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# Appendix D9: Social Impact Assessment





**HCVAfrica**

HIGH CONSERVATION VALUE

**SOCIAL IMPACT ASSESSMENT**

**FOR THE PROPOSED BOTTERBLOM WIND ENERGY FACILITY**

**NOVEMBER 2021**



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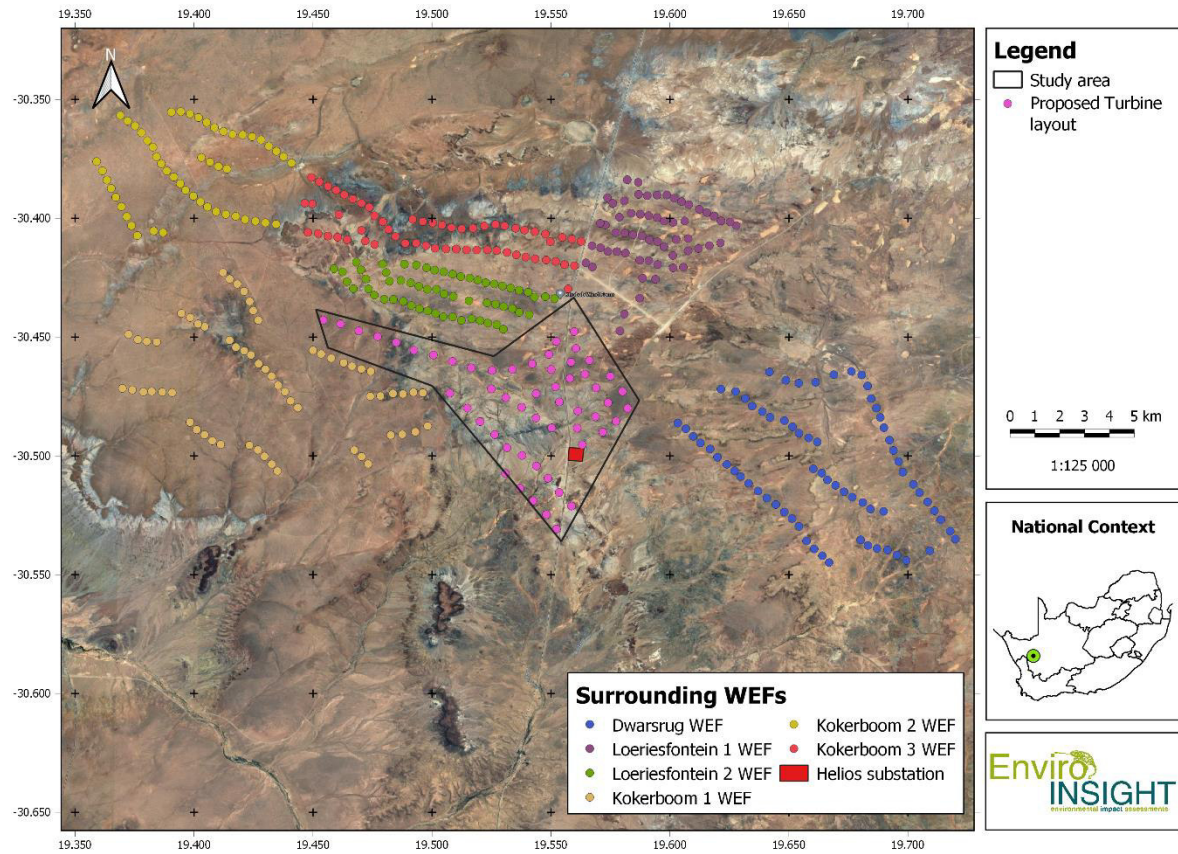


Figure 2: –Wind Farms surrounding the Project Area. Map provided by Enviro-Insight. .... 4



## LIST OF ACRONYMS

Acronym	Meaning
BA	Basic Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FEIAR	Final Environmental Impact Assessment Report
GVA	Gross Value Added
HLM	Hantam Local Municipality
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IPPs	Independent Power Producers
km	kilometres
MTS	Helios Main Transmission Substation
MW	Megawatt
NDM	Namaqua District Municipality
NDP	National Development Plan
NEMA	National Environmental Management Act
REIPPPP	Renewable Energy Independent Power Producer Programme
SIA	Social Impact Assessment
SKA	Square Kilometre Array
STD	Sexually Transmitted Disease
ToR	Terms of Reference
WEF	Wind Energy Facility



## 1. INTRODUCTION

Enviro-Insight have appointed Steve Horak of HCV Africa to undertake a Social Impact Assessment (SIA) for the proposed Botterblom Wind Energy Facility (WEF) and associated infrastructure on the remainder extent of the farm Sous 226, near Loeriesfontein in the Northern Cape province of South Africa. This report provides the Social Impact Assessment for the Environmental Impact Assessment (EIA) which will be submitted to the Department of Forestry, Fisheries and the Environment (DFFE) for approval.

## 2. PROJECT DESCRIPTION

FE Botterblom (Pty) Ltd (hereafter referred to as the Applicant) is proposing the development of a WEF and associated infrastructure on a site located approximately 53 kilometres (km) north of Loeriesfontein in the Northern Cape province of South Africa. The proposed development, to be known as Botterblom WEF, will generate electricity which will feed into the National Grid. Enviro-Insight CC (hereafter Enviro-Insight) has been appointed to undertake the requisite environmental impact assessment (EIA) process for the WEF as required in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended on behalf of the Applicant.

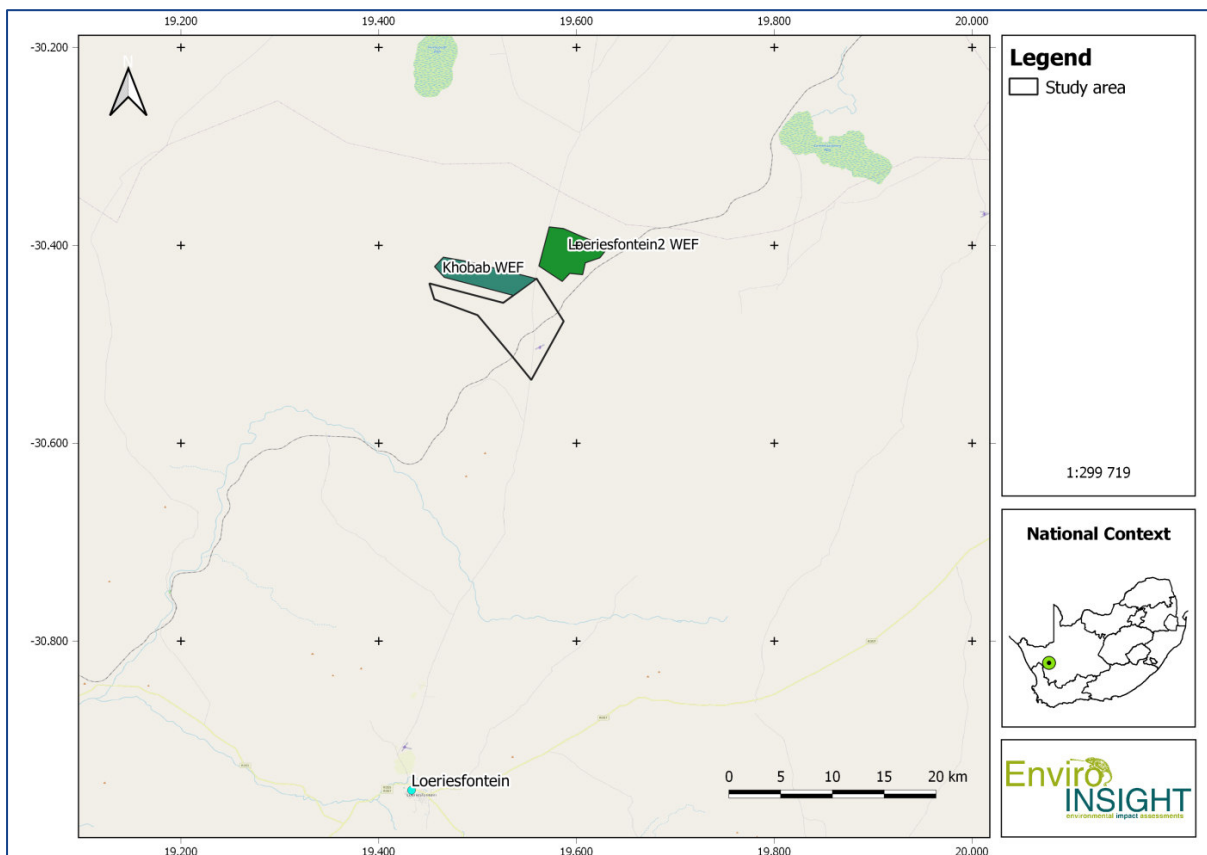


Figure 1: - Locality map of the proposed Botterblom WEF.



The proposed study area for the WEF development is located approximately 53 km north of Loeriesfontein, 87 km west of Brandvlei and 146 km south of Pofadder in the Northern Cape. The site can be reached via the gravel road Granaatboskolk / Zout Dwaggas Road, which branches off the R357. The Botterblom WEF footprint is approximately 5 736 hectares (ha) and will be located on a Portion of the Remainder of the Farm Sous 226 (Figure 1). The existing Khobab WEF is located directly north while Loeriesfontein 2 WEF is located north-east of the study area.

The proposed Botterblom WEF will consist of up to 35 wind turbines, with a generation capacity of between 4.5 and 7.5 MW per turbine, depending on the available technology at the time. Each turbine will have a hub height of up to 150m and a rotor diameter of up to 175m. The final turbine model to be utilised will only be determined closer to the time of construction, depending on the technology available at the time

This assessment has considered a range of possible turbine dimensions from a lower tip height of 62.5 m up to a maximum tip height of 237.5 m. Additional ancillary infrastructure to the WEF would include:

- Cabling between turbines and project, to be laid underground where practical between project components,
- Onsite substation/s of 100mX100m (33/132kV) to facilitate the connection between the WEF and Helios substation,
- Battery Energy Storage Systems (BESS),
- Foundations to support turbine towers,
- Internal/ access roads (up to 10 m in width) linking the wind turbines and other infrastructure on the site,
- Permanent workshop area and office for control, maintenance and storage, and
- Temporary laydown areas during the construction phase (which will be rehabilitated).

As far as possible, existing roads will be utilised and upgraded (where necessary) with the relevant stormwater infrastructure and gates constructed as required. The perimeter of the proposed WEF may be enclosed with suitable fencing. A formal laydown area for the construction period containing a temporary maintenance and storage building along with a guard cabin will also be established.

Additionally, a power line with a capacity of up to 132kV is required. At this stage, options are still being considered for either the construction of a new line to feed into the Helios substation or connect with existing lines. This associated electrical infrastructure will require a separate Environmental Authorisation and is being conducted as a part of a separate Basic Assessment (BA) process. More details will be provided in the EIA report.

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### 3. APPROACH

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A Social Impact Assessment (SIA) is undertaken to determine the impacts of a proposed project on the social environment and to assist the applicant and the authorising authority to make informed decisions regarding the development of the project. It is anticipated that the project will have impacts both positive and negative on the local population and economy of the area and further impacts on the district, province and nationally. These impacts were discussed in brief for the scoping report and in detail in this final SIA.



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## 4. LIMITATIONS AND ASSUMPTIONS

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Demographic and population statistics are taken from the Statistics South Africa (Stats SA 2011) census and 2017 Community Survey. Data is not captured at local level in the stats SA 2017 Community Survey, thus information for Loeriesfontein is old as it is dated 2011, however the information can still be used to infer trends and provide general information for the local place. Data analysis at the local municipal level exists for the 2011 census and 2017 Community survey, thus most of the interpretation and analysis is given at the local municipality level.

