible during load-shedding.
- Migration of locally skilled workers. Skills for renewable energy not available locally.
- Low quality of education; science and mathematics are not subjects in schools.
- Large-scale economic investment opportunities not contributing to Hantam economy (e.g. SKA).
- No support or investment opportunities for local entrepreneurs.
- Drought – agricultural development stagnant, water service delivery more expensive, boreholes not sustainable.

Opportunity

- The possibility of renewable energy generation for own use through public private partnerships.
- Create opportunities for small scale entrepreneurs at entrances to towns.
- Build a Training College providing tertiary education.

Threats

- Lack of skills development opportunities.
- Lack of youth development programmes.
- Early school dropout of learners.
- What can be done to determine and ensure payment of municipal rates and taxes by renewable energy facilities.
- Condition of gravel roads limits road use by communities and tourists.
- Limited funding available for SMMEs.
- Climate change is a threat to our existence (in particular to the sustainability of water sources).

In terms of describing the municipal area, the IDP notes that the HM is a small-town sub-region with a mix of sparsely populated towns and low levels of development despite the strategic location of some towns in terms of road and rail transport corridors. Calvinia serves as the main agricultural service centre with the associated transport infrastructure shaping the (original) spatial structure of the town. Of relevance the IDP notes that Loeriesfontein has in recent years experienced phenomenal investment in infrastructure and services with associated employment opportunities due to the social responsibility programmes by Independent Power Producers. In this regard almost a quarter of all land development applications submitted to the Municipality between 2011 and 2015 were for large-scale renewable energy generation projects.

ANNEXURE D

OVERVIEW OF THE STUDY AREA

ADMINISTRATIVE CONTEXT

The Hantam Municipality (HM) is one of six local municipalities that make up the Namakwa District Municipality (NDM) (Figure 1). The town of Clavinia is the administrative seat of the HM. The PV SEF and associated grid connection is located in Ward 5 of the HM. The closest settlement to the PV SEF is Loriesfontein located ~ 25km to the south of the site.



Figure 1: Local municipalities within Nama District Municipality

SOCIO-ECONOMIC OVERVIEW

Demographics

Population

The population in the HM in 2016 was 21 541. The number of households was 6 893, with an average household size of 3.1. The IDP (2021/22) indicates the population growth rate in HM municipality for the 2015–2020 period was a negative -0.4% with a marginal increase (0.16%) in the number of households over the same period. Overall, the Hantam municipal area is characterised by negative population growth and, thus, changing dynamics, i.e. the number of persons and the number of households has decreased since 2000 when the population was 22 405. The population in 2020 was estimated to be 21 083.

The population of Ward 5 in 2011 was 3 523. The total number of households was 1 196, with an average household size of 2.9.

Most of the population in the HM is Coloured (86%), followed by Whites (12.6%) and Black Africans (0.9%). The dominant language within the Municipality is Afrikaans (97.3%) (Household Community Survey, 2016). In terms of Ward 5, the majority of the population was also Coloured (83.2%), followed by Whites (14%) and Black Africans (2.2%). The dominant language was Afrikaans (92.3%) (Census 2011).

Based on the 2016 Household Community Survey 32.1% of the population of the HM were under the age of 18, 59% were 18 to 64 and the remaining 8.9% were 65 and older. Based on these figures the dependency ratio for the HM in 2016 was 69%. The 2011 figures for Ward 5 were 28.8% under the age of 18, 61.3% between 18 to 64 and the remaining 9.9% 65 and older. Based on these figures the dependency ratio for Ward 5 was 63%. The dependency ratio for the NDM and Northern Cape was 63% and 73% respectively.

The traditional approach to measuring the dependency ratio is to use figures of 0-14 years of age and 15-65, and 65 and over. However, it is likely to be more accurate given that the majority of the population under the age of 18 are or should be at school and are likely to be residing with their parents as opposed to working. The higher the dependency ratio the larger the percentage of the population dependent on the economically active age group. This in turn translates reduced revenue for local authorities to meet the growing demand for services. A high dependency ratio also reflects the limited employment opportunities in the area and represent a significant risk to the local and district municipality.

