

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE GRID CONNECTION INFRASTRUCTURE FOR THE NAMAS WIND FARM NEAR KLEINSEE IN THE NORTHERN CAPE

**Socio-Economic Basic Assessment
Final
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Prepared for:



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ABBREVIATIONS

CAGR	Compounded Average Growth Rate
CFB	Circulating Fluidised Bed
DM	District Municipality
DoE	Department of Energy
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
ESP	Electrostatic Precipitator
GDP	Gross Domestic Product
GDP-R	Gross Domestic Product per Region
Ha	Hectare
I&AP	Interested and Affected Parties
IDZ	Industrial Development Zone
IPP	Independent Power Producer
IPAP	Industrial Policy Action Plan
IRP	Integrated Resource Plan
LM	Local Municipality
MW	Mega Watt
NDP	National Development Plan
NEA	Not Economically Active
NGPF	New Growth Path Framework
PC	Pulverised Coal
SDF	Spatial Development Framework

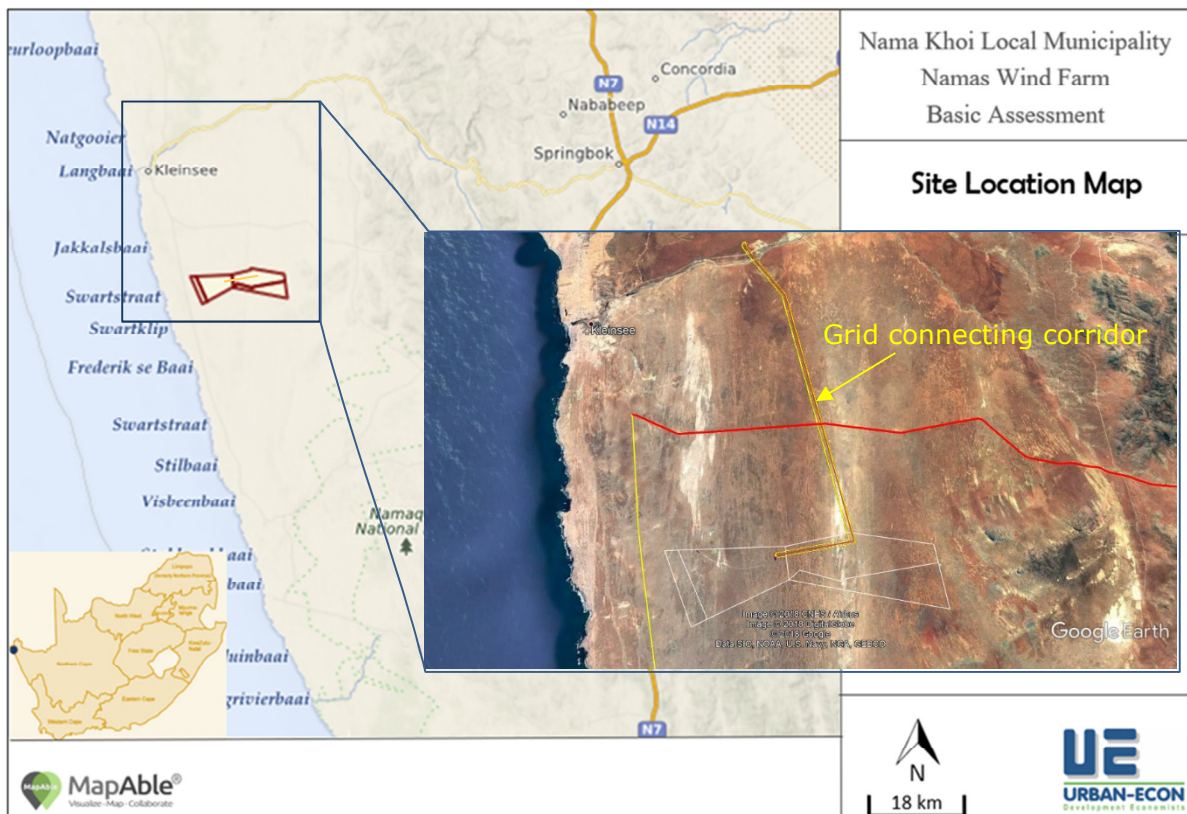
1. INTRODUCTION

This document is prepared by **Urban-Econ Development Economists** (Urban-Econ) in response to a request by **Savannah Environmental (Pty) Ltd** (Savannah Environmental) to undertake a Basic Assessment for the proposed grid connection infrastructure for the Namas Wind Farm, near Kleinsee, in the Northern Cape to the national grid.

1.1 Brief description of the project

Genesis Namas Wind (Pty) Ltd is proposing the development of a double-circuit 132kV power line (known as the Rooivlei-Gromis 132kV double-circuit power line) and collector substation (known as the Rooivlei Substation) evacuate electricity from the commercial wind farm on a site located approximately 20 km south-east of Kleinsee within the Nama Khoi Local Municipality and the Namakwa District Municipality in the Northern Cape Province. This assessment considers a 300m wide corridor within which the 132kV double-circuit power line and collector substation, as well as associated infrastructure will be located. This is considered as the grid connection solution of the Namas Wind Farm.

The entire project site (i.e. 300m corridor) is located within the Springbok Renewable Energy Development Zone (REDZ). Due to the location of the project site within the REDZ, the Basic Assessment (BA) procedure is undertaken in accordance with GN113 as formally gazetted on 16 February 2018.



Map 0-1: Contextual Map (Mapable, 2017)

Two grid connection options exist within the 300m corridor, namely:

- A direct connection from the proposed Rooivlei Substation to the existing Gromis Substation located ~26km from the northern boundary of the Namas Wind Farm project site. This is considered to be the preferred option from a technical perspective due to the fact that the Gromis Substation is already existing.
- A direct connection from the Rooivlei Substation to the proposed collector substation (known as the Strandveld Substation) which forms part of the Zonnequa Wind Farm grid connection solution. The Strandveld Substation is located ~6km from the northern boundary of the Namas Wind Farm project site. This option is only viable should the Zonnequa Wind Farm be developed.

1.2 Scope and purpose of the study

The purpose of the socio-economic basic assessment is to determine the potential socio-economic implications and impacts of the proposed project activities on social aspects within the affected and surrounding social environment. The basic assessment report addresses the assessment of impacts as set out in the guidelines in terms of the Environmental Impact Assessment Regulations of 2014, as amended. The purpose of the socio-economic basic assessment is as follows:

- » Undertake a policy review and assess the alignment of the proposed project with the national, provincial and local socio-economic policies, with a focus on the compatibility of the project with the spatial planning, development objectives and land use management plans of the respective authorities.
- » Create a socio-economic profile for the study area using secondary data. The guidelines for the Basic Assessment procedure specifically call for information on the level of unemployment and skills available in the local community, as well as the socio-economic profile of the local municipality.
- » Identify and analyse the potential socio-economic value of the proposed project.
- » Undertake an impact and risk assessment process focusing on the sensitivities of the site and location from a socio-economic perspective and the impacts that may ensue as a result of the change in the status quo of the affected and benefiting communities and economies.
- » Compile a socio-economic impact assessment statement outlining the key findings of the process, summarising the key impacts, providing a reasoned opinion on the proposed development, and outlining mitigation measures.

1.3 Methodology

The methodology employed in conducting the study comprises four steps, as illustrated in **Error! Reference source not found..**



Figure 0-1: Methodology and Purpose

The following paragraphs briefly describe each step.

» **Step 1: Data gathering**

In order to create a comprehensive understanding of the socio-economic environment that might be affected by the proposed development, policy-related and socio-economic data was gathered.

» **Step 2: Data analysis**

A description of the study area and the zone of influence is given in terms of selected socio-economic variables. The developed profile is used to interpret the impacts and measure the extent of socio-economic impacts that could be created from the proposed activities in the context of the local, provincial and national economies. It includes the analysis of parameters such as population size and household numbers, structure and growth of the economy, and the labour force and the employment situation.

» **Step 3: Impact identification and evaluation**

This step included the description and evaluation of socio-economic impacts that could be expected during the construction, operation, and decommissioning phases of the proposed grid connection solution. Anticipated impacts associated with the project were analysed and evaluated following the methodology prescribed by the environmental consultant (refer to Annexure A). Mitigation measures were proposed.

» **Step 4: Impact statement**

Considering the identified positive and negative impacts, a socio-economic impact statement was developed containing the reasoned opinion about the proposed project's development and aspects to be considered during the implementation of the project.

1.4 Data gathering and consultation process

The project made use of both primary and secondary data in order to assess the impacts and desirability of the project.

1.4.1 Secondary data analysed

- » Stats SA Census, 2011
- » Quantec Research Standardised Regional Data, 1995-2017
- » National, provincial, and local government strategic documents and policies
- » Mappable

1.4.2 Primary data collected

The primary data gathering for this project was done in the form of telephonic interviews. It should be noted that the landowners who may be directly or indirectly impacted by the project were given an option to meet in person or to participate in a telephonic interview or respond over an e-mail. A telephonic conversation was opted for by everyone in connection with the proposed project.