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## 5. METHODOLOGY

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For the Social Impact Assessment study a review of the following documents was made:

- National, provincial and local planning documents;
- 2011 Census data and 2017 Community Survey data;
- Municipal planning documents: Hantam Local Municipality (HLM) Integrated Development Plan (IDP), Namakwa District Municipality (NDM) IDP;
- Spatial Development Framework for the Northern Cape;
- Renewable energy policy documents; and
- Review of EIA documents for similar wind farm projects in the local area including the following projects (Figure 2):
  - Khobab Wind Farm – operational
  - Loeriesfontein 2 Wind Farm – operational
  - Kokerboom 1 Wind Farm – environmental authorisation approved.
  - Kokerboom 2 Wind Farm – environmental authorisation approved.
  - Kokerboom 3 Wind Farm – environmental authorisation approved.
  - Dwarsrug Wind Farm – environmental authorisation approved.

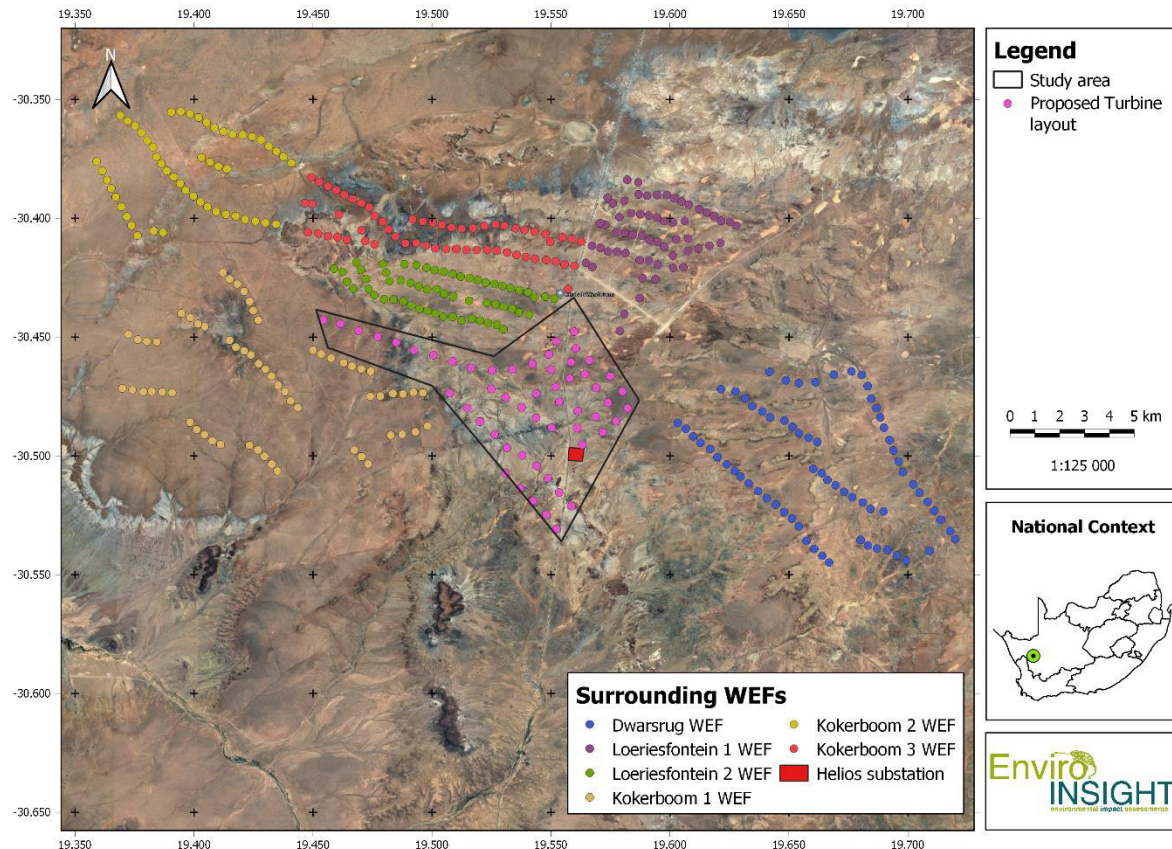


Figure 2: –Wind Farms surrounding the Project Area. Map provided by Enviro-Insight.

### 5.1. Specialist details

Stephen Horak has been working in the social sciences since 1998 (23 years), in the mining, oil and gas, renewable energy and agricultural sectors. Expertise includes public participation, social baseline studies, social impact assessment, development of mitigation measures, social management plans, community and stakeholder engagement, resettlement action plans, grievance mechanisms, high conservation value assessments and livelihood restoration plans. Stephen has experience both locally (more than 50 projects), in South Africa in compliance with South African legislative requirements, and internationally (20 projects), working in compliance with International Finance Corporation social performance standards. He has worked in 13 African countries including Angola, Botswana, Cameroon, Democratic Republic of Congo, Ivory Coast, Mali, Malawi, Mozambique, Nigeria, São Tome, Sierra Leone, South Africa and Tanzania.

Stephen’s work experience is supported by a Masters Degree in Environment and Society University of Pretoria, an Honours Degree in Development Studies UNISA, a BA Degree in Anthropology University of Pretoria.



5.1.1. Declaration of independence



**environmental affairs**

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

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

File Reference Number:  
NEAS Reference Number:  
Date Received:

(For official use only)
DEA/EIA/

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

**PROJECT TITLE**

Botterblom Wind Energy Facility
---------------------------------

**Kindly note the following:**

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2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
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## 1 SPECIALIST INFORMATION

Specialist Company Name:	Wat se Horak Pty Ltd Trading as HCV Africa			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	1	Percentage	
			Procurement recognition	
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Specialist Qualifications:	MA Environment and Society (University of Pretoria)			
Professional affiliation/registration:	None			
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Telephone:	082 3314 993	Fax:		
E-mail:	<a href="mailto:steve@hcvafrika.com">steve@hcvafrika.com</a>			

## 2. DECLARATION BY THE SPECIALIST

I, Stephen George Horak, 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

Wat se Horak trading as HCV Africa

---

Name of Company:

29 October 2021

---

Date

**3. UNDERTAKING UNDER OATH/ AFFIRMATION**

I, \_\_\_\_\_ Stephen George Horak \_\_\_\_\_, 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

Wat se Horak trading as "HCV Africa"

---

Name of Company

29 October 2021

---

Date

---

Signature of the Commissioner of Oaths



---

Date



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## 6. POLICY FRAMEWORK

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The development of any renewable energy project, in this case wind energy, needs to be guided by policy frameworks at the national, provincial and local levels.

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### 6.1. National policies and development plans

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National policies and development plans provide the policy framework within which the WEF will operate.

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#### 6.1.1. National Energy Act (Act No. 34 of 2008)

The Act aims to strengthen energy planning in Electricity Regulation Act (Act No. 4 of 2006), Second Amendment (2011). The Act gives power to the Minister of Energy to determine new generation capacity and to approve the generation and procurement of electricity. A licence for generation capacity is subject to ministerial approval. This establishes an enabling environment for independent power producers (IPPs) to enter the market, through the bid programme and provides rules, guidelines as well as the procurement of new generation capacity. An amendment to the Electricity Regulations on new generation capacity was made in 2015, this amendment provides for renewable energy power generation including wind generation.

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#### 6.1.2. National Development Plan (NDP)

The NDP was developed in 2010 and states that there is a need to develop the green economy. The plan sets the goal for moving away from fossil fuel coal-based energy production to renewables. A key focus of the NDP is the country's ability to return to a state of continued and uninterrupted electricity supply. This was to be achieved by increasing the electricity generation reserve margin from 1% (2014) to 19% in 2019, which would require the development of 10GW of additional electricity capacity by 2019 against the 2010 baseline of 44GW. Five of the 10 GW were to be sourced from renewable energy sources, with an additional 2GW to be operational by 2020.

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#### 6.1.3. New Growth Path Framework

The New Growth Path framework sets out the framework for economic policy and the drivers for creating jobs in the South African economy. The NGP targeted 5 million new jobs by 2020. It also aimed for 300,000 additional direct jobs by 2020 to green the economy. The framework identifies investments in five key areas namely: energy, transport, communication, water and housing. Sustaining high levels of public investment in these areas will create jobs in construction, operation and maintenance of infrastructure. The New Growth Path 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 will include expansions in construction and the production of technologies for solar, wind and biofuels as supported by the draft Energy on Integrated Resource Plan. There is potential for renewable energy generation to provide for some of these 300 000 jobs and to provide green power to the economy to generate additional jobs (State of Renewable energy in South Africa, 2015).



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#### 6.1.4. Industrial Policy Action Plan (IPAP)

The IPAP is driven by the Department of Trade and Industry. The IPAP is an annually updated, three-year rolling plan for industrial policy implementation; since 2011 it has specifically identified the energy sector (solar and wind energy); as a priority for the country's industrial sector in (2014). In its review report the following was reported in terms of progress made in the green economy specifically reporting on the Renewable Energy Independent Power Producer Programme (REIPPP), a programme stating that this has proved to be an extraordinarily successful green economy project, attracting investment to the value of R201.8 billion, contributing 3,162 MW of electricity generation capacity and mandating South African entity participation of 40% (Industrial Policy Action Plan 2018/19-2020/21).

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#### 6.1.5. Renewable Energy Independent Power Producer Programme (REIPPP)

In 2010, the South African government developed the REIPPP to contract with private power producers to supply energy to the national grid. This was done to enhance electricity supply at a time of shortages, to encourage generation from renewable sources and to provide a stimulus for manufacturing through the procurement of capital goods for the new plants. Many of the major inputs for renewable generation are designated for local procurement. The proposed Botterblom WEF is to be an Independent Power Producer (IPP).

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#### 6.1.6. Integrated Resource Plan (IRP) 2019

The Integrated Resource Plan (IRP) is an electricity infrastructure development plan based on least-cost electricity supply and demand balance, considering security of supply and the environment namely to minimize negative emissions and water usage. The first plan was promulgated in March 2011, the plan is a living plan and was last updated in 2019.

The 2019 report indicates that a total 6 422 MW under the REIPPP has been procured, with 3 876 MW operational and made available to the grid. Current base from wind is 1 980 MW in 2018, by 2030 this will be 17 742 MW which is the highest of all renewable energy sources. The next closest is PV Solar 8 288 but coal will still dominate in 2030 with 333 64 MW (See Table 1).



Table 1 - Draft IRP 2019.

	Coal	Coal (Decommissioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)
Current Base	37 149		1 860	2 100	2 912	1 474	1 980	300	3 830	499
2019	2 155	-2 373					244	300		Allocation to the extent of the short term capacity and energy gap.
2020	1 433	-327				114	300			
2021	1 433	-1 603				300	818			
2022	711	-844			513	400	1 000	1 600		
2023	750	-558				1 000	1 600		500	
2024			1 860				1 600	1 000	500	
2025						1 000	1 600		500	
2026		-3 210					1 600		500	
2027	750	-847					1 600	2 000	500	
2028		-475				1 000	1 600		500	
2029		-1 698			1 575	1 000	1 600		500	
2030		-1 030		2 500		1 000	1 600		500	
TOTAL INSTALLED CAPACITY by 2030 (MW)	33364		1860	4600	5000	8288	17742	600	6380	
% Total Installed Capacity (% of MW)	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1	
% Annual Energy Contribution (% of MWh)	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3	

- Installed Capacity
- Committed / Already Contracted Capacity
- Capacity Decommissioned
- New Additional Capacity
- Extension of Koeberg Plant Design Life
- Includes Distributed Generation Capacity for own use

However, the 2019 report also states that build limits on renewables (wind and solar) will remain in place until the next review, however imposing annual build limits on renewables for the period up to 2030 does not affect the capacity from wind or solar PV in any significant way.

## 6.2. Provincial policies

### 6.2.1. Northern Cape Provincial Growth and Development Strategy

The Northern Cape Provincial Growth and Development Strategy was developed in 2008 and sets out the development strategy for the Northern Cape. The strategy indicates that there are opportunities to develop the RE sector, but this should not be at the expense of the natural beauty resources of the Northern Cape which are a tourist attraction.