Households, house types and ownership

The number of households in the HM was 6 893 in 2016. There was a total of 1 196 (2011) households in Ward 5. Of these 94% were formal houses and 2.8% were shacks. The majority of dwellings in Ward 5 are therefore formal structures. In terms of ownership, 50.3% of houses were owned and fully paid off, 4.7% were owned, but not paid off, 14.4% were rented and 27.4% were occupied rent free. The high number of rent-free dwellings in Ward 5 is likely to be linked to farm workers residing on farms.

Approximately 42% of the households in Ward 5 were headed by women. The figure is higher than the district level (36.5%) provincial level (38.5%). Women headed households tend to be more vulnerable and reflect a lack of employment opportunities in the area, which result in the men leaving to seek employment in larger towns, such as Malmesbury, Cape Town and Saldanha Bay.

Household income

Based on the data from the 2011 Census, 6.9% of the population of the HM had no formal income, 2.6 % earned under R 4 800, 4.8% earned between R 5 000 and R 10 000 per annum, 21.1% between R 10 000 and 20 000 per annum and 24.7% between R 20 000 and R 40 000 per annum (Census 2011)⁹. The figures for Ward 5 were 8.8%, 2.6%, 5.9%, 24.3% and 24.8% respectively.

The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average sized household (~ 40 000 per annum). Based on this measure, in the region of 60% of the households in the HM and 66.4% in Ward 5 live close to or below the poverty line. The figure for the NDM is 58.1%.

⁹ There is no data on household income from the 2016 Household Community Survey for the HM Ward 5.

The low-income levels reflect the limited formal employment opportunities in the area. This is also reflected in the high unemployment rates. The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the HM. This in turn impacts on the ability of the NM to maintain and provide services. The current (2022) percentage of households living on or below the poverty line is likely to be higher due to the impact of the COVID-19 pandemic.

Employment

The official unemployment rate in the HM in 2016 was 6%, with 45.6% falling within the not economically active group and 3.2% being classified as discouraged work seekers. The figures for Ward 5 (2011) were 3.5%, with 48.3% falling within the not economically active group and 1.3% being classified as discouraged work seekers. The unemployment rate was lower than the district (11.1%) and provincial (14.5%) rate. However, the current (2022) unemployment rates are likely to be higher due to the impact of the COVID-19 pandemic.

Education

The data from the 2016 Community Survey indicates that 9.9% of the population in the NM over 20 years of age had no education, 6.6% had a primary school level education and 29.8% had passed matric. 1.3% had achieved an undergraduate degree and 1.4% a postgraduate qualification. The matriculation figures are higher than the NDM (27.1%) and provincial figure (29.1%) (2016). However, the figures for no education are higher than the district (4.4%) and provincial figures (7.9%). This is likely to be due to the rural nature of the HM and the challenges faced by farm workers children to access schools.

The figures for Ward 5 indicate that 17.3% of the population had no education. This figure is significantly higher than the district (4.4%) and provincial level (7.9%). This is likely to be due to the rural nature of Ward 5 and the challenges faced by farm workers children to access schools. The figures for the percentage of the population over the age of 20 with matric (19.2%) was also lower than the district figure (21.5%), but marginally lower than the provincial level (25.2%) (2011). Only 2.8% had achieved an undergraduate degree and 0.9% a postgraduate qualification (Table 1). The low percentage of the population with an undergraduate and or postgraduate qualifications in Ward 5 is likely to have implications in terms of meeting local employment targets during the construction phase.