The interviews with key respondents took place between during September 2018 and were conducted over the phone or e-mail, depending on the preference of the respondent. The following Interested and Affected Parties (I&APs) were engaged with:

Table 0-1: Key respondents interviewed and interview dates in connection with the proposed Rooivlei-Gromis double-circuit 132kV power line and Rooivlei collector substation

Farm Portions	Relation to the project	Contacted party	Date/s of engagement
Rooivlei 327/1	A	Landowner – private	03 May 2018

Farm Portions	Relation to the project	Contacted party	Date/s of engagement
Rooivlei 327/3	A	individual	4 September 2018
Rooivlei 327/RE	D	Landowner – private individual	03 May 2018 11 May 2018 4 September 2018
Zonnekwa 328/4	A		
KapVley 315/4	A		
Zonnekwa 328/3	D		
Zonnekwa 326/1	A		
Zonnekwa 328/2	D		
Gra-Water 331/RE	A	Landowner – private individual	14 May 2018
Sand Kop 322/RE	D	De Beers Consolidated Mines	4 September 2018
Pienaars Bult 317/1	A		
Kourootje 316/RE	A		
Dikgat 195/3	A		
654/RE	A		
Zonnekwa 326/RE	D	Landowner – private individual	4 September 2018
Zonnekwa 328/1	A	Landowner – private individual	4 September 2018
Kap Vley 315/2	A		
Kap Vley 315/3	A		
Kannabieduin RE/324	D	Eskom Holdings	4 September 2018
Honde Vlei RE/325	D		
Rooivlei 327/2	A		
Brazil 329/RE	A		
Goraap RE/323	A		
Mannels Vlei RE/321	D	West Coast Resources	4 September 2018
Dikgat RE/195	D		
Samsons 330/RE	A		
klein Schaap kom RE/320	A		
Stryd Rivier RE/188			
Doornfontein Wes RE/196			
Roode vlei RE/189			
Dikgat 6/195			
Dikgat 4/195			
Dikgat 5/195			
Dikgat 9/195			
Dikgat 2/195			
Mannels Vlei RE/321			
Dikgat RE/195			

1.5 Assumptions, limitations and gaps in knowledge

- » Project-related information supplied by the environmental practitioner and the client for the purpose of the analysis is assumed to be reasonably accurate.

- » The secondary data sources used to compile the socio-economic baseline (demographics, dynamics of the economy) although not exhaustive, can be viewed as being indicative of broad trends within the study area.
- » The focus of the primary data collection was on those parties that were perceived to be most sensitive to the proposed project. As such, it is believed that the study was able to identify the most significant impacts and assess the most pertinent issues.
- » It is assumed that questions asked during the interviews were answered accurately and truthfully by respondents and to the best of their abilities and knowledge. The attitudes of the respondents towards the project is assumed to remain reasonably stable over the short- to medium-term.

2. POLICY REVIEW

A policy review plays an integral role in the initial stages of a project. The review provides an indication of whether a project is aligned with the goals and aspirations of the developmental vision across the three spheres of government. Furthermore, the analysis signposts any red-flags or developmental concerns that could jeopardise the development of the project and assists in amending it, preventing costly and unnecessary delays.

The following government strategic documents applicable to the delineated study area were examined:

- * **National (South Africa):**
 - » Integrated Energy Plan 2016
 - » Integrated Resource Plan for Electricity 2016
 - » National Development Plan 2011
 - » New Growth Path Framework 2011
 - » National Climate Change Response Policy White Paper 2011
 - » Renewable Energy White Paper 2003
 - » White Paper on Energy Policy 1998
- * **Regional (Northern Cape):**
 - » Northern Cape Provincial Spatial Development Framework (PSDF) 2014
- * **District (Namakwa District Municipality):**
 - » Namakwa District Municipality Rural Development Plan (RDP) 2017
 - » Namakwa District Municipality Integrated Development Plan 2017 – 2022
- * **Local (Nama Local Khoi Municipality):**
 - » Nama Khoi Municipality Draft Integrated Development Plan 2018/2019

It should be noted that government strategic documents do not explicitly refer to supporting infrastructure when prioritising the developments of energy generation facilities. Therefore, when the documents are examined, any reference to the development of renewables or energy generating facilities is assumed to also refer to the development of infrastructure that would be required to connect these facilities to the grid.

Table 2-1: Policy alignment

Policy	Policy alignment to proposed project
National Policy: South Africa	
Integrated Energy Plan (2016)	IEP's goal is to guide future energy infrastructure investments, determine and recommend policy development to frame the future energy landscape of the country (Department of Energy, 2016).
Integrated Resource Plan for Electricity (2016)	The IRP focuses on the following government objectives: "affordable electricity; carbon mitigation; reduced water consumption; localisation and regional development; producing a balanced strategy toward diversified electricity generation sources and gradual decarbonisation of the electricity sector in South Africa" (Department of Energy, 2016b). The development of the proposed project is required for the operation of a wind farm.

Policy	Policy alignment to proposed project
National Development Plan (NDP) (2011)	<ul style="list-style-type: none"> * The NDP seeks to lessen carbon emissions per unit of power by approximately one-third, while ensuring access to electricity for poor households as it is counted as an element of decent standards of living * The plan attempts to boost investments in energy-efficiency. * Solar and wind are amongst the notable renewable energy resources, that South Africa has, and the efficient usage of these natural resources is essential for the move towards the decarbonisation of the economy (National Planning Commission, 2011).
New Growth Path Framework (2011)	Boosting investments within the renewable energy sector will help create thousands of jobs, especially in manufacturing new energy technologies as well as in construction (Department of Economic Development, 2011).
National Climate Change Response Policy White Paper (2011)	<p>South Africa's response to climate change has two objectives:</p> <ul style="list-style-type: none"> * To regulate inescapable climate change impacts through interventions that strengthen and sustain South Africa's social, economic and environmental resilience and emergency response capacity, and * To contribute to the global attempt to sustain greenhouse gas concentrations within a timeframe that allows for economic, social and environmental development (Department of Environmental Affairs, 2011).
Renewable Energy White Paper (REWP) (2003)	<p>REWP seeks to:</p> <ul style="list-style-type: none"> * ensure effective and efficient administration of financial support systems for renewable energy; * promote renewable energy technology and advance its implementation; and * enhance capacity building and education on renewable energy (Department of Energy, 2015).
White Paper on Energy Policy (1998)	<p>The White Paper policy seeks to:</p> <ul style="list-style-type: none"> * increase access to affordable energy services; * improve energy governance; * stimulate economic development; and * promote the development of renewable energy resources (Department of Energy, 2015).
Renewable Energy Development Zones (REDZs) (2016)	<p>REDZs aim to:</p> <ul style="list-style-type: none"> * minimise negative environmental consequences; * align authorisation and approval processes; * attract incentives; and * produce focused expansion of the South African electricity grid (EUCCISA, 2018).
Provincial Policy: Northern Cape	
Northern Cape Provincial Spatial Development Framework (PSDF) (2012)	<ul style="list-style-type: none"> * Seeks to advance the establishment of renewable energy supply schemes. * The PSDF further posits that the Northern Cape holds a potential comparative advantage because of the regular occurrence of strong winds which could be a source of renewable energy, more specifically for sustainable electricity production.

Policy	Policy alignment to proposed project
	* Renewable energy sources are to constitute 25% of the province's energy production capacity by 2020 (Office of the Premier of the Northern Cape, 2012).
District Policy: Namakwa District Municipality	
Namakwa District Municipality Rural Development Plan (RDP) (2017)	<ul style="list-style-type: none"> * Renewable energy developments are amongst the district development priorities within the RDP. * The plan emphasises the need to evaluate localisation possibilities for all renewable energy technologies and identify the relevant localisation roadmaps in consultation with the broader stakeholder community (Department of Rural Development and Local Reform, 2017).
Namakwa District Municipality Integrated Development Plan 2017 – 2022	<ul style="list-style-type: none"> * One of IDP's objectives is to oversee and support local municipalities to deliver basic services (water, sanitation, housing, electricity and waste management). * The IDP also seeks to establish good governance by enforcing the climate change response plan (Namakwa District Municipality, 2017).
Local: Nama Khoi Municipality	
Nama Khoi Municipality Draft Integrated Development Plan 2018/2019	<ul style="list-style-type: none"> * Amongst its basic services and infrastructure objectives, the plan emphasises the need to support the linkage between the Kannikwa Vlake wind farm to the north of Kleinsee. * The plan seeks to provide sustainable delivery of services such as water and sanitation, electricity, and solid waste management amongst others. * The plan also identified possible high wind energy generation zones to the south of Vioolsdrift, and around Springbok and Koingnaas and proposes an analysis of the areas for the development of wind farms (Nama Khoi Municipality, 2018).

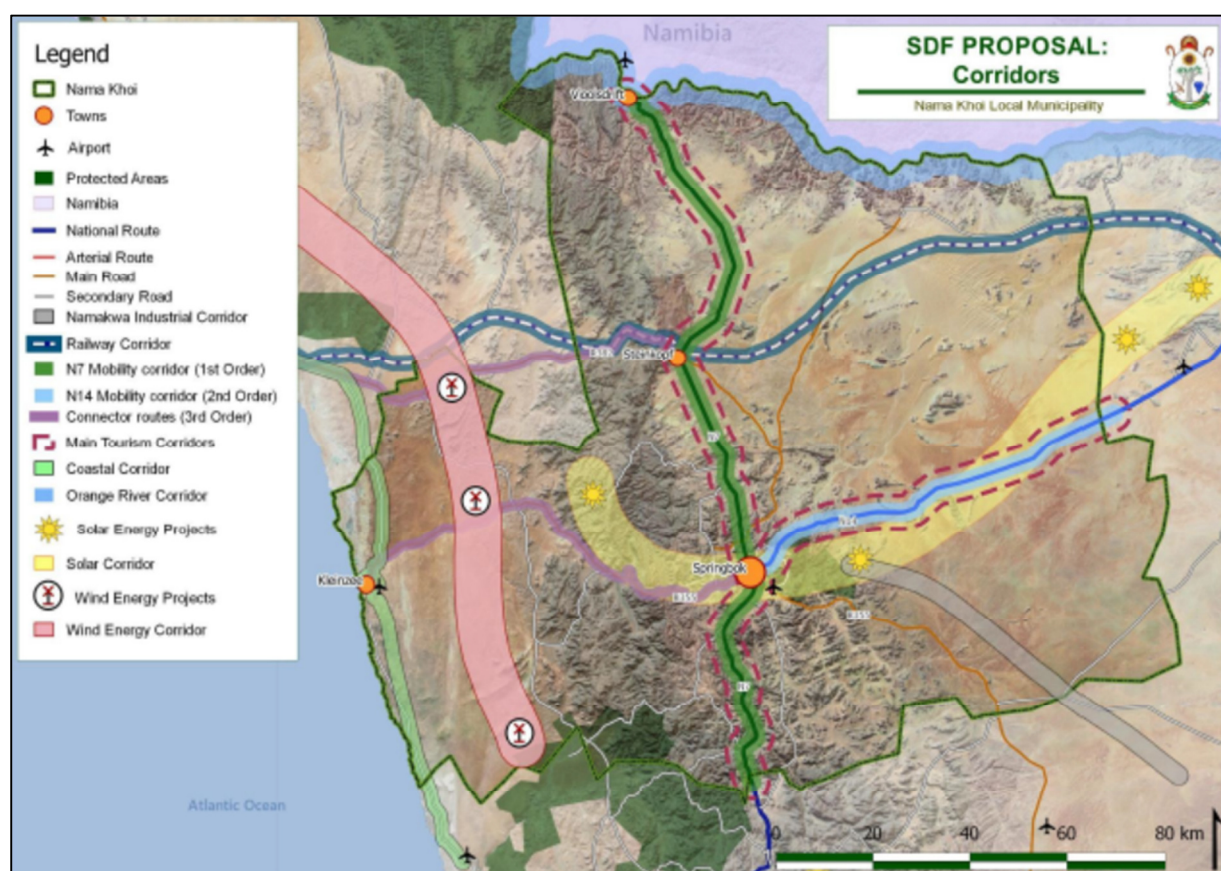
The reviewed documents demonstrate government's support for initiatives that promote sustainable renewable energy use, which includes the development of the required associated infrastructure (i.e. grid infrastructure). Moreover, the initiation of renewable energy into the country's electricity production is grounded in the Constitution and effectuated in the following three policy documents:

- » White Paper on Energy Policy (1998)
- » Renewable Energy White Paper (2003)
- » National Climate Change Response Policy White Paper (2011)

National policy indicates a need to advance energy infrastructure, increase and improve access to electricity while reducing carbon emissions, and emphasises the use of natural resources, all of which lead to economic, social and environmental development. All these objectives are pursued within the provincial, district and local levels. Therefore, there has been a growing need to change the mix of energy sources in the country and to ensure that renewables (including the associated required grid infrastructure) play a greater role in the mix.

As illustrated in the above table, wind is one such source and the Northern Cape Province demonstrates a potential comparative advantage in wind. Therefore, the establishment of wind farms (and the required associated grid infrastructure, as proposed) within the province would be beneficial for the economy and the citizens therein. It is partially due to these reasons why the province also holds the Springbok REDZ.

District policy seeks to ensure the delivery of basic services, such as electricity, and ensure good governance with regard to implementing these strategies and plans. Furthermore, the Nama Khoi Local Municipality (2018) emphasises the need to promote wind energy projects and to support the linkage with the Kannikwa Vlakke wind farm to the north of Kleinsee.



**Map 2-1: Nama Khoi Local Municipality Spatial Development Framework Corridors
(University of Pretoria Business Enterprises, 2014)**

The Spatial Development Framework (SDF) for Nama Khoi Local Municipality offers the following highlights:

- * The proposed project is located within the proposed Wind Energy Corridor, coinciding with the spatial vision for the area.
- * Kleinsee is categorised as a functional rural region.
- * There is an aim to explore new economic and development opportunities and ventures and to encourage and support Local Economic Development and job creation strategies (University of Pretoria Business Enterprises, 2014).

To conclude, the review of strategic documents and policies did not identify any potential red flags from a socio-economic perspective. On the contrary, the project is to be located within the Springbok REDZ and just outside the Wind Energy Corridor delineated in the Nama Khoi SDF. Development of wind farms in the area is therefore supported at various government levels; since such developments need to be accompanied by the establishment of associated grid connection infrastructure, the proposed Rooivlei-Gromis double-circuit 132kV power line and Rooivlei collector substation are not expected to result in any spatial development conflicts given its location.

3. BASELINE PROFILE

This chapter examines key socio-economic characteristics of the study area. This is essential, as it provides both qualitative and quantitative data relevant to the communities and economies under observation, creating a baseline that will assist in identifying the sensitive receptors and potential impacts.

3.1 Study area's composition and locational factors

a) Spatial context and regional linkages

The proposed grid connection infrastructure for the Namas Wind Farm to the national grid is planned to be located in the Nama Khoi Local Municipality within the Namakwa District Municipality in the Northern Cape Province. The Province is situated in the north-western corner of South Africa and has a land area of 372,889 km², therefore occupying approximately 30% of South Africa's land area and making it the largest province in South Africa even though it has the smallest population.

The Namakwa District Municipality is a Category C municipality, which denotes that the municipality has a municipal executive and legislative authority in an area that includes more than one municipality (Statutes of Republic of South Africa, 1996). Namakwa is the largest of the five district municipalities in the Northern Cape. It is comprised of six local municipalities, namely Nama Khoi, Hantam, Khâi-Ma, Kamiesberg, Karoo Hoogland, and Richtersveld. The Nama Khoi local Municipality is a Category B municipality, which means it shares a municipal executive and legislative authority with a Category C municipality, within whose area it falls (Statutes of Republic of South Africa, 1996).

b) Major towns and settlements

The proposed project will be located near a town called Kleinsee (also known as Kleinzee), which is situated on the west coast in the Northern Cape and was previously a diamond mining town. Kleinsee is situated about 105 km (by road) west of Springbok, and is located between two coastal towns:

- » Port Nolloth, which it connects with via the R355 and R382, and
- » Koinaas, which it connects with via the Checkpoint drive (part of the coastal corridor).

Komaggas and Nigramoep are also nearby towns, both of which are about 65-70 km (by road) inland from Kleinsee. Kleinsee was previously occupied by thousands of residents and was a flourishing town supported by active diamond mining operations in the

Namaqualand; however, since the closure and downscaling of the De Beers mines in the area, the population size decreased drastically post-2009.

c) Locational factors and major tourism attractions

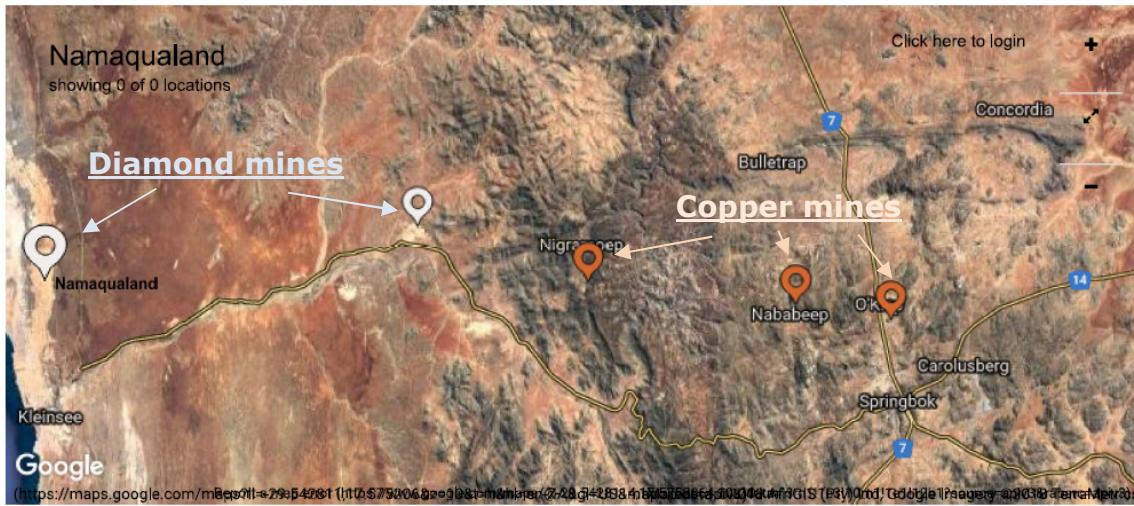
Kleinsee was previously visited often by tourists as a part of the diamond route; now it is included in the 'shipwreck and daisies route'. The town holds and is located near various tourist attractions such as the Buffels River estuary, which has an abundant bird life, and the Seal colony, which is the largest on-land colony in South Africa with more than 450 000 animals on the beach (SA Venues, n.d.). Kleinsee also has a museum, which "covers the history of diamond mining, the natural environment and history of humankind in the area". In addition, the town boasts a Nature Reserve that has more than 100 indigenous plant species (Kleinsee Travel Information, n.d.). Other attractions within the Nama Khoi District include among others the Molyneux Nature Reserve, Namaqua National Park, Orange River, Blue Mine, and the Goegap Nature Reserve (Nama Khoi Municipality, 2018).

d) Sense of place, history and cultural aspects

Copper mining was the first "treasure" found in Namaqualand in the 19th century that led to the formation of Springbok and development of numerous villages in the area. Diamond mining in Namaqualand began in 1926 with first Jack Carstens and then Hans Merensky starting various diamond operations south and north of Port Nolloth respectively. These were later bought by De Beers, which intensified operations such that the company extracted a million carats a year. At the start of diamond mining activities, De Beers founded the town of Kleinsee¹, which was to house employees and their families at the nearby diamond operations in the area (i.e. Namaqualand).

By the 1980s, diamond mining in the area had reached its peak and had employed over 3000 people in Kleinsee alone, with the town's population presumably being double that figure. By that time, multiple diamond shafts had been established along the coast and between Kleinsee and Springbok with two mines – Namaqualand and Bonte Koe – shown on the map below:

¹ The name "Kleinsee" is Afrikaans meaning 'small sea' and was given to the town in relation to a lagoon at the mouth of the Buffels River.



Map 3-1: Diamond and copper mining in the zone of influence (Mining Atlas, n.d.)

Kleinsee was previously viewed as one of the flourishing mining towns, solely managed by De Beers, and characterised as “paradise, an oasis in the desert” by both previous and current residents. Residents had many benefits such as free rent, free water, and free electricity. De Beers also funded recreation activities, which brought communities together. Some of these activities included fashion shows, ox braais, wine tastings, beer fests and sports competitions (Stilwell, 2011).

The town, however, experienced a sharp decline in population between 2007 and 2009; by 2007, the diamond production decreased, which led to retrenchment of workers in the same year. By 2008 mining operations ceased completely, leading to the sale of the mines and leaving the future of many uncertain. The population of the town began decreasing as people sought employment in other places within and outside the province, and foreigners employed in the area returned to their homes. To avoid total loss, the mining town was proclaimed as a public town in 2012 under the Nama Khoi Local Municipality to allow people to continue living in the area (Dolley, 2012).