### 6.2.2. Northern Cape Spatial Development Framework, 2018

The interior parts of the Province and the Namaqualand coast have been identified as having potential for renewable energy production and targets have been put in place for 25% of the provinces' energy generation capacity to be acquired from renewable energy projects such as wind, solar, thermal, biomass and hydroelectricity by the year 2020.



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### 6.3. Local policies

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#### 6.3.1. Northern Cape Municipal Local Economic Development Framework

The framework indicates that there are opportunities to further develop the renewable energy sector and that the Northern Cape and municipalities should accommodate this growth.

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#### 6.3.2. Hantam Local Economic Development Strategy, 2011

The strategy identifies renewable energy including wind energy as an opportunity for development of the economy of Hantam both in terms of the development of wind energy facilities and the related jobs these will create.

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#### 6.3.3. Namakwa District municipality Integrated Development Plan (IDP)

The 2020/2021 IDP indicates that it aligns with the 17 United Nations development goals, ranging from alleviating poverty and reducing inequality through job creation and economic growth, as well as ensuring access to affordable, reliable, sustainable and modern energy for all. The IDP states that local economic development will include the construction of renewable energy projects in the area.

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#### 6.3.4. Hantam Local Municipality Integrated Development Plan (IDP) 2020/2021

The IDP indicates that the Square Kilometre Array (SKA) megaproject and renewable energy generation are large-scale private sector driven projects which should further develop the economy of the municipality. In terms of the district Spatial Development Framework (SDF) the promotion of renewable energy projects is provided as an objective of the SDF.

In summary the proposed Botterblom WEF is in congruence with national provincial and local policies and frameworks and is supported by policy.

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## 7. DESCRIPTION OF THE BASLINE SOCIAL AND ECONOMIC ENVIRONMENT

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The following section describes the baseline socio-economic environment in which the project is to be established. The potential impacts of the project are briefly assessed against this baseline and will be assessed in more detail in the SIA undertaken for the EIR.

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### 7.1. Administrative Context

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The proposed WEF is situated approximately 53 km north of the town of Loeriesfontein which is the closest town and falls within the Hantam Local Municipality in the Namakwa District of the Northern Cape province in the Republic of South Africa. Loeriesfontein is approximately 460 km from Cape Town, 160 km from Springbok and 370 km from Upington (Google Maps, 2021). The HLM is bordered in the South and South-West by The Western Cape Province (Municipalities, 2021).



## 7.2. History of Loeriesfontein

Loeriesfontein is a small rural service centre town that lies within a basin surrounded by the Hantam mountains and is situated to the north-west of the town of Calvinia. The town grew around a general store established in 1894 by a travelling Bible salesman, named Fredrick Turner, the son of the sister of the theologian Charles Spurgeon. Fredrick Turner came from Norwich, England. The general store still exists. It is currently owned by Victor Haupt, the grandson of Fredrick Turner. The shop is currently called Turner & Haupt SPAR and has been in the family for 113 years (Wikipedia, 2021).

## 7.3. Census and community survey information at glance

Table 2 presents information for Loeriesfontein, the HLM and the NDM over the period of the 2011 census and the 2016 community survey. As indicated in limitations the 2016 community survey does not collect data at the local level so the information for Loeriesfontein is only presented for the period 2011. The information presented here is discussed in more detail in the sections to follow.

*Table 2 Information in brief*

Characteristics	Loeriesfontein	HLM	HLM	NDM
	Census 2011	Census 2011	Community Survey 2016	Community Survey 2016
Total population	2744	21 684	21 540	115 488
Young (0-14)	26%	27.4%	24.2%	22.5%
Working Age (15-64)	64,2%	64.3%	66.9%	68.0%
Elderly (65+)	9.7%			9.5%
Dependency ratio Per 100 (15-64)	55.7	55.5	49.6	47.1
Sex ratio: Males per 100 females	98	100.4	101.9	101.5
Education				
No schooling aged 20+	16.8%	13.9%	9.9%	4.4%
Higher education aged 20+	7.1%	7.7%	8.0%	8.0%
Matric aged 20+	17.1%	18.2%	24.7%	24.2%
Households				
Number of households	807	6 392	6 894	37 669
Average household size	3,2	3.2	3.1	3.1
Female headed households	57.7%	33.4%	34.1%	37.6%
Housing				
Formal dwellings	96.3%	96.9%	94.8%	95.2%
Housing owned/paying off	69.5%	53.8%	67.6%	72.6%
Services				
Flush toilet connected to sewerage	4.2%	53.4%	78.3%	67.9%
Weekly refuse removal	96.9%	72.0%	76.2%	81.7%
Piped water inside dwelling	51.3%	59.8%	65.7%	70.5%





Electricity for lighting	92.3%	76.3%	80.9%	88.4%
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Sources: 2011 Census, 2016 Community Survey

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## 7.4. Demographics

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### 7.4.1. Population

Based on census data 2011, the population of Loeriesfontein is estimated at 2 744 people distributed over 34.5 km<sup>2</sup> which translates to a population density 80 persons/km<sup>2</sup>. This is considerably denser than the population density of the Northern Cape at 3 persons/km<sup>2</sup>.

The population of Loeriesfontein is young - 26% are between 0-14 years, 64.2% are of working age and 9.7% are elderly giving a dependency ratio of 55.7. Dependency ratio indicates the proportion of the population not in the workforce who are 'dependent' on those of working-age, it is a calculation which groups those aged under 15 with those over 65 years as the dependants and classifying those aged 15-64 years as the working-age population. A ratio of 55.7 is significantly higher than the district ratio of 47.1 indicating that there is high dependency on those of working age in Loeriesfontein.

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### 7.4.2. Ethnicity and Language

Of the 2,744 households in Loeriesfontein, 86% are Coloured followed by White (11%), Black African (2.0%) and Indian/Asian (0.1%). 98 % of the people living in Loeriesfontein speak Afrikaans as a first language.

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### 7.4.3. Culture

As reflected in the demographical profile above, 86% of the people living in Loeriesfontein are identified as Coloured people. The term Coloured (also known as Bruinmense, Kleurlinge or Bruin Afrikaners) refers to the ethnic group of mixed race people in South Africa who possess some sub-Saharan African ancestry, but not enough to be considered Black African. Apart from ancestry in sub-Saharan Africa, coloureds also have substantial ancestry from Europe, Indonesia, Madagascar, Malaya, Mozambique, Mauritius, St Helena and Southern Africa. Genetic history studies suggest that this group has the highest levels of mixed ancestry in the world.

Coloured people generally observe two main religions, namely Christianity and Islam, however in the Northern Cape most coloured people follow the Christian religion as reported in the 2016 Stats SA community survey. Only 0.7% of people in the Northern Cape follow the Muslim faith and 95% of Coloured people self-reported as being Christian. In the Western Cape 5.6% of people follow the Muslim faith. These faiths usually result in a conservative outlook on life, people are generally family orientated and community is important.

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### 7.4.4. Vulnerable Households

According to the Hantam IDP there are 2 978 indigent households in the local municipality, this refers to households earning a combined income of less than R3 200 per month. Another measure of vulnerability is female-headed households in the HLM, 57.7% of households are headed by woman, this is considerably higher than in the NDM of 37.6%. The sex ratio is also higher for woman in



Loeriesfontein at 102 women per 100 men, but this is not significant. Reported persons living with disabilities in the community survey 2016 is 9.8% which is lower than the provincial average of 10.7%.

Loeriesfontein also has a Soup Kitchen project which was established in 2007. This project is funded by the Department of Social Development. The project currently provides soup to 80 people daily with a nutritional meal and 130 households are supported monthly. The presence of soup kitchens is an indication of poverty in communities.

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#### 7.4.5. Housing

96.3% of people living in Loeriesfontein live in formal housing and a high percentage of people own their homes (69.5%) indicating a stable population. This is also higher than the district with 53.8% of people owning their houses in 2011. The average household size is 3,2 which is similar for the HLM and the NDM.

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#### 7.4.6. Crime

Table 3 shows the crime statistics for 2018 in comparison with crimes committed in 2017 for the HLM.

*Table 3 Crime stats*

Nature of Crimes	Hantam Local Municipality	Namaqua District Municipality
Serious crimes	994: was 964 in 2017	4983: was 5264 in 2017
Driving under the influence	19: was 15 in 2017	98: was 88 in 2017
Drug-related crime	331: was 328 in 2017	1355: was 1224 in 2017
Murders	7: was 5 in 2017	24: was 28 in 2017
Sexual offences	22: was 15 in 2017	133: was 163 in 2017

Overall, the crime rates have increased between 2017 and 2018 and drug related crimes are particularly high for the district.

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### 7.5. Services

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#### 7.5.1. Education

Loeriesfontein has a high percentage of people aged 20+ who have no schooling (16.8%) which is much higher than the NDM at 4.4%. Only 7.1% of people have a higher education aged 20+ and 17.1% have Matric at aged 20+. In terms of school facilities there is both a government primary school and a high school. There is also a private school which runs from grade R to grade 12.

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#### 7.5.2. Waste management

96.9 % of households in Loeriesfontein have weekly waste collection, the highest in the district and the town also has its own landfill site.



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### 7.5.3. Electricity

92.3% of households in Loeriesfontein have electricity for lighting, this is higher than for the district of 76.3 % of households in 2011.

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### 7.5.4. Health

Loeriesfontein has a clinic and hospital, the nearest large hospital is situated at Calvinia.

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### 7.5.5. Safety and security

Loeriesfontein has its own police station. The station commander indicated that the biggest crime problems are related to drugs and alcohol abuse.

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### 7.5.6. Transport infrastructure

Using the R55 gravel road, the distance between Calvinia and Loeriesfontein is 86 km, whilst travelling from Calvinia to Brandvlei requires the utilisation of the R27 tar surface road for a journey of approximately 2.5 hours. There is also a train station in Loeriesfontein.

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### 7.5.7. Social and Recreational Infrastructure

The Hantam LM has the following social and recreational infrastructure available:

- Three libraries in Calvinia, Loeriesfontein and Nieuwoudtville;
- Seven sport facilities in Calvinia and Loeriesfontein; and
- Nine religious centres in Loeriesfontein.

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### 7.5.8. Nature reserves

The Akkerendam Nature Reserve is situated next to Calvinia and is a popular recreation facility for residents. The reserve has hiking trails in the Hantam Mountains with routes of varying difficulty. The municipality and the DFFE are in talks regarding the management and further development of this nature reserve. The project is currently unfunded in the NDM IDP. Nieuwoudtville has a flower bulb reserve managed by the Municipality that is very popular during the peak flower season. There is also a waterfall on the road between Nieuwoudtville and Loeriesfontein which can be considered a tourist attraction (NDM IDP, 2020/2021).

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## 7.6. Economy

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### 7.6.1. Provincial economy

According to StatsSA (March 2019) the provincial economy grew at 2.84% (2017), an improvement from -1.24% experienced in 2016. Noteworthy, is the fact that the provincial growth of 2.8% in 2017, was above South African GDP growth average of 1.4% for the same period. The GDP of the Province is R 96 billion, of which the mining sector contributes an estimated R19 billion, agriculture contributes



R6.8 billion while construction provides R2.6 billion (NDM IDP, 2020-2021). It is of interest that power generation is not reported despite several largescale renewable energy projects in the Northern Cape.

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### 7.6.2. Hantam Local Municipality Economy

The Hantam Municipality is a relatively small economy, making up about 13% of 2017 Gross Value Added (GVA) in the Namakwa district – up from 12% in 2016. These contributions in growth are negligible proportions (for both years at 1.6%) of the provincial economy and are like the respective contributions in 2011.

The percentage share contribution by the tertiary sector in 2017 to the total GVA generated in the Hantam municipal area is about 69% or R1012 million compared to 70% or R928 million in 2016. The primary sector contributed 23.5% or R344 million and the secondary sector 7.5% or R111 million in 2017 – increased contributions from the year before.

Between 2000 and 2015, every economic sector in the municipal area grew positively in terms of GVA contribution but manufacturing showed negative growth in recent years. Note that the subsectors do not have high levels of volatility that are typical for, specifically the primary sector.