Table 1: Population by highest educational level

Column	Hantam Ward 5		Namakwa		Northern Cape	
None	17.3%	408	6.3%	4,794	11.1%	76,861
Other	0%	1	0.2%	184	0.3%	1,746
Some primary	21.7%	511	17.1%	12,928	16.8%	116,114
Primary	8.5%	200	9.7%	7,332	6.2%	43,111
Some secondary	25.3%	596	37.9%	28,744	34.2%	236,956
Grade 12 (Matric)	19.2%	452	21.5%	16,290	25.2%	174,210
Undergrad	2.8%	66	2.4%	1,825	2.7%	18,802
Post-grad	0.9%	20	1%	729	1.2%	8,254
N/A	4.3%	101	3.9%	2,946	2.4%	16,755

Source: Wazimap: 2011 Census

Municipal service levels

Access to water

Based on the 2016 Household Community Survey, 84.4% of households in the HM were supplied by the regional or local service provider. Based on the 2011 Census, 75.6% of households in Ward 5 were provided with water by a local or regional service provider while 18.6% relied on boreholes (Table 2). The high number of households that rely on boreholes reflects the rural nature of Ward 5.

Table 2: Population by water access

Column	Hantam Ward 5		Namakwa		Northern Cape	
Service provider	75.6%	2,665	85.2%	98,720	85.4%	978,825
Borehole	18.6%	656	8.2%	9,536	5.9%	67,242
N/A	1.8%	64	0.4%	437	0.2%	2,329
Tanker	1.2%	43	0.8%	877	2.1%	24,299
Other	2.7%	96	5.4%	6,272	6.4%	73,167

Source: Wazimap: 2011 Census

Sanitation

Based on the 2016 Household Community Survey, 91.1% of households in the HM had access to flush toilets, while 4.2% relied on pit toilets and 1.2% had no access to sanitation facilities. Based on 2011 Census, 51.4% of the households in Ward 5 had flush toilets, 33.1% relied on pit latrines with ventilation, and 7.1% had no access to sanitation facilities. The figures in terms of access to flush toilets are lower than the district and provincial figures (Table 3).

Table 3: Population by sanitation access

Column	Hantam Ward 5		Namakwa		Northern Cape	
Flush toilet	51.4%	618	70.8%	24,456	66.3%	207,095
Pit latrine with ventilation (VIP)	33.1%	398	15.2%	5,247	9%	27,988
None	7.1%	85	5.6%	1,940	8.2%	25,586
Bucket latrine	3.5%	42	1.4%	483	3.9%	12,170
Other	5%	60	7%	2,401	12.7%	39,686

Source: Wazimap: 2011 Census

Refuse collection

82.5% of the households in the HM had their waste collected by a service provider, while 13.6% relied on their own waste dump. 74.7% of the households in Ward 5 had their waste collected by a service provider on a regular basis, while 13.7% relied on their own dump. (Table 4). The high number of households that rely on their own waste dump both within the HM and Ward 5 reflects the rural nature of the area and the challenges associated with providing services over large distances.

Table 4: Population by refuse access

Column	Hantam Ward 5		Namakwa		Northern Cape	
Service provider (regularly)	74.7%	2,633	85.4%	98,900	67.4%	771,733
Own dump	13.7%	483	9%	10,418	21.7%	248,965
None	5.6%	196	1.7%	1,943	4.9%	56,171
Communal dump	2%	69	0.5%	556	1.4%	16,213
Other	4%	142	3.5%	4,025	4.6%	52,779

Source: Wazimap: 2011 Census

HEALTH CARE SERVICES

The HM IDP (2021/22) notes the number of health facilities in the municipal area has remained the same in recent years. The IDP indicates that the estimated that a threshold population of about 40 000 can be served by a primary health clinic. Table 5 lists the health care facilities in the municipal area, which include 2 Community Health Centres, 3 Clinics, and a small District Hospital.

Table 5: Health Care Facilities in the HM

Facility	2019
Community Health Centre	2
Clinic	3
District Hospital; Small District Hospital	1
Correctional Centre	2
EMS Station	4
EHS LG Service	1
EHS Prov Service	1
Mobile Service	2
Total (health facilities)	16

ECONOMIC OVERVIEW

The IDP indicates that the HM has a relatively small economy, making up about 12% of 2020 Gross Value Added (GVA) of the NDM, down from 13% in 2016. The primary sector contributed about 22% or R352 million in 2020 and the secondary sector 7.3% or R117 million in 2020. The table below provides a summary by subsector of the municipality's GDP in 5-year increments from 1995.9 Also included are percentage growth rates by subsector for two 5-year increments, i.e. 2010 -2015 and 2015-2020.