While Kleinsee is believed to have lost its significance, the Nama Khoi Local Municipality plans to revive the town and create employment opportunities through the construction of roads and electricity networks, removing illegal waste dumps, advancing tourism attractions and multipurpose centres, and launching solar water-heating and renewable energy projects (Manoko, 2016).

3.2 Demographic profile

a) Population demographics

The Nama Khoi Local Municipality (LM) has a population of approximately 48 681, with a total of 13 515 households (Stats SA, 2017). This is indicative of an average household size of 3.6 in the municipality. The Nama Khoi LM constitutes 4% of the provincial population and 9% of the Namakwa District Municipality (DM) population. Furthermore, only 10% of the total households in the Namakwa DM are located in the Nama Khoi LM. The population has continuously declined over the past ten years, attributed to the mine

closures and limited other job opportunities, which resulted in net out-immigration of people.

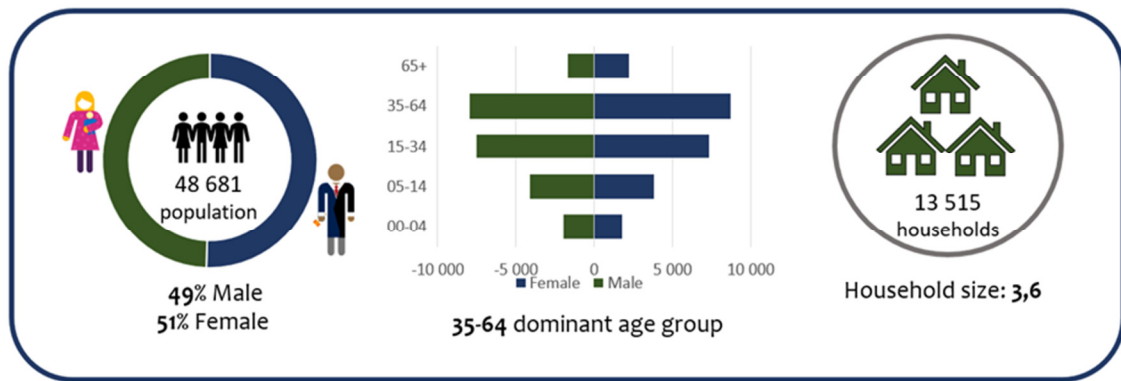


Figure 3-1: Overview of demographics in Nama Khoi Local Municipality

A greater proportion of the population is comprised of females. Furthermore, the majority of the population are aged between 35 and 64, and the minority of the population are aged below four years (Quantec Easy Data, 2017). This is indicative of a predominantly adult population with a relatively small youth population. This insinuates the migration of young adults. The working age population (15-64) constitutes just over 67% of the population. Numerous push factors are at play in the region, therefore leading to migration, however, the upsurge in renewable energy projects in the province will most likely attract job seekers and slightly shift the demographics in the next coming years.

b) Income levels

Overall, 46% of the households within the local municipality earned up to R3 200 per month. In Kleinsee, 4% of the households had no income and 38% earned up to R3 200 per month (Stats SA, 2017).

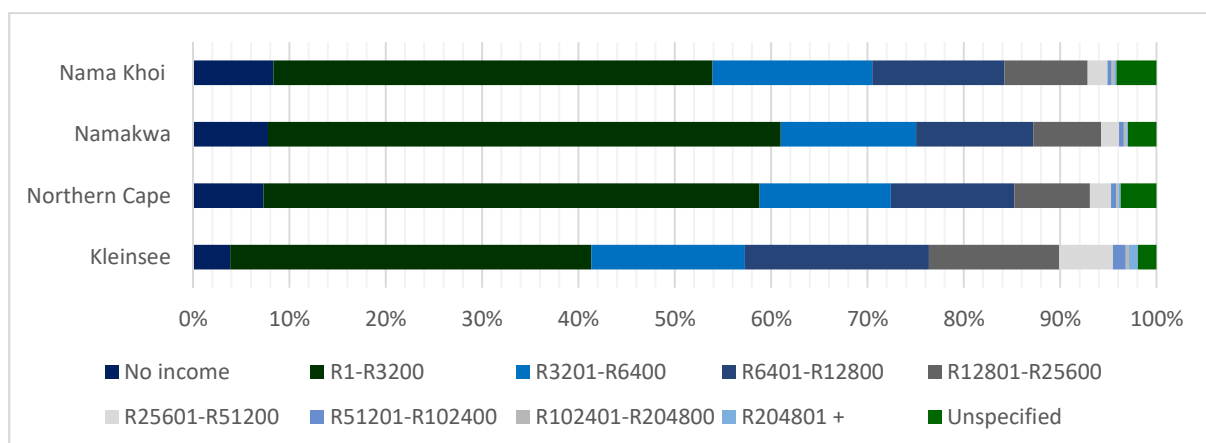


Figure 3-2: Income Levels from provincial to local scale

The largest range of income earned in the Northern Cape is between R1 and R3 200 per month. The household income in the area signals the stringent manner in which residents meet their needs and the dependence on government. In contrast, a minority of the population can be classified as middle-income earners and high-income earners,

who therefore have relatively increased purchasing power, which implies improved access to health facilities and socio-economic well-being. The local communities are in dire need of job opportunities that will enable them a similar improvement in livelihood.

c) **Education levels and Skills**

In the Namakwa DM, Nama Khoi LM and the town of Kleinsee, the adult population with no schooling constitutes 11%, 6% and 2%, respectively (Quantec, 2017). The majority of residents have some secondary schooling and 7% have acquired higher education qualifications. The education levels are therefore moderate to poor and seek addressing.

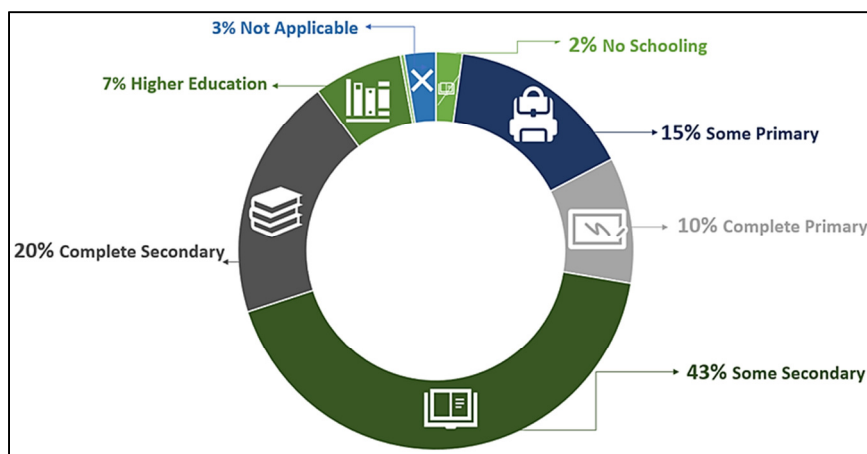


Figure 3-3: Levels of Education in Nama Khoi Local Municipality

With regard to skills, close to half the labour force in the formal sector are semi-skilled. In both the district and local municipality, only a fifth of the labour force are skilled. The low-skilled labour force is 36% and 33% in the district and local municipality, respectively. Therefore, the supply of skilled labour in the local area is highly limited.

3.3 The economy

The following diagram provides a snapshot of the composition and trends observed in the local economy.

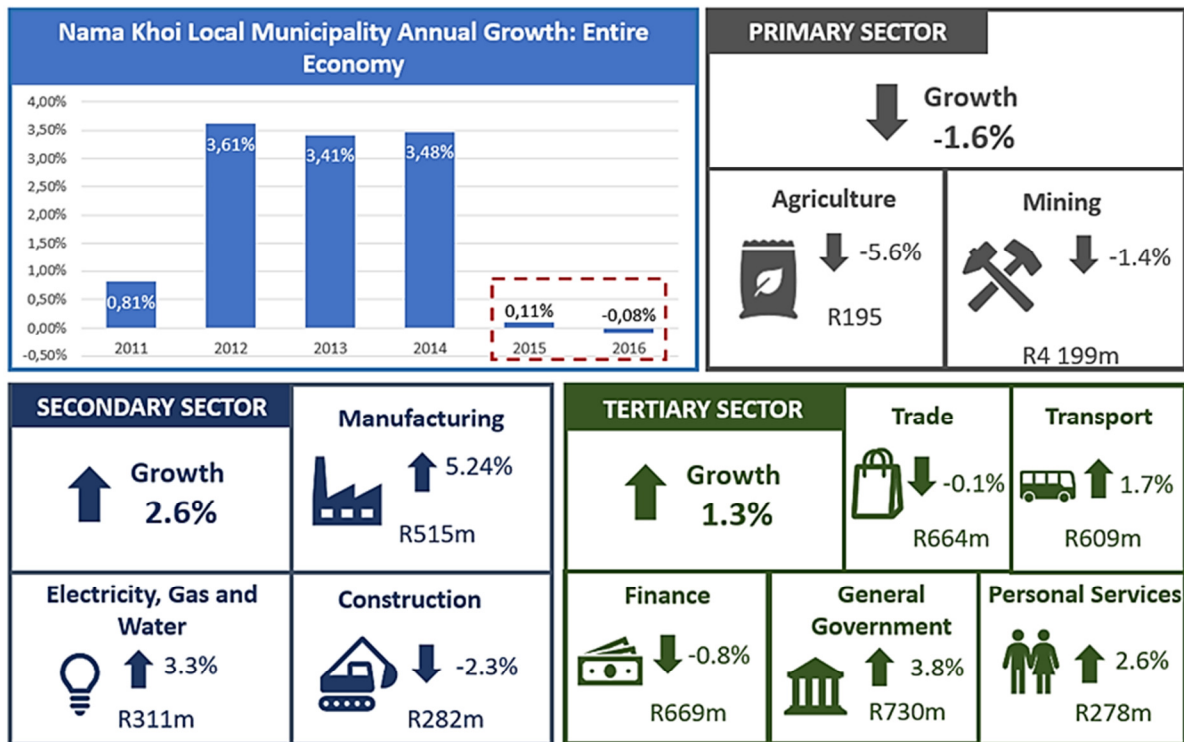


Figure 3-4: Economic Performance of Nama Khoi Local Municipality between 2015 and 2016 (Urban-Econ calculations based on Quantec data, 2017)

In 2016, The Nama Khoi LM economy was valued at R8 504 million in constant prices. The LM contributes 55% to the economy of the Namakwa District Municipality and 7% to the economy of the Northern Cape (Quantec, 2017). Over a period of six years (2010-2016), the municipality's economy grew at a positive compounded annual growth rate (CAGR) of 2% per year. This is identical to the district growth of 2%. However, from 2015 to 2016 the GDP-R slightly decreased by 0.08% in Nama Khoi LM. As demonstrated in Figure 3-4 above, the decline in GDP between 2015 and 2016 is attributed to the shrinkage of numerous sectors including agriculture, mining, construction, trade and finance.