The table below provides a summary by subsector of the municipality's GDP in 5-year increments from 1995. Included are figures for 2016 and 2017, as well as growth rates between 2016 and 2017. (Hantam IDP, 2020/2021).



Table 4 GDP of the municipality - Hantam IDP (2020/2021).

Industry	1995	2000	2005	2010	2015	% change (2000 to 2015)	2016	2017	% change (2016 to 2017)
<b>Primary Sector</b>	64	34	114	201	261	-	290	344	-
Agriculture, forestry and fishing	32	62	110	193	250	306%	278	332	19.2%
Mining (and quarrying)	3	2	4	8	11	372%	11	12	1.8%
<b>Secondary Sector</b>	12	15	22	60	102	-	110	111	-
Manufacturing	4	4	8	14	24	448%	27	25	
Electricity, gas and water	3	3	4	15	34	937%	38.3	38.5	0.4%
Construction	6	7	10	31	44	538%	45	47	5.5%
<b>Tertiary sector</b>	123	207	332	553	875	-	928	1012	-
Wholesale and retail trade, catering and accommodation	34	53	77	131	170	223%	181	189	5.0%
Transport, storage and communication	19	25	52	91	190	651%	202	215	6.4%
Finance, insurance, real estate and business services	19	33	55	100	141	330%	141	157	11.5%
General government	28	55	80	171	279	411%	304	341	12.0%

Electricity, gas and water in the secondary sector of the local economy grew by 937% between 2000 and 2015 and at 0.4 % during 2015 and 2016, making this the largest growing sector in the municipality and showing the most growth. However, the Agricultural Primary sector showed the most growth between 2015 and 2016 at 19.2 % (Hantam IDP, 2020/2021).

The significant increase in the subsector contribution of 'electricity, gas and water' since 2010, is due to the establishment of renewable energy generation facilities in the municipal area. Note that the contribution in this subsector as well as the 'transport' subsector, more than doubled between 2010 and 2015 while the contribution in the 'construction' subsector increased substantially between 2015 and 2017, i.e. as an economic activity with strong linkages to the establishment of the renewable energy generation facilities and the Square Kilometre Array (SKA) megaproject. It is reported that SKA has created more than 1000 jobs through infrastructure upgrades and construction on and around the SKA SA site 8. Between 2015 and 2017 the 'general government' sector has also shown high growth. The municipality also recognises that the renewable energy sector will continue to make a positive contribution to the economy going forward (Hantam IDP, 2020/2021).



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### 7.6.3. Loeriesfontein economy

The Loeriesfontein economy is still dominated by the agriculture sector and general trade, the hospitality sector has also benefited from accommodating workers during the construction of the two existing WEFs in the area. Although the mining industry currently has a low contribution to the economy, 80% of the world's gypsum reserves lie just outside Loeriesfontein town, thus an opportunity exists for salt and gypsum mining in the region.

#### 7.6.3.1. Tourism in Loeriesfontein

The most significant tourist attraction is the floral display which happens from August to September when wildflowers bloom in the veld surrounding the town. The town also boasts a windmill museum which is reported to be the second largest in the world. The Quiver Tree Forest located on Gannabos outside of Loeriesfontein is the largest and southernmost colony for this member of the aloe family. Gannabos also offers a B&B, cottage and farmhouse for those wanting to stay a little longer. This is a coveted location for photographers and botanists, and a favourite stop-off for visitors from all over the world who annually visit this region to experience its legendary spring flower extravaganza.

#### 7.6.3.2. Wind Energy Facilities in the area

The Northern Cape has the highest volume of renewable energy utility power plants in the country. Loeriesfontein WEF and the Khobab WEF commenced their 20-year commercial operations in December 2017. With a generation capacity of 140 megawatts each, these two neighbouring WEF combined make up the largest single expanse of wind turbines in the country. Together they comprise a total of 122 wind turbine generators, spanning 6 653 hectares. Collectively the wind farms will power approximately 240 000 South African households, positively impacting the country's economy and its people. The WEFs have a combined value of approximately ZAR 7 billion and are owned by a consortium led by Lekela Power. The majority of the 99 m turbine towers were locally manufactured at the Gestamp Wind Turbine Tower Factory in the Western Cape (Khobabwind, 2021).

#### 7.6.3.3. The projects contribution to the local economy

The project will contribute to sustainable community growth through financial and non-financial community development initiatives. This will be done by giving back a percentage of total revenue earned to the community; through Socio-Economic Development (SED) and Enterprise Development (ED). This is a requirement for all wind farms.

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### 7.6.4. Local farm economy

The area is mostly suitable for sheep farming and the farms do not offer many jobs since sheep farming is not labour intensive. At the same time agriculture makes a significant contribution to the economy and Loeriesfontein is classified as a rural service centre serving the surrounding farms.

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### 7.6.5. Employment

Employment and unemployment rates are important as these give an indicator of socio-economic well-being, as employment is how most households generate income to supply their basic needs.



Hantam and Loeriesfontein have the lowest unemployment rates. The data is for 2011 and this situation may look vastly different after the construction of the WEFs have taken place since 2017 in the area, the rates may be even lower.

In the Hantam municipal area, 5 165 (or 38.2%) of the working age population was formally employed in 2017, compared to 5224 (or 39.3%) in 2016 and 5 614 (or 37.4%) in 2001, i.e. a relative improvement in overall formal employment since 2001 but this figure has worsened in recent years. These figures also represent a declining trend if measured in number of persons employed. The number of unemployed persons (802) in the municipal area in 2017 was more or less the same as in 2016 (746) and in 2001 (779). These trends must be seen in the light of the general depopulation of the municipality, i.e. a smaller working age population and the high percentage of persons not economically active (Hantam, IDP).

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## 8. SOCIAL IMPACTS ASSESSMENT

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### 8.1. Socio-economic impact assessment scope of work

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The aim of the socio-economic impact assessment (SIA) is to provide an accurate representation of the social, cultural and economic conditions of the people surrounding the proposed project, to assess the impact on these conditions and provide mitigation measures for any identified impacts.

Following the approval of the Terms of Reference (ToR), fieldwork was undertaken to collect socio-economic data on affected communities. This study employed a predominantly qualitative approach (i.e. interviews and focus group discussions) to gather data.

Data collection will be done by the following means:

Interviews were undertaken for those affected by the proposed project to develop a social profile. The following variables will be considered during the design of the interview framework:

- Access to services;
- Agricultural practices and land use;
- Livelihoods; and
- Perceptions and attitudes towards the proposed Botterblom WEF.

The identification of potential impacts is made based on the desktop information gathered and the review of documentation including EIAs for similar projects in the area, and from experience gained from undertaking similar assessments. Information gathered from engagements with key stakeholders during a site visit which was undertaken of the study area from the 25<sup>th</sup> to 28<sup>th</sup> of October 2021.

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## 8.2. Methodology

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### 8.2.1. Stakeholder Engagement

The following key stakeholders were engaged.

Hantam Local Municipality:



- Mr JI Swartz Municipal Manager
- Mr Garth Mathys (IDP Manager)
- Mr JR van Wyk (Senior Manager Technical and Community Services)

Farm owner:

- Francois van der Merwe Re of Farm Sous 226

Neighbouring farmers:

- Mr Josias van der Westhuizen (Kleine Rooiberg, RE/227)
- Ms Tant Johanna van der Westhuizen (Kleine Rooiberg, RE/227)
- Mr Jos and Ms Suné Mol (Narosies 228)
- Mr Gert Johannes Lombard (Re of Aan de Karree Doorn Pan 213 and Portion 1 of Karee Doorn Pan 214)
- Mr Braam Lintvelt (1,2,3 of Aan de Karree Doorn Pan 213)
- Ms Maryna Nel (RE of Brakpan 212)

The Loeriesfontein farmers union:

- Mr Callie van Zyl Vice Chairperson
- Mr Wilhelm Schrader union member and renting farm Narosies 228

Ward 5 (Loeriesfontein) ward councillor and the incumbent ANC ward councillor:

- Mr Jacques Klaaste and Mr Petrus van Zyl.

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### 8.3. Impact Assessment methodology

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In terms of section 3(j) in Appendix 1 of the 2014 EIA Regulations as amended, the assessment of possible impacts should consider the following:

- Cumulative impacts;
- 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 the impact and risk can be reversed;
- The degree to which the impact and risk may cause irreplaceable loss of resources; and
- The degree to which the impact and risk can be avoided, managed or mitigated.

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#### 8.3.1. Impact rating methodology

The significance (quantification) of potential environmental impacts identified during the impact assessment phase, including the identified impacts during the specialist investigations were determined using a ranking scale (





Table 5).



Table 5 Impact assessment ratings

Probability of occurrence	
<b>Improbable</b>	where the likelihood of the impact is very low
<b>Probable</b>	where there is a distinct possibility of the impact to occur
<b>Highly probable</b>	where it is very likely that the impact will occur
<b>Definite</b>	where the impact will occur regardless any management measures
Consequence of occurrence in terms of:	
<b>Nature of the impact</b>	what is specifically impacted on
<b>Extent of the impact</b>	either local, regional, national or across international borders
<b>Duration of the impact</b>	either short term (0-5 years), medium term (6-15 years) or long term (the impact will cease after the operational life of the activity), or permanent, where mitigation measures by natural processes or human intervention will not occur
<b>Intensity of the impact</b>	either being low, medium or high effect on the natural, cultural and social function and processes
<b>The significance level of the risk posed by the proposed development, which is determined through a synthesis of the probability of occurrence and consequence of occurrence</b>	

### 8.3.1.1. Impact rating formula

The following ranking scale (Table 10–32) is used to assess each factor that might have a potential impact on the environment.

Table 6 Impact rating formula

Formula of significance			
Significance Score (SS) = (Magnitude [M] + Duration [D] + Scale [S]) X Probability [P]			
Permanent	5	Very high/Don't know	10
Long term (ceases with operational life)	4	High	8
Medium term (5 – 15 years)	3	Moderate	6
Short term (0 – 5 years)	2	Low	4
Immediate	1	Minor	2
Scale (S)		Probability (P)	
International	5	Definite	5
National	4	High probability	4
Regional	3	Medium probability	3
Local	2	Low probability	2
Site only	1	Improbable	1
Please note: It is an assumption that a zero rating in terms of the scale and the probability is that this development will/can never be rated as zero and is therefore not included in the rating scales.			



### Significance scores

The following significance scoring system (Table 13–3) is an indication of the severity of environmental impacts that require mitigation.

Table 7: Significance scores

<b>Low</b> significance (<30 significance points)	Indicates low environmental significance	Impacts with little effect and which should not have an influence on or require modification of the project design.
<b>Moderate</b> significance (30-60 significance points)	Indicates moderate environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless mitigated
<b>High negative</b> significance (>60 significance points)	Indicates high environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
<b>High positive</b> significance (>60 significance points)	Indicates high positive social significance	A positive impact which could influence the decision about whether or not to proceed with the project

The ratings are then presented in a table example below

Table 8 Impact rating example

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Employment, business opportunities and skills development						Positive Moderate	Use local labour as far as possible						
	2	8	3	4	52		Local contractors and businesses	4	8	3	5	75	Positive High
							On the job skills development and training						

### 8.3.2. Reversibility of the Impacts

Reversibility of the Impacts are the extent to which the impacts/risks are reversible assuming that the project has reached the end of it’s 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).

Reversibility of impacts are only relevant for negative social impacts which cannot be effectively mitigated. The only social impact which cannot be mitigated is the loss of sense of place, this can be reversed during the deconstruction of the WEF and is therefore rated as High reversibility.

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### 8.3.3. Irreplaceability of Receiving 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 favorable 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 favorable assessment for the environment).

Irreplaceability is only relevant for the loss of sense of place and impact in the social context, and is only evaluated for this impact. It is rated as resources are replaceable since there are many environments in the local area, region and province which will retain their sense of place. The sense of place in the local area has already been transformed by the existing WEF and Solar Plant and there are several WEF planned for the area.

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## 8.4. Construction Phase Impacts

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### 8.4.1. The positive impacts during construction of the WEF.