Of relevance the IDP notes that between 2015 and 2020 the electricity, gas and water subsector had the highest percentage growth rate of 76% due to the establishment of renewable energy generation facilities in the municipal area.

In summary, the economy in the HM is characterised by the following:

- It is a small-town sub-region with low levels of development despite the strategic location in terms of road and rail transport corridors.
- High rate of unemployment, poverty, and social grant dependence.
- Prone to significant environmental changes/shifts owing to long-term structural changes such as **climate change** — less rainfall, more droughts and an increase in extreme weather events — energy crises and other shifts.
- Geographic similarity in economic sectors, growth factors and settlement patterns.
- Economies of scale not easily achieved owing to the size of towns.

- A diverse road network with trunk, main and divisional roads of varying quality.
- **Potential in renewable energy generation.**
- Largely a tertiary-sector based economy with agriculture as the only other notable subsector activity.

OVERVIEW OF LOCAL STUDY AREA AND LAND USES

The study area settlement pattern remains sparse, with permanent inhabitation limited. No new dwellings have been constructed on the site- or adjacent properties since 2012. Apart from a dwelling on the Loeriesfontein 3 PV site property (Aan die Doorn Pan 213/2), located approximately 1.5 km from the proposed Tx line, all dwellings are located >4 km. The study properties continue to be used for extensive grazing, mainly seasonal (summer) grazing. Very few dedicated permanent employment opportunities are associated with the study properties. Still no tourism receptors are located within any significant proximity to the site.

The only significant changes since 2012 are associated with renewable energy projects. These relate to actual and potential changes in land use (additional), visual changes (turbines and other infrastructure), and increased use of the Granaatboskolk public gravel road (which links the study area properties to Loeriesfontein), especially by heavy vehicle traffic during construction. With the exception of Bitterputs 187/RE located directly to the north of the site, all study properties are associated with operational, proposed, or potential REF projects (Table 6).

Table 6: Overview of site and adjacent properties

OWNER	FARM	USE	COMMENT
Lindveld brothers	Aan die Karee Doorn Pan 213/2	2 x inhabited dwellings; Grazing; Loeriesfontein WEF	Loeriesfontein 3 PV site
	Aan die Karee Doorn Pan 213/2		Loeriesfontein WEF substation – feeds into Helios MTS
Lombard, Mr Gys	Aan die Karee Doorn Pan 213/RE	Grazing; No permanent inhabitation	Kokerboom 3 and 4 WEFs proposed on Lombard properties (2016 ff); Proposed to feed into Helios MTS
	Karee Doorn Pan 214/1		
Strauss, Mr Wynand	Bitterputs 187/RE	Permanent inhabitation; Grazing	No proposed or existing REF or Eskom infrastructure
Rona Rupert Trust	Sous 226/RE	Grazing; No permanent inhabitation; Khobab WEF	Feeds into Helios MTS; Helios MTS is located on 226/1 within 226/RE
Versfeld brothers	Buchu Fontein 184	Permanent inhabitation; Grazing	Property currently investigated for potential WEF (Charles Versfeld, pers. comm)

Two Wind Energy Facilities (WEFs) have been constructed on the site- and adjacent properties, namely Loeriesfontein WEF and Khobab WEF (Photographs 1, 2 and 3). The PV site is located on one (Aan de Doorn Pan 213/2) of the two properties (also Aan de Doorn Pan 213/1) constituting the Loeriesfontein Wind Energy Facility (WEF). The Khobab WEF is located adjacent to the south of the Loeriesfontein WEF on Sous 226/RE. Both WEFs consist of 61 turbines at around 150 m hub height. Both were commissioned in December 2017. Both projects feed into Helios MTS adjacent to the Granaatboskolk Rd south of the site via OHL 132 kV lines. As discussed below, two more REFs are envisaged to be constructed on near-adjacent properties by 2024.