The economic sector with the greatest contribution to the GDP-R of the Northern Cape is mining and quarrying, which makes its decline even more concerning. Similarly, mining is the highest contributing economic sector in the Nama Khoi LM despite it being amongst the sectors experiencing decline (Quantec, 2017). The agriculture sector is the economic sector with the least contribution to the GDP-R of the municipality (Quantec, 2017).

3.4 Labour force and employment structure

Employment is the primary means by which individuals who are of working age may earn an income that will enable them to provide for their basic needs and improve their standard of living. As such, employment and unemployment rates are important indicators of socio-economic well-being. The following paragraphs examine the study area's labour market from a number of perspectives, including the employment rate and sectoral employment patterns.

a) **Labour force composition**

According to Census 2011 data, the working age population of Nama Khoi LM was about 35 344, which constitutes 67% of the population. Among these, 16 334 were economically active. Not economically active (NEA) persons are those who were neither employed nor unemployed, including discouraged job seekers. The Municipality had 19 009 NEA persons in 2011. The employed labour in the municipality was estimated at 12 615 (36%), whilst the unemployed labour was about 3 720.

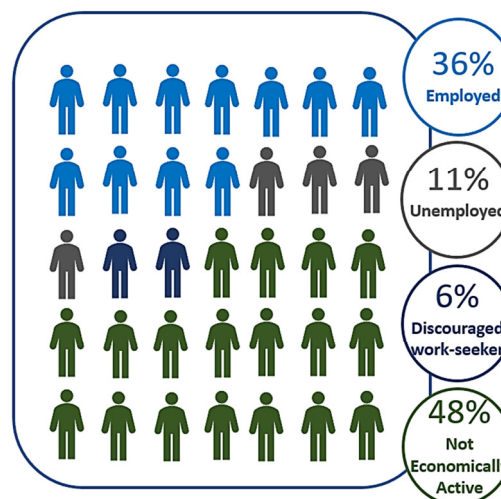


Figure 3-5: Labour Force Breakdown for the Nama Khoi LM

This results in an unemployment rate of 17%, which is much lower than the national unemployment rate. However, this is largely attributed to the increasing decline in the population in the area, which has likely lead to the out-migration of economically active people and the subsequent reduction in the unemployment rate. Therefore, while the unemployment rate is considerably lower than that observed in the rest of the Province or in the country, the low-income levels of the households suggest that the existing employment opportunities are not able to assure and provide for good standard of living.

b) **Employment structure**

Over three-quarters of the employed individuals in the Nama Khoi LM and Namakwa DM were employed in the formal sector and less than a quarter were employed in the informal sector (Quantec Easy Data, 2017). In both the Namakwa DM and the Nama Khoi LM, the wholesale and retail trade, catering and accommodation economic sector employs the largest number of people, whereas the electricity, gas and water economic sector have the lowest number of employed people. The electricity, gas and water and community services sectors are the sole sectors that have had gradual growth of employment figures in the past five years. On the contrary, the other sectors have experienced a decline in figures at some point in the past five years.

3.5 Status of infrastructure and basic service delivery

Access to basic service delivery and infrastructure such as shelter, and transport are indicators that assist in understanding the standard of living of the households residing in the study area. Comprehension of the extent to which households in the area have access to water, sanitation, and electricity assists in the understanding of communities' living standards and their needs. The availability of service infrastructure such as roads, educational and health facilities, etc., further indicates the nature of the study area, which is valuable in developing a complete profile of the circumstances in which communities are living.

a) Basic service delivery

A large portion of over 90% of the population resides in urban areas, while the remaining percentage resides on farm land. Approximately 90% of these **houses** are brick structured dwellings; 0.9% are informal settlements; just over 1% are traditional dwellings; and the remaining 8% are flats, complexes and backyard dwellings (Quantec, 2017). Nama Khoi has experienced urbanisation over the years as a result of the demand for “better access to basic services such as education, health systems, housing and infrastructure as well as for better living standards and seeking employment opportunities” (Nama Khoi Municipality, 2018). Simultaneously, migration out of the municipality has been much more intense than the urbanisation.

Majority of the households in Nama Khoi LM have access to **electricity** and comprise of almost 94% of the households while approximately 5% of the households use candles and the remaining 1% uses alternative energy sources such as solar, gas, paraffin and other unspecified sources. The municipality is directly responsible for the provision of electricity.

Over half of the Nama Khoi households have piped **water** within their dwellings; 32% have piped water within yards; 20 % has access to piped water on community stands while less than 10% use other sources such as borehole, rain-water tanks, or wells. Nama Khoi has serious water challenges, as does the whole Province, and Nama Khoi presents a need to conserve the water sources and improve their capacity for sustainability purposes (Nama Khoi Municipality, 2018).

Nama Khoi LM is mainly responsible for the provision of **waste management** services. Approximately 90% of households have their waste removed by local authorities, of which just over 89% is removed at least once a week and 0.4% is removed less often (Quantec, 2017). Just over 7.1% of the households have their own refuse dumps and approximately 3% of the households either have no rubbish disposal or use communal refuse dumps and some have unspecified means of waste removal. Nonetheless, the municipality demonstrates a failure to comply with requirements for disposers of waste to account for their waste type and volumes in a specified way. This is because the municipality does not have any systems in place to observe waste volumes and types and this hinders the municipality’s capacity to design landfill infrastructure and waste reduction programs (Nama Khoi Municipality, 2018).

With regards to **sanitation** approximately 74% of the Nama Khoi households have access to flush toilets or chemical toilets, while 16.6% uses pit latrines, 1.9% uses bucket latrines, and 7.5% of the households use unspecified toilet systems (Quantec, 2017).

The above paragraphs demonstrate that the majority of Nama Khoi households have access to basic services. However, the Nama Khoi municipality (2018) suggests that while this appears as proof of service delivery it does not imply that these services are continually provided. Furthermore, as households increase, backlogs in “electricity

provision, housing needs, roads, access to water and sanitation needs” also increase (Nama Khoi Municipality, 2018).

The Nama Khoi LM (2018) presents various objectives which seek to improve the local communities. Among these, the municipality seeks to:

- Improve road infrastructure and ensure the continuous sustenance and protection of current quality roads, for example there is a need to improve roads between Springbok and other towns such as Kleinsee, and Goodhouse and between Port Nolloth and Kleinsee.
- Establish a clearly identified road hierarchy that is beneficial and suitable for various transport capacities and functions, for example, the national roads between Springbok and Upington, and regional roads between Springbok and Kleinsee.
- Explore the viability of direct boat access to the ocean at Kleinsee through a small harbour or port.
- Advance the general quality of the communities through continuous programmes such as the maritime-culture, small scale fishing, biofuels and wind energy projects.

b) Status of social facilities

Even though Nama Khoi has a limited number of hospitals which are not easily accessible to everyone, the development of hospitals and clinics is impractical because of the remoteness and low population threshold in communities such as Bulletrap, Steinkopf, Komaggas, Buffelsrivier and Kotzehoop. Instead, focus should be placed on developing human capital and improving mobile services with competent nurses and doctors to travel to the various remote areas in the municipality (Nama Khoi Municipality, 2018).

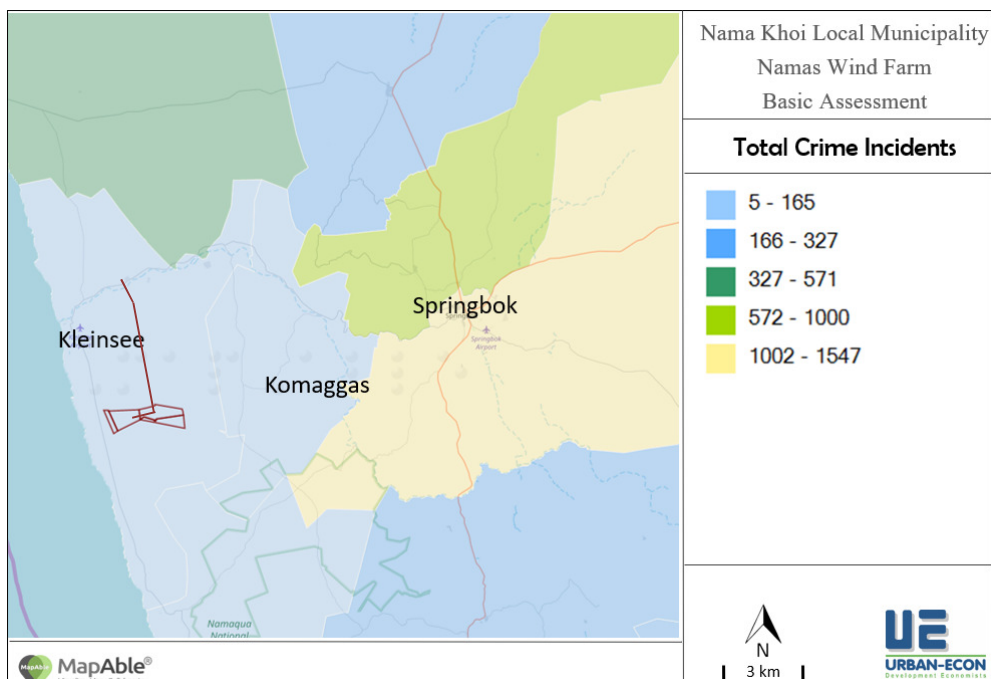
Similar to the case of hospitals, the Nama Khoi municipality considers it impractical to build schools or improve the curricula for grades 10 to 12 in remote areas; as a result, students are encouraged to attend schools in the main economic centres such as Springbok. This means that schools are not easily accessible for those in remote areas as they need to travel longer distances on a daily basis. The municipality further suggests that it would be more feasible to improve the existing schools and curriculum and ensure the employment of exceptional teachers in the main centres (Nama Khoi Municipality, 2018).