The positive impacts during construction include:

- Creation of employment, business opportunities and skills development

#### 8.4.1.1. Creation of Employment, business opportunities and skills development

The construction phase will be between 20 to 24 months and will employ between 300 and 400 people. The breakdown in terms of low skilled, semi-skilled and skilled personnel is as follows:

- Low skilled: ± 165 - 220 (± 55%)
- Semi-skilled: ± 90 - 120 (± 30%)
- Skilled: ± 45 - 60 (± 15%)

#### *Employment*

The low skilled construction labourers, security, drivers and cleaning workforce will likely come from the local area which has an oversupply of unemployed low skilled workers as indicated in section 7.6.5. above. Some semi-skilled workers will also come from the local area. During the construction of the



Khobab WEF and Loeriesfontein WEF which are adjacent to the proposed Botterblom WEF. Low-skilled workers may have become semi-skilled drivers and equipment operators. Skilled workers engineers, land surveyors, project managers (15%) are still likely to come from outside of the local area which can be defined as Loeriesfontein. However, after discussions with the ward councillor he indicated that 15 local youth had been given the opportunity to study further in technical fields so it is possible that these youth might be ready for employment as skilled personnel once the Botterblom WEF enters the construction phase. The majority of the workforce will come from the coloured population group who are categorised as historically disadvantaged, employment of this group is also of benefit to the country in addressing historic inequality. The creation of employment opportunities even temporary employment during the construction of the WEF will have a positive impact on the employment rate in the local area as well as creating employment opportunities for semi-skilled and skilled people outside of the local area but from within South Africa.

The capital expenditure associated with the construction of a UP to 240MW WEF will be in the region of ± R2.4 billion (2021 Rand value). A percentage of the capital expenditure associated with the construction phase will benefit local South African companies.

A rough conservative estimate of the wage bill for construction workers over 20 months is as follows:

*Table 9 Wage bill for construction workers*

<b>Workers</b>	<b>Number of workers</b>	<b>Monthly Salaries</b>	<b>Months</b>	<b>Subtotals</b>
Low-skilled	165	R4 000,00	20	R13 200 000,00
Semi-Skilled	90	R9 000,00	20	R16 200 000,00
Skilled	45	R30 000,00	20	R27 000 000,00
			<b>Total</b>	<b>R56 400 000,00</b>

Local businesses will benefit from the wage bill spend in the local community, particularly for the low skilled workers who will be mostly locals.

Local business will also benefit during the construction of the WEF, these will mostly be in the services industry such as accommodation in Loeriesfontein, providing meals to construction workers, cleaning of offices, and providing security services at the construction site. From discussions with local B&B establishment there has been a boom in the town for the accommodation industry with the development of a number of guest houses and longer-term accommodation associated with providing accommodation to the construction workers of the existing WEF and the new Solar plant which is in the construction phase. This will increase with the construction of the Botterblom and the other WEF in the area which already have environmental authorisation (see section 7.6.3.2).

The greatest contribution to the economy will likely still be for companies outside of Loeriesfontein that provide the materials for the construction of the wind turbines, these are likely to be based in Cape Town and possibly the Eastern Cape which in recent years has developed companies which provide materials for WEF. The civil engineering and electrical work will be undertaken by bigger engineering firms also based outside of the local area, therefore local companies will not benefit as much due to the technical and specialist nature of the construction of an WEF. However, should the



enhancement measures be implemented as discussed below these could enhance the local benefit to the economy in the 20-to-24-month construction period.

#### *Recommended enhancement measures*

In order to enhance local employment and business opportunities associated with the construction phase the following measures should be implemented.

#### *Employment*

- As far as possible local labour should be used particularly for the low skilled and semi-skilled job opportunities. The majority of the skilled jobs will be filled by people from outside the local area due to a lack of skilled people in the local area.
- The HLM should be engaged to establish if they know of skilled local contractors which could be appointed for the construction phase of the project
- HLM and local ward councillor should be informed when jobs will become available, and these should be well advertised locally including the employment criteria and that a transparent process for employment will be followed including employment equity.
- A number of local workers will have been used in the construction of the existing WEF and Solar Plant under construction, these workers will have developed skills during the construction of these facilities and they should also be considered for further employment, existing contractors could be engaged for references for good workers.
- Once local workers have been employed, they should receive on-the-job training and skills development. Where high potential workers are identified, these should be considered for further training and formal qualification.

#### *Business*

- The project developer should engage with the HLM to establish a database of local businesses, especially BBBEE compliant businesses, which could qualify as service providers such as construction companies, catering, waste collection, security companies and cleaning services before the construction starts and tenders are issued. Botterblom WEF is at an advantage as the existing WEF and the Solar Plant will have already developed some of these businesses.
- Where feasible prospective service providers should be assisted with the completion of tender forms and submitting bids for work which will be within their ability to complete, but they might not have the skill in terms of these administrative competencies.
- As far as practically possible local business should be given preference over businesses outside of the local area, which in this instance is defined as the HLM, then the district, then the province and then South Africa.
- It is recognised that preference should be given to local companies, tender processes still need to be fair and transparent and quality of services cannot be compromised as this can have undesired consequences such as lapses in health and safety standards.



Table 10 Employment, business opportunities and skills development impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Employment, business opportunities and skills development						Positive Moderate	Use local labour as far as possible						Positive High
	2	8	3	4	52		Local contractors and businesses	4	8	3	5	75	
							On the job skills development and training						

Assessment of no-go option

There will be no impact, as the current situation would be maintained.

8.4.2. The negative impacts during the construction of the WEF

The following negative impacts during construction have been identified:

- Impacts associated with the presence of construction workers on site and in the local area;
- Influx of job seekers to the area;
- Impacts on farms, farmers and their workers;
- Impact of construction vehicles, including traffic damage to the dirt road safety and dust;
- Impact on farming activities;
- Additional pressure on services offered by the local municipality;
- Loss of sense of place; and
- Noise, dust and visual impacts.

8.4.3. Impacts associated with the presence of construction workers on site and in the local area

The presence of construction workers can have a negative impact on local populations, these mostly relate to unacceptably behaviours which are different from what the local population might be used to or have been exposed to. From discussions with the ward councillor these were confirmed for the existing WEF during construction phase, but he also mentioned that there are a number of existing social ills which cannot be ascribed to the projects, these related to alcohol and drug abuse. The unacceptable behaviours and their consequences relate to:

- An increase in crime levels;
- The loss of wives and girlfriends to construction workers who have higher disposable income than locals;
- An increase in alcohol and drug abuse;
- increase in teenage and unwanted pregnancies;
- An increase in prostitution; and
- An increase in Sexually Transmitted Diseases (STDs), including HIV.



These impacts can be mitigated, or the impact can be lower if most of the job opportunities for the low and semi-skilled workforce can be secured by local people as most of the above behaviours and their consequences are related to men being away from their homes. Local family structures, networks and relations will also be maintained by employing locals. Employing locals will also reduce pressure on local accommodation as men who mostly make up the construction workforce will stay in their own homes. However, there will be a need for accommodation since not all the workforce will be locals as the skilled workforce is likely to come from other areas.

From discussions with the ward councillor and other local stakeholders there has been an increase in prostitution and unwanted pregnancies as a result of the construction of the other WEF and the Solar Plant and it is likely that this trend will continue with the construction of the Botterblom WEF. With the increase in risky sexual behaviour with multiple partners it is also likely that there will be an increase in STDs including HIV. The impacts are likely to occur in Loeriesfontein as the construction workers will be housed here and not on site, as there is no accommodation to be provided on site.

There is a low risk of an increase of crime due to the presence of construction workers as they should be gainfully employed and compensated sufficiently and lowering the need to engage in crime to provide for their families. There might be an increase in contact crimes related to alcohol and drug abuse which workers are prone to commit in their off hours.

#### *Mitigation measures*

- As discussed above the developer and or the appointed contractors should implement a local employment policy giving preference to people from Loeriesfontein, as this would mean that the construction workers will stay at their own homes with their partners reducing the risky behaviours as discussed.
- A code of conduct should be developed for all construction workers including all levels of skill. The code of conduct should include not practicing risky behaviours. Workers should sign that they agree to this code and if the code is broken, they could be dismissed. All actions taken against workers will need to be within the requirements of South African labour legislation.
- A community liaison officer should be appointed before construction is started, this person should be responsible for accepting grievances from the local population, these grievances can include misconduct of workers. These grievances can then be investigated and the appropriate action taken.
- Prostitutes should not be permitted to sleep at the construction workers' accommodation in Loeriesfontein.
- Workers should be educated with regards to risky behaviour and the risks of contracting an STD, including HIV, and the consequences of contracting these diseases. Workers should be advised to regularly have HIV testing.
- All workers should be transported to and from the construction site and their accommodation in Loeriesfontein, no accommodation should be permitted on site.
- There are no farm workers living close to the site and the nearest permanent residents are 5km away, the site is isolated being 53km from Loeriesfontein. Controlling access of workers will protect the permanent residents from workers who might want to engage in crime, including stock theft, which might be an issue.
- Workers should not be permitted to stay on neighbouring farms.
- Workers should be regularly tested for the presence of alcohol and drugs when they enter the work place as required by health and safety regulations.





Table 11 Impacts associated with construction workers on site and in local area impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impacts associated with construction workers on site and in local area	2	8	3	4	52	Negative Moderate	Use local labour and contractor as far as possible	1	6	3	3	30	Negative Low
							Have code of conduct						
							Community liaison officer						

Assessment of no-go option

There will be no impact as the current situation would be maintained.

8.4.4. Influx of job seekers to the area

From experience with similar large scale construction projects there is often an influx of jobseekers to the area. This has a number of consequences such as adding pressure to the services provided by the municipality and additional accommodation pressure in the local area. Jobseekers often do not find the employment they are looking for, but then do not return to where they have come from and turn to crime to provide for themselves and their families. The nature of the construction phase is that jobs are not permanent and once the construction phase is complete these jobseekers might remain after the construction of the WEF is complete. The presence of jobseekers can also create tensions between locals and these jobseekers, who come from elsewhere and may be of a different culture from the local population. The potential types of impacts from jobseekers are similar to those posed by the presence of construction workers as discussed in section 8.4.3. However, Loeriesfontein is remote, and it is unlikely that there will be large numbers of uncontracted jobseekers coming to the area looking for employment due to the remoteness of the area. There is also high unemployment in the area already and jobseekers will know that there will already be high competition for the construction jobs that might be available, therefore the likelihood of this impact is low and the significance is also low.

Mitigation measures

Under the South African legislation and constitution, it is not possible to prevent jobseekers from coming to an area in search of a job, as people are free to live and seek employment where they like. However, it may be possible to lessen the potential risk of an influx of jobseekers by implementing the following measures during the construction phase:

- The developer and/or the appointed contractors should look to employ locals first before looking outside of the local area, this is especially important with unskilled and low skilled opportunities as it is likely that jobseekers will come to the area looking for these types of jobs.
- No job opportunities should be provided at the gate of the construction site, all opportunities should be secured in Loeriesfontein, this will prevent jobseekers looking for jobs at the



construction site which would have its own set of impacts such as on health and safety and security of the site.

- The site should also be secured to ensure that unwanted jobseekers do not access the construction site or commit crimes in the area around the construction site.

*Table 12 Influx of job seekers to the area impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Influx of job seekers to the area	2	6	2	4	40	Negative Moderate	Do not employ at gate	2	6	2	3	30	Negative Low
							Employ locally first						
							Secure construction site						

*Assessment of no-go option*

There will be no impact as the current situation would be maintained. However, if there are large numbers of jobseekers, which is not expected, then the opportunities for local residents and local economy would be lost.

**8.4.5. Impacts on farms, farmers and their workers**

The site is relatively remote as discussed, but there is currently lot of throughfare on the road due to the existing windfarms during construction of the environmentally authorised WEF and during the construction and operation of the Solar Plant. Farmers did not mention that stock theft during the engagements with them as an issue from the construction workers of the existing WEF. However, this may well be a risk with the increase of thoroughfare.