Photograph 1: Loeriesfontein WEF under construction, seen from, the Granaatboskolk gravel road, December 2016.



Photograph 2: Khobab WEF substation under construction, seen from, the Granaatboskolk gravel road, December 2016.



Photograph 3: The Granaatboskolk gravel road seen during the construction of Khobab WEF, December 2016.

OTHER REFS

The project is not located within a Renewable Energy Development Zone. Nevertheless, the DFF&E's renewable energy website indicates that a significant number of REFs have been proposed or are proposed within a 35 km range of the site (Figure 2). Historic proposals are located to the west, south and east of the site, but properties to the north are now also being investigated for potential proposals (not yet indicated on Figure 2).

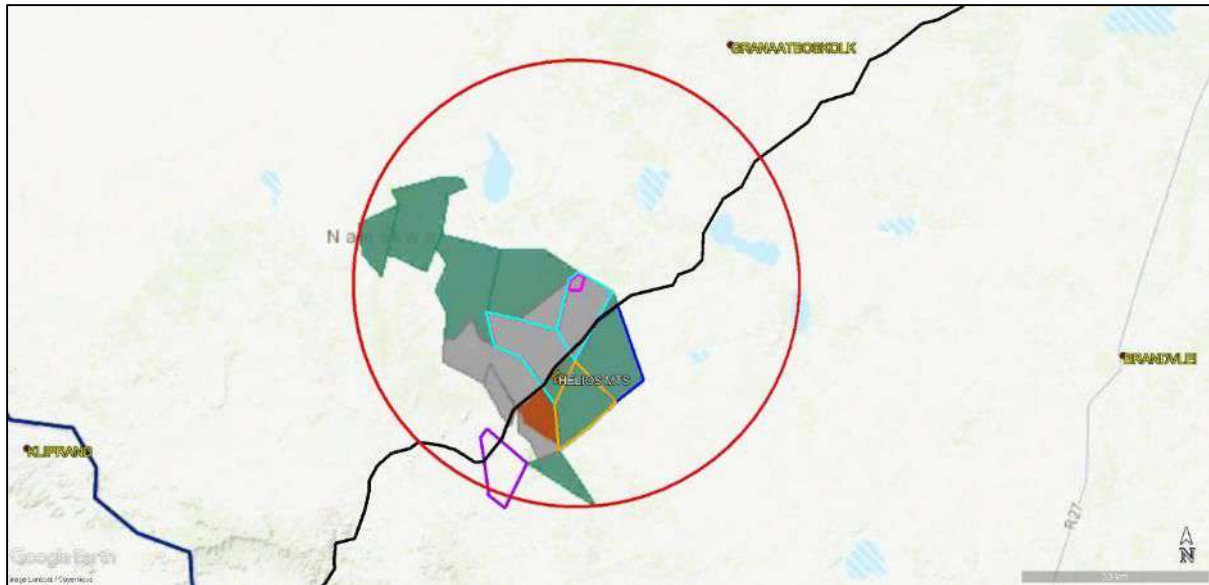


Figure 2: Loeriesfontein 3 PV site (pink outline) in relation to other REFs located within a 35 km radius (red circle) of the centre of the site. Also indicated are the operational Khobab and Loeriesfontein WEFs (light blue outlines), the Solar Capital Orange PV currently under construction (orange), the soon to be constructed Dwarsrug WEF (dark blue), and the currently proposed Lesaka PVs (purple) (Source: https://egis.environment.gov.za/renewable_energy).

As indicated, two operational WEFs are located in significant proximity to the site. In addition, a third WEF is slated for construction in 2023-4, while a PV SEF is currently under construction in the immediate study area. The Dwarsrug WEF adjacent to the north-east of the Loeriesfontein WEF, received preferred bidder status in Round 5, and is envisaged for construction by April 2024. South-East of the Loeriesfontein WEF, construction has recently commenced on Solar Capital's Orange (= Hantam 3 = Loeriesfontein Project 3) PV project on Narossies 228, ~ 8 km east of Helios MTS.