Although Nama Khoi lacks sport and recreational facilities and faces a high rate of drug-related crimes, one of the spatial objectives suggests the need to establish well-furnished youth centres, recreation facilities for both indoor and outdoor activities so as to ensure a healthier alternative to drugs and alcohol abuse (Nama Khoi Municipality, 2018).

c) Crime Statistics

The proposed project site and immediate surrounds have the least number of reported crime incidents in the region. The area with the highest reported crime incidents is north

of Springbok. The top four reported crime incidents around the proposed project site are assault, theft and burglary at residential premises and drug-related crimes.



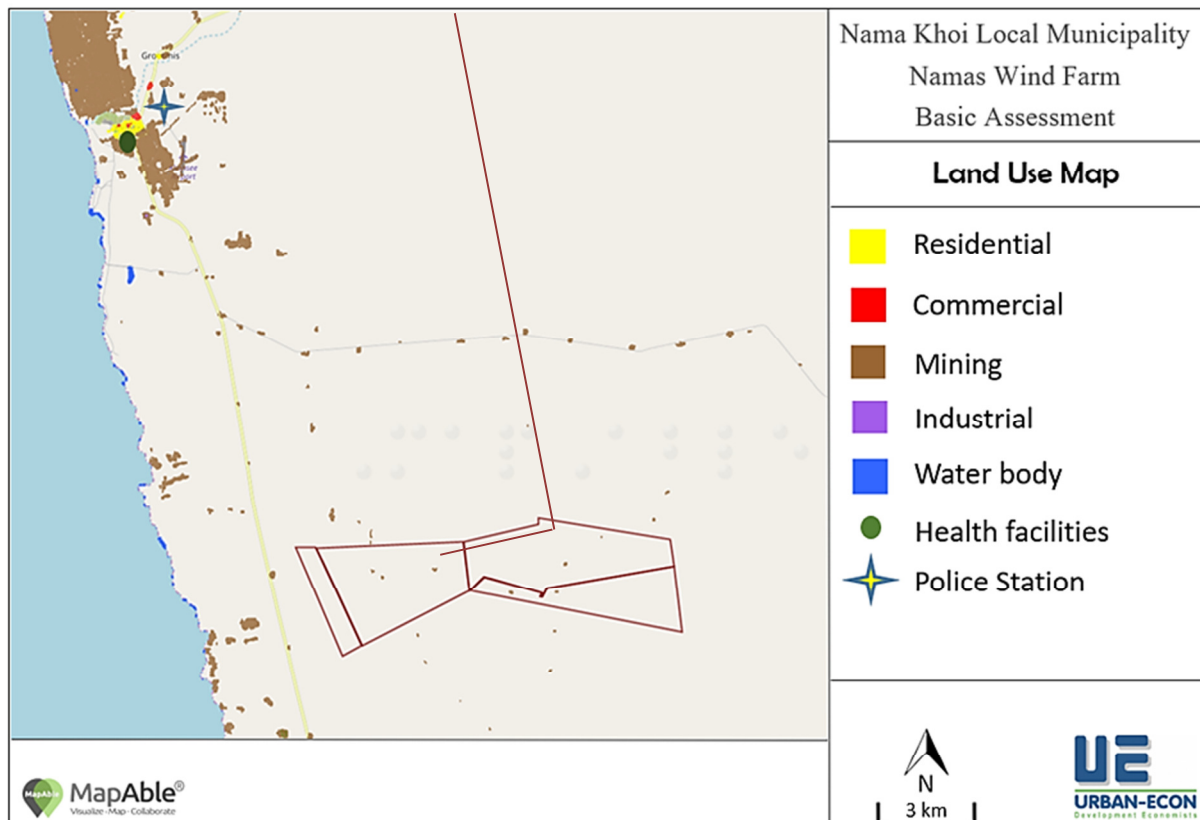
Map 3-2: Spatial representation of total reported crime incidents (Mapable, 2017)

In summary, the area, where the proposed project is to be located, was once known to be a flourishing and bustling community. Diamond mining was the key economic driver for the past century, creating not only direct employment opportunities but also supporting various economic activities in the nearby towns of Kleinsee and Koingnaas – the two towns that were originally established as access-controlled towns to supporting diamond mining activities. However, due to the economic downturn and other factors, the production at the mines has significantly reduced between 2007 and 2009, followed by the acquisition of Namaqualand mines by West Coast Resources (Pty) Ltd. Although, the transaction has become effective in 2014, and the operations have notably increased over the past two years, the area is far from recovering. Skills shortages, a high outmigration rate, and limited access to educational and health facilities, due to the nature of the settlements and population densities, are all contributing to the deterioration of the once thriving communities.

4. SITE RELATED INFORMATION: ZONE OF INFLUENCE

4.1 Land Use in Zone of Influence

The site-related information section investigates the various dynamics of the proposed site. Map 4-1 indicates the current land uses of the proposed project site and its surroundings. Evidently, minimal activity is taking place in the zone of influence. Land use activities are concentrated in the town of Kleinsee, with residential, commercial and minimal industrial activities taking place. The dominant land use is mining, concentrated north and south of the town of Kleinsee with pockets of mining activity within and surrounding the proposed project site. However, this is inclusive of inactive and closed mines.

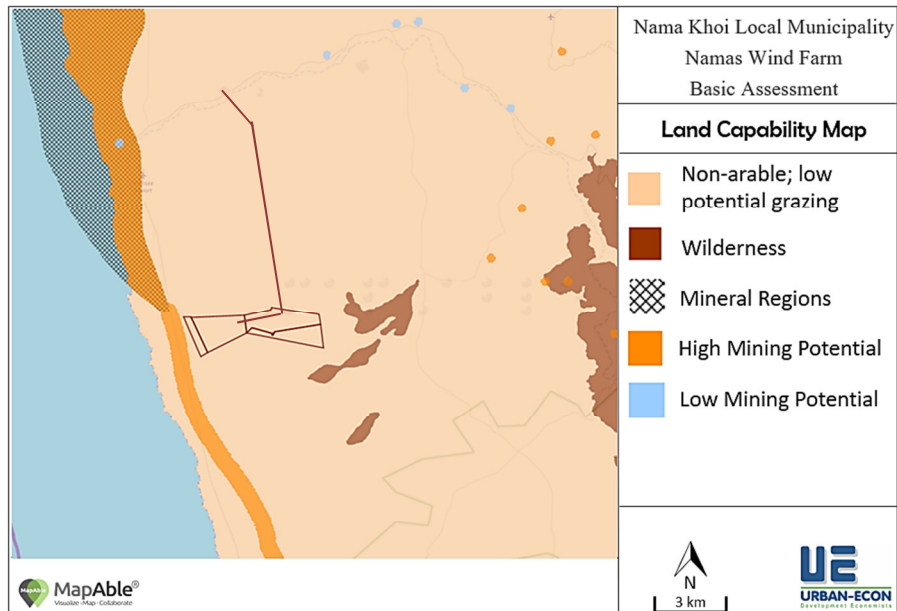


Map 4-1: Land Use and Social Facilities Map in the Zone of Influence (Mapable, 2017)

A scarcity of social facilities is prevalent in the zone of influence. One public hospital and police station are situated in Kleinsee. The closest school is less than 20km from the project site in the area of Komaggas, located to the east of the proposed project site. Additional schools and clinics are situated in the town of Springbok, over 70km to the east of the project site. Current activities on the project site include agriculture.

4.2 Land potential and capability

The area is not suitable for crop farming as it is non-arable land as indicated in the map below. The low grazing potential of the area where the proposed grid connection infrastructure is to be located is evident in the current economic activities asserted by the landowners and land-users.



Map 4-2: Land Capability Map in Zone of Influence (Mapable, 2017)

Having noted that the mining sector is one of the key economic sectors in the municipality, the mining potential in the zone of influence is notable. High mining potential is prevalent to the west of the proposed project site and pockets of it to the east. Importantly, though the proposed project is not located in the area of high mining potential and will unlikely sterilise the mineral reserves.

4.3 Key data with regard to the immediate zone of influence

The engagement with the landowners directly to be affected by the proposed project and those located in the adjacent farm portions revealed that the area is predominantly used for commercial sheep farming. It was also identified that pockets of land surrounding the farm portions where the proposed grid connection infrastructure is to be developed is owned by mining and utility companies, but no mining takes place in the immediate zone of influence.

The engagement with the **landowners potentially directly affected by the proposed grid connection infrastructure** revealed the following:

- * Private landowners of Zonnekwa 3/328, Rooivlei RE/327, and Zonnekwa 2/328 are aware of the proposed grid connection infrastructure and have no objections or concerns associated with their development.
- * Private landowners of Zonnekwa RE/326 indicated that they have negotiated with Eskom on the powerline route some time ago and would not have any concern considering that the proposed grid connection infrastructure follows the same route. Having said this, they would like more information and consultation on this matter.
- * The landowner of Sand Kop RE/322, which is a mining company - De Beers Consolidated Mines - indicated that the company was not aware that the proposed grid connection infrastructure may run through one of their properties. More background regarding the Rooivlei-Gromis double-circuit 132kV power line and Rooivlei collector substation was requested to be provided.

- * Eskom owns Kannabieduin RE/324 and Honde Vlei RE/325 and are aware of the proposed project and the fact that the proposed grid connection infrastructure will traverse the above-mentioned properties. No concerns were raised by Eskom in that regard.
- * The landowner of Mannels Vlei RE/321 and Dikgat RE/195, which will also be directly affected by the grid connecting infrastructure, is West Coast Resources mining company. Engagement with the mining company revealed that the organisation is aware of the proposed grid connection infrastructure, but their shareholder mandate does not allow them to entertain any servitude over the farms owned by the company and advised Genesis Namas Wind (Pty) Ltd to contact their legal department. Subsequently, West Coast Resources has been contacted and all the information relating to the proposed grid connection infrastructure has been sent to the offices of the Chief Executive Officer, Mr. Llewellyn Delpont. Negotiations and communication are continuous at this stage.