There might be a risk of damaging farm infrastructure during the construction, either due to construction activities or due to the presence of construction workers or from an influx of jobseekers as discussed above. The presence of construction workers and jobseekers could also potentially provide a security risk and an increase in crime.

With the presence of construction workers and the activities, such as welding, there may be a risk of unintentionally starting fires which would damage the farm or surrounding farms. This was not highlighted as an issue during consultations with farmers but remains a risk. The type of veldt on the site is not prone to fires but the risk remains, it is a low risk.

The landowner and surrounding landowners and farmers renting the farms employ very few workers and none are resident on any of the farms, therefore there are no impacts on farm workers during construction. The likelihood of these risks is low due to the following factors: the access of construction workers will be controlled and jobseekers will not be employed at the gate, reducing the risk of stock theft, damage to farm infrastructure and the risk of fires.



*Mitigation measures*

- As discussed above, it is recommended that a community liaison officer be employed by the developer. The purpose of this position is to receive grievances should they arise, these could relate to damage to farm infrastructure, theft and fires. Should these occur, an investigation would need to be undertaken and if it is proven that these were as a result of the construction activities then fair compensation would need to be made for these damages.
- The developer and/or the appointed contractors should ensure that they have the necessary firefighting equipment as required by the health and safety regulations so that if a fire starts on the site, it can be put out quickly before it spreads to neighbouring farms.
- Workers may not trespass on the neighbouring farms, they should be transported to and from site to prevent this from happening. ‘No trespassing’ should be included in the code of conduct. Should workers trespass or be caught stealing, they should be dismissed in line with South African labour legislation.
- No employment opportunities should be provided at the construction site gate.
- Should a contractor be appointed to develop the WEF, they would need to be held liable for any loss to farmers which may result from construction activities including damage to infrastructure, fires and stock theft. This should be included in contracts with contractors appointed to build the WEF.
- Contractors will also need to sign the code of conduct.
- All waste generated during the construction phase should be managed in line with the Environmental Management Plan (EMP) which will be developed for the project. No waste should be allowed to impact surrounding farms.
- During induction of workers, they should be trained on the code of conduct and the consequences of trespassing should be stressed. These topics should also be covered during the daily tool box talks which are held as part of the Health Safety and Environment (HSE) requirements for any construction site.
- Other than security personnel, no workers should be allowed on site outside of work hours.

*Table 13 Impacts on farms, farmers and their workers impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impacts on farms, farmers and their workers	2	6	2	3	30	Negative Low	Employ community Liaison Officer	2	4	2	3	24	Negative Low
							Employ locally						
							Secure site						

*Assessment of no-go option*

There will be no impact as the current situation would be maintained.

**8.4.6. Impact of construction vehicles, including traffic damage to the dirt road, safety and dust**

During the construction of the WEF, the components of the wind farms which cannot be manufactured on site such as the turbine blades will need to be transported by abnormal load along the N7 from Cape Town, along the R27 to Nieuwoudtville and then the R357 to Loeriesfontein and by dirt road to



the site. This will have traffic impacts along all these roads. These are discussed in more detail in the main EIA.

During the construction of the WEF there will be heavy machinery coming to site and the dirt road from Loeriesfontein to site will come under increased traffic pressure. One of the main concerns raised by most of the stakeholders engaged was that the road is in a bad condition due to the construction of the Solar Plant and the use of the road for the existing WEF, as well as during the construction of the Khobab WEF and Loeriesfontein 2 WEF. These impacts will only increase during the construction of the Botterblom WEF but also during the construction of the other WEF in the area. This additional traffic will increase safety concerns on the road and dust impacts will also increase. The Loeriesfontein farmers union mentioned that farmers could not use the grazing within 400m of the road as the sheep will not eat the grazing covered in dust from the road. They also said that the other farmers should not be disadvantaged by the increased use of the road and having to use a road which would damage their vehicles.

#### *Mitigation measures*

- The road will need to be maintained which is a function of the district and local government, however they may need assistance in increasing the frequency of the grading of the dirt road. It may be worth investigating whether it would be worth entering into agreements with all the road users to fund the tarring of the road.
- Dust suppression will be necessary on the dirt road to site to lessen the dust impacts. Construction vehicles carrying materials which can become airborne, such as construction sand, will need to be tied down with tarpaulins or other suitable covers.
- All construction vehicles will need to be roadworthy, and drivers must have the correct code and valid driver's licenses. They should also be instructed on road safety and the need to stay within the speed limits. It may be necessary to fit GPS systems to ensure that drivers stick to the speed limits.
- In order to mitigate the traffic impacts, the transportation of equipment not manufactured on site needs to be planned for outside the peak periods such as weekends, school holidays and during the peak flower season when there is additional tourist traffic between August and September.
- Farmers need to be given ample warning of construction activities and when the road will be in heavy use so that the sheep who may be affected by these activities can be moved away from the road.
- Drivers and passengers need to be informed that they may not dispose of waste next to the road by throwing rubbish out the window. This will also need to be included in the code of conduct.
- The road reserve should be cleared regularly by the developer and or contractors appointed to construct the WEF and this should be included in the EMP.
- All waste should be removed from site to a registered landfill and transported in a closed vehicle or secured by a tarpaulin or other suitable cover. This requirement should also be included in the EMP.



Table 14 Impact of construction vehicles impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impact of construction vehicles	2	10	2	5	70	Negative High	Dust suppression	2	8	2	4	48	Negative Moderate
							Road maintained						
							Roadworthy vehicles and licenced drivers						

Assessment of no-go option

There will be no impact as the current situation would be maintained.

8.4.7. Impact on farming activities

As indicated above construction activities can have an impact on grazing resources such as those found near to the road. The farmers union said that as the farm which will be used for the construction of the WEF will not be used for farming, there will be unwanted animals such as caracul and jackal and to mitigate this the farm should be fenced with jackal-proof electrified fencing. However, the farm could still be used for grazing should the farmer wish to do so once the WEF is built. The footprint of each turbine is relatively small and little grazing will be lost to the base of the turbine, and after rehabilitation sheep will still be able to graze the farm.

Mitigation measures

- During the construction of the wind turbines access roads should be limited as far as possible and only the necessary roads constructed
- The footprint of the construction related activities and areas, such as offices and workshops, should be minimized.
- Grazing areas should not be unnecessarily lost to laydown areas and offices.
- Ensuring that disturbed areas are rehabilitated on completion of the construction phase will lessen the impact of the loss of grazing and should be included in the EMP.
- Rehabilitation requirements should also be included in the contracts with contractors.
- It will need to be ensured that infrastructure on the property and neighbouring properties such as kraals and water infrastructure are not damaged during construction as this would negatively impact these farms.

Table 15 Impact on farming activities impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impact on farming activities	2	6	2	4	40	Negative Moderate	Access roads should be limited	2	4	2	4	32	Negative Moderate
							Grazing areas should not be unnecessarily lost						
							Ensuring that disturbed areas are rehabilitated						



*Assessment of no-go option*

There will be no impact as the current situation would be maintained.

**8.4.8. Additional pressure on services offered by the local municipality**

The increase in the number of construction workers and potential for jobseekers into the area will result in an increased demand for basic services, such as housing, water and electricity. This will put additional pressure on the local municipality to provide these services. The local municipality is already stretched to provide these services due to the increase of construction activities in Loeriesfontein. During discussion with the Municipal Manager and IDP manager, it emerged that the tax base for the HLM has shrunk due to farmers leaving the area and they are struggling to make their budgets balance.

*Mitigation Measures*

- The local municipality needs to be informed of the timing of the project so that they can prepare for the addition pressure on social services.
- An opportunity exists to work together with the HLM in assisting the municipality to provide services to the project’s construction employees and the greater municipality.
- There is also an opportunity for the WEF to work together to assist the HLM in providing services, this is supported in that at a meeting with the HLM they had a list of projects with which the WEFs can assist. This included water provision, youth development, SMME development, and the development of conservation areas.
- Identify projects in the IDP to support the municipality.

*Table 16 Additional pressure on services impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION								
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE			
Additional pressure on services						40	Negative Moderate									
	2	6	2	4			Assist the municipality									Negative Low
							HLM informed of the timing of the project	2	4	2	3	24				
					Identify projects in IDP											

*Assessment of no-go option*

There will be no impact as the current situation would be maintained.

**8.4.9. Loss of sense of place**

The construction activities have the potential to impact on the sense of place. This impact is lessened by the existing WEF and the Solar Plant that is being constructed, and local farmers have already been through the experience of having WEF constructed in the area. However, the setting is still rural in nature and there will be a cumulative impact on the sense of place from the construction of the Botterblom WEF and the other WEF which are awaiting construction.

*Mitigation measures*



- The loss of the sense of place cannot be mitigated but the impact is lessened by the fact that the entire area is changing with regards to its sense of place from rural agriculture to an area where renewable energy is generated.
- The area is still remote and rural, the main receptors of this change in sense of place are the farmers who use the road to travel to their farms.  
The only social impact which cannot be mitigated is the loss of sense of place, this can be reversed during the deconstruction of the WEF and is therefore rated as High reversibility.

Table 17 Loss of sense of place impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION						
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE	
Loss of sense of place	5	6	1	5	60	Negative High	The area is changing the sense of place	5	6	1	5	60	Negative High	
							No mitigation possible							
							Not many local permanent human receptors							

The only social impact which cannot be mitigated is the loss of sense of place, this can be reversed during the deconstruction of the WEF and is therefore rated as High reversibility.

Irreplaceability is only relevant for the loss of sense of place and impact in the social context and is only evaluated for this impact. It is rated as resources are replaceable as since there are many environments in the local area, region and province which will retain their sense of place. The sense of place in the local area has already been transformed by the existing WEF and Solar Plant and there are several WEF planned for the area.

*Assessment of no-go option*

There will be no impact as the current situation would be maintained.

**8.4.10. Noise, dust and visual impacts**

The farm on which the Botterblom WEF is to be constructed is uninhabited and the nearest homestead to the proposed WEF is on the farm Narosies 228 owned by Jos and Suné Mol. Their homestead is situated approximately 5 km North East from the nearest turbine. Should the layout change as proposed, they will be even further from the turbines. The homestead is also behind a koppie (hill). They are not permanent residents of the farm, and they spend approximately half the year on the farm. The Solar Plant is currently being constructed on their farm and the construction impacts that they will experience from this activity will outweigh the construction impacts of the Botterblom WEF construction. The homestead is far enough from the project that they will not experience dust or noise impacts. They will experience visual impacts from the construction of the WEF when they use the road to get to their farm. However, there are already significant visual impacts from the existing windfarms and the construction of the Solar Plant on their property. During an interview conducted with the owners, they indicated that they no longer notice the existing WEF as it has become part of the landscape. The next nearest homesteads are where Tannie Johanna van der Westhuizen stays near



the Sishen–Saldanha bay railway line to the south of the project, it is 5,5km away from the site. These homesteads are on the farm Kleine Rooiberg RE/227, they are also screened from the project site by the topography and should therefore not experience construction impacts such as noise, dust and visual impacts. They will and do experience impacts from the dirt road as discussed in section 8.4.6.

*Mitigation measures*

- Dust impacts from the road need to be mitigated as discussed in section 8.4.6
- The other potential impacts of noise and visual impacts do not need to be mitigated as the closest human receptors will not experience these impacts. Should they experience these impacts, they will be low impacts and insignificant.

*Table 18 Noise, dust and visual impacts impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Noise, dust and visual impacts	2	6	2	4	40	Negative Moderate	Dust mitigated from road	2	6	2	3	30	Negative Low
							Few human receptors						

*Assessment of no-go option*

There will be no impact as the current situation would be maintained.

**8.5. Operational Phase Impacts**

Based on the findings of this SIA and those for other wind energy projects, the key social issues affecting the operation phase are likely to include both positive and negative impacts.

The following positive impacts have been identified:

- The establishment of renewable energy infrastructure and generation of clean, renewable energy;
- Creation of employment and business opportunities;
- Generation of income for landowner; and
- The prescribed investment into socio-economic and enterprise development initiatives by IPPs.