Engagement with the **landowners of the farms adjacent to the affected properties** where the grid connection infrastructure is to be developed, revealed the following two concerns:

- One concern is associated with the use of the road on Portion 3 of Farm Rooivlei 327, which infringes on the owner's privacy. It appears that there is an alternative road that is located about 1km away which would be the preferred access route to the project site from perspective of the owner of Rooivlei 3/327.
- The other concern is related to the potential increase in incidence of livestock theft, security issues at the farms, and violence from the nearby community associated with service delivery and jobs.

Apart from the above, the landowners of the directly affected and adjacent farm portions did not have any additional concerns with respect to the proposed development.

5 POTENTIAL SOCIO-ECONOMIC IMPACTS

5.1 Introduction

This chapter presents the analysis of the socio-economic impacts that are expected to ensue as a result of the development of the proposed project and an evaluation of these impacts is according to the predefined criteria in

ANNEXURE A: METHODOLOGY AND CRITERIA. The culmination of all data gathered and analysed, as well as the past experience with similar projects, assisted in the identification of the following impacts that are to be assessed:

- » Construction Phase
 - * Stimulation of the economy
 - * Temporary employment creation due to construction activities
- » Operational phase:
 - * Creation/support of long-term employment
- » Decommissioning Phase
 - * Temporary increase in production in the economy and reuse of recovered metallic and non-metallic materials
- » Cumulative impacts
 - * Change in demographics due to influx of workers and jobs seekers

5.2 Impacts ensued during construction

5.2.1 Increase in production and GDP-R

The erection of the Roivlei-Gromis double-circuit 132kV power line and Roivlei collector substation will be associated with the procurement of a wide range of materials and equipment including steel products, cables, electrical components, bricks, cement, etc. Capital expenditure on these will increase the revenue of the businesses supplying the required inputs. In addition, construction-related services will be procured for the development of the grid connection infrastructure. Spending on the above-mentioned activities, will lead to procurement of inputs required for the production of materials and equipment needed for the construction of the project-related components; while income derived by people benefiting from these activities directly or indirectly through employment creation will stimulate consumption expenditure in the economy. All of these activities will benefit the national economy by temporarily increasing its output.

The size of the Nama Khoi LM's economy was estimated at R8 504 million in current prices and primarily comprises mining and general government. Considering the small economic base of the municipality, the opportunities for the procurement of goods and services within the local economy for the erection of the Roivlei-Gromis double-circuit 132kV power line and Roivlei collector substation will be very limited. Having said this, it is likely that some of the local businesses could benefit from sub-contracting opportunities, if the construction companies appointed by the developer implement a local community procurement policy, and consumer expenditure of the construction crew. Furthermore, the demand for hospitality services including accommodation and catering in the town of Kleinsee and other nearby towns is expected to increase and provide for much needed stimulus in the local economy.

Nature:		
Expenditure associated with the construction of the grid connection infrastructure will impact on the production of the local and national economies directly and indirectly		
	Without enhancement	With enhancement

Extent	National (5)	National (5)
Duration	Very short (1)	Very short (1)
Magnitude	Minor (2)	Minor (2)
Probability	Definite (5)	Definite (5)
Significance	Medium (40)	Medium (40)
Status (positive or negative)	Positive	Positive
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes (enhanced)	Yes
Mitigation/Enhancement:		
<ul style="list-style-type: none"> » The project developer should procure goods and services, as far as practically possible, from the entities located in the local municipality. » Local Small and Medium Enterprises should be approached to investigate the opportunities for supplying inputs required for the construction of the double-circuit 132kV power line and collector substation, as far as feasible. <p>The above mitigation (enhancement) measures are meant to increase the positive impact on the local municipality, but it will not change the rating of the impact on the "national" scale.</p>		
Residual impacts		
Production in the economy will continue.		

5.2.2 Creation of temporary employment

The construction of the grid connection infrastructure will require temporary employment of construction workers, foremen, and engineers on site creating jobs for about 130 people. The review of the local skills set suggests that it is unlikely that the local area will be able to supply skilled and highly skilled workers for the project. Having said this, unskilled and semi-skilled workers will also be required for some of the work involved on site. Therefore, some improvement in the employment situation in the local municipality could be expected, albeit for a period of 12 months only. Employment of the individuals, albeit temporary, will increase their household income, improve their standard of living and benefit their families.

Nature:		
The construction of the grid connection infrastructure associated with the proposed Namas Wind Farm will positively impact on the local and national economies by creating temporary job opportunities directly and indirectly (albeit temporary)		
	Without enhancement	With enhancement
Extent	National (5)	National (5)
Duration	Very short (1)	Very short (1)
Magnitude	Minor (2)	Minor (2)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium (32)	Medium (32)
Status (positive or negative)	Positive	Positive
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes (enhanced)	Yes
Mitigation/Enhancement:		
<ul style="list-style-type: none"> » Organise local community meetings to inform the local labour force of the project that is planned and the jobs that can potentially be applied for. 		

- » Establish a local skills desk to identify the skills set of the local residents available for the construction of the grid connection infrastructure.

Residual impacts:

No residual impacts are applicable.

5.3 Operational phase

During operations, maintenance of the servitude will create seasonal opportunities for employment of a small number of low-skilled labour. This is likely to be secured from the local communities.

Nature:

Maintenance of the servitude will create seasonal jobs for low skilled about

	Without enhancement	With enhancement
Extent	Local (1)	Local (1)
Duration	Long term (4)	Long term (4)
Magnitude	Minor (2)	Minor (2)
Probability	Highly probable (4)	Highly probable (4)
Significance	Low (28)	Low (28)
Status (positive or negative)	Positive	Positive
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes (enhanced)	Yes

Mitigation/Enhancement:

- » Organise local community meetings to inform the local labour force of the project that is planned and the jobs that can potentially be applied for.
- » Establish a local skills desk to identify the skills set of the local residents available for the construction of the grid connection infrastructure.

Residual impacts:

No residual impacts are applicable.

5.4 Decommissioning phase

During the decommissioning phase, the project will create a number of temporary employment opportunities and will stimulate the demand for services of transport and construction companies. The cost of the removal and disconnection of the grid connection infrastructure will stimulate economic activity. Jobs will be required to fulfil the required decommissioning activities. Some of the project components will be of recyclable value and will therefore also bring some income to the owner. Importantly, recovery of valuable metallic and non-metallic materials will lead to the generation of revenue for the owner and allow for savings in production costs of companies that will use the recovered materials in their processes.

Nature:

Increased production in the economy and reuse of recovered metallic and non-metallic materials

	Without enhancement	With enhancement
Extent	National (5)	National (5)
Duration	Very short (1)	Very short (1)
Magnitude	Minor (2)	Minor (2)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium (32)	Medium (32)
Status (positive or negative)	Positive	Positive
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes (enhanced)	Yes
Mitigation/Enhancement: Develop and implement a material recovery strategy to optimise the use of valuable metallic materials and, where applicable, recycle non-metallic materials comprising various components of the grid connection infrastructure.		
Residual Risks: No residual risks are applicable.		

5.5 Cumulative Impact

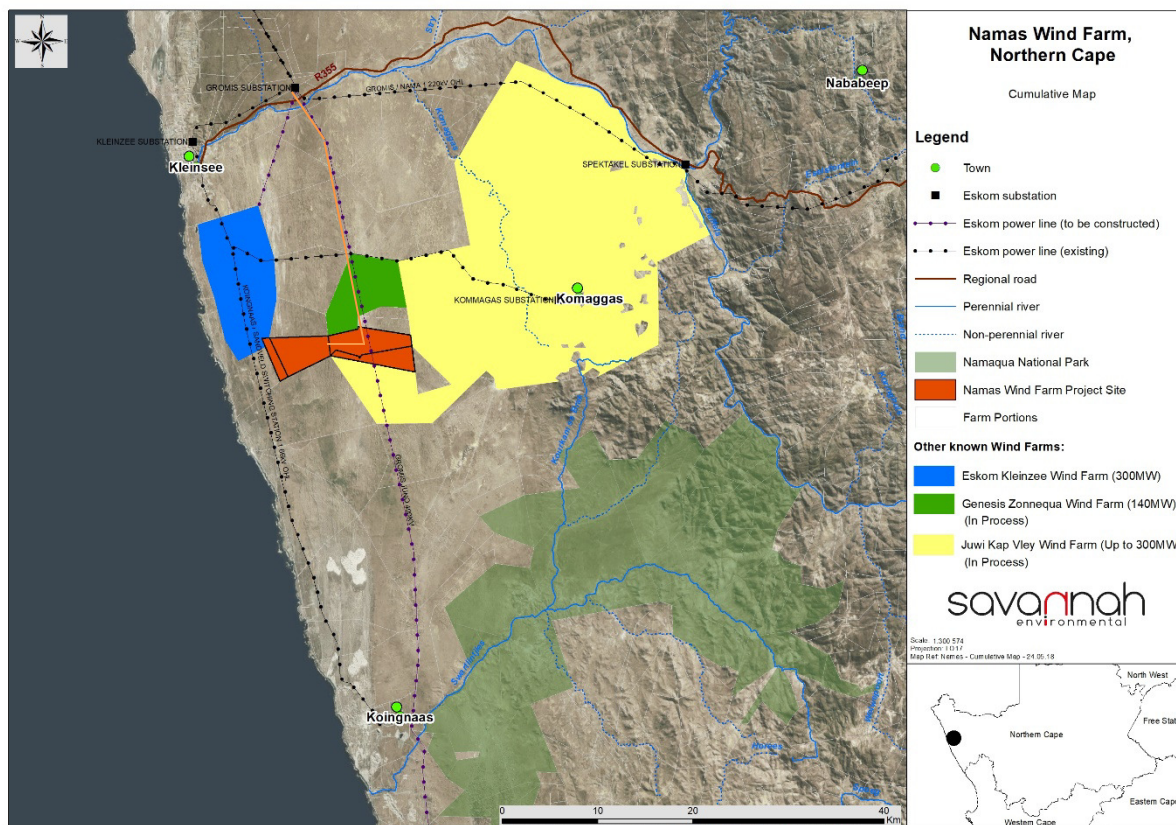
The extent to which a proposed project will influence the zone of influence is based on the baseline conditions of that environment, which includes other constructed and proposed projects in the zone. Such projects, depending on their timing in relation to the project that is the subject of this impact study, may influence the manifestation and significance of socio-economic impacts that could result from the current project. As such, knowledge of such projects is required in order to accurately predict and rate socio-economic impacts.