**8.5.1. The establishment of renewable energy infrastructure and generation of clean, renewable energy**

The establishment of a renewable energy infrastructure and generation of clean energy will have a positive impact for the country and is supported by policy as discussed in section 6 above. The capital spend which is estimated at ± R2.4 billion will also have a positive impact on the local, district provincial and national economy. Taxes generated will have a positive impact on the national economy





in terms of taxes paid to the government. There is a need to move away from coal fired power stations to clean forms of energy generation of which the Botterblom WEF will form a part. There is also motivation to move away from Eskom as the only supplier of electricity for South Africa, partly due to the unreliability of Eskom in producing power.

*Enhancement measures*

- Ensure that the WEF contributes to the power grid by providing clean energy.
- Make sure that as much local content in terms of materials used to build the WEF and in supplying the personnel to construct the WEF

*Table 19 Renewable energy infrastructure and clean renewable energy impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Renewable energy infrastructure and clean renewable energy	4	10	4	4	72	Positive High	Ensure project goes ahead	4	10	4	5	90	Positive High
							Ensure local content						

*Assessment of no-go option*

There will be no impact as the current situation would be maintained. However, the opportunities for local residents, local provincial and national economy would be lost. The opportunity to contribute clean energy to the country would be lost.

**8.5.2. Creation of employment and business opportunities**

The project should employ approximately 20 - 30 permanent jobs, these will be divided between Low skilled: ± 10 - 15 (± 50%), Semi-skilled: ± 8 - 12 (± 40%) and Skilled: ± 2 - 3 (± 10%). These jobs will have a positive impact on the local economy as the jobs will provide spending power to the employees who in turn will pay for services in Loeriesfontein such as accommodation. This spending power will also develop local businesses. These positive impacts will extend over the life of the project which is 20-25 years.

*Enhancement measures*

- As discussed, it should be a recruitment policy to look for skills locally first, including in the HLM, district, province and nationally before looking for skills internationally.
- On the job training and development programmes implemented by the developer and or contractors will further enhance this positive impact.
- The developer should look to establish a mechanism to administer funds which are set aside for socio-economic and enterprise development initiatives by IPPs, with input from the HLM and the community.
- Local businesses should be developed to provide services to the WEF.



Table 20 Creation of employment and business opportunities impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Creation of employment and business opportunities	3	8	3	3	42	Positive Moderate	Local employment	4	8	4	5	80	Positive High
							On the job training and development						
							Local business development						

Assessment of no-go option

There will be no impact as the current situation would be maintained. However, the opportunities for local residents, as well as the local, provincial and national economy would be lost.

8.5.3. Generation of income for landowner.

There will be a definite positive impact for the landowner as there will be a rental agreement entered into between the landowner and the developer. The farm is presently not being used for sheep farming which is the only viable method of farming in the area. Recently there has been a prolonged drought which has further made the farm marginal. The landowner has other farms in the district which he will continue to farm and the rental for the farm will be an additional income.

Enhancement measures

The lease agreement will need to be in place before the development of the WEF commences.

Table 21 Generation of income for landowner impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Generation of income for landowner	4	8	1	4	52	Positive Moderate	Agreements should be in place before WEF becomes operational	4	8	1	5	65	Positive High

Assessment of no-go option

There will be no impact as the current situation would be maintained. However, the opportunity for the landowner to generate additional income will be lost.

8.5.4. The prescribed investment into socio-economic and enterprise development initiatives by IPPs

Social Economic Development (SED) and Enterprise Development (ED) initiatives are part of the Independent Power Producer Procurement Programme (IPPPP). Project owners are required to allocate a certain percentage of the projects’ revenue towards community development. This



arrangement is a long-term positive impact as these commitments to SED and ED need to be in place for the life of the project 20 years.

*Enhancement measures*

- The SED and ED should be aligned with what the HLM has in mind for the development of the local municipality.
- Stakeholders such as the HLM Municipal Manager and IDP manager, ward councillors and community representatives should be engaged, to ensure that the initiatives align with their expectations and are practical to the Loeriesfontein social- economic environment.
- The percentage income to be assigned to SED and ED will need to be determined and agreed before the WEF becomes operational.
- The suggestion was made by the ward councillor during engagement with him that a community trust with independent trustees should be established to administer the money allocated to SED and ED for the benefit of the community of Loeriesfontein.

*Table 22 Social Economic Development and Enterprise Development impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Social Economic Development and Enterprise Development						Positive High	Align with the HLM IDP						Positive High
							SED and ED spend will need to be determined and agreed						
	4	8	3	4	60		Community trust with independent trustees should be established	4	10	3	4	68	

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained. However, the opportunity for SED and ED will be lost.

**8.6. Potential negative impacts during the operational phase**

The following negative impacts have been identified:

- Visual impacts and an associated impact on sense of place;
- Impact on property values;
- Potential impact on tourism; and
- Noise impacts.

**8.6.1. The visual impacts and associated impact on sense of place**

As discussed during the construction phase the nearest human receptors are more than 5 km away from the turbines and stakeholders have indicated that they have become accustomed to the existing



WEF, there has been a change in the sense of place due to the presence of the existing WEF and the solar plant which is in the construction phase. There are also other visual impacts such as the Helios substation and the Sishen–Saldanha bay railway line which passes through the site. Farmers also commented that they had got used to the existing WEF in the area, some commented that they found the turbines to be non-intrusive in the landscape and that they had grown to like them. This is supported by findings of other WEF in the country in terms of visual impacts, that people get used to these and that they find the turbines to be graceful.

*Mitigation measures*

- The visual impact cannot be effectively mitigated

*Table 23 The visual impacts and associated impact on sense of place impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
The visual impacts and associated impact on sense of place	4	8	2	4	56	Negative Moderate	The visual impact cannot be effectively mitigated	4	8	2	4	56	Negative Moderate

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained.

**8.6.2. Impact on property values**

With the development of the Botterblom WEF there is a possibility that the value of the surrounding farms that do not have WEF on them may decrease in property value. The impact is low due to the presence of a number of renewable energy projects in operation or which have been authorised. As discussed, there are no sensitive human receptors close to the site. None of the neighbouring farmers indicated that they would like to sell their farms as a result of the presence of WEF in the area. The likelihood of a drop in property value is therefore low and no mitigation is required.

*Mitigation measures*

- Due to the limited prospect of this occurring no mitigation measures are suggested.



Table 24 Impact on property values impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impact on property values	4	8	2	1	14	Negative Low	Due to the limited prospect of this occurring no mitigation measures are suggested	4	8	2	1	14	Negative Low

Assessment of the no-go option

There will be no impact as the current situation would be maintained.

8.6.3. Potential impact on tourism

The site is remote, and it is unlikely that tourists would travel to this area to view the annual floral display in August to September which is the main tourist attraction in the area. There are also other sites closer to Loeriesfontein that can be more easily visited. This is also due to the fact that the dirt road to the site is not in a good condition. There are also no tourist lodges or other accommodation close to the site.

Mitigation measures

- The possible impact is so low that no mitigation is required.
- The area could be marketed as a place to view renewable energy projects, thereby making the site a tourist attraction.

Table 25 Potential impact on tourism impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Potential impact on tourism	4	4	2	1	10	Negative Low	The possible impact is low no mitigation is required	4	6	3	4	52	Positive Moderate
							Marketing area as a tourist attraction						

Assessment of the no-go option

There will be no impact as the current situation would be maintained.

8.6.4. Noise impacts

As already discussed, the closest human receptors to noise impacts are 5 km away and are also screened from the turbines by the topography, they are very unlikely to hear the turbines. Both



possible receptors of noise impacts interviewed did not mention that the existing turbines produce noise which they experience as an impact.

*Mitigation measures*

- As there is no impact of human receptors no mitigation measures are required.

*Table 26 Noise impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Noise impacts	4	4	1	1	9	Negative Low	There is no impact on human receptors no mitigation measures are required	4	4	2	1	10	Negative Low

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained.

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**8.7. Decommissioning Phase Impacts**

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These impacts are likely to occur in 20 years’ time and new technology might exist to lengthen the lifespan of the project indefinitely. However, should the site be decommissioned there will be both negative and positive impacts.

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**8.7.1. Positive Impacts during decommissioning**

The positive impacts are short term impacts for the deconstruction of the infrastructure and recycling of these materials. Short term employment opportunities for deconstruction and restoration of sense of place due to reduction of noise and visual impacts.

*Enhancement of positive impacts*

- Local workers and contractors should be given preference for work when the decommissioning of infrastructure is undertaken
- Once the site is decommissioned it should be well rehabilitated and funds should be allocated to rehabilitation whilst the WEF is still in operation. This will also assist in restoring a sense of place to a condition similar to before the Botterblom WEF was built.
- During the engagement with the HLM it was mentioned that Calvinia would be a good place to recycle the materials from the WEF, this could be investigated at the time of decommissioning.



Table 27 Deconstruction of the infrastructure and recycling impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Deconstruction of the infrastructure and recycling.	2	6	3	4	44	Positive Moderate	Local contractors	2	6	3	5	55	Positive Moderate
							Local employment						
							Rehabilitation						

Assessment of the no-go option

There will be no impact as the current situation would be maintained.

8.7.2. Negative Impacts during decommissioning

Negative impacts are the loss of jobs and associated income, and negative impacts on households which will have become dependent on income generated from the project.

Mitigation measures

- Workers should be notified of their pending retrenchment at least 6 months before the event so that they are given time to search for alternative employment whilst still being employed.
- Workers should be retrenched in line with the South African labour law requirements.
- Retrenchment packages should be fair and enable workers to support themselves for a period of at least three months.
- Workers should be assisted in claiming from the Unemployment Insurance Fund (UIF).
- The HLM will need to be notified of the pending decommission of the WEF so that social services are prepared for the potential additional dependents.

Table 28 Loss of jobs and associated income impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Loss of jobs and associated income	4	10	2	6	96	Negative High	Workers should be notified of their pending retrenchment	4	8	2	4	56	Negative Moderate
							Workers should be assisted in claiming from the UIF						
							Social services are prepared for the potential additional dependents						

Assessment of the no-go option

There will be no impact as the current situation would be maintained.



## 8.8. Cumulative Impacts

Establishment of a WEF has an impact on the area’s rural sense of place and character of the landscape. The number of renewable energy facilities in the area has the potential to place pressure on local services, specifically medical, education and accommodation. This will be during the construction phase only as a limited number of people are employed during the operational phase. The establishment of a number of renewable energy facilities in the region will create employment, skills development and training opportunities, and creation of downstream business opportunities.

### 8.8.1. Cumulative impacts on services

The construction and operation of the existing WEF and Solar plant has put additional pressure on services in the local area. With the addition of the Botterblom WEF this pressure will increase.

#### Mitigation Measures

- Assisting the municipality in providing services
- Assistance in financing projects identified in the HLM IDP
- Inform the HLM of the timing of the project

Table 29 Additional pressure on services impact rating

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Additional pressure on services	2	6	2	4	40	Negative Moderate	Assist the municipality	2	4	2	3	24	Negative Low
							HLM informed of the timing of the project						
							Identify projects in IDP						

#### Assessment of the no-go option

There will be no impact as the current situation would be maintained, but the pressure that is already happening will be less.

### 8.8.2. Cumulative loss of sense of place

With the development of a number of WEF and the solar plant there will be a cumulative change in the sense of place. This has already occurred due to the existing Khobab WEF and Loiriesfontein 2 WEF and construction of the Solar Plant on the neighbouring farm of Narosies 228. There are also several WEF which have received environmental authorisation and are likely to start construction. With the addition of the Botterblom WEF this change in sense of place will continue and magnify.





*Mitigation measures*

- The impact of the change in the sense of place cannot be mitigated.

*Table 30 Cumulative loss of sense of place*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Cumulative loss of sense of place	5	6	1	5	60	Negative High	The area is changing the sense of place	5	6	1	5	60	Negative High
							No mitigation possible						
							Not many local permanent human receptors						

The only social impact which cannot be mitigated is the loss of sense of place, this can be reversed during the deconstruction of the WEF and is therefore rated as High reversibility.

Irreplaceability is only relevant for the loss of sense of place and impact in the social context, and is only evaluated for this impact. It is rated as resources are replaceable as since there are many environments in the local area, region and province which will retain their sense of place. The sense of place in the local area has already been transformed by the existing WEF and Solar Plant and there are several WEF planned for the area.

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained, but there is a change in the sense of place which is already happening will be less.

**8.8.3. Local economy**

As discussed, there are 2 WEF which have already been constructed and there are several WEF which have authorisation, there is also a solar plant that is in the construction phase. All these developments have had a positive impact on the local economy in the development of and supply of accommodation and other services such as cleaning and security. The town of Loeriesfontein is also developing as a hub as a result of all the renewable projects in the area and this has an overall positive impact on the local economy. There are also a number of people who have worked on the construction of the WEFs and solar farm and these employees can be absorbed into the workforce of the Botterblom WEF, both for the construction of the WEF and once it becomes operational.

*Enhancement of positive impacts*

- Local businesses should be used to provide services as much as possible.
- There is also an opportunity to develop local businesses to provide materials for the construction and maintained of the WEF.



*Assessment of the no-go option*

There will be no impact as the current situation would be maintained.

**8.8.4. Employment**

There will be employment opportunities both during the construction of the WEF and once it becomes operational as discussed above. There are already a number of skilled workers in the local area as they have already worked on the construction and operation of the existing WEF.

*Enhancement measures*

As far as possible local people should be employed for the construction and operation of the WEF.

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained.

Skills development and training

With the development of the WEF and the other facilities in the area there is a positive cumulative impact in terms of skills development and training for the area as all facilities will need to develop and train their local employees, and this will have a positive impact for people who work on the WEF and live in the local area.

*Enhancement measures*

- Locals should be employed as far as possible.

*Table 31 Renewable energy facilities will create employment, skills development, training, and downstream businesses impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Renewable energy facilities will create employment, skills development, training, and downstream businesses						Positive Moderate	Ensure local content						Positive High
	4	8	3	4	60		SED and ED spend will need to be determined and agreed	5	8	3	5	80	
							Identify projects in IDP						

*Assessment of the no-go option*

There will be no impact as the current situation would be maintained.



### 8.9. No-go development impacts

The no-development option would result in a lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy and a lost opportunity for the district, HLM and Loeriesfontein. There would be none of the positive impacts but also none of the negative impacts as discussed above.

*Table 32 Lost opportunity for South Africa to supplement its energy needs with clean, renewable energy impact rating*

IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Lost opportunity for South Africa to supplement its energy needs with clean, renewable energy	5	10	4	4	76	Negative High	The project should be developed	4	8	4	5	80	Positive High



## 9. SUMMARY OF IMPACTS

The table below presents a summary of all the social impacts identified including impact ratings before and after mitigation the top three mitigations measures are indicated.

Table 33 Summary of impact ratings

Construction Phase Impacts													
Positive Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Employment, business opportunities and skills development						Positive Moderate	Use local labour as far as possible						Positive High
	2	8	3	4	52		Local contractors and businesses	4	8	3	5	75	
							On the job skills development and training						
Negative Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impacts associated with construction workers on site and in local area						Negative Moderate	Use local labour and contractor as far as possible						Negative Low
	2	8	3	4	52		Have code of conduct	1	6	3	3	30	
							Community liaison officer						
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Influx of job seekers to the area						Negative Moderate	Do not employ at gate						Negative Low
	2	6	2	4	40		Employ locally	2	6	2	3	30	
							Secure site						
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impacts on farms, farmers and their workers						Negative Low	Employ community Lision Officer						Negative Low
	2	6	2	3	30		Employ locally	2	4	2	3	24	
							Secure site						



IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impact of construction vehicles	2	10	2	5	70	Negative High	Dust suppression	2	8	2	4	48	Negative Moderate
							Road maintained						
							Road worthy vehicles and licenced drivers						
Impact on farming activities	2	6	2	4	40	Negative Moderate	Access roads should be limited	2	4	2	4	32	Negative Moderate
							Grazing areas should not be unnecessarily lost						
							Ensuring that disturbed areas are rehabilitated						
Additional pressure on services	2	6	2	4	40	Negative Moderate	Assist the municipality	2	4	2	3	24	Negative Low
							HLM informed of the timing of the project						
							Identify projects in IDP						
Loss of sense of place	5	6	1	5	60	Negative High	The area is changing the sense of place	5	6	1	5	60	Negative High
							No mitigation possible						
							Not many local permanent human receptors						
Noise, dust and visual impacts	2	6	2	4	40	Negative Moderate	Dust mitigated from road	2	6	2	3	30	Negative Low
							Few human receptors						



Operation phase impacts													
Positive Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Renewable energy infrastructure and clean renewable energy	4	10	4	4	72	Positive High	Ensure project goes ahead	4	10	4	5	90	Positive High
							Ensure local content						
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Creation of employment and business opportunities	3	8	3	3	42	Positive Moderate	Local content	4	8	4	5	80	Positive High
							On the job training and development						
							Local business development						
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Generation of income for landowner	4	8	1	4	52	Positive Moderate	Agreements should be in place before WEF becomes operational	4	8	1	5	65	Positive High
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Social Economic Development and Enterprise Development	4	8	3	4	60	Positive High	Align with the HLM IDP	4	10	3	4	68	Positive High
							SED and ED spend will need to be determined and agreed						
							Community trust with independent trustees should be established						
Negative Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
The visual impacts and associated impact on sense of place	4	8	2	4	56	Negative Moderate	The visual impact cannot be effectively mitigate, however there are few receptors	4	8	2	4	56	Negative Moderate



IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Impact on property values	4	8	2	1	14	Negative Low	Due to the limited prospect of this occurring no mitigation measures are suggested	4	8	2	1	14	Negative Low
Potential impact on tourism	4	4	2	1	10	Negative Low	The possible impact is low no mitigation is required Marketing area as a tourist attraction	4	6	3	4	52	Positive Moderate
Noise impacts	4	4	1	1	9	Negative Low	There is no impact on human receptors no mitigation measures are required	4	4	2	1	10	Negative Low
<b>Decommission phase impacts</b>													
<b>Positive Impacts</b>													
Deconstruction of the infrastructure and recycling.	2	6	3	4	44	Positive Moderate	Local contractors Local employment Rehabilitation	2	6	3	5	55	Positive Moderate
<b>Negative Impacts</b>													
Loss of jobs and associated income	4	10	2	6	96	Negative High	Workers should be notified of their pending retrenchment Workers should be assisted in calming form the UIF Social services are prepared for the potential additional dependents	4	8	2	4	56	Negative Moderate



Cumulative Impacts													
Negative Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Additional pressure on services	2	6	2	4	40	Negative Moderate	Assist the municipality	2	4	2	3	24	Negative Low
							HLM informed of the timing of the project						
							Identify projects in IDP						
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Cumulative loss of sense of place	5	6	1	5	60	Negative High	The area is changing the sense of place	5	6	1	5	60	Negative High
							No mitigation possible						
							Not many local permanent human receptors						
Positive Impacts													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Renewable energy facilities will create employment, skills development, training, and downstream businesses	4	8	3	4	60	Positive Moderate	Ensure local content	5	8	3	5	80	Positive High
							SED and ED spend will need to be determined and agreed						
							Identify projects in IDP						
No-go option													
IMPACT	SIGNIFICANCE BEFORE MITIGATION						MITIGATION	SIGNIFICANCE AFTER MITIGATION					
	D	M	S	P	SS	RATE		D	M	S	P	SS	RATE
Lost opportunity for South Africa to supplement its energy needs with clean, renewable energy	5	10	4	4	76	Negative High	The project should be developed	4	8	4	5	80	Positive High

The only significant negative impact which cannot be mitigated is the sense of place, however there are only a few human receptors who will experience these impacts - mostly farmers using the road. There are a number of cumulative visual impacts which have already impacted on the sense of place, namely the two existing WEF, the solar plant which is being constructed and the Sishen–Saldanha Bay railway line. There are also several WEFs planned for the area for which construction will start in the near future. Stakeholders have also said that they have become accustomed to the sight of the WEFs.





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## 10. CONCLUSION

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Based on the review of key planning documents, the development of renewable energy, including WEF, are supported nationally, provincially and at the local government levels.

The development of the proposed WEF will create employment, training and business opportunities during both the construction and operation phases of the project. The potential negative impacts associated with the construction phase can be mitigated if mitigation measures are implemented as detailed in the report.

The proposed development will also represent an investment in clean, renewable energy infrastructure for the country which will go some way to offset the negative environmental and socio-economic impacts associated with a coal-based fossil fuel energy generation. Renewable energy, including WEF, also addresses climate change and assists the country in meeting climate change reduction goals.

The cumulative impacts on the area's sense of place are the only social impact which cannot be mitigated due the visual impact of the WEF, however the area is changing as there are two existing WEF and a solar plant which is being developed, this infrastructure is changing the sense of place already and therefore the impact of the Botterblom WEF is lessened within this environment.



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## 11. IMPACT STATEMENT

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The development of the Botterblom WEF is supported as the findings of the SIA show that the project will have significant positive impacts. These positive impacts relate to the economy by providing clean energy which will reduce South Africa's carbon footprint. Furthermore, the project will create positive impacts for the local economy by providing employment and local business development both during the construction and operational phases of the WEF. Allocating a percentage of the revenue generated by the WEF to SED and ED will further enhance the positive benefits of the project. These positive impacts can be enhanced by applying the measures indicated in this report. There are negative impacts related to the potential influx of job seekers, a loss of sense of place, and minor visual and noise impacts. Due to the remoteness of the site and distance from the WEF, jobseekers are unlikely to arrive. Due to the distance of the closest human receptors, there will be minor impacts of noise and visual impacts. The change in the sense of place which has already occurred is considered a minor impact.

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## 12. BIBLIOGRAPHY

---

Dennis Moss Partnership. (2012). Northern Cape Spatial Development Framework.

Department Planning monitoring and Evaluation (2019). Draft National Spatial Development Framework.

Department of Economic Development. (2010). New Growth Path: Framework.

Department of Energy. (2019). Integrated Resource Plan.

Department of Energy (2015). State of Renewable Energy in South Africa.

Department of Trade and Industry. (2015). Industrial Policy Action Plan.

Electricity Regulation Act (Act No. 4 of 2006). revised 2011.

Hantam IDP (2020). Approved by Council May 2020.

Industrial Policy Action Plan (2018). reporting period 19/20/21

National Planning Commission. (2011). National Development Plan: Vision for 2030.

Northern Cape Government. (2008). Northern Cape Provincial Growth and Development Strategy.

Northern Cape Province. (2011). Northern Cape Municipal Local Economic Development Framework

Namaqua Integrated Development Plan 2020-2021.



SiVEST (2012). Environmental Impact Assessment Report Proposed Construction of Wind Farms near Loeriesfontein, Northern Cape Province, South Africa

Tony Barbour and Schalk van der Merwe (2017). Social Impact Assessment for Kokerboom 1 Wind Energy Facility Northern Cape Province Prepared for AURECON

Tony Barbour and Schalk van der Merwe (2017). Social Impact Assessment for Kokerboom 2 Wind Energy Facility Northern Cape Province Prepared for AURECON

<https://municipalities.co.za/overview/1167/hantam-local-municipality> accessed 31/03/2021

<https://www.google.com/maps/place/Loeriesfontein> Accessed 31/03/2021

<https://www.discovermagazine.com/mind/who-are-the-cape-coloureds-of-south-africa> accessed 02/04/2021

<https://khobabwind.co.za/khobab-wind-farm/overview/> accessed 02/04/2021

[https://en.wikipedia.org/wiki/Loeriesfontein#The\\_town](https://en.wikipedia.org/wiki/Loeriesfontein#The_town) assessed 01/04/2021