Three renewable energy developments have been identified in the Springbok REDZ that are close to the project site which might contribute to the accumulation of impacts in terms of grid infrastructure in the region. These are summarised below:

Table 5-1: Other renewable energy projects proposed to be developed in the area

Project Name	Project Type	Capacity	Status
Eskom Kleinsee Wind Farm	Windfarm	300MW	Authorised
Kap Vley Wind Energy Facility	Windfarm	300MW	Authorised
Genesis Zonnequa Wind Farm	Windfarm	140MW	Proposal stage

In addition, it should be noted that the area has seen some recovery of the diamond mining activities with West Coast Resources increasing its operations and employment to a reported 230 people at the end of December 2017. The company plans to increase operation to accommodate 430 jobs in the next year or two.



Map 5-1: Cumulative assessment map

Considering the above, the expected cumulative impacts are:

- » Negative:
 - * Potential increase in crime
 - * Influx of migrant labour and job seekers
- » Positive:
 - * Job creation
 - * Economic stimulus and GDP growth

The Department of Environmental Affairs and Tourism’s guidelines (DEAT, 2004) suggest that the identification of cumulative effects should focus on important and meaningful issues as “it is not practical to analyse the cumulative effects of an action on every environmental receptor”. Furthermore, it is advised that the analysis should focus on “what is needed to ensure long-term productivity or sustainability of the resource” (DEAT, 2004).

In light of the above and considering the type of socio-economic impacts expected from the proposed grid connection infrastructure development, the only impact of concern is the potential influx of migrant labour and job seekers to the area if the various renewable energy projects (and the associated grid connection infrastructure) are to be developed at the same time. This may likely result in an influx of people that the local communities will not be able to absorb or the local government would not be able to manage adequately, considering the potential increase in demand for various services (accommodation, utilities, etc.), as well as the potential increase in social ills that are

generally associated with an influx of male-dominated workers located far away from their families.

Having said this, the proposed project is only one of the four renewable energy projects that are known to be considered to be developed in the area at the time of the compilation of the report. Considering that the area has been designated as a Renewable Energy Development Zone (REDZ), it is highly likely that it will see heightened development in the future irrespective whether the proposed Rooivlei-Gromis double-circuit 132kV power line and Rooivlei collector substation are developed or not. This means that **the issue of in-migration into the area will likely be notable, but the proposed project is unlikely to have a significant influence on this trend alone and will not unacceptably increase the impact or result in an unacceptable risk or loss of resources.** The impact cannot be reversed completely, as some of the workers may decide to remain in the area in hope of finding employment opportunities at other projects that may be developed in the future.

Nature:		
Influx of migrant labour and job seekers due to job opportunities presented by numerous projects may lead to an increase in social ills.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Regional (3)	Regional (3)
Duration	Very short-term (2)	Medium-term (3)
Magnitude	Negligible (0)	High (8)
Probability	Very improbable (1)	Highly probable (4)
Significance	Low (5)	Medium (56)
Status (positive or negative)	Negative	Negative
Reversibility	Medium	Medium
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
» Engage with other project developers and prominent community members, including West Coast Resources, the Local Municipality, etc. to form a forum to discuss the concerns and possible mitigation measures that could be introduced collectively to manage the potential adverse effects of in-migration, and to plan and deal with other potential negative consequences, as well as to discuss opportunities to develop the local communities.		
Residual Impacts:		
Job seekers may remain in search of other opportunities in the area.		

6 CONCLUSION AND IMPACT STATEMENT

Genesis Namas Wind (Pty) Ltd proposes the development of a 140 MW wind farm near Kleinsee in the Nama Khoi LM, which will require the construction of the Rooivlei-Gromis double-circuit 132kV power line and the Rooivlei collector substation, which are the subject of this report. The proposed grid connection infrastructure is considered to be the grid connection solution for the Namas Wind Farm.

The policy review indicates that from national and local levels, renewable energy projects (including the associated grid infrastructure) are key to sustainable development of the national economy. A recognition of the potential of renewable energy projects to stimulate the local economy, create new jobs, and contribute to sustainable development, is evident. Approval of bid windows 3.5, 4 and 4.5 projects in the Province signals government support and implementation of the national energy policy as articulated in the Integrated Resource Plan. Development of the Rooivlei-Gromis double-circuit 132kV power line and the Rooivlei collector substation enables the achievement of the above socio-economic benefits as it allows evacuation of power from renewable energy projects developed in the area.

The economy and communities of Nama Khoi need an economic injection, particularly considering the limited economic growth, the poor access to basic services, and heavy reliance of the entire economic base of the municipality on the purchasing power of its households. It is clear that the economy of Nama Khoi needs to be diversified and the development of the wind farm in the area, which the proposed the grid connection infrastructure will enable, will offer such an opportunity.

The interviews with the potentially directly or indirectly affected landowners indicated no concerns with respect to the project. The proposed grid connection infrastructure will not sterilise the agricultural land currently used for commercial livestock farming and it will not impact on the production of any impacted farm; therefore, no negative effects on the current economic activities in the area are envisaged. The potential affected land owners, though, have request the project developer to provide more detailed information about the proposed Rooivlei-Gromis double-circuit 132kV power line and Rooivlei collector substation. One of the land owners also highlighted that their shareholder mandate does not allow them to entertain any servitude over the farms owned by the company and advised Genesis Namas Wind (Pty) Ltd to contact their legal department. Subsequently, West Coast Resources has been contacted and all the information relating to the proposed grid connection infrastructure has been sent to the offices of the Chief Executive Officer, Mr. Llewellyn Delport. Negotiations and communication are continuous at this stage.

Overall, the project will be associated with medium significance positive socio-economic impacts during construction, operation and decommissioning. Negative impacts are only envisaged to be associated with the cumulative effects due to the likelihood of attraction of migrant labour to the area as a result of development of other renewable energy

projects in the REDZ. Having said this, the nature of the project also means that its own contribution to cumulative socio-economic effects will be low.

Table 6-1: Summary of impacts and expected significance

Impact	Significance without enhancement	Significance with enhancement
Construction Phase		
Increase in production and GDP-R	Positive Medium (40)	Positive Medium (40)
Temporary employment creation	Positive Medium (32)	Positive Medium (32)
Operational phase		
Seasonal employment for maintenance of the servitude	Positive Low (24)	Positive Low (24)
Decommissioning Phase		
Production and earnings due to recycling	Positive Medium (32)	Positive Medium (32)
Impact	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Cumulative Impact		
Influx of migrant labour and job seekers potentially increasing social ills	Negative Low (5)	Negative Medium (56)

The project developer will need to engage with all potentially affected parties to ensure that they are adequately informed of the proposed project and the development of proposed the grid connection infrastructure is indeed allowed on their properties. If the authorisation of these parties to proceed with the project is received, the proposed construction of the grid connection infrastructure for the Namas Wind Farm could be recommended for authorisation.

From a cumulative perspective, the project is not expected to result in unacceptable risk and will not increase the potential negative impacts to an unacceptable level if the other renewable energy developments in the area were approved and implemented.

No mitigation measures are required to be included in the Environmental Management Programme (EMPr) due to the low and acceptable impact associated with the proposed development. Best practice measures for the project must however be implemented

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ANNEXURE A: METHODOLOGY AND CRITERIA

Direct, indirect and cumulative impacts of the issues identified through the scoping study, as well as all other issues identified in the EIA phase must be assessed in terms of the following criteria:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high).
- » The **duration**, wherein it will be indicated whether:
 - * The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
 - * The lifetime of the impact will be of a short duration (2 – 5 years) - assigned a score of 2.
 - * Medium-term (5 – 15 years) – assigned a score of 3.
 - * Long term (> 15 years) - assigned a score of 4.
 - * Permanent - assigned a score of 5.

Example of Impact table summarising the significance of impacts (with and without mitigation)

Nature: [Outline and describe fully the impact anticipated as per the assessment undertaken]		
	Without mitigation	With mitigation
Extent	High (3)	Low (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes
Mitigation: "Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible. Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind.		
Residual Risks: "Residual Risk", means the risk that will remain after all the recommended measures have been undertaken to mitigate the impact associated with the activity (Green Leaves III, 2014).		

- » The **consequences (magnitude)**, quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- » The **status**, which will be described as either positive, negative or neutral.
- » The degree to which the impact can be reversed.
- » The degree to which the impact may cause irreplaceable loss of resources.
- » The *degree* to which the impact can be *mitigated*.

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

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

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

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

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

Assessment of impacts must be summarised in the following table format. The rating values as per the above criteria must also be included. Complete a table and associated ratings for **each** impact identified during the assessment.

"Cumulative Impact", in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities¹.

The role of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e. whether the addition of the proposed project in the area will increase the impact). This section should address whether the construction of the proposed development will result in:

- » Unacceptable risk
- » Unacceptable loss
- » Complete or whole-scale changes to the environment or sense of place
- » Unacceptable increase in impact

The specialist is required to conclude if the proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area.

Nature: Complete or whole-scale changes to the environment or sense of place (example)		
	Cumulative Contribution of Proposed Project	Cumulative Impact without Proposed Project
Extent	Low (1)	Low (1)
Duration	Long-term (4)	Medium-term (3)
Magnitude	Low (4)	Minor (2)

Probability	Probable (3)	Improbable (2)
Significance	Low (27)	Low (12)
Status (positive/negative)	Negative	Negative
Reversibility	Low	High
Loss of resources?	No	No
Can impacts be mitigated?	Yes	Unknown
Confidence in findings: High.		
Mitigation: "Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible. Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind.		